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Local Climate Action Plan

DEIR ALLA MUNICIPALITY



DIMETRIC
Development Dimension for
Environment and Disaster
Risk Reduction Consultancies



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Table of Acronyms

BMU	German Ministry for the Environment, Nature Conservation and Nuclear Safety
CBO	Community Based Organizations
CO ₂ e	Carbon Dioxide Equivalent
EDCO	Electricity Distribution Company
GBC	Green Building Council
GIZ	German Development Agency
GoJ	Government of Jordan
JBC	Jordan Green Building Council
JREEF	Jordan Renewable Energy and Energy Efficiency Fund
JVA	Jordan Valley Authority
LCAP	Local Climate Action Plan
LE	Local Experts
LTRC	Land Transport Regulatory Commission
MA	Municipal Administration
MDU	Municipal Development Unit
MEMR	Ministry of Energy and Mineral Resources
MoEnv	Ministry of the Environment
MoLA	Ministry of Municipal Affairs
MoLA	Ministry of Local Administration
MoPIC	Ministry of Planning and International Cooperation
MoPSD	Ministry of Public Service Development
MoT	Ministry of Transport
MoTA	Ministry of Tourism and Antiquities
MWI	Ministry of Water and Irrigation
NAP	National Adaptation Plan (March 2019)
NCARE	National Center for Agricultural Research and Extension
NDC	Nationally Determined Contribution (2015)
NDCs-IKI	Developing an Effective Mechanism for the Review, Update and Implementation of the NDC of the Hashemite Kingdom of Jordan
RRCCG	Resilience-Ready Climate Community Group (RRCCGs)
SEED	Sustainable Energy and Economic Development
SNC	Second National Communication on Climate Change
TAP	Technology Action Plan
TBC	To be confirmed
TBD	To be determined
TNA	Climate Change Technology Needs Assessment Project – Jordan (April 2017)
TNC	Jordan's Third Communication on Climate Change
WAJ	Water Authority of Jordan



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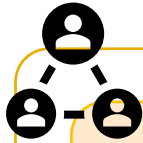


وزارة الشؤون البلدية
Ministry of Municipal Affairs

Municipality of Deir Alla’s Vision for the Future

“Ahead of 2030, the Municipality of Deir Alla will strive to be a pioneering, organized, clean, soulful and eco-friendly city that takes advantage of all technologies, strategies and know-how to safeguard its resources and to integrate the members of its community to realize Deir Alla’s full potential as a city emblematic of sustainable development that cherishes its heritage and ingenuity.”

~ Deir Alla’s Local Development Unit



The Local Climate Action Plan integrates aspects of mitigation, adaptation and gender mainstreaming to strategically respond to local climate change impacts.



The Actions contained within the plan illustrate Deir Alla’s vision of becoming a self-sustaining city step-by-step, through innovative projects.

Municipal Endorsement of the Local Climate Action Plan

Endorsement of Deir Alla Municipality's Local Climate Action Plan (LCAP) and its List of Actions (LoA) by the Mayor, senior leadership and the City Council is sought as the final step to this phase of the project.

The endorsement of this document signals to the community that local leadership is ready to catalyze actions that counter current and future impacts of climate change. It also entails the municipality's commitment to engage the community, as a whole, to set the **direction**, generate **alignment** around strategies and sustain **commitment** to ongoing progress in achieving local resilience.

The LCAP and LoA are living documents, serving as formidable frameworks that provide the initial direction needed to take up climate action. The municipality is welcome and encouraged to further customize the LCAP and the LoA to strategically address vulnerabilities, accommodate local capacities and collaborate with stakeholders in innovative ways to affect real and lasting change.

Additionally, endorsement of the LCAP and the LoA represents the commitment to improve the indicators outlining current emissions generation as well as their anticipated reductions monitor and track progress; continue to improve data collection by sector, enabling equity across social groups, further illustrating the municipality's growth in climate action.

Deir Alla Municipality City Council Members

Executive Summary

Due to climate change, the usual interaction between human beings and nature needs to be re-evaluated according to the new natural conditions. This Local Climate Action Plan (LCAP) and the List of Actions (LoA) provide the municipality of Deir Alla, Jordan with the information it needs for the individual strategy tackling climate change consequences; and with mitigation and adaptation actions that can be taken, while taking into concern the integration of gender mainstreaming. Regarding Deir Alla's strong economic dependency on agriculture it will be necessary to address the farming opportunities in particular. Accordingly, water management needs to be addressed in order to lessen the localized effects on projected climate risks such as the contamination and or depletion of groundwater sources and the sewage. Measurements need to be taken regarding short-, mid- and long-term headway of the municipality, hence at times costly consequences can be avoided in advance.

In order to strengthen the community input, and to prioritize mitigation, and adaptation actions in the process of LCAP the Resilience Ready Climate Community Group (RRCCG) was set up. It opened up different perspectives by NGOs, CBOs, private sector, public sector entities, such as the municipality and the directorate of the environment, and the educational sector to the process of LCAP development. The RRCCG was including invaluable opinions, which could be leveraged, especially in the process of appropriate adaptation actions.

Mitigation is considered as reducing the impacts that accelerate climate change, such as burning fossil fuels and having a positive impact on the livelihood within the municipality. Deir Alla is aiming at renewable energy implementation in the energy sector, namely the street lighting, mainly through solar photovoltaic systems, as a mitigation method that also will reduce the costs spend on energy. The potential seen in this sector is modestly promising since it is already partly pursued, the municipality is longing for more than the street lighting to be included. Deir Alla's economy is based on agriculture, its main concerns, other than the electricity used for domestic purpose, are the waste production, also from the agriculture, the handling of this and water resources used for the sector. Furthermore, the mitigation is not just targeted through the reduction of the emitted GHGs, but the mitigation has to address the consumption of energy, demand of water, and the generation of waste at the latest in the mid-term and long-term measurements.

After the assessment of Deir Alla's vulnerability, actions were evolved to adapt to the upcoming changes which consequently aimed at reducing and meanwhile managing the risks, originated from climate change. The RRCCG marked the most significant adaptations on behalf of the municipality: raising awareness, changing agricultural patterns and the varieties of cultivated crops and the desalination of brackish groundwater. The different adaptation actions are seen as intertwined and complementary to each other. Agriculture, the main financial source in Deir Alla, cannot be pursued effectively without good water management and awareness-raising in the municipality and the consumer about diversified crops.

As illustrated in the mitigation and adaptation assessments, there is a unique relationship between these two categories and the process of implementing Actions in either mitigation or adaptation pathways: apart from the actions of the energy supplier, the municipality has the greatest impact to govern the outcomes of initiatives to reduce emissions as the sectors that have generated the most significant amounts of CO₂e are a combination of solid waste, municipal electricity consumption, streetlighting and the municipal (vehicular) fleet. These categories (solid waste, street lighting, municipal fleet and municipal buildings) are an optimal starting point for reducing emissions. On the other hand, adaptation actions typically require inter-ministerial approval and coordination due to their governance over shared resources such as water – Water Authority of Jordan. Therefore, adaptation actions that drive at the heart of climate challenges will require strong local leadership and community engagement to fulfill goals in adaptation.

Climate change perpetrates the genders in different ways as well as it is affecting the disabled and youth differently, the LCAP therefore, involved an expert for gender mainstreaming from early stages onwards. Women and youth need to be more involved themselves, into the adaptation actions and mitigation, encouraging this is possible through setting up infrastructure suitable for them. Including women and youth into this takes the sole male responsibility and easing the traditional roles can contribute to the quality of everyone's life facing climate change, and consequently, ideally men, women, youth and disabled benefit from the mitigation and adaptation actions suggested by this plan.



Local Climate Action Plan Snapshot

Emissions Ambitions		Adaptation Action Areas
		<i>NDC categories with the addition of "Communication & Public Awareness"</i>
% of Residential energy demand met through the installation of PV Solar and solar water heater units		Water
Ambition	% CO _{2e} Decrease from Total	Water Efficiency and Treatment
10% of Households have PV solar to supply their needs by 2025	3%	Improving water capture and greywater applications; improving groundwater health by increasing recharge, expanded wastewater treatment
15% of Households have PV solar to supply their needs by 2030	5%	
Installation of PV Solar units to meet electricity demand of municipal buildings and street lighting		Agriculture & Food Security
Ambition	% CO _{2e} Decrease from Total	Improved Agricultural Practices
Supply 100% of energy demand of municipal buildings by 2025	3%	Synchronizing crop patterns and varieties with changing climate; improving application of irrigation systems (timing, placement, operation) fertilizers and pesticides; treatment of organic wastes to produce into commodity to improve soil quality
--	--	
% of Solid Waste averted from landfill		Communication & Awareness
Ambition	% CO _{2e} Decrease from Total	Awareness, Capacity Building & Knowledge Sharing
10% by 2025	.4%	Awareness campaigns and behavior change toward waste disposal, water conservation and tree felling; compliance with regulations regarding the application of raw manure on agricultural fields; improving agricultural practices to reduce ecological harm.
15% by 2030	5%	
% of Decreased Emissions through energy efficiency and renewable energy in the agricultural sector		Urban Development & Ecosystems
Ambition	% CO _{2e} Decrease from Total	Integrated Urban-Ecological Development
20% of CO _{2e} from electricity consumption reduced by 2025	4%	Improving urban greening activities, reforestation of native plants and restoration of ecological sites; development of parks; redirection of rainwater runoff and guidebook for green building technology for the municipality
30% of CO _{2e} from electricity consumption reduced by 2030	5%	
% of grid government pumping stations reduce GHG's from non-renewable energy		Waste
Ambition		Development of Infrastructure and Waste Treatment
20% by 2025	1%	Waste management and treatment (including sewage), carbon capture; establishing a circular economy and livelihood opportunities
50% by 2030	3%	
Gender Mainstreaming		
<ul style="list-style-type: none"> - Actions should take into account high unemployment rates, power relations in decision-making in the municipality and other local authorities. - It may be necessary to attach any action or project to a package of intensive and enhanced training and awareness of climate change concepts, encourage and enable the active participation of women's, youth and disabled persons' associations - Support regular dialogue with decision makers and stakeholders of relevant ministries and associations at the national level such as the ministries of health, agriculture, education, environment, local administration and others on climate change policies. These meetings should help coordinate, identify, identify and build capacity for stakeholders on climate change topics. - Strengthen the municipality's role in local activities and projects that build comradery among the community as well as fill a public need; for example: community clean-up days, tree planting, promoting women- and youth-initiatives. - The municipality works to solidify its role as a support system for community needs, capacity building and improving local resilience to climate change impacts. 		

Actions Highlights

Energy

- Monitoring of Energy Consumption in the Municipality
- Community-shared Solar: Solar Enabled through Innovative Financing Mechanisms
- Solar Saturation & Energy Efficiency in Residential Sector

Transport

- Advancing Public Transportation for Climate, Accessibility and Resilient Services (CARS)
- Conversion of the municipal fleet to electric or hybrid cars

Waste

- Clusterization of Commercial-Residential Sorting-At-source Recyclables Collection: Gateway to Waste to Energy Optioneering
- Extracting Energetic, Economic Value from Organic Wastes

Industry

- Archaeological Landmarks Development Project

Water

- The Rehabilitation of Tal Al Mantah Wastewater Treatment Plan and Solar PV to power wastewater treatment
- Treated Wastewater Applications at Pilot Sites
- Greywater Reuse

Agriculture and Food Security

- Innovation in Agriculture: Climate Resilience
- Carbon Farming: Biochar for Soil Remediation
- Carbon Farming: Composting for Compliance & Soil Health
- Drip, Subsurface Irrigation Technology and Capacity Building and farm-level water harvesting
- Climate-Resilient Crops and Marketing

Urban Development & Mobility

- Municipal Climate Concept
- Urban Green Canopies with Vertical/Roof Farming and Water Re-use

Health

- Rehabilitation of Drinking Water Sources
- Master Plan for Municipal Sanitation
- Recreation & Pedestrian Infrastructure

Biodiversity, Ecosystems and Protected Areas

- Reforestation of Ecological Corridor
- Constructed Wetland for Effluent Wastewater Treatment, Ecological Restoration

1. Introduction

The ongoing pressures to counter climate change have caught the attention Deir Alla’s local leadership as climate impacts on local areas of economic, cultural, natural, and development activities can have devastating effects on communities and reveal unaddressed vulnerabilities. Impacts range from water scarcity, soil degradation, health issues, ecosystem loss, and economic viability, among other challenges. These are addressed in Deir Alla’s first Local Climate Action Plan (LCAP) which outlines Mitigative and Adaptive Actions to enhance the future outlook of the community and its resources.

Building resilience at the local level in the face of current and anticipated climate impacts is at the heart of Deir Alla Municipality’s LCAP and its respective List of Actions (LoA). These were developed by the Resilience Ready Climate Community Group (RRCCG) in collaboration with local municipal leadership, ministerial district representatives, conservation groups, the private sector, academia, non-profit representatives, and community members. Amid national plans and strategies that establish the climate context at the country-wide level, the LCAP aims to align local-level efforts to safeguard local natural resources, livelihoods, and development along strategic, climate-conscious pathways.

Utilizing the Nationally Determined Contribution categories (Energy, Transportation, Waste, Industry, Water, Agriculture, Urban Development, Health and Biodiversity) as the framework for investigating the local climate context of Deir Alla Municipality, the LCAP produces a series of climate actions prioritized based on community input. These actions include mitigation measures that facilitate progress in promoting energy efficiency and decreasing the negative socio-economic impacts of resource scarcity. These actions also enhance community and environmental wellbeing through adaptation measures as well as enable greater community resilience by promoting equitable engagement and participatory opportunities governed by gender mainstreaming measures.

2. The Case for Climate Action

This LCAP was developed to pave the way for enhancing the municipality’s resilience to negative climate change impacts experienced at the local level. Climate change impacts have been observed over time within the municipality, impacting livelihoods, health, safety, water availability, and power demands for heating and cooling of buildings.

The Municipality of Deir Alla represents a community vulnerable to climate change, potentially including an overall decrease in precipitation, increased occurrences of drought, and increased evaporation¹, among other things. The implications of these changes have already been observed across the municipality’s varying sectors. It is imperative that the consequences of climate change (current and anticipated) are countered at the local level, requiring local engagement and grassroots knowledge in order to establish the agenda for climate action, create alignment among stakeholders, and identify and secure resources for the implementation of Actions.

The LCAP of the Municipality of Deir Alla was developed through combined technological and social-synergetic experiences. Local knowledge was used through the RRCCG to outline Actions targeting Mitigation and Adaptation, while integrating aspects of gender equity and gender justice.

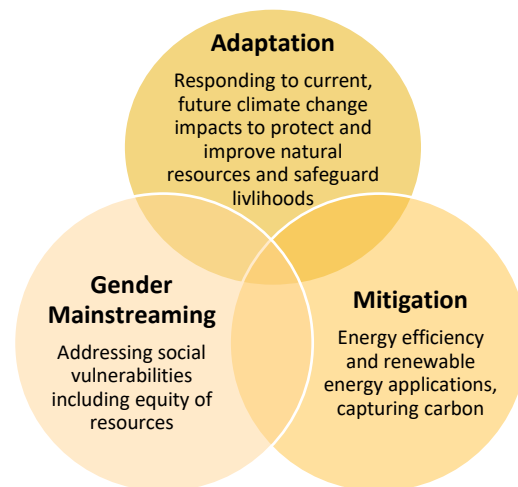


Figure 1 Framework of the LCAP and its Actions.

Local-level baselines, gathered leading up to the initial drafting of Actions, contributed to the identification of outcomes that need to take shape on the ground in order to counter experienced and anticipated climate consequences. These baselines and their influence on the resulting actions are detailed in the Mitigation, Adaptation and Gender Mainstreaming sections that follow.

¹ Jordan’s Third Communication on Climate Change (2014). Global Environment Facility & United Nations Development Programme.

3. Municipal Profile

Deir Alla Municipality is a community of historical significance, featuring archeological sites, and currently contributes to Jordan's breadbasket, producing agricultural goods in the Jordan Valley. The municipality occupies an area of 35 km² and 250m below sea level, hosting a population of about 55,131².

Communities within the municipal boundaries and administrative divisions of Deir Alla include South Tawal, North Tawal, Dharar, Ruwaih, Zone of Cistern, Abu Ubaidah and Al Balounah areas.

Typical climatic conditions of the municipality consist of warm winters and hot summers with average annual temperatures ranging between 24°C and 39°C, respectively, which has made year-round agricultural production possible.

In recent years, the administration has advanced local development and application of renewable energy technologies and aspects.

Energy

The use of solar PV units are feasible in the region throughout the year³. The municipality recently concluded a project which engaged women and youth groups through the Canadian Sustainable Energy and Economic Development (SEED) program, where 50 percent of the purchase and installation of PV solar panels is subsidized by the organization. The initiative resulted in 435 household solar PV units and 27 solar heaters installed on households in the municipality⁴.

Schools are being equipped with solar panel units capable of generating 14-20 kWh and health centers – 7.5 kWh per annum. Once the new administrative building and its offices are established, the municipality intends to install solar panels to supply the establishment's energy requirements.

For the treatment of wastewater at Deir Alla's wastewater treatment (WWT) plant, Tal Al-Manath, which is in municipal boundaries but falls under the jurisdiction of the Water Authority of Jordan (WAJ), is to receive a share of its power (potentially 90 percent of its annual consumption of energy needs) in the near future⁵.

Transportation

Within the municipality, privately-run buses conduct services within the city and to neighboring municipalities. Scheduling (departures, arrivals) of routes is irregular. The municipality recently established a new bus station within the downtown area to improve appearances and organization of public transport vehicles.

Waste

The Municipality of Deir Alla continues its twinning project with the German municipality of Jena through the Association of Interconnected Cities. All studies and procedures for financing the acquisition, rehabilitation and operation of an organic manure plant have been completed. This composting facility contributes to solid waste management, employment opportunities, and financial return to the municipality. In addition to the "Waste into Positive Energy Project with the German Development Agency which included the establishment of a solid waste sorting facility, awareness, community engagement and a livelihoods (employment) component.

In addition, animal waste from the slaughterhouse has also been a cause for environmental and health concerns. The municipality has plans to construct a modern slaughterhouse to remedy the issue.

The municipality recently signed a grant agreement with the European Investment Bank, under the Deir Alla and Al Karamah project, to improve water supply and the construction of a centralized sewage collection and treatment

² Ministry of Local Administration.2018. Database

³ Hayek, L. Investigating Renewable Energy Potentials in Jordan

⁴ As obtained through interview with Canadian Sustainable Energy and Economic Development (SEED) program representative

⁵ EcoPeace Middle East (2019). Deir Alla is Going Green.

network. The project would help target a pressing developmental problem of degraded, unlined cesspits leaking contents into the ground.

Industry – Economy

Aside from agriculture, there is also some industry, such as the manufacturing of greenhouses; an iron factory, plastic crushing, palm farms, vegetable market and the (now-closed) organic fertilizer facility, which was intended for municipal acquisition and investment. Employment is typically restricted to agriculture and opportunities for upward mobility and training, regardless of sector, is limited.

Tourism in Deir Alla is comprised of a series of important archaeological —Tell— landmarks (Tell Deir Alla, Tell Dhahab Gharbi, Tomb of Abu Ubaydah, Khirbet Al Hammeh) and shrines - the shrines of Abu Ubaidah Ammer bin Jarrah and Dharar bin Azur. The area is characterized by the presence of the Mausoleums of the Sahaba and the Deir Alla Museum of Antiquities which attract visitors to the region in winter. The sites require improved marketing, facilities (such as information center) and trails to better facilitate tourists and protect the sites.



Figure 2 Tell Deir Alla. National Master Plan for the Jordan River Valley.

Water

The main source of municipal water is groundwater withdrawn from six wells, one of which is privately owned. Groundwater resources are reached at depths between 300-400 meters. Municipal water is supplied to homes about four times a month. The water network is in need of repair and adds to the water loss.

The level of water reuse and recycling is low. There is a wastewater treatment plant with a capacity of 9,500m³ dail, which was built in 1973 and expanded in 1993. An upcoming initiative aims to expand it once again under the “Rehabilitation of the Tal Al-Manhath Treatment Plant”, signed in 2017 and to be initiated in 2020 between the Water Authority of Jordan and international funders (Global Nature Fund and its project partner, EcoPeace). Treated water is emptied into evaporation ponds. In recent years, there was an initiative to investigate the quality of this water for the purpose of using this water, possibly, for agricultural applications. However, due to an administrative change, the initiative was abandoned. Of about 150,000 m³ of water treated a year, resulting in about 400m³ annually.

Due to the high temperatures, residents use water for cooling in water-based air conditioners, where each conditioner consumes about 60 liters of water per day, putting additional strain on water availability. In winter, intense rains can create floods, damaging infrastructure and endangering lives.

Many of the farms are equipped with drip irrigation systems, for which the main water sources are the King Talal Dam and King Abdullah Canal. The droughts of previous years has led to the withering of pastures and declining livestock herds contributing to increased feed prices that are unaffordable to farmers. Droughts have also threatened the survival of endangered flora and fauna in the area as wildfires become more common. The valley of Rajab and Zarqa river similarly are in need protection and rehabilitation.



Figure 3 Flood damage after an intense rain in Deir Alla

All houses are linked to cesspits which contribute to groundwater contamination and soil degradation. However, studies are ongoing to investigate the establishment of a sewage network (on the part of the French Development Agency) so that the cesspits can be closed. Through its recent development of a city Master Plan for Wastewater Collection and Treatment, a Waste Management Plan, and project developments in the water and energy sectors.



Figure 4 Flood damage to greenhouses and agricultural areas in Deir Alla

Agriculture

Weather events such as early and late frosts have impacted agricultural production in recent years. Intense rain events, due to changing climatic conditions, urban planning that is ill-adapted to flash floods, and the municipality's low altitude makes the municipality susceptible to runoff from the surrounding highlands.

Additionally, farmers are having to change the crops they cultivate due to changing temperatures and shifting frosts.

Strong winds have also recently played a factor in the types of crops cultivated, as crops such as bananas, cultivated elsewhere in the Ghor region. The wind also brings palm weevils to palm trees, leading to the destruction of crops.

Greenhouses, which populate the landscape of Deir Alla, create wind channels that have been reported to contribute to the speed of the wind through farms and between greenhouses, creating difficulties in maintaining agricultural infrastructure, namely the greenhouses themselves. The density of greenhouses in the area has also reportedly contributed to a kind of urban heat island effect in the municipality.

Current agricultural practices were reported to contribute to air, water, and soil pollution. Applications of fertilizers and pesticides, the application of raw animal manure on fields as compost, as well as open burning of both plastics (particularly from greenhouses) and organic materials contribute to these environmental concerns. Awareness and access to agricultural technological and scientific alternatives to reduce these impacts are currently low.

Urban Development

In recent years, flash floods have contributed to the breakdown of infrastructure that was meant to contain water runoff, such as dredges, breakdowns, and the deterioration of houses and streets.

The municipality has recently responded to development needs by investing in transportation infrastructure (roads and streetlighting), retaining walls, establishing an operations room for risk prevention (namely, to react to floods), procuring emergency equipment such as water suction motors, sandbags, and constructing drainage channels as precautionary measures to cope with floods. The municipality aims to allocate additional resources to support emergency-response teams and equipment. Other ongoing project areas for the municipality include solar energy projects, the construction of a modern slaughterhouse, the establishment of a solid waste sorting station and palm farming.

The municipality recently obtained a grant for the construction of parks, which may feature rainwater harvesting and other green technologies to raise public awareness.

Health

High temperatures have increased local families expenditure on air conditioning, increasing energy, water, and financial consumption and adding to the financial burden of families. As a large number of individuals are employed in the agricultural sector, high temperatures have increasingly become a health concern for workers who work outside and are exposed to the heat.

Biodiversity, Ecosystems & Protected Areas

Various ecological challenges threaten the fragile biodiversity that inhabits the municipality and the areas around it. Threatened by fragmented habitats, the demand for water (crop water demand), water pollution (excessive agrochemical uses, minimal sewage treatment), excessive grazing, tree cutting and lightly regulated tourism and urban development, has contributed to the decline in bird populations.

As a riparian municipality that is heavily engaged in agriculture, its impacts on water (scarcity and quality) as well as the local ecosystems threatens the health and ability to sustain the migrating route of (north Palearctic waterfowl) birds⁶.

⁶ National Master Plan for the Jordan River Valley (2009). WEDO/EcoPeace NGO Master Plan (SWIM-JR).

4. Interpretation of Localized Effects of Projected Climate Risks in the Municipality of Deir Alla

Energy

Decreased Rainfall

- Less groundwater recharge and groundwater level decline lead to increase energy needed (and expense) to withdrawal water
- Degraded and weakened regeneration of pine forests from encroachment of agricultural, development and economic activities, entails fewer woody resources to use for fuel
- For the solar panels already installed in Deir Alla, the increase of dust in the air would entail regular upkeep and maintenance to ensure panels' efficiency

Increased Occurrence of Drought

- Alongside warmer temperatures (overall and on average), drought would be a source of added stress on groundwater levels in the absence (and/or decrease) of groundwater recharge

Higher Temperatures

- Increase in energy demand as individuals try to cool homes, offices, etc.
- Increase in emissions if energy demand is not met by renewable energy options

Intense Weather Events

- Power cuts/blackouts resulting from increased energy consumption (potentially increased costs) in response to high temperatures.
- In winter, potentially increased tree feeling resulting from financial stressors that lead individuals to seek cheaper energy for heat

Transport

Decreased Rainfall

- Socio-economic stressors effecting individual's ability to travel
- Increased presence of particulate matter in the air (alongside increased population, of which own vehicle)

Increased Occurrence of Drought

- Increased need to consider the use of air conditioning on public transportation

Higher Temperatures

- Irregular schedules, unprotected (unsheltered) bus stops (and irregular pick-up locations) pose a risk to commuters
- Vehicles without climate control become increasingly uncomfortable for commuters, disproportionately for women, persons with disabilities and elderly

Intense Weather Events

- Disruptions in mobility (accessibility of roads) due to damaged and weakened infrastructure
- Unfavorable road conditions (flooding, road blockage, fog)

Waste

Decreased Rainfall

- More difficult for contaminants to be naturally filtered, aggravating soil and water quality
- Plastics breakdown and release contaminants
- Increased need to treat wastewater
- Due to the cost of emptying cesspits, this could result in more violations or at-home solutions to empty cesspits; socio-economic stress could reduce willingness to conduct maintenance

Increased Occurrence of Drought

- More difficult for contaminants to be naturally filtered, aggravating soil and water quality
- Changes in the presence of odors, dust, bio-aerosols, and attraction of pests
- Violations of dumping wastewater (or improper emptying techniques; such as: reports of adding salt to cesspit contents to dry waste materials to artificially extend the life of the pit) and seepage from cesspits contributing to water contamination (as opposed to paying to empty cesspits) could increase alongside a climate that strains local financial resources and infrastructure capacities
- Lack of natural filtration of seepage from cesspits contributing to water contamination (exacerbated by desertification)

Higher Temperatures

- Likely to impact processing of organic wastes, depending on technology and desired output (such as composting)
- Organic wastes, such as manure, become an increasing nuisance if not collected, attracting pests and producing odors

Intense Weather Events

- Runoff and wind carry contaminants (fertilizers, pesticides, contaminants from plastics) into soil
- Wastes clog infrastructure meant to carry water away from the urban areas and reduce flooding
- Wastes resulting from extreme weather events (damaged infrastructure, damaged greenhouses, etc.)

Industry

Decreased Rainfall

- Corporate responsibility becomes increasingly important as the impacts of local industry on water (soil and air) resources are as equally become of increasing concern
- Agricultural sector continues to experience decline
- Tourism industry could decrease if the characteristics that attract visitors continue to degrade and go unprotected
- Drain in economy as individuals choose to emigrate for improved economic opportunities in other cities
- Violations of waste and contaminants disposal due to cost

Increased Occurrence of Drought

- Financial stress to finance energy for cooling and water at times when there is a scarcity of either

Higher Temperatures

- Decline in tourism and income
- Financial losses for livestock owners and farmers

Intense Weather Events

- Contaminants entering waterways

Water

Decreased Rainfall

- Groundwater quality decline (increased salination due to dropping water table and contamination from unlined cesspits)
- Drop in the water table, increased expense for water withdrawals

Increased Occurrence of Drought

- Reduction in per capita shares of water
- Disruption of water supplies (exacerbated by decreased water quantities, quality and population growth)
- Increased water demand (residential and economic)

Higher Temperatures

- Changes in weather depreciating access to drinking water
- Less groundwater recharge, resulting in decreased replenishment of water reserves and capacity for naturally occurring purification
- Higher water loss by evapotranspiration⁷

Intense Weather Events

- If not captured (harvested) nor channeled, it can be a lost and destructive commodity
- Continued (possibly increased) agricultural residues entering water table

Agriculture

Decreased Rainfall

- Increased rate of desertification
- Soil degradation due to less groundwater recharge/groundwater level decline (decreased capacity for naturally occurring purification)
- Soil degradation negatively impacting agricultural productivity and, as a result, incomes
- Increased dependence on irrigation and selecting energy-efficient, and low-energy irrigation options (particularly, with the ability to effectively distribute treated wastewater)
- Decreased quality of water supplies

Increased Occurrence of Drought

- Increased need for improving soil quality and soil's ability to retain water
- Fall in crop production due to narrowed cultivation period, shifting rainy season and rainfall patterns impacting crop development and harvesting patterns
- Farmers may be increasingly faced with harvests that are too small to both feed their families and fulfill their other commitments

⁷ the process by which water is transferred from the land to the atmosphere by evaporation (soil to atmosphere) and by transpiration (whereby plants, for example, absorb water from roots and evaporation through its leaves) plants.

- Increased need to identify alternative varieties of crops for cultivation
- Increased need to apply irrigation and improved agricultural techniques that are customized to meet the municipality's needs

Higher Temperatures

- Higher growing season temperatures impacting agricultural productivity, crop development, farm incomes and food security.
- Increased heat stress on crops and water loss by evapotranspiration
- Shifting planting seasons
- Increase in plant and animal diseases, pests; increased nuisance of deteriorating agricultural biowastes (manure, byproducts, stalks..)
- Loss of pasture for livestock, decreased production of animal feed; negative impact on productive and reproductive performance of livestock, increased incidence of livestock diseases and parasitic infestation, decreasing trend of feed and fodder resources.

Intense Weather Events

- Damage to agricultural areas and investments (greenhouses, pesticides and fertilizers)
- Tomato and potato crops damaged by severe frosts

Urban Development

Decreased Rainfall

- The possibility of increased occurrence of violations and vandalism as a result of natural resource scarcity (water, and fuel) and economic stresses
- Municipal resources are strained under demand and community needs

Increased Occurrence of Drought

- Irregular/unresponsive water pumping; vandalism and theft of water
- Infrastructure in disrepair contributes to leakage, reduction in water quality
- Consequences that already exist from cesspits (lack of sewage network) exacerbated as emptying prices are already considered high, in combination with the lack of regulation, resulting in continued contamination.
- Increased potential for cross-sectoral infrastructure system failures, particularly as the municipality continues to develop
- Municipal capacity to respond to emergencies is weakened

Higher Temperatures

- Increase in emissions if energy demand is not met by renewable energy options
- Power cuts/blackouts resulting from increased energy consumption (potentially increased costs) in response to high temperatures; electricity costs become a greater burden on families
- Urban heat-island effect increases

Intense Weather Events

- Damage to homes, businesses and infrastructure from flash floods, landslides and wind (as reported in Deir Alla, winds were reported as contributing to the overall damage to greenhouses)
- Flooded residences due to exceeded culvert, infrastructure capacity
- Disruptions to mobility (transportation) due to damaged and weakened infrastructure
- The migration of the local population to search for jobs in other cities and sectors in search of improved income and standard of living
- Disruptions in mobility (transportation) due to damaged and weakened infrastructure
- Lack of sewage network is an obstacle to safeguarding natural resources, community health and infrastructure

Health

Decreased Rainfall

- If agricultural incomes are impacted negatively, it could reduce households' ability to respond to climate impacts (spending on health, cooling systems, electricity, mobility,)
- Water scarcity becomes a point of social conflict
- Increased stress and anxiety as rainfall impacts local economy and livelihoods

Increased Occurrence of Drought

- Negative socio-economic impact, particularly for agricultural families

Higher Temperatures

- High summer temperatures place further stress on families of low income as a larger portion of expenses would likely go to power cooling methods or find ways to decrease use, do without cooling systems
- Increase in heat-related illnesses
- Decreased agricultural productivity (both of produce and products from livestock), could influence the price of agricultural goods, creating socio-economic stress
- Decreased food security, affecting rural families disproportionately

- Increased presence of pests (flies, mosquitos)

Intense Weather Events

- Injury and/or illness resulting from flashfloods, heat-related illnesses

Biodiversity, Ecosystems & Protected Areas

Decreased Rainfall

- Threatens the survival of local flora and fauna found in the municipality

Increased Occurrence of Drought

- Increased occurrence of wildfires
- Desertification

Higher Temperatures

- Increased susceptibility to invasive species
- Reduction of wood resources
- Financial losses for herders

Intense Weather Events

- Lack of foliage (trees) in the valleys

5. LCAP Planning Process

Initiation

The development of the LCAP was kicked-off in April 2019 with a workshop, introducing the aims of the LCAP and its main components: developing Actions through Mitigation, Adaptation, Gender Mainstreaming frameworks. The frameworks were investigated through the collection of baseline data at the community level. Local, contextual data (data-based and experiential) was at the core of the insights elaborated in the List of Actions (LoA) and the Local Climate Action Plan (LCAP). The facilitation of this data collection depended on the establishment of motivated community stakeholders, who would eventually make up the Resilience Ready Climate Community Group (RRCCG), an informal body of local stakeholders catalyzing momentum for consistent advancement in achieving climate Action.

Baselines Assessments

Investigating the Baseline Assessment was a means for identifying local experts and community leaders (formal and informal) to begin building the base for RRCCG participants. Additionally, because climate impacts and consequences of development have left their mark on various local sectors, local stakeholders have been engaged in developing the means to overcome these consequences. The Baseline Assessment was a means for documenting these stakeholder activities.

The core of the Baseline Assessment, however, was to build the foundation for Mitigation, Adaptation and Gender Mainstreaming components and their implications for the LoA. Distributed during the kick-off workshop, the Baseline Assessment remained a consistent tool to organize data that would aid in the development of scoping the context of climate actions, socio-economic analysis to develop insights for Actions to counter climate change impacts at the local level, account for existing plans and strategies, current demand for resources, and build upon local experience.

Stakeholder Engagement

With the continuous aid and support of the municipality's Mayor and Local Development Unit, stakeholder engagement was conducted through a series of focus groups, panel discussions and meetings with the local community. The first workshop in August was the initial follow up to the baseline as well as investigations for the Mitigation, Adaptation and Gender Mainstreaming components of the LCAP. This initial focus group invited a broad range of informal community leaders (namely, representatives of local organizations and citizens representing different sectors of the municipality).



Overall, community members, representatives of the private sector, women's associations, media, environmental and agriculture departments were in attendance, totaling 58 participants, 30 females and 28 males. This focus group was sub-divided to facilitate the collection of men's and women's perspectives, independently.

In September, a workshop was held to establish the RRCCG as a means for advocating for a climate-action agenda at the local level, capable of aiding the municipality in the identifying, mobilizing the community, and aiding in defining effective and sustained Actions to counter climate change. The RRCCG includes municipal staff (the mayor and the local development unit). During the initial focus group of the RRCCG, the participants were surveyed to develop an assessment for the prioritization of actions, identifying criteria emblematic of their main concerns of local climate impacts. Based on the survey, scores per criterium were established. It was also an opportunity to further detail already experienced climate change and developmental impacts and their perspectives on countering them.

Representatives comprising Deir Alla's RRCCG include: representative of the Local Council, Jordan Valley Agricultural Department, a school manager of Al-Balauna School, Member of the Municipality of Ruwayha, the Mayor and Local Development Unit Head(s) of Deir Ola, Omar Abdullah Co. (local water company), Social Activist, local farmers, representative of international donor currently implementing a renewable energy project (SEED), representative of the Regional Meteorological Department, representative from the Ministry of Environment local office, Abu Sido Farms, and representative of the Ministry of Agriculture local office.

In November, the RRCCG participated in adding an additional layer of depth to the development of Actions as local stakeholders representing NGOs, CBOs, private sector, educational sector, local governmental agencies were present to exercise ideas, goals and parameters of potential Actions for the LoA.

Local Climate Action Plan

The LCAP is the document that contains inferences gleaned through the Baseline Assessment, engagement with the community and RRCCG; the areas and relative scale of Mitigation potential; pathways for Adaptation that maintain the integrity of the unique characteristics of the municipality; and instituting the means for equal opportunity for engagement and benefits of Actions for the

public through Gender Mainstreaming.

The LCAP is a result of collaborative engagement between municipal leadership and community stakeholders to identify and strategize around Actions that are rooted in Mitigation, Adaptation and Gender Mainstreaming.

The key objectives of Deir Alla Municipality's Local Climate Action Plan are to:

- Respond to current and anticipated impacts of climate change experienced within the municipality with multi-lateral, innovative and engaging Adaptation Actions that preserve (and /or rehabilitate) the natural environment and protect and promote health;
- Enable the ingenuity that results from the inclusion of an array of stakeholders, including women, men, youth, elderly and disabled, who represent a variety of experiences, skill sets and perspectives through Gender Mainstreaming strategies.
- Act locally to reduce emissions through Mitigation Actions, contributing to national response to climate change and the country's Nationally Determined Contribution (NDC).
- Realize the municipality's potential for development through strategic coordination to secure funding streams and communicating the municipality's aims for climate-resilient development.

List of Actions

Following the workshops of the RRCCG (outputs of September workshop: establishment of RRCCG and prioritization criteria and scores selected; November workshop: detailing and scoping of Actions), the finalizing the LoA and its prioritization according to the locally established criteria.

The RRCCG inputs were cross-referenced with initiatives outlined in national-level strategies and project scoping, contained in the following documents:

- *Jordan's Nationally Determined Contributions* (NDCs), for which Jordan intended to reduce its GHG generation by 14% by 2030, and by an additional 12.5% (dependent on the international financial aid) by 2030;
- *Jordan's Third Communication on Climate Change* (TNC, 2014) to glean exposure information in addition to expert inferences for the analysis on Mitigation pathways and Actions in Adaptation.
- The *National Adaptation Plan* (Draft, 2019) (NAP) document and the Biennial Updated Report.
- The *Climate Change Technology Needs Assessment* (TNA), which identifies mitigative and adaptive technologies.

The LoA is organized according to the sectors of the NDC: Energy, Transport, Waste, Industry, Water, Agriculture and Food Security, Urban Development, Health; and Biodiversity, Ecosystems and Protected Areas.

6. Baseline Analyses

6.1 MITIGATION ANALYSIS

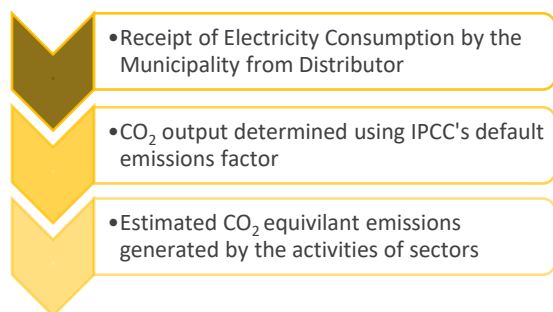


Figure 5 Process of developing CO₂ equivalent quantities for electricity-related emissions of the municipality's residential, governmental, commercial, agricultural, water (pumping) categories.

Mitigation Actions are typically associated with the reduction of emissions, which are created as a result of combustion (burning fuels such as in cars, or natural gas for energy) and other processes. Additionally, indirect impacts of strategic mitigation action can result in improving livelihoods by reducing spending on electricity as well as other cost savings typically associated with improving energy efficiency.

Developing a baseline for mitigation Actions began with understanding the amount of CO₂ equivalent (CO₂e) emissions associated with localized electricity consumption. This was done by requesting the data for the electricity consumption of the Municipality from the regional supplier Electric Distribution Company (EDCO, 2018).

Energy

For 2018, the estimated CO₂e, while based on electricity consumption, do not incorporate emissions generated from the use of gas tanks or other sources of energy that may be used to heat office buildings and household nor other uses, unless otherwise specified. The energy consumed in each of these sectors during the year 2018 was used to estimate the amount of CO₂e based on the International Panel of Climate Change's (2006) Tier 1⁸ default emission factors.

Table 1 Emissions generated from residential electricity consumption (2018)

	Electricity (kWh)	CO ₂ e (Gg)
Residential	49,811,855	10.49

Through a regionally implemented SEED program, water heaters and solar PV units were installed on households - 27 and 435 units, respectively as of February 2020. This has aided households in reducing their electricity bills.

Per household energy consumption was estimated at about 4,800 kWh (based on number of households and the reported electricity consumption of the residential sector as reported by EDCO) annually, generating about 0.001 Gg of CO₂e annually based on electricity consumption. The following CO₂e averted by the installation of solar PV units on households in Deir Alla was estimated at 0.46 Gg of CO₂e. The emissions averted by solar water heaters was estimated at 0.0025 Gg; although, more data on the operational use of the solar water heaters would provide for a more accurate estimate.

⁸ IPCC (2006) Guidelines for National Greenhouse Gas Inventories

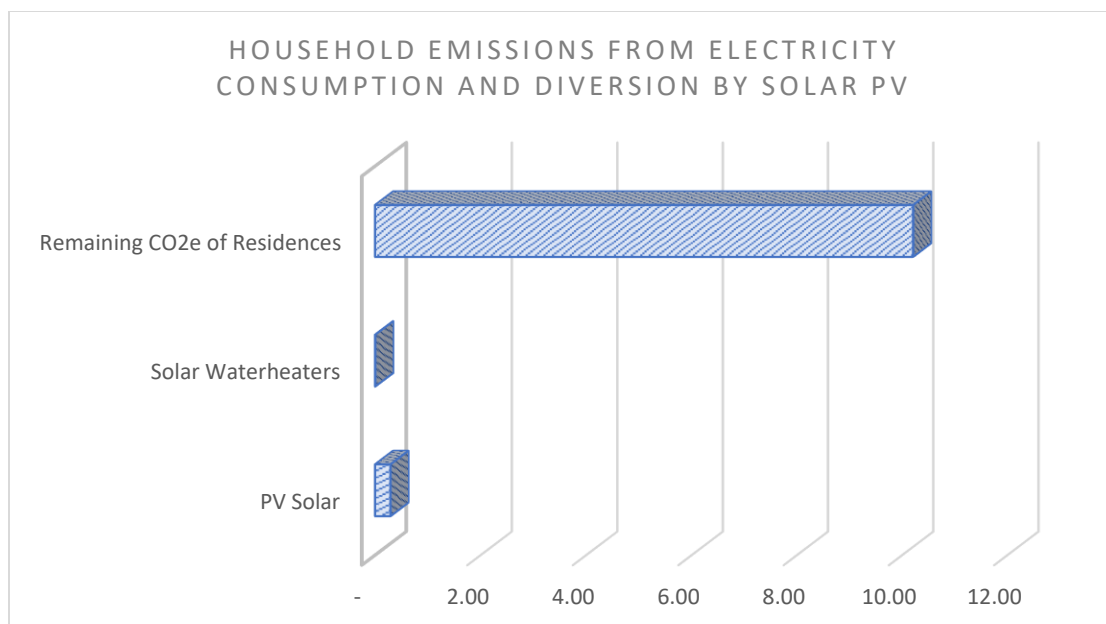


Figure 6 CO₂e averted (Gg) by Solar PV Unites installed to supply electricity to households and solar water heaters, compared to the remaining generation of CO₂e by the residential sector.

Municipal Lighting

In addition to continuing to convert to energy-efficient lighting fixtures, the Municipality of Deir Alla is to seek the installation of renewable energy, particularly, solar photovoltaic (PV) systems to achieve reduction in emissions as well as energy efficiency and financial savings.

For example, governmental consumption of electricity and streetlighting of Deir Alla generate an estimated 0.44 and 0.98 Gg of CO₂e annually, respectively. Installing rooftop solar photovoltaic systems for municipal government electricity demand and street lighting would result in an estimated 4 percent⁹ reduction in CO₂e generation of emissions categories accounted for in the inventory.

Table 2 Emissions generated from Municipal electricity consumption (2018)

	Electricity (kWh)	CO ₂ e (Gg)
Municipal	2,109,476	.44
Street Lighting	4,660,113	0.98

Transportation and Mobility¹⁰

Table 3 CO₂e Emissions from Municipal Fleet and Busses

	Emissions (Gg)
Municipal Vehicles	0.19
Public Transport	0.24
Total	0.44

⁹ IPCC (2014) lists the lifecycle CO₂-eq of solar PV rooftop median value at 41gCO₂-eq/kWh, minimum – 2641gCO₂-eq/kWh, max - 6041gCO₂-eq/kWh. Rooftop solar PV was used in these estimations, as opposed to “utility-scale PV” due to rooftop solar PVs higher feasibility in the municipality.

¹⁰ The number of municipal vehicles does not represent solid waste compactors, nor cabs.

Cutting emissions within the municipal fleet (cabs and solid waste compactors not included in the analysis above) can be achieved through tracking (GPS devices) the commutes of municipal vehicles, optimizing routes and providing regular maintenance. Hybrid and electric vehicles could aid in the branding of the municipality as a greener community but mobilizing public transport (not analyzed here for CO₂-eq) would yield a greater impact, as discussed more in later sections.

Municipal Solid Waste

Jordan's First Biennial Update Report to the United Nations Framework Convention on Climate Change (2017) summarizes the CO₂e of solid waste disposal at the national level for 2012. Scaling the data to represent an estimation of emissions for solid waste disposal in Deir Alla started with the national population of 2012, estimating solid waste generation (kg) per capita relative to the emissions reported for that year, resulting in CO₂ equivalent per kg of solid waste.

The estimated CO₂e/kg of solid waste of 2012 was applied to the Municipality of Deir Alla's estimated solid waste generation of 2018 resulting in an estimated CO₂ equivalent generation of 11.41 Gg.

Industry

Industry includes commercial and economic activities including that of the shops that line the streets of downtown. Commercial and small industry combined resulted in a CO₂e generation of about 1.62 Gg.

Table 4 Emissions generated from Industry (economic) electricity consumption (2018)

	Electricity (kWh)	CO ₂ e (Gg)
Commercial	6,576,856	1.39
Small Industry	1,106,886	0.23

Water

Emissions from electricity used in water pumping accounted for 1.99 Gg of CO₂e generated.

	Electricity (kWh)	CO ₂ e (Gg)
WATER (water pumping)	9,443,850	1.99 ¹²

Agriculture

Calculation of CO₂e in the agricultural sector is inclusive of the electricity demand of the sector which accounts for electricity used in irrigation and related agricultural activities. Overall, 6.06 Gg of CO₂e were generated, exclusive of emissions that may have been generated in other agricultural activities such as land use change, tilling and the application of pesticides and fertilizers.

	Electricity (kWh)	CO ₂ e (Gg)
Agriculture	28,756,939	6.06

¹² Transportation was excluded as an appropriate analogue had not been found at the time of analysis.

The inventory based on emissions from electricity consumption illustrates that 63 percent of communitywide GHG emissions came from sources within the built environment (residential, municipal, street lighting, commercial and industry).

Figure 7 CO₂e Emissions by NDC Category Accounted for in the LCAP

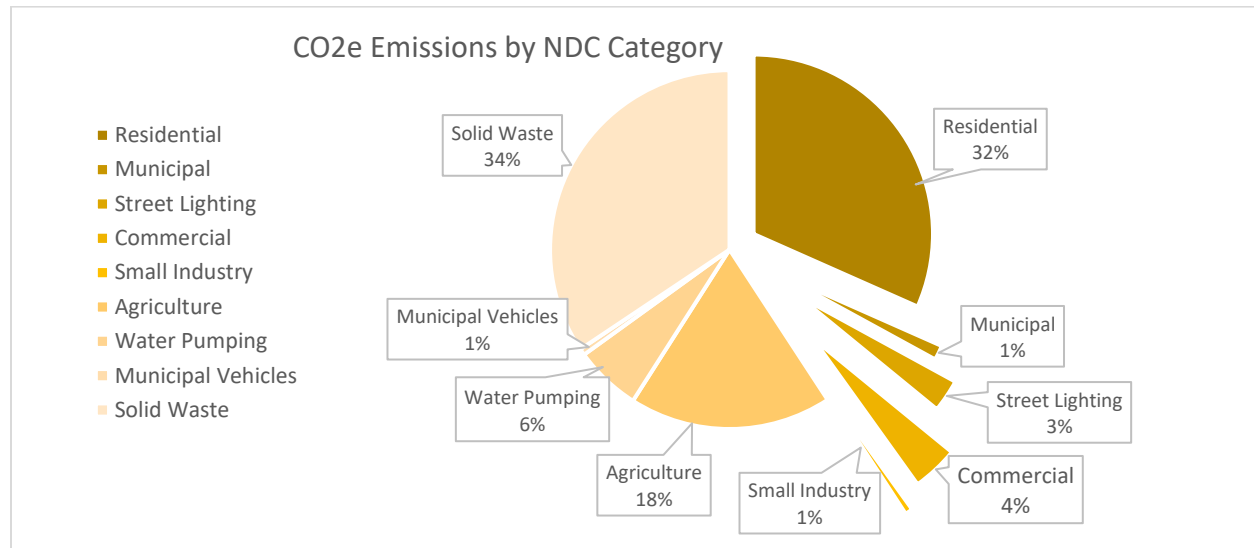


Figure 8 CO₂e by Category (Gg)

Inorganic solid wastes (namely plastics) resulting from agricultural production in greenhouses are either sold to a private collector or burned. Greenhouse plastics are typically replaced every three years and plastic ground covers, which are used for moisture retention and suppressing weeds, are disposed of seasonally and usually burned.

Not accounted in the CO₂e emissions and waste generation above is the quantities resulting from agricultural (organic and plastic) solid wastes as accounting for agricultural solid wastes for livestock by farmers is informal at best. Organic wastes resulting from agricultural activities and greenhouses are typically used (such as leaves, branches) as feed for livestock. If wastes are not fed to livestock, it is burned. Manure from livestock (chickens and goats) are applied to crop fields as untreated fertilizer. Farmers were able to generalize the quantities of agricultural residues generated. For example, greenhouse-grown tomatoes produce as much as .5 tons of solid waste per hectare – or about 1, 246.22 tons of waste annually¹³.

Table 5 Snapshot of Estimated Organic Wastes Generated Annually from Selective Crop Production

Crop	Area of Cultivation	Agricultural Residue Crop ¹⁴	Estimated Totals
Lemons, oranges, mandarins, pomelos, grapes	291.67 ha	0.02 tons/ha	5.8334 tons
clementine	26.12 ha	0.03 tons/ha	0.7836 tons
olives	41.3 ha	1 tons/ha	41.3 tons
pomegranate	2.55 ha	0.5 tons/ha	1.275 tons
palm	1052.79 ha	0.1 tons/ha	105.279 tons
others fruit and citrus	20.25 ha	0.03 tons/ha	0.6075 tons
	1434.68 ha	--	155.0785 tons

¹³ Jordan Department of Statistics (2017).

¹⁴ Estimated organic waste generated by crops (list of crops not exhaustive) from a survey of farmers in North Shouneh conducted by the consultant in 2018.

6.2 ADAPTATION ANALYSIS

Climate change and its impacts present various challenges in Jordan. The Municipality of Deir Alla is no different. Climate change impacts are detailed in the TNC (2014) along two scenarios: some effort internationally is made to reduce emissions (wherein CO₂ emissions begin to decrease by 2040) and no effort (no policy changes to reduce emissions) is made to reduce emissions, respectively – Representative Concentration Pathways 4.5 and 8.5¹⁵.

Risks and Forecasts as Identified in Jordan's Third National Communication on Climate Change (2014)

Risks	Details
Decreased Rainfall (Precipitation)	In Jordan, the overall trend is a decrease in precipitation, with western Jordan being more vulnerable. RCP4.5: By 2070-2100, precipitation could decrease by 15% (range 6%- 25%). RCP8.5: By 2070-2100, decreased precipitation could be as much as 21% (range 9%-35%).
Increased Occurrence of Drought (Consecutive Dry Days)	Consecutive dry days are likely to increase over time by more than 30 days by 2070-2100 with increased evapotranspiration ¹⁶ . Intense droughts may be (partly) compensated by rainy years; however, there would still be an overall decrease in precipitation, particularly especially in Jordan's southern region. RCP4.5: Consecutive dry days increase to about 30-40 days in Jordan's southern highlands. RCP8.5: Additional increases in the number of consecutive dry days more likely to occur in the country's western and southern regions.
Warmer Climate (Higher Temperatures)	Warmer Climate: by 2070-2100, RCP4.5: average temperatures could reach up to +2.1°C (ranging between +1.7 - +3.2°) RCP8.5: average temperatures rising +4°C (ranging between +3.8- 5.5°C) Increased Occurrence of Heat Waves: Average of maximum temperatures could exceed 42-44° C Warmer Summers, drier autumn and winters; Warming to occur during summer. In autumn and winter months, decreases in precipitation (an estimated median of 35%) by 2100. Evapotranspiration: Average potential evapotranspiration could increase to 70-100 mm by 2050 and 150 mm by 2100, increasing to 2,000+mm. however, it's "likely" to reach 250 mm by 2100. RCP results for western Jordan are similar.
Intense Weather Events	No change predicted. The number of days of heavy rain (more than 10mm) is not expected to change significantly, nor does the maximum wind speed, direction.

In order to assess the risks at the local level, a Vulnerability Assessment in the form of a questionnaire was developed that outlined risks identified nationally. This was done by detailing the anticipated effects (reflected, for example, in Section 4 "Localized Effects of Climate Risks" per risk, i.e.: decreased rainfall, increased occurrence and duration of drought, increased temperatures, and occurrence of intense weather events as outlined in the national publication – the TNC (2014).

Focus group participants were given an orientation to uncover past and ongoing observances of climate risks in order to relate the topic to their own experiences and improve understanding among the group. Participants were then given the questionnaire to evaluate, along a scoring system of 1-5 (5 indicating the highest significance – exposure – to a climate risk and its corresponding effect, 1 – lowest significance).

The focus group's results are illustrated in the following table, as indicated by percentages, which were developed based on the compiled scores assigned by participants over the number of points possible per risk-effect. In comparison, the far-right column is also assigned a significance; however, this significance highlights the risk-effect relative to the national context. This comparison underscores the importance of local community-based action to counter climate change and for the municipality to be able to identify, address and promote actions that address climate impacts on a grassroots level.

¹⁵ Biornes, C. (2015). A guide to Representative Concentration Pathways. CICERO

¹⁶ Definition: evaporation and water requirement of plants

Vulnerability Assessment

Vulnerability is defined as the degree to which systems (economic, natural, social systems) are likely to be impacted by the effects of climate change. The process of determining Deir Alla's vulnerability included accounting for the following variables which required a review of the following national publications: Jordan's Nationally Determined Contributions (NDCs); Jordan's First, Second and Third Communication on Climate Change; The National Adaptation Plan (Draft) (NAP) document; and Climate Change Policy for a Resilient Water Sector (MWD).

Exposure the degree of exposure of the municipality to climate impacts (examples: change in annual rainfall, change in annual temperature, etc.)

Sensitivity the extent to which the system is negatively or beneficially affected by climate-related impacts (examples: drought, floods) and the factors exposing the municipality to such impacts (such as: local economic activities, desertification, etc.).

Adaptive Capacity the ability of the municipality to adapt. Such factors to determine adaptive capacity: socioeconomic status of communities/ individuals in the municipality, occupation (time required outside), etc.).

Figure 9 Components of Vulnerability

Participants selected among the risks and evaluated which ones were perceived and/or observed to have the most impact on the community. Among the range of effects resulting from climate risks, the participants assessed increased water demand, decreased water availability and impaired agricultural production as effects risks requiring urgent counter measures.

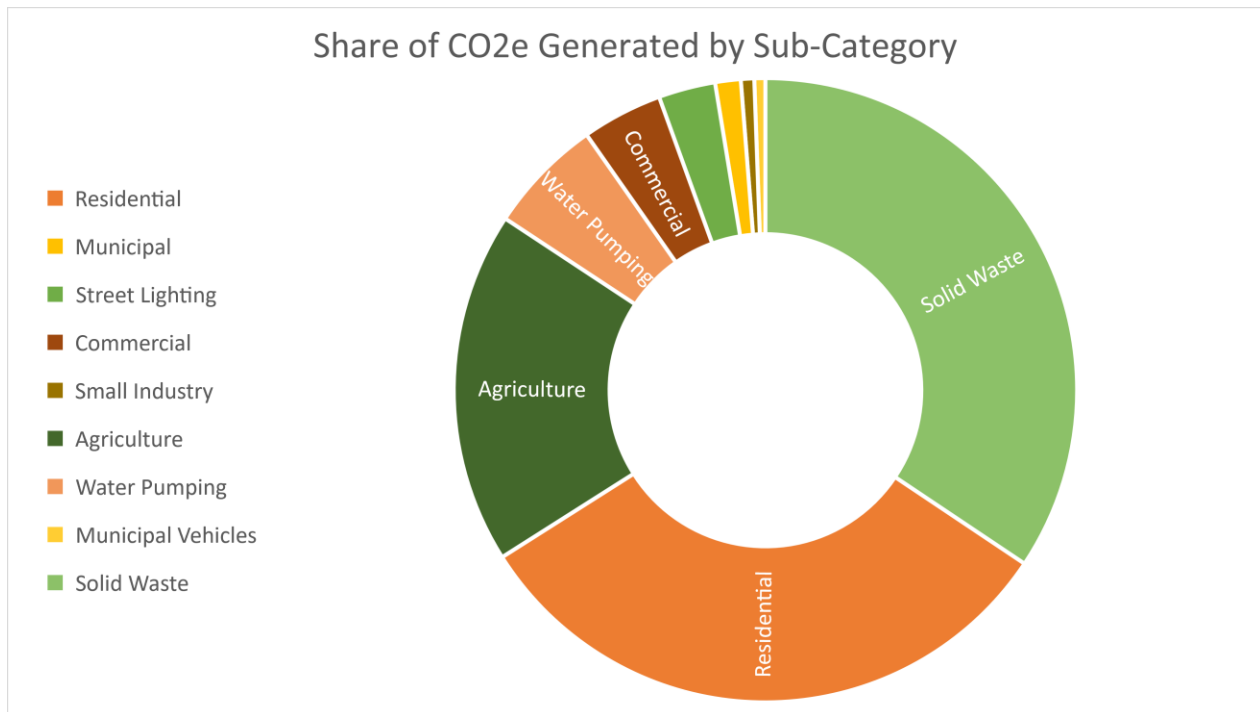
Table 6 Risks and Potential Impacts as Ranked by Focus Group Participants Deir Alla

Risk	Potential Impacts	Percentage	Significance ¹⁷
Increased drought	Increased water demand	74%	5
Rainfall decline	Disruption of agricultural systems	72%	4
Increased drought	Destruction to agricultural crops	72%	4
Increased floods	Destruction to infrastructure	68%	3
Rainfall decline	Decline in groundwater levels	66%	3
Rainfall decline	Decline in groundwater quality	64%	2
High temperatures	Decline in agricultural production	64%	2
Increased floods	Damage to dams	64%	2
High temperatures	Decrease in surface water runoff	62%	2
High temperatures	Decrease in groundwater recharge	60%	2
Rainfall decline	Decline in livestock products	58%	2
Increased drought	Spread of disease	58%	1
Increased floods	Damage to lives and property	58%	1
Rainfall decline	Decrease in surface water runoff	56%	0

7. Development of Actions

Inputs for Mitigation Actions

Oftentimes, mitigation is associated with the added benefits of improved financial spending on energy due to improved energy efficiency (through energy efficiency measures, building awareness in energy efficiency, enhancing transportation management, etc.). However, considering the variability of population growth, securing the means to integrate energy efficient and/or renewable energy technologies needs to occur in order to enable the community to adapt to rising temperatures, dropping groundwater level (entailing increased power to withdrawal water), and balancing expenses as household expenditures may adjust adversely.



Energy

Among the criteria for the prioritization of Actions in the LoA, selected by the RRCCG, was to improve air quality. The built environment of Deir Alla is densely developed along the main corridor leading through the municipality. The establishment and further development of Deir Alla's parks could be a creative means to provide shade, beautify the area, and be the starting place for an initiative for urban farming (vertical, roof gardens) among other actions. Regarding buildings in general, retrofitting existing buildings (energy efficient fixtures, insulation, not exclusively), painting roofs to reflect the sun, and instituting responsive building techniques to reduce energy demand reduces emissions and is an investment on reducing energy bills. Incentivizing, advising and regulating on green-building techniques would also aid in standardizing the proven practices for improving the energy efficiency and operation of buildings.

Deir Alla has a considerably warm climate, and climate change nearly ensures that temperatures will continue to upward. The community has been and will continue to be exposed to the adverse health effects of high temperatures that result in the need for the utilization of air conditioners, access to clean potable water and reliable municipal services (waste collection). Vulnerable groups (low income, elderly, farm workers) of people are at particularly high risk as temperatures rise. Reducing the cost of energy through renewable and energy-efficient technologies to enable

households to use climate-control options is a means to safeguarding community wellbeing; hence, the installation of solar PV units on residences was featured with progressive increases in the model.

Building off of Deir Alla’s achievements of recent years, particularly in the installation of solar PV units on residences, following table (Table 8) was developed to illustrate pathways for mitigating emissions. The four emissions reduction scenarios below were modeled represent a simple projection of emissions increase based on population growth with 2018 as the base year to highlight action areas and their potential influence on emissions generation. The ambitions for the target areas solar PV to meet residential electricity demand of households (solar PV units and solar water heaters), agricultural and water sector energy demands are based on the Technology Action Plan’s (2017) *Energy Ambitions*. The Ambitions governing the model’s outputs for Public Buildings and Waste were based on the municipality’s goal to supply public demand for electricity with renewable energy and, waste – based observations and documentation of sorting and recycling initiatives ongoing in Jordan.

Emissions Reduction Scenario Models based on Energy Ambitions of the Technology Action Plan & the Waste Sector			
Solar PV: Installation of PV Solar units to meet electricity demand of households and solar water heater units <i>(considered mutually exclusive in model estimations)</i>	Target as a Percentage	Co2e averted (Gg)	%of total estimated emissions
2018	4% as of 2020	0.46	0.25%
2025	if 10% by '25	1.10	3%
2030	if 15% by '30	1.64	5%
Public Buildings: Installation of PV Solar units to meet electricity demand of municipal buildings and street lighting	Target as a Percentage	CO2e averted (Gg)	%of total estimated emissions
2025	--	0.08	0.2%
2025	if 100% by '25	1.42	4%
Waste: If 10% of solid waste is treated (10% of organic, 5% of plastic and 5% of paper fractions) and 15% by 2025; and (20%, 10% and 10%) by 2030, respectively.	Target as a Percentage	CO2 averted (Gg)	% of total estimated emissions
2018	--	--	--
2025	If 10% by 2025	.132	.4%
2030	If 15% by 2030	.395	1%
Agriculture: 30% of farmers located in off-grid (and 20% of grid-connected) regions are using solar PV pumping systems by 2030 (TAP, 2017); Modeled data based on the sector’s electricity demand (EDCO, 2018).	Target as a Percentage	CO2 averted (Gg)	% of total estimated CO2e
2018	--	--	--
2025	If 20% by 2025	1.21	4%
2030	If 30% by 2030	1.81	5%
Water: 20% of grid of government pumping stations switch to solar PV by 2030 (TAP, 2017). Modeled data based on the sector’s electricity demand (EDCO, 2018).	Target as a Percentage	CO2 averted (Gg)	% of total estimated CO2e
2018	--	--	--
2025	If 20% by 2025	0.39	1%
2030	If 50% by 2030	1.00	3%

Table 7 Emissions Reduction Scenario Models that illustrate reductions per category that was analyzed in the Mitigation Analysis with corresponding years, targets (as a percentage of both the sector/category they represent as well as total emissions analyzed).

The reductions, analyzed in Table 8, represent renewable energy units installed on households (PV solar units on roof tops and solar water heaters, as mutually exclusive items), solar units to generate electricity for municipal buildings and streetlighting, treatment of solid waste streams (organic/biowaste, plastics, paper and cardboard), electricity consumption in the agricultural sector and water pumping based on each category’s electricity consumption reported by EDCO with the exception of waste (data was scaled from Jordan’s First Biennial Update (2017)).

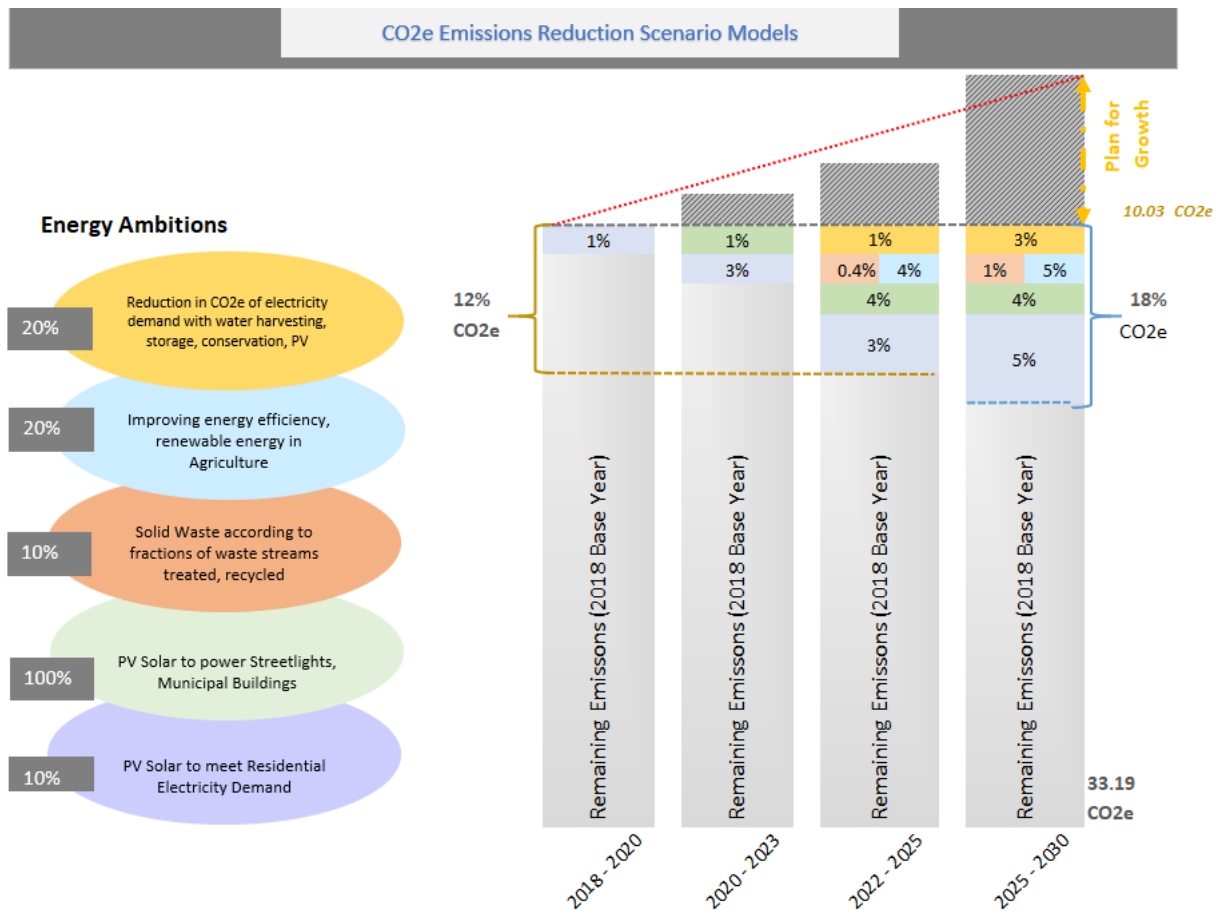
The model does not quantify emissions diverted and generated resulting from wastewater treatment nor the plans to establish a solar field to compensate the energy demand to operate the wastewater treatment facility – Tal-Al-Manath,

which is to be implemented as a three-year project, launched by Global Nature Fund and EcoPeace in the near future. The model does not quantify emissions of transportation nor the emissions generated by the wider scope of activities in the agricultural sector, due to the limitation of data. Although these areas (transportation, agricultural activities that generate emissions not sourced from electricity consumption, not exclusively) have not been analyzed during the development of the mitigation analysis and model, as more data becomes available for these activities, the models should be recalculated to represent these aspects.

The CO₂e emissions reduction goals per category are also illustrated in the figure below (Figure 9). For example, if 10 percent of residential electricity demand were powered by solar PV units by 2030, it would result in a reduction of CO₂ equivalent of 5 percent of total emissions of the base year for the included categories.

The municipality should evaluate and scale mitigation efforts to achieve desired targets, and offset population and developmental impacts (GDP growth, behavior changes, increased demand for water, not exclusively).

Figure 10 CO₂e Emissions Reduction Scenario Model for Municipality of Deir Alla



Deir Alla is already on the path to improving energy efficiency, having installed more energy-friendly light fixtures and, in the near future, powering a large share of its spending on electricity for streetlights and wastewater treatment with the installation of solar fields.

Solar energy should also continue to benefit the residents of Deir Alla to ease the cost of electricity expenditure in addition to raising awareness. Reducing energy demand is critical in the near-, mid- and long-term perspectives as one of the core risks of climate change is increased temperatures which in the municipality will correspond to electricity

consumption for climate-control technologies (such as air conditioning units) at the household level as well as places of work.

Transportation and Mobility

Regarding transportation, the municipal fleet, where possible could work toward replacing staff vehicles with energy-efficient models (hybrid, electric). Conducting regular maintenance of municipal solid waste collection and transport vehicles (compactors) and other loading vehicles is key to fuel efficiency and reducing emissions in municipal transport. Addressing public transport to not only reduce emissions but to also provide safer, more efficient, and reliable mode(s) of transport for the community may incentivize commuters to travel by public transport, as opposed to their personal vehicles. Setting regulations to encourage potential users, providing capacity building for drivers and institutionalizing the roles of stakeholders to offer reliable transportation and building up pedestrian infrastructure could be utilized to incentivize improved modes of travel.

Municipal Solid Waste

Solid waste is a highly integrated sector with potential for emissions reductions and economic activities. Overall, initiating Actions for the treatment of waste streams¹⁸ (as opposed to burning and/or the application of raw animal manure on to agricultural fields) could aid in achieving emissions reductions and reducing pollution. Several Actions address waste treatment of various waste streams with each one benefiting an auxiliary sector; such as composting of organic wastes to enhance soils; biochar to act as a water retainer and soil amender; collecting and submitting recyclables for financial incentives. Regardless, these options divert wastes from the landfill, reduce emissions and have the potential to enhance the job market.

Case Study: Community Based Composting to Convert Manure Waste to Resource and Livelihood Opportunities

The compost facility at Hussainyyat Landfill employs updated technologies coupled with local and national institutional support while creating employment opportunities for disadvantaged community groups through a local CBO Al-Khaldyeh Women's Society.

Having initiated operations in 2017, starting with a pilot phase, the operational capacity of the station stands at 35-40 tons of manure wastes (from livestock) daily, amounting to a total of 1,300 tons per month. As a result of processing, the quantity of compost marketed reaches between 3,900 – 6,500 tons of quality compost annually.

Industry

Industry and market activities, whether it be the main market or small food shops, each produces a considerable amount of waste. Initiating and coordinating actions that increase the amount of recyclables and other materials that could be repurposed or treated to create economic value should be pursued in a more strategic manner. The application and recalculation of municipal waste fees could aid in constructing mechanisms to improve compliance with collection, sorting and recycling initiatives.

Water

Integrating water (pumping, irrigation, treatment) with sources of renewable energy (PV for water pumping) creates opportunities to improve both water availability and quality in addition to reducing emissions. Conversely, there is a

¹⁸ Waste streams, referring to: biowastes (food, agricultural organic waste, plant trimmings), plastics, paper, etc.

great need to increase the capacity of wastewater treatment as well as increasing compliance among the public to empty cesspits as necessary through proper disposal to avoid further deterioration of soils, water and public health. On a smaller scale, mitigation in water sector may be improved through the utilization of rainwater harvesting (particularly placed in strategic areas for the runoff from the surrounding valleys following rain storms) and graywater reuse as a means to increase the availability of localized water sources, in addition to wastewater treatment. Farms are subject to flash floods in Deir Alla; farm-level water harvesting and storage in cisterns are an option.

Agriculture

From organic materials to tilling of soils and energy to support irrigation systems, the agricultural sector has a wide and varied use for mitigation actions. In Deir Alla, tackling this topic as proposed in the LoA is through an integrated approach – training in best practices, piloting of existing and new technologies (off-grid PV for water pumping; low drip low-energy irrigation) to adopt in the region and training to enhance their application. The creation of green buffers to reduce erosion, improve water retention, and reduce the degradation of soils in addition to carbon sequestration.

Related Actions:

- **Municipal (-wide) Mitigation Strategy: Mitigation of GHG through adoption of alternative energy sources to diversify local energy portfolio and improve local resilience**
- **Eco-Municipality**
- **Advancing Public Transportation for Climate, Accessibility and Resilient Services (CARS)**
- **Stronger Foundations for Deir Alla’s Built-Environment with Climate-Responsive Building Techniques**
- **Energy efficiency through insulation of buildings and Enhanced Spatial Planning**
- **Public Building Energy Efficiency & Zero-Waste Initiative**
- **Continuation of the Learning Center's Activities After March 2020**
- **Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms**
- **Emissions Reductions and efficiency in the solid waste collection and transport**
- **Clusterization of Commercial - Residential Sorting-At-Source Recyclables Collection: Gateway to Waste to Energy Optioneering**

Inputs for Adaptation Actions

The municipality's unique economy, development, communities and culture compose a mosaic of features that are both, at times, vulnerable to climate change risks. In following up with the RRCCG to further address the range and detail of potential Actions, the participants evaluated a set of adaptation technologies and their applications. Each potential Action was initially identified within Jordan's TNC, Second National Communications (SNC), and National Adaptation Plan (Draft). The adaptation options were assigned measures indicating their significance based on a preliminary understanding of the current and anticipated climate challenges facing the municipality. This time, in reflecting on the climate risks that they had ranked, the participants were requested to match (the risks) with the adaptation options that they thought were viable, feasible, sustainable and addressed the risks at hand.

To compliment the participants' selections, each adaptation option was paired with a relative-national significance of priority adaptation options identified as priorities for Jordan. The scores for significance (5 high significant, 0 No significance) (Table 5) were determined during a meeting of the RRCCG, to measure the suitability of these options within the municipality.

The adaption options with highest significance were **Raising Awareness**, **Changing Agricultural Patterns and the Varieties of Cultivated Crops**, **Desalination** of brackish groundwater, and **Forest Protection** and **Overgrazing Prevention**.

Table 8 Adaptation Options as Ranked by Focus Group Participants of Deir Alla

Adaptation Actions	Percentage	Significance ¹⁹
Raising awareness about climate change, its impacts and adaptation	58%	5
Changing agricultural patterns and cultivated crops	50%	4
Protecting forests and preventing overgrazing	48%	4
Increasing the efficiency of irrigation systems	46%	3
Desalination of brackish water from wells	46%	4
Improving efficiency of irrigation technologies	44%	2
Introducing new crop varieties	44%	2
Wastewater treatment for use in irrigation	42%	2
Improving the efficiency of water storage systems to reduce evaporation	42%	2
Artificial recharge of groundwater	40%	1
Development of an early warning system for drought	40%	0
Utilization of water conservation technologies	38%	2
Rehabilitation of springs	38%	1
Adjusting the agricultural calendar	38%	1
Use of supplementary irrigation	38%	1
Reuse of greywater	36%	1
Integrated Watershed Management	34%	1
Development of an early warning system for floods	34%	0
Improving runoff capacity	32%	0
Reducing dependence on irrigation	30%	0

¹⁹ Adaptation Options Ranked by Significance based on findings in National Publications: Jordan's First, Second and Third Communication on Climate Change; The National Adaptation Plan (Draft) (NAP) document; and Climate Change Policy for a Resilient Water Sector (MWI).

In order to reinforce the connection between the risks and the adaptation options identified, a “Climate Risks-Actions Matrix” was developed (Figure 12), in which the risks (Figure 10) are paired with their corresponding Action areas, as defined in Table 13.

The risks and their effect(s), having been ranked by the RRCCG, and compared with a relative assessment for local capacity (availability of funding, existence of respective plans and strategies, previous projects, etc) (capacity to affect negative consequences) such as increased floods, drought and temperatures and decline in rainfall. As illustrated, increased water demand, agricultural productivity and damage to property are pressing issues that are intersectoral and requiring a combination of Actions and collaboration with stakeholders to solve.

Enhancing water treatment operations for wastewater (and eventual desalinization), introducing and applying greywater technologies in a way that’s feasible for applicable end-uses within the community, is just as much essential for maintaining the viability of the municipality’s core sector – agriculture – as it is for cultivating green areas suitable for supporting ecosystems on which the (migrating birds) depend.

Figure 12 Explanation of labels used to identify risks

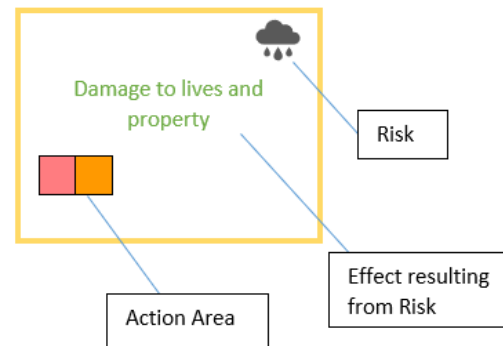
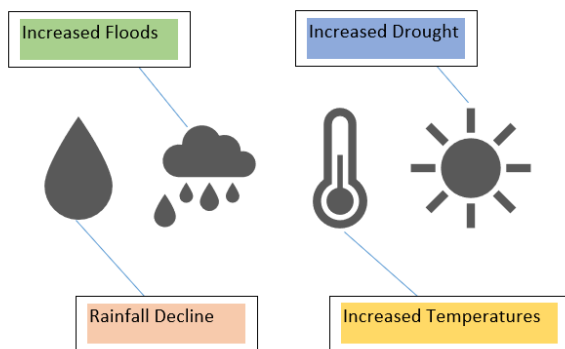


Figure 11 Identification of effects and action areas associated with a particular risk

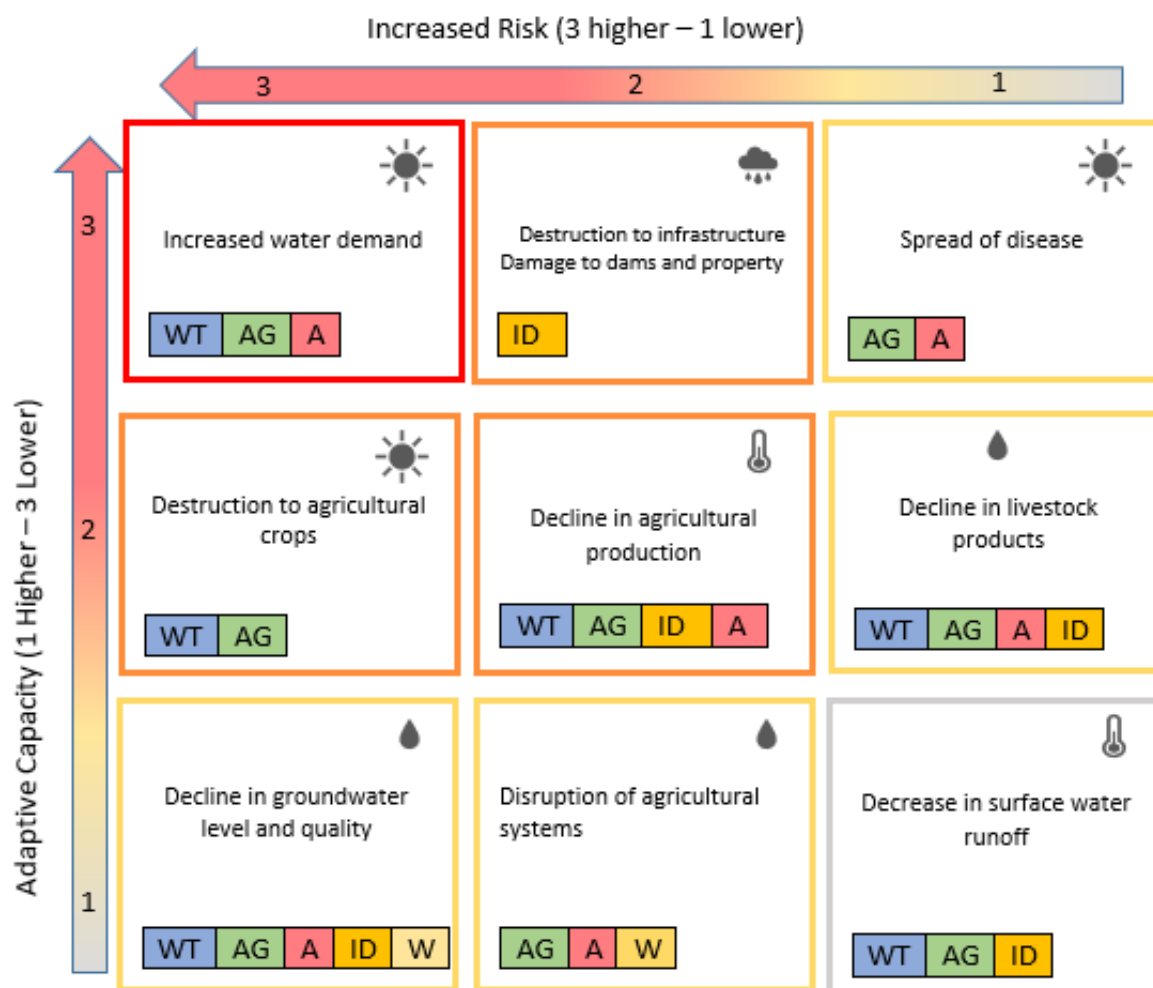


Figure 13 Action Areas-Risk Matrix

Figure 14 Definitions of Action Areas as well as their acronym, as illustrated in Figure 12.

Generalized Action Areas			
Action areas are organized by NDC categories with the addition of "Communication & Public Awareness"			
NDC Categorization			
Water	WT	Water Efficiency and Treatment	Improving water capture and greywater applications; improving groundwater health by increasing recharge, expanded wastewater treatment
Agriculture & Food Security	AG	Improved Agricultural Practices	Synchronizing crop patterns and varieties with changing climate; improving application of irrigation systems (timing, placement, operation) fertilizers and pesticides; treatment of organic wastes to produce into commodity to improve soil quality
Communication & Public Awareness	A	Awareness	Awareness campaigns and behavior change toward waste disposal, water conservation and tree felling; compliance with regulations regarding the application of raw manure on agricultural fields; improving agricultural practices to reduce ecological harm.
Urban Development and Ecosystems	ID	Integrated Urban-Ecological Development	Improving urban greening activities, reforestation of native plants and restoration of ecological sites; development of parks; redirection of rainwater runoff and guidebook for green building technology for the municipality
Waste	W	Development of Infrastructure and Waste Treatment	waste management and treatment (including sewage), carbon capture; establishing a circular economy and livelihood opportunities

Agriculture

Referring to the agricultural sector in particular, reducing the water footprint of crops by introducing new crop varieties (climate-resistant as well as minimizing water requirement), collaborating with universities and neighboring communities to initiate modern breeding programs and transfer knowledge to institute best practices (particularly in advanced and precision applications of fertilizers and pesticides to reduce their negative impact on soil and to retain investments that could otherwise be washed away by the next rain storm) create an integrated and complex collection of actions to address this risk.

Agricultural residues, improper waste disposal including the disrepair and leakage of cesspits in addition to climate change risks deteriorate water quality. This area of concern, as it is compounded by water scarcity and population growth, requires a multi-pronged approach not represented by one or two actions, but several. The creation of green buffers to prevent runoff from agricultural areas and into the soil and groundwater as well as increasing the capacity of wastewater treatment should be sought.

Water

Improving water availability and quality also aids in addressing destruction to agricultural crops and decreased agricultural production, which are also highly vulnerable as both droughts (in duration) and higher temperatures are likely to increase. Evapotranspiration (and the frequency of irrigation) is likely to increase without methods for enhancing or safeguarding the soil's ability to retain water. Advanced and strategic management of irrigation systems; the piloting and research of compost and biochar impacts on water and nutrient retention of soil, the creation of green buffers to guard against erosion (of soil, runoff or carriage of pesticides, fertilizers and other agricultural inputs) can be applied in efforts to alleviate the issue.

Deir Alla is severely in need of new and more diversified water resources. Technologies for rainwater harvesting (small-scale as well as earthen cisterns) and graywater re-use are to be technologies with potential to aid in diversifying the local water portfolio in addition to employing best practices to meet the needs of the community, economy, and, in particular, the agricultural sector. The conservation of water in agriculture combined with the introduction of climate resilient crops and management techniques to reduce the sector's water footprint as well as water loss through evapotranspiration (which is anticipated to be on an upward trend in coming years²⁰).

Rainwater harvesting technologies and cisterns could aid in addressing flash floods that have, in recent years, accompanied harsh, seasonal rains. Although, greywater harvesting and its improved application could have a more sustaining impact in the municipality.

Biodiversity, Ecosystems & Protected Areas

In terms of ecological restoration and biodiversity, as it currently stands, would be at odds with the resource demands of agriculture. However, studies have indicated that soil quality (water retention of the soil as well as its properties) improve with time when areas (within and) around farms are integrated by creating pockets of multifunctional landscapes. This may include strategies and plans that strive to balance ecological and social needs, improving governance and enforcement of regulations, planting crops as well as constructing green buffers that repopulate areas with native flora and restrict pollutants from entering water/soils.

²⁰ TNC, 2014

Waste

The study of treated wastewater should be reinstated to examine treated wastewater's properties and applications in Deir Alla. The study, for which the treatment facility allocated land and resources for research, of treated wastewater from Tal-al-Manhath was discontinued due to a change in administration and treated wastewater currently is left to evaporate. Thus, in addition to the planned expansion of the wastewater treatment (WWT) facility, there should be an Action to assess its feasibility during a series of pilot projects. It is likely that its use will be restricted to watering trees and non-crop vegetation. In this case, treated wastewater can support ecosystems rehabilitation, landscaping, green buffers interspersed between farmland, and other ecological restoration Actions.

- **Expansion of WWT Plant & Feasibility of Decentralized WWT Systems at Pilot Sites**
- **Diversion of Rain Runoff through Rainwater Harvesting and Reforestation**
- **Rainwater Harvesting and Urban Greening with Urban Canopies**
- **Greywater Reuse for Urban Greening and Groundwater Buffer**
- **Constructed Wetland for Effluent Wastewater Treatment, Ecological Restoration**
- **Compost Production and Biochar for Agricultural Soils Reparation**
- **Reforestation of Ecological Corridor**

Gender Mainstreaming in Actions

Climate change impacts groups of a community differently due to various reasons such as the tasks and responsibilities they typically carry out day-to-day. The majority of studies have shown that women and girls are at greater risk from the consequences of drought, water shortages and food insecurity; however, socially constructed roles also affect men's responses to climate-related disasters; such as: men are typically the ones to be injured during natural disasters due to their time spent outdoors. On the other hand, women are also typically more restricted in terms of movement (access or availability of transport, finances, etc) which also influences people's responses and adaptive capacity.

Table 9 Gender Mainstreaming Methodology

Gender Mainstreaming: the process of integrating - at all stages – activities to ensure the inclusion of women and men express their visions and experiences, and participate in decision-making from identification of actions to implementation and evaluation to achieve justice.	Gender expert involved at all stages of LCAPs development
	Investigations of national policies and related strategies and policies; assessed the prevalence of these strategies and policies during field work
	Assessed municipal programs and projects related to climate change and related sectors
	Conducted In-depth interviews with stakeholders in municipalities, ministries and institutions associated with climate change
	Conducted focus groups, engaging stakeholders across sectors, gender, age and background
Analyzed the institutional culture of the municipality and their awareness of climate change issues and women's empowerment	

There is no doubt that the issue of climate change has become an important issue due to its association and direct impact on vital sectors, whether it be agricultural, water or health. The impacts of climate on human society and our ability to mitigate and adapt these impacts are achieved, in a large part, through social factors. Thus, accounting for

the role/influence of gender when countering climate change impacts is of critical importance for the success of any one Action.

There is a lot of discussion at the international, national and local level about how to best account for gender mainstreaming in climate action. What is agreed upon is that climate change, gender, economic, health and environmental, water, energy and agricultural factors interact strongly.

Gender and Climate Change

The team was committed to integrating gender into the stages of methodology design, tools, data collection and the development of the municipal action plan framework. Several procedures have been implemented, and gender-sensitive methodologies have been used in collaboration with municipalities and the group of experts. The following have been done:

- The gender expert's involvement from the early stages of methodology design and action plans.
- An office review of national policies and strategies related to climate change and related sectors of the environment, water, energy and agriculture, and its arbitration of gender methodology.
- Access to municipal programs and projects related to climate change and related sectors;
- In-depth interviews with stakeholders in municipalities, ministries and institutions associated with climate change;
- Implementation of focus group panel discussions with civil society, taking into account the separate sessions held with youth, one with women's associations, and another with general stakeholders.
- The study of the institutional culture of the municipality and their awareness of climate change issues on the one hand, women's empowerment and gender justice on the other;
- Studying priorities in activities proposed by municipalities with a team of experts on adaptation and mitigation of the effects of climate change, and to strengthen them with the entrances to women's empowerment and women's organizations.

Adapting to and mitigating the effects of climate change in Jordan is critical to protecting livelihoods and making continued progress towards sustainable development. The ways in which climate change affects all members of society varies and understanding, accounting for, and developing dimensions within Actions that account for these variations defines gender mainstreaming.

To get to know the municipality of Deir Alla and its community, it was necessary to hold a series of panel discussions and meetings with the local community in Deir Alla municipality, and to talk to them about their view on the economic and educational situation, women's empowerment and issues related to climate change, and proposals in community projects to address change. climate and empower women and girls in particular.

Through these interactions with the community, key points were defined for the incorporation into actions including high poverty and high unemployment rates among young people and university graduates, high energy consumption due to high summer temperatures, the proportion of non-agricultural investments is limited, and that the municipality suffers from a lack of financial and human resources. On the other hand, the accumulated experience of the municipality in working with international institutions should be taken into account as various development projects, as well as projects within the framework of climate change as summarized in the following points:

- Any action should take into account high unemployment rates, power relations and decision-making in the municipality and other local authorities.
- It may be necessary to attach any action or project to a package of intensive and enhanced training and awareness of climate change concepts for municipal and local council workers, community organizations, student and student schools, universities, and directorates related to the Brigade (this training should include The main topics in climate change and the environment, the importance of meaningful participation of society, youth and women, and working for society with it). This is through the active participation of women's organizations, youth associations and people with disabilities, and the use of an appropriate and easy-to-implement motivational methodology such as

competitions, competitions for best practices and initiatives in the face of climate change, and tourism visits.

- Support dialogue with decision makers and stakeholders from the Jordan Valley Authority, the Directorates of Health, Agriculture, Education and the Environment, and others to discuss climate change policies. These meetings should help coordinate, identify, identify and build capacity for stakeholders on climate change topics.
- Strengthening the municipality's role in supervising regular activities carried out by groups of society. This should include community activity every month/two months. This may be like: cleaning days; tree planting days; The municipality can contribute to promoting the marketing of women's products and associations, including food, juices and crafts, marketing and spreading awareness of the importance of clean energy, rationalizing electricity and water, and recycling grey water for use in homes and schools on the other, with the possibility of distributing any free means to help.

Further elaboration on specific considerations for integration into climate Actions is described in the following section “inputs for actions”.

The following table provides a framework to strengthen the work of municipalities and partners in the development of climate change-related interventions, programs and activities, which take into account the needs of all members of society: males and females, young people, children and adults, people with disabilities, and the poor. And the marginalized.

Table 9 below illustrates an array of activities that were incorporated in Actions where possible to enhance the outcomes and improve local resilience. These activities are the result of a Gender Mainstreaming Exercise and Assessment during the Baseline Analysis phase of LCAP development, divided between sections **Identification of Actions**, the **Implementation of the Action** and the **Evaluation of Actions** (vertically) and Integrating *Practical Gender Needs* (considerations to ensure opportunities resulting from Actions are accessible to the public) and *Strategic Gender Interests* (society valuing the contributions of women in professional, social and familial settings) (horizontally).

Table 10 A matrix of components, of which a selection was applied to each individual Action of the List of Actions of the Local Climate Action Plan.

	Practical Gender Needs
Identification of Actions	Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities
	Location and timing of meetings facilitates cultural needs (segregated rooms and/or providing childcare, location is accessible to the disabled)
	A social and gender expert is present at functions, events centered around community engagement
	Funding opportunities are unbiased
	Improving knowledge and concept of climate change and gender integration
Implementation	Building the capacity of municipal workers in gender and women's empowerment
	Participation of male, female and youth workers in supervising and implementing Actions
	Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation
	Information is transparent and easily accessible
	Securing a nursery for childcare for male and female workers, supervised by the municipality
	Media campaigns promote women's empowerment, highlighting professional and leadership capacities



Evaluation

Creating suitable economic opportunities for women to improve their income, including **training opportunities** in non-traditional skills (such as project-related technical and technological skills); **improving services and infrastructure** (nursery, transportation..) to enhance women’s economic participation; safeguard labor rights, particularly for those who work in agriculture; **removal of barriers** traditionally placed on women that compound their workload; improving women's access to reproductive health services.

Active participation of women's associations in implementation

Improving and developing the role of women's associations in the community from traditional roles (charity,) to more leadership, renewable and related sectors related to climate change (water, energy and health)

Active participation of youth

Active participation of people with disabilities

Track the numbers of beneficiaries, participants and leaders/decision makers in initiatives, disaggregated by gender, age and geographical area of the municipality.

Participation of women researchers and women's associations in data collection

The designation of the Gender Score Index ensures that the minimum requirements for justice and gender equality are met and that strategies contribute to improving the implementation of Activities and allocating the resources needed to ensure that any project, is as responsive to the practical and strategic needs of both genders as possible.

Each gender Score index is set as follows:

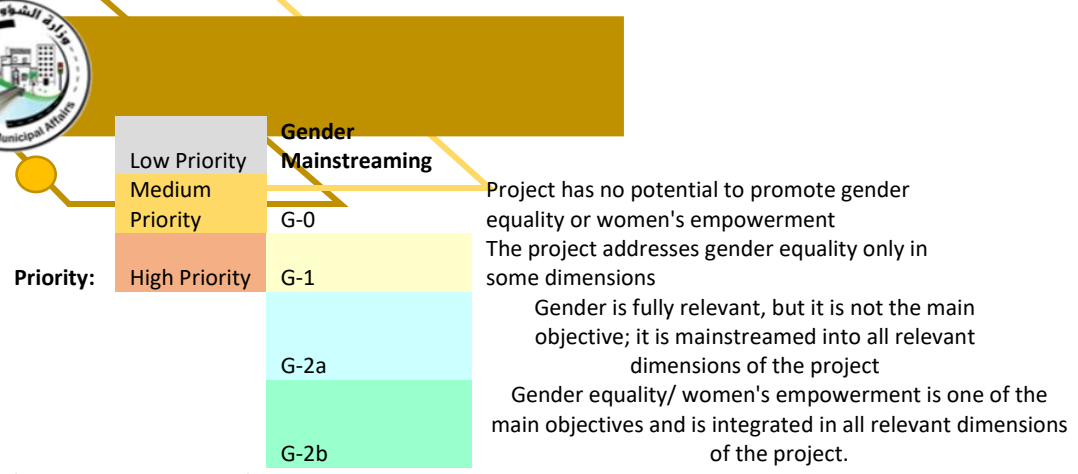
- (2.B) The government's ability to meet the need for a new government is a challenge. is the main focus Of Female directors
- (2.A) The government has to be able to achieving justice and gender equality
- Some/ limited attention to Justice and gender equality
- The nature of the Action has minimal social components at this time

8. List of Actions

Blending Mitigation and Adaptation aspects in a List of Actions was prioritized through the RRCCG during a workshop in September, 2019. The RRCCG's selection of criteria, which included: prioritizing Actions for improving soil health, livelihoods, stakeholder engagement, securing climate financing and others, helped shape the types of Actions and their details.

The LoA is organized according to the sectors of the NDC: Energy, Transportation and Mobility, Waste, Industry, Water, Agriculture and Food Security, Urban Development, Health; and Biodiversity, Ecosystems and Protected Areas with the additions of Urban Development and Communication. Each category corresponds to objectives, which are accompanied by strategies and the Actions. The resulting Actions are the product of the Mitigation, Adaptation and Gender Mainstreaming baselines. Consultations with the RRCCG informed on the types and scope of Actions as well as the set of values for the prioritization of Actions.

Actions discussed in previous sections are detailed in the LoA and its accompanying InfoSheets.



TBD - To be determined by Local Development Unit, Municipal Administration

No.	Action	Priority	A/M	Gender Indicator	Activity		Progress Update*	Responsibility			One-time costs		Ongoing costs (annual)		Sum	Status
					Beginning	Ending		Initiator	Submission of Approval/ Technical Support /Funding Avenues	Implementing Bodies (TBC)	Internal	External	Internal	External		
1. ENERGY																
1A. MUNICIPAL-WIDE DEVELOPMENT																
1.A.1	Monitoring the energy consumption in the boundary of the municipality	Medium Priority	mitigation	G-0	2022	permanent	TBD	Municipal Administration	Electricity Distributor	Municipal Administration	TBD	TBD	TBD	TBD	TBD	TBD
1.A.2	Solar Saturation & Energy Efficiency in Residential Sector	High Priority	adaptation of mitigation	G-2a	2021	2027	TBD	Municipal Administration	MDU, LE, MEMR	NGOs, Private Sector, Universities	TBD	TBD	TBD	TBD	TBD	TBD
1.A.3	Energy efficiency through Insulation of buildings and Cool Roofing (Retrofitting)	High Priority	mitigation	G-0	2021	2023	TBD	Municipal Administration	MoLA	TBD	TBD	TBD	TBD	TBD	TBD	TBD



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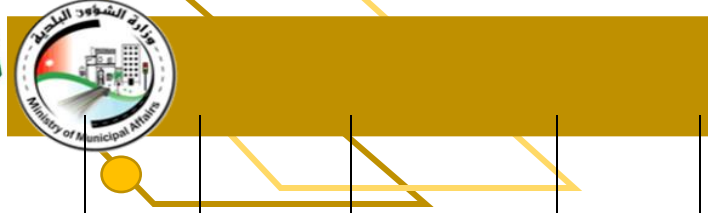
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DEUTSCHE ZUSAMMENARBEIT



1.A.4	Climate-Responsive Building Techniques (New construction) for Deir Alla's Built-Environment with	Medium Priority	mitigation	G-0	2021	2023	TBD	Municipal Administration	MoLA, GBC	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
1.A.5	Sustainable Energy and Economic Development Project (Solar Farm & LED Streetlights)	High Priority	mitigation	G-1	2020	Dec 22	TBD	Municipal Administration	City Council	SEED, JREEF	TBD	TBD	TBD	TBD	TBD	TBD	TBD
1.A.6	Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms		adaptation of mitigation	G-2b	2021	2030	TBD	Municipal Administration	MiEMR, MoF, MoPIC	Donor Country	TBD	TBD	TBD	TBD	TBD	TBD	TBD
1B. MUNICIPAL BUILDINGS																	
1.B.1	Establishing a System for Monitoring Energy Consumption of Municipal Buildings	Medium Priority	mitigation	G-0	2020	permanent	TBD	Municipal Administration	Municipal Administration	MEMR	TBD	TBD	TBD	TBD	TBD	TBD	TBD
1.B.2	Elaborate and Implement an Energy Directive for Public Buildings	High Priority	mitigation	G-0	2020	2020	TBD	Municipal Administration	GBC, MoLA	Municipal Administration	TBD	TBD	TBD	TBD	TBD	TBD	TBD
1.B.3	Public Building Energy Efficiency & Zero-Refuse (Paper,	Medium Priority	mitigation	G-1	2020	2021	TBD	Municipal Administration	GBC, MoLA	Municipal Administration	TBD	TBD	TBD	TBD	TBD	TBD	TBD



1.B.4	Plastic Initiative														
	Climate Change and Energy Efficiency Aspects in the planning, construction of the new Municipal Administration Building	High Priority	mitigation	G-0	2021	2021	TBD	Municipal Administration	GBC, MoLA	Municipal Administration, Contractor	TBD	TBD	TBD	TBD	TBD
1.B.5	Elaboration and implementation of procurement regulations for energy-efficient appliances, e.g. ACs, for the city administration	Medium Priority	mitigation	G-0	2020	2021	TBD	Municipal Administration	City Council	Municipal Administration, staff	TBD	TBD	TBD	TBD	TBD
2. TRANSPORT															
2.1	Conversion of the municipal fleet to electric or hybrid cars	Low Priority	mitigation	G-0	2026		TBD	--	--	--	TBD	TBD	TBD	TBD	TBD
2.2	Emissions Reductions and efficiency in solid waste collection and transport	Medium Priority	mitigation	G-0	Jul-05	2023	TBD	Municipal Administration's Solid Waste Department (staff, drivers), consultant	City Council	Municipal Administration's Solid Waste Department (staff, drivers), consultant	TBD	TBD	TBD	TBD	TBD
2.3	Advancing Public Transportation for Climate, Accessibility and Resilient	Low Priority	mitigation	G-1	2026	2030	TBD	Municipal Administration	LTRC, MoT, MoPSD, MoPIC		TBD	TBD	TBD	TBD	TBD



3. WASTE

3.1	Recalculation of Waste-Collection Fees	High Priority	mitigation	G-0	2021	2021	TBD	Municipal Administration	City Council	Ministry of Local Administration, MoLA Consultancy	TBD	TBD	TBD	TBD	TBD
3.2	Solid Waste Management Strategy	High Priority	mitigation	G-1	Ongoing		TBD	Municipal Administration	City Council	Ministry of Local Administration, MoLA Consultancy	TBD	TBD	TBD	TBD	TBD
3.3	Avoidance of Waste in Municipal Administrations	Medium Priority	mitigation	G-0	2020	permanent	TBD	Municipal Administration	City Council	Ministry of Local Administration	TBD	TBD	TBD	TBD	TBD
3.4	Extracting Energetic, Economic Value from Organic Wastes	Medium Priority	mitigation	G-2a	2025	permanent	TBD	Municipal Administration, NGO / CBO	MoENV, MoLA, MEMR, MoA	NGO/ CBO, University, NCARE	TBD	TBD	TBD	TBD	TBD
3.5	Catalyzing Small-Scale Circular Economies (Rebranding Second-hand Textiles)	Medium Priority	mitigation	G-2a	2020	2021	TBD	NGO	City Council, coordination with Local School leaders and private sector	NGO, schools	TBD	TBD	TBD	TBD	TBD
3.6	Clusterization of Commercial - Residential Sorting-At-Source Recyclables Collection: Gateway to Waste to Energy Optioneering	Medium Priority	mitigation	G-2a	2025		TBD	Municipal Administration, Solid Waste Department	City Council	Municipal Administration, Solid Waste Department, NGOs/CBOs, private sector	TBD	TBD	TBD	TBD	TBD



4. INDUSTRY

	Archaeological Landmarks Development Project	Medium Priority	adaptation		2026		TBD	Municipal Administration	MoTA		TBD	TBD	TBD	TBD	TBD
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5. WATER

5.1	Solar PV in Wastewater Treatment	Medium Priority	mitigation	G-0	2021		TBD	WAJ	WAJ		TBD	TBD	TBD	TBD	TBD
5.2	The Rehabilitation of Tal Al Mantah Wastewater Treatment Plan	High Priority	mitigation	G-0	2021		TBD	WAJ	WAJ	Donor Country, NGOs, Consultancy, WAJ	TBD	TBD	TBD	TBD	TBD
5.3	Decentralized WWT Systems at Pilot Sites	Medium Priority	adaptation of mitigation	G-2a	2027		TBD	WAJ	WAJ, JVA		TBD	TBD	TBD	TBD	TBD
5.4	Treated Wastewater Applications at Pilot Sites		adaptation of mitigation				TBD	WAJ, MoA	MoA, WAJ, MWI		TBD	TBD	TBD	TBD	TBD
5.5	Rainwater Harvesting: Cisterns	Low Priority	adaptation	G-0	2025		TBD	Municipal Administration, WAJ, MoA	JVA		TBD	TBD	TBD	TBD	TBD
5.6	Greywater Reuse	Medium Priority	adaptation of mitigation	G-2a	2024		TBD	Municipal Administration, NGO / CBO	WAJ, JVA, MoENV	Consultant, Donor, Local NGO, Universities	TBD	TBD	TBD	TBD	TBD

6. AGRICULTURE AND FOOD SECURITY

6.1	Carbon Farming: Biochar for Soil Remediation	Medium Priority	adaptation of mitigation	G-2a	2025		TBD	Municipal Administration, NGO / CBO	MoLA, MoA	NGO/ CBO, NCARE	TBD	TBD	TBD	TBD	TBD
6.2	Carbon Farming: Composting for Compliance & Soil Health	Medium Priority	mitigation	G-2a	2023		TBD	Municipal Administration, NGO / CBO	MoLA, MoA	NGO/ CBO, NCARE	TBD	TBD	TBD	TBD	TBD



6.3	Solar in Desalination and Irrigation to Support Agrarian Economy	Medium Priority	adaption of mitigation	G-1	2026		TBD	NGO, Private Sector	MoA, MWI	Private Sector	TBD	TBD	TBD	TBD	TBD	
	Innovation in Agriculture: Climate Resilience, Technologies & Best Practices	High Priority	adaption of mitigation	G-2b	2022	2023	TBD	Farmers, Municipal Administration	MoA, MoPIC	NCARE, NGOs, Private Sector, University	TBD	TBD	TBD	TBD	TBD	
	Drip, Subsurface Irrigation Technology and Capacity Building and farm-level water harvesting	Medium Priority	adaption of mitigation	G-1	2024		TBD	Municipal Administration, farmers	MWI, MoA			TBD	TBD	TBD	TBD	TBD
	Climate-Resilient Crops and Marketing	Medium Priority	adaption of mitigation	G-2b	2025		TBD	Municipal Administration, farmers, MoA	MoA, JVA			TBD	TBD	TBD	TBD	TBD
	8. URBAN DEVELOPMENT & MOBILITY															
7.1	Municipal Mitigation Strategy	Medium Priority	mitigation	G-2a	2021		TBD	Municipal Administration				TBD	TBD	TBD	TBD	TBD
7.2	Municipal Climate Concept	High Priority	adaption of mitigation	G-2b	2020	2021	TBD	Municipal Administration	MoENV, MoLA	Municipal Administration, Consultancy	TBD	TBD	TBD	TBD	TBD	
7.3	Urban Green Canopies with Verticle/Roo f Farming and Water Re-use	Medium Priority	mitigation	G-1	2025		TBD	Municipal Administration, NGO / CBO	GBC	Engineering Assoc., Universities, GBC, MoLA, WAJ	TBD	TBD	TBD	TBD	TBD	
7.4	Recreation & Pedestrian Infrastructure	Medium Priority	mitigation	G-2a	2023		TBD	Municipal Administration	City Council	Donor Country, Private Sector	TBD	TBD	TBD	TBD	TBD	



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9. HEALTH

8.1	Rehabilitation of Drinking Water Sources	Medium Priority	adaptation	G-2a	2023		TBD	WAJ	WAJ	Donor Country, NGOs, Consultancy, Universities	TBD	TBD	TBD	TBD	TBD
8.2	Master Plan for Municipal Sanitation	High Priority	mitigation	G-1	Ongoing	Ongoing	TBD	JVA	JVA	JVA, Consultancy, NGO	TBD	TBD	TBD	TBD	TBD

10. BIODIVERSITY, ECOSYSTEMS AND PROTECTED AREAS

9.1	Reforestation of Ecological Corridor	Medium Priority	adaptation of mitigation	G-1	2023	2025	TBD	Municipal Administration	MoLA, MoA, GBC	Municipal Administration, Engineering Assoc., Universities, JBC, MoLA	TBD	TBD	TBD	TBD	TBD
9.2	Constructed Wetland for Effluent Wastewater Treatment, Ecological Restoration	Medium Priority	adaptation	G-1	2024	2027	TBD	WAJ, MoENV	WAJ, JVA, MoENV, MoA	Consultant, Donor, Local NGO, Universities	TBD	TBD	TBD	TBD	TBD

7. COMMUNICATION, PUBLIC AWARENESS

10.1	Continuation of the Learning Center's Activities After March 2020	High Priority	mitigation	G-1	2021		TBD	Municipal Administration	City Council	Donor Country, University, NGOs, Municipal Administration	TBD	TBD	TBD	TBD	TBD
10.2	Deir Alla's Regenerative Green Initiatives Fund	Medium Priority	adaptation of mitigation	G-2b	2025	2030	TBD	Municipal Administration	City Council, Ministry of Finance	Local finance, supporting agencies, NGOs/CBOs, Private Sector	TBD	TBD	TBD	TBD	TBD
10.3	Climate Action Website	Medium Priority	adaptation of mitigation	G-2b	2020	permanent	TBD	Municipal Administration	City Council	Local NGO, Youth Groups	TBD	TBD	TBD	TBD	TBD



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.1			
Action – Title:				
Monitoring Energy Consumption in the Boundary of the Municipality				
Goals and strategy:				
Energy Savings; reduced emissions				
Planned and coordinated data collection to advance baselines of energy consumption				
Initial situation:				
There is currently no accessible (neither regularly collected nor documented) data available on municipal-wide energy consumption.				
Description:				
Identifying the characteristics of energy consumption in the municipality in order to provide a framework for reducing energy consumption and/or suitable alternative/renewable energy options.				
Initiator:				
Municipal Administration				
Actors:				
Municipal Administration, Municipal Development Unit				
Target group:				
Municipal Administration, Public, Commercial				
Action steps and timetable:				
<ul style="list-style-type: none"> · Request the electricity distributor (EDCO) to coordinate the regular sharing of electricity consumption of the entire municipality, by sector (residential, industry, commercial, agriculture, municipal operations (street lighting, public buildings, etc.)); file the data in an excel sheet and monitor them every year; · Understand under what conditions this relationship (of data sharing between the distributor and the municipality) can be facilitated. · Survey the community by SECTOR regarding behaviors and systems of electricity consumption (where/when do their biggest expenses/energy consumption occur, for example). Build awareness and survey individuals, companies about their attitudes toward new technologies, energy-saving behaviors, interest in trainings, etc. to use for future studies and justification of Actions. Work through local associations to assist in the community data collection. 				



- Survey residential electricity consumption (as well as other energies - gas, etc.), behaviors, attitudes, main consumers, gaps in electric power provision, etc.
- discuss the data in Climate (Implementation) team and plan actions based on this information
- develop/refine target actions and strategies based on information gained
- investigate policy implications and mechanisms to reinforce renewable energy sources

Gender Mainstreaming:

Engage women's organizations in data collection and analysis at residential, commercial, agricultural activities that require energy in order to quantify energy consumption (gas, electricity, etc.). The availability of data can make it easier to track the number of beneficiaries, disaggregated by gender, age and geographical area of the municipality, as well as how they have/are to be impacted.



Women leadership associations' capacities are developed to improve monitoring of climate-change action, assessment and monitoring.

Success indicators/milestones:

The municipality has an up-to-date database of information that informs Baselines, Actions and discussions/coordination with potential donors that want to impact this sector.

Mitigation and Energy Efficiency Actions are paired with indicators (baseline versus improved and/or worst-case scenarios) that define success and/ or areas for improvement

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

None

Savings of GHG emissions (t/a)


N/a

Added value for the local economy:

Accompanying measures:

Further remarks:



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.2	:		
Action – Title:				
Solar Saturation & Energy Efficiency of Households (Solar PV)				
Vision and Goals:				
The number of households equipped with solar PV to supply electricity increased to 10% of all households (up to about 1, 038 from 485 households with solar PV at current) by 2025.				
Initial situation:				
Demand for electricity is high; cooling homes and buildings in the summer time in addition to the power demand to conduct agricultural activities is high.				
Details:				
Working through various funding mechanisms (see 1.A.6 " Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms "), awareness and market incentives available to achieve market saturation to residential households Work toward energy efficiency in public buildings as well as households through awareness campaigns and engagement. Create a renewable energy economy.				
Revisit standards for the construction and management of public buildings				
Gender Mainstreaming:				
Active participation of women's associations in implementation Improving and developing the role of women's associations in the community from traditional roles (charity,) to more leadership, renewable and related sectors related to climate change (water, energy and health)				
Involve women's associations in the process of building the baseline data for the Action				
Participation at the community level, through outreach (media, participation), capacity-building.				
Establish Technical Training for engineers (enabling female enrollment).				
Initiator:				
Municipal Administration's Development Unit				
Actors:				
Municipal Administration's Development Unit, Local Experts, Ministry of Energy and Mineral Resources, Jordan Renewable Energy and Energy Efficiency Fund				



Action steps and timetable:

- Seek reliable industries to decrease the cost of systems and increase trust among customers
- Hold conference for all governmental bodies and concerned parties to discuss current situations and required development and improvements
- Dissemination of solid proposal and documents of enforcement to the concerned governmental bodies
- Design and implementation of a comprehensive training program for technicians and engineers
- Establish demonstration facilities for public and users
- Design and implement an effective awareness program that can reach prospective users
- Identify liaison officers
- Ensuring equal opportunities for males and females
- Promoting the role of women as volunteers and workers with symbolic rewards.
- Training engineers/engineers on alternative energy matters.
- To benefit from the return of renewable energy to conduct awareness workshops.
- Consider the choice according to efficiency and open the way for females to work in electromagnetic fields.
- Ensure that the municipality supports the continuity of waste collection and sorting
- Make a model supported by the organization and then work out

Success indicators/milestones:

- Reducing the energy budget of the municipality
- Reducing waste volumes Inorganic agricultural waste is not piled on the edges of the streets.

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
To be estimated	Depending on the emission factor for electricity in Jordan

Added value for the local economy:

- Improved job market for skilled technical persons as well as professional training opportunities.
- Impact of actions will be reflected in different sectors (namely energy and agriculture).

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Urban Development	1.A.3		mid-term	
Action – Title:				
Energy Efficiency through Insulation of Buildings and Cool Roofing (Retro-fitting)				
Vision and Goals:				
Addressing emissions and adaptation through improved energy efficiency and application of green building standards by retrofitting buildings, introduction of insulation materials for commercial and residential housing, and zoning regulations.				
Initial situation:				
Loss of heat / cooling through poor or no insulation at the household level and in public buildings. This contributes to greater energy expenditures associated with climate control - AC, heating, etc).				
Details:				
Zoning and development changes to reflect increased vulnerability of specific locations and resources (springs, built/urban environment), connect with stormwater network planning and rainwater harvesting in earlier Action.				
Substantial energy savings can be made by improving insulation. According to the TNC (2014), investment cost compared to energy savings is considerable.				
Enhancing building codes to foster energy efficiency.				
<i>Cool Roofing</i>				
Painting buildings white to reflect the sun, make households cooler				
Reduce the amount of solar radiation absorbed by roofs (especially tarred/insulated roofs).				
Gender Mainstreaming:				
Gender mainstreaming is applied in directing benefits of action to vulnerable communities and raising awareness at the household level about energy efficiency.				
Women leadership associations' capacities are developed to specialize in climate change and related sectors				
Initiator:				
Municipal Administration				





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Actors:	
Jordan Green Building Council (and/or Jordanian National Building Council) , Ministry of Local Administration	
Target group:	
Action steps and timetable:	
Success indicators/milestones:	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
To be estimated	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Urban Development	1.A.4		2021 - 2023	
Action – Title:				
Climate-Responsive Building Techniques for Deir Alla's Built-Environment (New Construction)				
Vision and Goals:				
<p>Newly constructed public and, eventually, commercial and residential buildings adhere to a degree of green-building practices that improve a facility's energy efficiency, water efficiency, air quality and overall accessibility.</p> <p>Avoidance of household and building expenditures on heat / cooling loss.</p>				
Initial situation:				
<p>Minimal consideration for green-building practices on municipal, residential, nor commercial buildings.</p> <p>The exception to the above would be the installation of solar panels onto the roofs of vulnerable residents under Canada's SEED program to subsidize the technology.</p>				
Details:				
<p>Mandate energy efficiency aspects into the planning, consulting of construction projects to meet GreenBuilding standards.</p> <p>Outline and act on prospects for Retrofitting existing public buildings; development of a concept for residential and commercial buildings to be rolled out along a designated timeline.</p> <p>Amend sector policies and regulations including building codes to reflect climate change risks. Incorporate zoning and development changes to reflect increased vulnerability of specific locations and resources.</p> <p>Modify sector policies and regulations, including building codes, to reflect the risks of climate change.</p> <p>Combine zoning and development changes to reflect increased exposure to specific sites and resources.</p> <p>Encourage the use of energy-saving devices by raising awareness of long-term benefits. Identify incentive mechanisms for projects that apply the decree by identifying "green buildings" guidelines and economic incentives. The guidelines also specify the healthy structure to separate grey water from black water.</p>				
Gender Mainstreaming:				



The project addresses equality in its planning and regulatory aspects to improve accessibility and design considerations for safety and recreational activities that can benefit men, women, youth, elderly and disabled.



Initiator:

Municipal Administration

Actors:

Jordan Green Building Council (and/or Jordanian National Building Council) , Ministry of Local Administration

Action steps and timetable:

Success indicators/milestones:

Interest in the application of standards

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

To be estimated

Savings of GHG emissions (t/a)

Depending on the emission factor for electricity in Jordan

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.5			
Action – Title:				
Sustainable Energy and Economic Development Project (Solar Farm & LED Streetlights)				
Goals and strategy:				
Increasing the installed capacity of renewable energy within the municipality, decreasing the share of household finances allocated to electricity purchases.				
Initial situation:				
Power generation is one of the municipality's biggest expenditures. As the responsible entity for many buildings in the area, the Deir Alla municipality's yearly electricity bill runs up to over 350,000 JD. These high electricity costs hinder the municipality from creating development projects or improving its services to the citizens.				
Description:				
Installation of a 950-kW solar farm on lands provided by Deir Alla. By installing this solar farm, the municipality will mitigate the high cost of its electricity bill, and allow the reallocation of part of those funds to be used for the development of the community. Moreover, the municipality plans to continually reinvest the other portion of the savings into maintenance or expansion of the solar farm and to replace the old streetlights with energy saving LEDs.				
Gender Mainstreaming:				
Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation				
Initiator:				
Sustainable Energy and Economic Development Project signed March 2019				
Actors:				
Sustainable Energy and Economic Project, Canadian development Fund, Cowater Sogema and Jordan Renewable Energy and Energy Efficiency Fund (JREEEF)				
Target group:				
Municipality of Deir Alla				



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Action steps and timetable:	
<ul style="list-style-type: none"> · Cooperation with SEED · Planning of the installation by the learning center · Negotiation with the energy distributor about the feed in 	
Success indicators/milestones:	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a) Depending on the emission factor for electricity in Jordan
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.6		mid term	
Action – Title:				
Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms				
Vision and Goals:				
<p>Household application and use of solar technologies are enhanced and incorporated to produce economic benefits</p> <p>Increasing penetration of solar PV and its applications in the municipality (water heaters, water pumping, water desalination, and other options.</p> <p>Community capacities and awareness are enhanced through the establishment of an information center for energy, mobility and ecology at the site of the implementor's office/facilities</p> <p>Municipality aims to confront the effects of climate change by developing scientific and practical plans and solutions Project.</p> <p>Donor outreach activities succeeds in the municipality being able to implement & develop its sustainable plan.</p>				
Initial situation:				
Donors have slowed funding, knowing that the municipality is financially independent and able to fund projects				
Description:				
<p>Subsidization through a funder is just one way of reducing the initial costs of solar; other means include: bulk-purchasing, solar services co-op, utility-sponsored distributed generation on rooftops (in which a utility owns or operates a project that is open to voluntary ratepayer participation), group billing, special purpose entity (Model in which individual investors join in a business enetprise to develop a community solar project) virtual net metering, non-profit (in which donors contribute to a community installation owned by a charitable non-profit corporation) or joint ownership. Extensive stakeholder engagement would seek to establish which option would be optimal.</p> <p>Community Solar is defined as a solar-electric system that, through a voluntary program, provides power and/or financial benefit to, or is owned by, multiple community members.</p> <p>As a means to increase access to solar energy and to reduce up-front costs for participants. The secondary goals met by many Community Solar projects include:</p>				



- improved economies of scale
- optimal project siting
- increased public understanding of solar energy
- generation of local jobs
- opportunity to test new models of marketing, project financing and service delivery

These "Creative mechanisms" are to foster greater deployment of solar energy projects are not limited to those described in this guide. Readers may be interested in investigating the following efforts that employ some elements of community solar:

Integrating measures and solutions for technologies that enable solar PV, solar thermal and solar (water) pumping, desalination.

Gender Mainstreaming:

Innovative financing mechanisms need to occur in close coordination with the respective local and national ministries to explore available options in community-shared solar financing options that can be supported by donor subsidization and enabled through a local organization, which can also take part in initiating trainings and awareness, enabling women, men and youth opportunities. In methods of outreach and awareness of energy efficiency and within the Solar Panel subsidization opportunity, all family members of the household are to be addressed as persons able to engage in energy efficiency practices and awareness.

Initiator:

Municipal Administration, NGO / CBO

Actors:

Municipal Administration, Ministry of Environment, Ministry of Energy and Mineral Resources, Ministry of Finance, Ministry of Planning and International Cooperation

Steps:

Conduct an energy, socio-economic and marketing baseline(s) for the target and/or pilot communities for off-grid solar PV systems.

Work through an NGO to engage communities and raise awareness about the initiative.

Interview and investigate PV systems suppliers about costs and prices of bulk purchases.

Host a workshop with the target communities regarding the stats (scale of PV), cost, intended locations and set up, discuss financing mechanisms (overviewed above), and the benefits of this renewable energy and its potential impact on their livelihood.

A financing mechanism is selected and committee is formed to manage it in coordination with municipal oversight.

Results are reported and utilized as case study.

Success indicators/milestones:

Solar PV saturation serving residential homes improve

Solar PV saturation on commercial buildings, parking lots, grave yards and other land increases, reducing energy bills and local expertise and application of PV systems and innovative financing



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Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
	1.B.2			
Action – Title:				
Establishing a Monitoring System of Energy Consumption of Municipal Buildings				
Goals and strategy:				
Energy savings and costs; the municipality adopts their model role function				
Initial situation:				
The monthly meter reading, the evaluation of consumption and comparison with bills are not carried out.				
Description:				
<p>Regular collection and evaluation of energy consumption and its associated costs. Monitoring of energy consumption forms the basis for a reliable analysis of consumption values and enables the compilation of consumption indicators, which serve to assess the energetic condition of buildings. The data obtained is used for monitoring purposes but also as a basis for investment decisions and the preparation of a renovation plan.</p> <p>The use of software for controlling/monitoring energy consumption is recommended.</p> <p>In addition to the further installation of media meters, there will also be meters (electricity, heat, water), which the caretakers will continue to have to read regularly and pass on to the responsible office. There is a monthly evaluation of the data and a consultation as well as evaluation with the responsible caretakers.</p>				
Initiator:				
Municipal Administration				
Actors:				
Municipal Administration and Building Management				
Target group:				
Municipal Administration and Building Management				
Action steps and timetable:				
<ul style="list-style-type: none"> · Definition of responsibilities in the city administration 				



- Finding a suitable tool for data acquisition and analysis (database recommended)
- Inform caretakers about the necessity of continuous consumption recording with necessary intervals and the form of data transfer.
- Feedback of the evaluation to the caretakers
- Preparation of an annual energy report with consumption, key figures and costs
- Publication of the report's results online and communicated via social media
- Presentation of the energy report once a year to the relevant committee

Gender Mainstreaming:

Female community leaders and the city council are aware of the current status of gender equality
Municipality builds awareness to enable and increase female participation

Building the capacity of municipal workers in gender and women's empowerment

Success indicators/milestones:

- Monthly recording and monitoring of consumption
- Annual evaluation and reporting as well as presentation to the responsible committee

Total expenditure/(start-up) costs:

staff costs, procurement costs for software and meters

Financing (sponsoring, funding):

municipal budget

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

To be estimated

Savings of GHG emissions (t/a)

Depending on the emission factor for electricity in Jordan

Added value for the local economy:

Accompanying measures:

Further remarks:

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Municipal buildings	1.B.3			
Action – Title:				
Elaborating and implementing an Energy Directive on how to run a public building				
Goals and strategy:				
Savings of energy in municipal buildings, savings costs for the municipal budget, municipality as model role				
Initial situation:				
Description:				
By maintaining adequate temperatures in the administrative buildings (23 degrees in summer and 21 degrees in winter), significant electricity savings can be achieved. In order to bring about these behavioral changes in the employees of the administration, an instruction will be drawn up and introduced which, among other things, determines the temperatures in the offices.				
Initiator:				
Municipal Administration				
Actors:				
Municipal Administration, Building Management				
Target group:				
Municipal Administration				
Action steps and timetable:				
<ul style="list-style-type: none"> · Development of a Directive, an example provided by a consulting firm · Discussion of the Directive in the Climate/Energy team · Incorporation of changes, completion of the Directive · Signature by the Mayor · Announcement in the administration 				
Success indicators/milestones:				



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Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Estimation of approx. 10% of the electricity consumption in the municipal buildings	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.B.4		short-term	Permanent
Action – Title:				
Public Building Energy Efficiency & Zero-Waste Initiative				
Vision and Goals:				
<p>Energy savings in municipal buildings, savings costs for the municipal budget, municipality as a role model</p> <p>Energy consumption is divided according to electricity, heat and cooling</p> <p>Formation of indicators: (kWh/m²), comparing figures with other municipalities</p> <p>Identify energy-saving measures</p>				
Initial situation:				
Details:				
<p>The municipality conducts an energy audit of the building, facilities and operations to coincide with the process of monitoring and procedures for energy consumption, thereby setting the targets for consumption reduction.</p>				
<p>Depending on the municipal administrative capacity, an energy review can be conducted by the municipality or an external office can be assigned. If the department conducts the audit itself, the following steps must be implemented:</p> <ul style="list-style-type: none"> • Registration of building data: building material, technical installations, larger electricity consumers • Energy consumption is divided according to electricity, heat and cooling • Formation of indicators: (kWh/m²), comparing figures with other municipalities • Identify energy-saving measures • Energy and CO₂ saving account • If the municipality wishes to assign an external office, the funds must be budgeted for this purpose. 				
Adopting strategic official programs and decisions on zero-waste				



- Through its typical function, the municipality must purchase only high-efficiency equipment, for example air conditioners, refrigerators, printers, screens, etc. For this purpose, you must develop a guide book that determines the level of equipment to be purchased (see above.
- Development and implementation of procurement regulations for energy-saving devices, for example air conditioners, in city management
- Collaborate with local organizations to start creating a recycling deposit box for paper, cardboard and [...] Come on paperless or "paperless days"

Application of green building practices (aspects of energy efficiency, planning and consulting in the new administrative building.

- The municipality plans to build a new administrative building. It has already been well planned, but it is still possible to make minor changes with climate change and mitigation.
- Engineers and technical planners should be contacted immediately to discuss the possibilities.
- Easy mobility of employees, role model, reduced use of gasoline.
- Transforming the municipal vehicle fleet into electric or hybrid vehicles.
- Possible measures can be as follows: window shading, green roof, greening façade, solar cell system on the surface
- The benefits of the measures should be discussed and presented.

Gender Mainstreaming:

Staff should be encouraged to participate in the exchange of ideas/means to reduce energy waste and improve energy efficiency in the workplace. Participation can be stimulated through friendly competition or through its construction activities between teams.

Initiator:

Actors:

Target group:

Action steps and timetable:

The town hall functions as a model of green building
 Municipal buildings switch to energy-saving lighting, and are powered by solar energy.
 Conducting an energy audit of municipal buildings
 Follow-up audit
 Identify areas and means to reduce energy cost and increase energy efficiency
 Awareness of the efficiency of the use of devices
 Raising environmental awareness and Interest in finding alternatives to energy-consuming devices

Success indicators/milestones:

Total expenditure/(start-up) costs:



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Financing (sponsoring, funding):	
.	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
To be estimated	Depending on the emission factor for electricity in Jordan
Resilience Factor:	
Improving the environment Reduce the amount of energy consumed	
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Municipal buildings	1.B.5			
Action – Title:				
Climate Change and Energy Efficiency Aspects in the planning, construction of the new Municipal Administration Building				
Goals and strategy:				
Savings of energy in municipal buildings, savings costs for the municipal budget, municipality as model role				
Initial situation:				
The municipality is planning the construction of a new administration building. Planning is already well advanced, but minor changes concerning climate adaptation and mitigation can still be made.				
Description:				
Initiator:				
City administration				
Actors:				
City administration, facility department, external consultants, architect				
Target group:				
City administration, citizens				
Action steps and timetable:				
<ul style="list-style-type: none"> · Architects and technical planners should be contacted immediately to discuss the possibilities. · Possible measures could be the following: shading of windows, green roof, facade greening, PV system on the roof · The benefits of the measures should be discussed and presented. · It may be necessary to involve other experts in order to implement these measures. The necessary budget must be planned and taken into account in the budget. 				
Success indicators/milestones:				



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Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
To be estimated	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Internal Organization	1.B.6		Short term before 2020	2019
Action – Title:				
Elaboration and implementation of procurement regulations for energy-efficient devices, e.g. ACs, in the city administration				
Goals and strategy:				
Saving energy and costs				
Initial situation:				
Description:				
In its role model function, the municipality should only procure highly efficient equipment, e.g. air conditioners, refrigerators, printers, monitors, etc. For this purpose, a guideline is to be drawn up which defines the standard of the equipment to be procured (see above).				
Initiator:				
City administration				
Actors:				
City administration, procurement				
Target group:				
City administration, citizens				
Action steps and timetable:				
<ul style="list-style-type: none"> · Elaboration of a guideline, an example is provided by a consultant · Discussion in the Climate/Energy team · Completion of the Directive · Signature by the Mayor · Announcement in the administration · implementation 				
Success indicators/milestones:				



<ul style="list-style-type: none"> · The quantity of consumption decreases · Builds awareness and competency among staff 	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Mobility	2.1		mid-term	permanent
Action – Title:				
Conversion of the municipal fleet to electric or hybrid cars				
Goals and strategy:				
Environmentally friendly employee mobility, model role, reduction of gasoline use				
Initial situation:				
The municipality's fleet runs on gasoline, diesel vehicles.				
Description:				
The municipality wants to convert its vehicle fleet to electric or hybrid vehicles.				
Initiator:				
City administration				
Actors:				
City administration, procurement				
Target group:				
City administration, citizens				
Action steps and timetable:				
<ul style="list-style-type: none"> • Analysis of the vehicle fleet Vehicle type, age, use, mileage per year, average length of journeys • in the case of replacement purchases, examination of the possibility of choosing an electric or hybrid vehicle • cost-benefit analysis • Planning an appropriate amount of money in the budget • Tendering, procurement 				
Success indicators/milestones:				



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Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
none	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Waste	2.2		Short-term - 2020	
Action – Title:				
Emissions reductions and efficiency in the solid waste collection and transport (Process Maps)				
Goals and strategy:				
Integrated routing of solid waste collection and transport vehicles to improve efficiency (cost and emissions/fuel consumption) and laying out routing and schedule of collection routes for eventual sorting-at-source (SAS) initiatives. Increase vehicle and equipment fuel efficiency Reduce idling of waste collection and transport vehicles				
Initial situation:				
Routes are typically established informally. Monitoring, tracking and revision of routes is not routinely conducted, creating opportunities to correct inefficiencies and optimize solid waste collection and transport.				
Details :				
After the energy sector, the transport sector is the greatest source of GHG's in Jordan. Improving the efficiency of SW collection, whereby decreasing energy requirements and emissions while not sacrificing service delivery is a localized way of addressing inefficiencies in transportation, reducing costs and emissions. Improving accessibility through proper bins placement and promotion of adherence to safety for SWM staff. Raising awareness about coordinated SW pick-up times. Development of Process Maps for SW collection vehicles (and/or installing GPS trackers) to improve the efficiency of routes and collection of SWs				
Initiator:				
Municipal Administration's Solid Waste Department				
Actors:				
Municipal Administration's Solid Waste Department (staff, drivers), consultant				
Target group:				
Solid Waste Department				
Action steps and timetable:				



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Reorganizing the tracks
 Regulation of waste collection and transport
 The cabs are evaluated. Redistribution of bins and containers

Success indicators/milestones:

the cost of collecting and transporting waste
 Raising the level of hygiene

Resilience Factor:

Reducing emissions
 Increased efficiency in collection and transport of solid waste
 A proven and standard means for improving this area of the sector

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Transportation	2.3		Mid-term	
Action – Title:				
Advancing Public Transportation for Climate, Accessibility and Resilient Services (CARS)				
Vision and Goals:				
<p>The community enjoys access to a public transport system which is safe, reliable, efficient, accessible (to disabled) more environmentally friendly and satisfactory for both users and operators.</p> <p>The municipality exhibits commitment and evaluates the benefits of electric-powered transport through the procurement of electric vehicle(s) for municipal use.</p>				
Initial situation:				
<p>Public transport is limited to private buses that operate on individual standards of quality and efficiency, standardization and routing optimization to tailor to the needs of working and recreational people.</p> <p>Public transportation could be better equipped to accommodate persons with special needs (persons with disabilities).</p>				
Details:				
<i>Municipal Vehicles</i>				
Electric vehicles are procured for municipal staff				
<i>Public Transport</i>				
<p>Inner-municipal transport, especially small cars, services and taxis are subject to municipal regulations, providing the opportunity to provide training and capacity building to bus and taxi operators and increase coordination to improve demand management.</p> <p>Feasibility study and procurement of electric internal public transportation within the Municipality area (and consider routes to destinations (Amman, etc.)); the buses being handicap accessible</p> <p>Consolidate individual operators</p>				



Deir Alla would need to coordinate with LTRC/MoT, MoWPH to advocate an institutional framework for new law for public transport that will define the responsibilities among municipalities to ensure a high level of coordination

Set criteria and qualifications for public transport drivers

Pedestrian Infrastructure

Enhance pedestrian infrastructure (sidewalks, walkways, [...]) with a shaded pedestrian infrastructure ("canopies) that can cool regular pedestrian walkways, market areas and routes to tourist and recreational areas.

These paths should be equipped with waste collection bins, preferably (recyclable bins).

Community groups and schools can submit design ideas (decorative and functional) for various sections of these paths.

Gender Mainstreaming:

Mobility for women and persons with disabilities open up additional employment and recreational activities. Consultations with local stakeholders will be sought out to achieve the Actions goals including improving the accessibility of the city and neighboring destinations for persons with disabilities as well as the consideration of enhancing routes to destinations that host employment opportunities for women and scheduling transport operations to match demand.



Initiator:

Municipal Administration

Actors:

Municipal Development Unit, Land Transport Regulatory Commission, Ministry of Transportation

Action steps and timetable:

7 - 13 months

Municipal Vehicles

3- 6 months

Procure electric vehicles are procured for municipal staff

Public Transport

Conducting conversations and meetings with transport officials (LTRC/MoT, MoWPH to advocate an institutional framework for new law for public transport that will define the responsibilities among municipalities to ensure a high level of coordination)

Open dialogue with current drivers and operators of public transportation about the aims of the Action and the development of the sector.

Conduct a Feasibility Study for a Public Private Partnership of the enhancement of the public transport and pedestrian sectors

Review laws

Consolidate individual operators



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Capacity-building plan for drivers and operators, set regulations to compel drivers to participate in courses

Study the feasibility and purchase of internal public transport Action sought within the municipal area (taking into account the routes leading to destinations (Amman, etc.);

Success indicators/milestones:

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:


Savings of end energy (MWh/a)

To be estimated

Savings of GHG emissions (t/a)

Depending on the emission factor for electricity in Jordan

Added value for the local economy:

 Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Solid Waste	3.1		short-term	Permanent
Action – Title:				
Recalculation of Waste-Collection Fees				
Vision and Goals:				
<p>The revision to waste collection fees improves the overall sustainability of solid waste management operations, provides a framework around which to build incentives for compliance (for residential and commercial sectors), and enhances the feasibility of treatment options for solid waste.</p>				
Initial situation:				
<p>Littering and improper waste disposal (from burning of agricultural residue wastes - both organic and plastic, mistreatment of wastes from cesspits leading to environmental concerns and damage, untreated animal manure applied to agricultural fields); waste collection and treatment infrastructure need an improved fees to advance the sector.</p> <p>The lack of a mechanism to improve compliance to dispose of waste appropriately to decrease the potential for negative environmental impacts.</p>				
<p>Lack of re-evaluation of waste fees against advanced (or evaluation) of waste treatment options (such as recycling, sorting-at-source, biogas, composting, etc).</p>				
Details:				
<p>Change of the waste fees: the fees should deter the improper disposal of wastes</p>				



• *Regulation for Nuisance Prevention and Waste Collection Fees within Municipal Borders* o Under this law, which was recently instituted (2016), outlines the following:

1. It is forbidden for anyone within the municipal borders to:
 - Collect or transfer waste without the prior approval of the Municipal Council;
 - Recycle, treat and destruct waste without the prior approval of the Municipal Council.
2. The Municipal Council is to collect an annual fee for waste collection, transfer and disposal services from each residential unit as follows:
 - Class A Municipalities: 36 JOD
 - Class B Municipalities: 24 JOD
 - Class C Municipalities: 20 JOD
3. The Municipal Council and by the Minister of Municipal Affairs consent has the authority to determine and increase the waste collection, transfer, treatment and disposal fees from any facility, institution, shop or any activity that generate quantities of waste that require higher costs of collection, transfer, treatment, and disposal.
4. The Municipal Council and by the Minister of Municipal Affairs consent has the authority to determine the waste management and treatment fees of the solid waste generated from any entity or activity producing by its nature this type of waste, and in accordance to the cost of the collection, transfer, sorting, storing, treatment, recycling and disposal of it.
5. Article 11 of this regulation states that 50% of the fees stipulated in this system shall be paid by the person generated the waste. This will encourage the residents to sort their waste.
6. The Municipal Council has got the right to specify sites for scrap, wood, used furniture, machinery accumulation, and to determine disposal and transfer timing of them.
7. The Municipal Council and by the Minister of Municipal Affairs consent has the authority to collect, transfer, sort, store, treat, recycle and dump waste or to manage and treat solid waste through a partnership with another municipality, a joint services council or through the foundation of a company owned by the municipality either solely or through partnership with the private sector.
- § 8. The Minister of Municipal Affairs has got the authority to consider any of the JSCs a municipality for the purposes of the application of the clauses of these regulations.

Gender Mainstreaming:

Within this Action, the re-evaluation of waste fees against more advanced waste-treatment options, which could lead to, not only greater income but also improved health and community aesthetics, the eventual engagement of women in advanced waste treatment options (such as recycling, sorting-at-source, biogas, composting, etc) requires an investigation into how women, women's associations, youth and men are to be involved, incentivized and benefit from advanced waste treatment options. This is important because, for example, sorting-at-source, would require households (or clusters of households) to be engaged in the activity to make the Action worthwhile. Thus, in this Action, engaging women, women associations, men, youth within the community as stakeholders (particularly, when the treatment options are being considered) should participate in developing the **waste generation baseline** and accurate data, developing appropriate fees and **incentive mechanisms** for treatment options. When the fees are established and a timeline of treatment Actions published, women, youth, local non-profit associations can act as





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ambassadors to engage the commercial sector, residential areas and farmers to raise awareness about compliance as well as how individuals and the community can benefit.

Initiator:

Deir Alla Municipality

Actors:

Deir Alla Municipal Council

Action steps and timetable:

Establish a waste generation and composition baseline

Consider the areas of investment in the waste sector and their timelines such as sorting-at-source, recycling, composting, biochar and other initiatives that will require wastes as inputs; What ways in which fees can support (create incentives or mechanisms) to support the success of these initiatives
Target and implement areas to improve existing municipal solid waste services to residences and commercial sector.

Conduct awareness campaign on the plans for development in the solid waste sector and how the new fees will aid in achieving the sector's development goals. Develop a shared understanding of benefits between municipality and stakeholders.

Success indicators/milestones:

Feasibility of current solid waste operations is improved and future waste treatment options' viability assessed and needs outlined.

The municipality has an up-to-date baseline which serves as the basis for future studies and informs future sectoral investments.

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:



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Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
none	n/a

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
	3.2			
Action – Title:				
Solid Waste Management Strategy				
Vision and Goals:				
Improved and progressive solid waste management services provided by the municipality.				
Initial situation:				



The final step needed to upgrade the municipality's waste infrastructure is to create a properly managed landfill. Currently, the municipality uses a dumpsite with no measures to insulate the waste from the rest of the soil, which allows leachate percolation and groundwater subsurface pollution to occur. The only sorting done on site is by scavengers who are not sanctioned by the government

Littering and improper waste disposal (from burning of agricultural residue wastes - both organic and plastic, mistreatment of wastes from cesspits leading to environmental concerns and damage, untreated animal manure applied to agricultural fields); waste collection and treatment infrastructure need an improved fees to advance the sector.

Lack of up-to-date and publicly available baseline of solid waste generation as well as mid-term perspective of solid waste treatment options.

Details:

Awareness campaigns will be used to engage the community to cut down on littering and improper waste disposal. The project incorporates the distribution of media and equipment (brochures, radio posters, marked recycling bins, and in some cases, bins for organic waste) to encourage people to recycle.

The municipality will start to strictly enforce anti-littering laws and incur fines on citizens and business who violate those laws. To balance out the stricter enforcement, an incentives program will be created for people and businesses who sort their waste.

To begin establishing a division for advanced SWM, the municipality has built a solid waste sorting plant in cooperation with the GIZ, as well as refurbished an out-of-commission composting factory. By building a sorting plant, Deir Alla can collect and sell recyclable materials thereby reducing amount of waste heading to the dumpsite. In addition, the composting factory can make good use of the municipality's organic waste, but purchasing trucks specialized in the collection of organic waste is what is needed to be done initially.

Gender Mainstreaming:

Women and men typically have different roles in how solid waste is managed at the household level (or even: from the store, in to the household and disposal). This means the women's practices and attitudes are key in the development and upscaling of solid waste treatment and processing in the municipality. The strategy should exhibit its knowledge of the roles and opportunities inherent in the roles that men and women play in the lifecycle of solid waste in order to adequately inform mechanisms that can enhance compliance, inform the development of targeted awareness campaigns and improve services overall. A social expert should lead the investigative work and development of the strategy.

Initiator:

Deir Alla Municipality

Actors:

German Development Agency (GIZ),
EcoPeace

Action steps and timetable:

Assign a technical team (including the Social Expert)



Initiate solid waste generation (composition), sources (quantities by residential, commercial, agricultural [...] sectors by solid waste stream), their end-uses and or percentages of disposal, public awareness, mapping of existing solid waste market and stakeholders, and develop strategies for improved solid waste services, market and development of waste (circular) economy.

Prioritize areas of investment such as needed equipment and infrastructure.

Define awareness and capacity-building programs that will serve as the basis for future Actions relating to the Solid Waste Management Sector.

Finding solutions for inorganic agricultural waste

It is preferable to take a sample of socially active women, train them to separate from the source, distribute baskets and then raise awareness.

Success indicators/milestones:

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

To be estimated

Savings of GHG emissions (t/a)

Depending on the emission factor for electricity in Jordan

Added value for the local economy:

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Internal Organization	3.3			
Action – Title:				
Avoidance of waste, especially plastic cups, in municipal administrations				
Goals and strategy:				
Saving resources, model role of the municipality				
Initial situation:				



Description:	
In order to edit the consumption of resources it is necessary to produce as little waste as possible. A big problem worldwide and also in Jordan is the plastic waste. The administration sets an example and tries to avoid plastic as much as possible.	
Initiator:	
City administration	
Actors:	
City administration, procurement	
Target group:	
City administration, citizens	
Action steps and timetable:	
<ul style="list-style-type: none"> · In a first step the administration no longer offers water in small plastic cups and drinks in aluminum cans for employees or guests. Instead, large containers and glasses are used. · In a second step, further waste reduction measures will be taken, such as <ul style="list-style-type: none"> · Replacing plastic plates with porcelain · Procurement of biscuits in larger containers · Use of recycled paper · Offer of local products in the catering of guests 	
Success indicators/milestones:	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
The number of plastic cups and aluminum cans consumed annually to date is to be determined or estimated. This can then be used to calculate the resource savings.	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Waste, Agriculture	3.4			
Action – Title:				
Extracting Energetic, Economic Value from Organic Wastes (Biogas)				
Vision and Goals:				
Diversification of renewable energy sources Increasing the municipality's resourcefulness in extracting economic and energetic value from wastes				
Initial situation:				



There is an abundance of animal manure and biowases from agricultural activities. Activities are underway to improve Deir Alla Municipality's solid waste management, which includes sorting activities and reducing organics sent to the landfill. Discharge from residential cesspits overwhelms the capacity of current municipal services to collect and dispose of such materials, which end up contaminating the soil and water.

Details:

Feasibility study to be conducted to utilize biowaste (such as sludge from the cesspits or from the existing wastewater treatment plant) for energy as well as reduce costs of wastewater treatment. Animal residues may be invested in the production of processed manure and bio-methane. The types of options vary greatly (low-high investment, low-high technical skills to operate etc.). Consider combining with energy needed in WasteWater Treatment Options (Waste Stabilization Pond - WWT). Depending on the biogas production process and the resulting effluent, post-treatment step of the effluent is needed before safe reuse or discharge is needed. These post-treatment options can be: sedimentation ponds, septic tanks; constructed wetlands or effluent ponds.

Gender Mainstreaming:

Participation at the community level, either through outreach (media, participation), capacity-building, beneficiaries and professionals, women are part of the strategic process of reducing emissions and increasing economic opportunities in renewable energy sources, and designing and implementing projects. Awareness initiatives focus on men's and women's behaviors on reducing energy consumption.

Initiator:

Actors:

Ministry of Environment, Ministry of Agriculture, NGO / CBO, private

Action steps and timetable:

Conduct a feasibility study for the use of organic waste (e.g. sludge deposits from suction drilling or from the current wastewater treatment plant, from cess pits and agricultural wastes).
 Identify liaison officers
 Ensuring equal opportunities for males and females
 Promoting the role of women as volunteers and workers with symbolic rewards.
 Training engineers/engineers on alternative energy matters.
 To benefit from the return of renewable energy to conduct awareness workshops.
 Consider the choice according to efficiency and open the way for females to work in electromagnetic fields.
 Ensure that the municipality supports the continuity of waste collection and sorting
 Make a model supported by the organization and then work out
 The town hall functioned as a green building model
 Finding solutions for inorganic agricultural waste



It is preferable to take a sample of socially active women, train them to separate from the source, distribute baskets and then raise awareness.

a municipal sewage system will be established and the agreement has been signed

Success indicators/milestones:

Reducing the energy expenditures of the municipality

Reducing waste volumes Inorganic agricultural waste is not piled on the edges of the streets.

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

none

Savings of GHG emissions (t/a)

Added value for the local economy:

Improved job market for skilled technical persons as well as professional training opportunities. Impact of actions will be reflected in different sectors

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Livelihoods	3.5			
Action – Title:				
Catalyzing Small-Scale Circular Economies (Rebranding Second-hand Textiles)				
Goals and strategy:				
Wastes are diverted away from the landfill and, through their collection for upcycling, reduces the workload and energy expenditure of municipal vehicles in collection and transport of wastes.				



The Action contributes to awareness and engagement in market activities that are sourced by upcycled items and inspire other models of regenerative economic activities.

Initial situation:

Local community group has experience in coordinating to achieve in the upscaling of textiles and have seen success.

Textiles are not targeted by GIZ's sorting center and <Cash for Work> (C4W) activities. Therefore, this group can take advantage of this niche and coordinate with the municipality in reducing wastes and in allocating funds to a 'Climate Action Grant/fund'.

Details:

Action's organizers reach out and collaborate with residential communities and schools to submit textiles.

A local women's cooperative upcycles the textiles, spring boarding from the previous project's operations and structure, in order to sell back valued clothing items to the community through a 'Second-hand Sale' .

If there's a possibility that the implementors could take charge with the "Resilience Ready Climate Community Group" to tackle the issue of upscaling other waste materials other than textiles (such as greenhouse plastics), it would be an added value for the sector and reducing climate impacts.

As per discussions, a portion of the proceeds can go to benefit the community and school students as 'Climate Action Grant/Fund'

The textiles initiative serves as a Model for other small-scale Circular-Economy-Based initiatives that are able to reduce emissions (diversion of wastes from landfill), awareness, employment opportunities, commercializing welfare of natural resources.

Gender Mainstreaming:

the women's group is activated as ambassadors for coordinating and implementing the initiative alongside the municipality in order to collect, upscale and sell-back upscaled textiles (clothing, rugs, household items). It becomes a source for energy generation, the participants make an impact on emissions reductions by diverting textiles away from the landfill (and decreasing the need to purchase new items which imply higher emissions/energy requirements as opposed to their upscaled counterparts).

Initiator:

NGO

Actors:

NGO, schools, local market

Target group:

Action steps and timetable:

Success indicators/milestones:

Total expenditure/(start-up) costs:



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Financing (sponsoring, funding):	
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Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water				
Action – Title:				
Archaeological Landmarks Development Project				
Vision and Goals:				
Reducing environmental pollution				
Strategically restoring sites that promote ecosystems health and can be protected				
Description:				



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To develop and rehabilitate a series of important archaeological —Tell’ landmarks (Tell Deir Alla, Tell Dhahab Gharbi, Tomb of Abu Ubaydah, Khirbet Al Hammeh) including visiting facilities, provision of touristic and historic back ground information, and linking the various sites with touring tracks for pedestrians and bicyclers.

Initiator:

Municipal Administration

Actors:

Ministry of Tourism and Antiquities, EcoPeace

Target group:

Action steps and timetable:

- Planning with stakeholders (Concept approach)
- Assessment of Sites for CH and tourism perspective
- Define tourism support requirements (restaurants, souvenirs; signs, etc
- Define tourism support requirements(restaurants, souvenirs; signs, etc
- Prepare for information campaigns, including website
- Operations tell sites and information facilities along the tracks

Success indicators/milestones:

- increase the number of tourists
- Use of bio-climatic design practices and of renewable building materials

Total expenditure/(start-up) costs:

Resilience Factor:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:

Further remarks:

Reference: National Master Plan for the JordanRiver Valley. Royal HaskonigGHV and MASAR.



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Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
	5.1			
Action – Title:				
Solar PV in Wastewater Treatment				
Goals and strategy:				
Reduce the emissions generated and the cost of energy in the process of wastewater treatment through the application of renewable solar energy				
Initial situation:				



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The Tal Al Mantah Wastewater Treatment Plant has been the object of a feasibility study to have a solar park installed to contribute to providing for the energy demand of the plant. The solar park is estimated to potentially provide for up to 90 percent of the plants needs.

Details:

See Action 3.5.1 "The Rehabilitation and Improvement of The Tal Al Mantah Wastewater Treatment Plant"

Gender Mainstreaming:

Initiator:

French Development Bank

Actors:

Deir Alla Municipality, EcoPeace, Water Authority of Jordan, French Development Bank

Target group:

Action steps and timetable:

- Cooperation with donor agencies
- Planning of the installation of the solar park
- provision of energy to the wastewater treatment plant

Success indicators/milestones:

Resilience Factor (Mitigative / Adaptive Impact):

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:



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Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
	5.2			
Action – Title:				
The Rehabilitation and Improvement of The Tal Al Mantah Wastewater Treatment Plan				
Goals and strategy:				



Improve operating conditions at the plant. The installation of solar PV enables the high electricity costs of treatment to be covered by renewable energy; water quality testing enables operators to accurately determine whether the incoming water is domestic or industrial (effecting improved treatment of effluent overall).

Initial situation:

The Tal al Mantah plant, which falls under the jurisdiction of the Water Authority of Jordan (WAJ), is of high importance to the municipality of Deir Alla. It is the only domestic wastewater treatment plant in the area, one of the two treatment plants in all of the Jordan Valley, and the only option for treating the municipality’s domestic sewage. After years of neglect, the treatment plant has become rundown with many pieces of equipment needing maintenance or replacement. The mayor has expressed his concern about the plant because the water flowing out of the treatment plant does not fall within Jordanian standards, has polluted the environment and has caused several fires due to the lack of upkeep of the reed beds at the end of the treatment process which dry out during the summer. the water flowing out of the treatment plant does not fall within Jordanian standards, has polluted the environment and has caused several fires due to the lack of upkeep of the reed beds at the end of the treatment process which dry out during the summer.

Description:

Installation of solar panels to supply the treatment plant with 90% of its yearly energy needs, purchase water quality testing devices and conduct educational tours to the plant to address the lack of awareness regarding water treatment and reuse. Cooperation with the French Development Bank (AFD) is preparing an economic feasibility study for an integrated treatment plant in Tel Mantah to serve the region. Additionally, other stakeholders are looking to upgrade the wastewater treatment facility including the Lake Constance-based foundation Global Nature Fund (GNF) and its Jordanian project partner EcoPeace Middle East in Amman’s three-year model project which aims is to install a solar park to power the wastewater treatment plant Tal-Al-Mantah in the municipality of Deir Alla in the Jordan Valley, in order to stabilize the fluctuating treatment capacity of the plant.

Initiator:

French Development Bank

Actors:

Deir Alla Municipality, EcoPeace, Water Authority of Jordan, French Development Bank

Target group:

Action steps and timetable:

Follow up with project agreements between Water Authority of Jordan, French Development Bank, Lake Constance-based foundation Global Nature Fund, EcoPeace.

Success indicators/milestones:

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):



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Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water	5.3			
Action – Title:				
Decentralized WWT Systems at Pilot Sites				

Vision and Goals:

Increase water and wastewater infrastructure capacity and efficiency
 Increase use of renewable energy in water and wastewater systems

Initial situation:

The existing wastewater treatment facility (WWT) in Deir Alla serves multiple municipalities. It occasionally overflows.
 Contributing to soil salinity is the local behavior of adding salt to cesspit tanks as a means to dry (decrease the weight) of deposits to decrease (decrease the frequency of pick ups) the cost of collection when the tanks become full.
 Contamination from cesspits as well as residents' attempt to extend the periods between transferring sewage has been done with adding salt to the pits, causing added concerns about contributing to the salination of soils.

Maximizing Reuse of Water (Borda, ISSRAR) in Azraq, Jordan, aims to restore local ecology and landscapes by recoveri

Sanitation Value Chain



Enhanced waste reuse practices contribute to the maintenance of a sustainable ecosystem.

Integrated wastewater reuse at Feynan Ecolodge





There is a Decentralized Wastewater Treatment Research and Demonstration Facility in Fuhais, Jordan



Description:

Development of extension to WWT plant is better matched to the rate of development and needs of the community.

Increased capacity for waste water treatment and increased availability of treated water for applications within the city - such as greening and irrigation for crops for animal consumption.

Encourage mechanisms to reduce the financial burden of emptying cesspits by tanker (such as using sludge for Biogas production) and discourage the application of salt to dehydrate sludge as this has weakened the structures/walls of the cesspits leading to hazardous leakages, polluting soils and streams, such as growing salt-resistant plants for soil rehabilitation in addition to biochar use among other options.

Gender Mainstreaming:

Local community organizations mobilize around awareness and capacity building of local community along a coordinated and systematic framework to tackle the multi-pronged issue of soil and water contamination, in addition to the health concerns, exacerbated and/or caused by the cesspits situation and the negatively impactful behaviors used to reduce costs of properly disposing of sewage.

Initiator:

Actors:

Target group:

Action steps and timetable:



<ul style="list-style-type: none"> · Cooperation with donor agencies to initiate feasibility study for the expansion of the wastewater treatment plant · Coordinate with the installation of the solar park 	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water	5.4			
Action – Title:				
Treated Wastewater Applications at Pilot Sites				
Vision and Goals:				
Treated wastewater applications are identified and implemented.				
Initial situation:				



The existing wastewater treatment facility had previously initiated a study in partnership with the Ministry of Agriculture to assess the quality and applications of treated wastewater. However, the initiative was discontinued due to a change in administration. Treated wastewater is emptied into evaporation pools instead of utilized in a potentially more advantageous application.

Description:

Re-establish the partnership in order to assess the quality and potential applications of treated wastewater.

Gender Mainstreaming:

Local community organizations assist in identifying and targeting applications, not only from a technical angle but also in terms of social acceptability of (treated wastewater) applications.

Initiator:

Tal al Manath Wastewater Treatment Facility, Municipal Administration

Actors:

Ministry of Agriculture, Jordan Valley Association, Water Authority of Jordan, Ministry of Agriculture and Irrigation

Target group:

Action steps and timetable:

Discuss terms, aims of the previous initiative and amend as necessary to suit the needs of the municipality and the intended pilot sites

Collaborate with the wastewater treatment facility on the planned methodology

Conduct awareness and feasibility studies with stakeholders who could be incorporated/involved with the pilot sites and the treated wastewater applications

Pilot sites should strategically represent different uses, conditions and contexts to understand the efficient and advantageous use of treated w wastewater

Results of the pilot projects should be incorporated in the Master Plan for Municipal Sanitation (see Action 8.2)

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:



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Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water	5.5		short - mid-term	
Action – Title:				
Rainwater Harvesting: Cisterns				
Vision and Goals:				



Diversify water supplies by pairing buffering and Rainwater Harvesting (RWH) technologies to 1) collect rainwater to store for use, 2) divert water from heavy rains away from urban/built areas and 3) decrease the occurrence that rainwater runoff damages farmers' investments in the application of fertilizers and pesticides.

Increase water and wastewater infrastructure and efficiency

Promotion of a cheap and viable sustainable development-oriented technology.

Improve long-term resilience of water supply; Reduce impacts of drought and mitigate the waiting period of domestic water supplies; Increase the amount of water stored for agriculture and livestock watering.

Initial situation:

Sudden and intense rains decrease soil quality and water because the rains often wash away the pesticides and fertilizers that farmers have applied to their fields.

Farmers experience economic losses when the heavy rainfall washes away their investments.

Urban infrastructure is also damaged as a result of the heavy rainfalls.

Groundwater is increasingly salinated and sparse.

Description:

Construction of Dams or Cisterns to Store Rainwater Runoff which increases water stores and decreases damage from runoff

Dams

Construction of dams (such as Percolation Dams, which reduce speed of surface water flow and increase the recharge of aquifers). Percolation dams can be constructed of natural materials that are locally available to store rainwater for irrigation, and or the regeneration of aquifers. If the tank is aboveground, it can connect with slope channel; to collect the rainwater coming down the wadi.

Water Tanks

Construction of water Tanks, depending on site survey and feasibility study, can be above ground or below ground.

Gender Mainstreaming:

Gender mainstreaming can take hold in the various aspects of the project from working to coordinate the vertical and horizontal alignment of stakeholders involved in the establishment and procurement of funds for the project. Additionally, there are various economic and technical areas of expertise resulting from by products and auxiliary activities of the reforestation project that could be valuable to women in their respective fields and their communities.

Initiator:

Municipal Administration

Actors:

Ministry of Local Administration, Water Authority of Jordan, Charity, agricultural association

Target group:

Action steps and timetable:



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Determine the Baseline for local water sources (existing distribution and water supply data, quality of groundwater resources, groundwater level (past and projected future compared against present and future demand), a survey of water collection technologies.

Develop local water strategy concept to increase local water quantities and improve its quality.

Determine the sale price of water and mechanisms for distribution

Determine location of the dams/tanks

Ensure that non-revenue water is reduced by strategically coordinating placement of cisterns for 1) water collection purposes and 2) water distribution / end-users distribution

Prepare an engineering and agricultural strategy; developing required documents

Secure funding and open a tender for NGOs or consultancy to conduct the studies and implement the project

Success indicators/milestones:

Reduce water runoff

Find a new water source

Reduce dependence on groundwater pumping

Total expenditure/(start-up) costs:

Resilience Factor:

Reduce dependence on groundwater pumping

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)

Added value for the local economy:

Field of action:	Number :	Type of action :	Starting the action:	Duration of the action
Water	5.6	:		
Action – Title:				



Greywater Reuse

Goals and strategy:

Identified technologies are initiated in the pilot area and are further accepted by the broader community for practical, everyday applications.

Enhancement of greenspaces and parks through the provision of graywater to the flora at these sites.

The community actively participants in creating and contributing (overcoming previous experienced issues of smell and building confidence in the technology by customizing and piloting it) to the design of graywater treatment technologies that meet social, environmental, and climate resilience needs.

Initial situation:

Groundwater quality is deteriorated, producing less options for acceptable water in the municipality. Due to the high temperatures in the area, the residents use water for cooling, especially in water-based air conditioners, where each conditioner consumes about 60 liters of water per day.

Municipal water available for use is scarce

Description:

Pilot areas:

Designate pilot public buildings, homes, and or schools, etc. to showcase a working, safe system in order to boost public confidence in greywater application. Have phases for re-design of the system, and, later, increase the area.

As a result of some projects in Jordan with greywater technologies, depending on the technology, systems that produced a smell were later rejected.

Cement tank be in the ground contain sand layers; to collect the Gray water from home; Identifying feasibility of small-scale to mid-scale filtration: wood-chip biofilter, mesh-filter bag, (slow) sand filter; multi-layer for treating grey water consist of natural adsorbents and combined with septic tank, wet pit pump, solar cells and disinfection unit and storage to be commercialized as final product

Pairing buffering of at-risk areas from runoff.

Redirecting water to irrigate grazing fields

These are systems used to treat domestic greywater in order to be suitable for restricted irrigation of home gardens. (treated to a standard satisfactory for intended reuse).

Restricted irrigation:

is irrigation of all types of crops with treated greywater except vegetables and plants including edible parts that can get in direct contact with irrigation water wither these parts are eaten raw or cooked.

Grey water filtration systems have been reported to aid households save nearly a quarter of their annual water bill.

Chemical graywater recycling - advantages: no odor, high filtration; disadvantages: high cost, public acceptance is still difficult to obtain.

Greywater use in climate control (Air Conditioning)

Gender Mainstreaming:



Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities

Gender mainstreamed into awareness of installation, and accepted uses and applications of graywater. Women's associations can lead in building baseline and feasibility studies, selection and evaluation of pilot areas. Develop Training of Trainer (ToT) curriculum on practices, studies, feasibility of Action; monitoring of participating sites/homes; and developing framework for capitalizing of a marketing goods grown and construction of greywater technologies and their practical application). ToTs can develop Guidebooks for the practical application of feasibility procedures, technical application).

Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation

Track the numbers of beneficiaries, participants and leaders/decision makers in initiatives, disaggregated by gender, age and geographical area of the municipality.

Participation of women researchers and women's associations in data collection

Women leadership associations' capacities are developed to specialize in climate change and related sectors

Initiator:

Municipal Administration, NGO / CBO

Actors:

Municipal Administration, NGO/ CBO, Ministry of Environment, (irrigation) Ministry of Agriculture

Target group:

Pilot Groups with in the residential and commercial communities

Action steps and timetable:

Identify liaison officers

Holding discussion sessions for women (Holding sessions for women to share experiences on water recycling.

"One of the ladies reused chicken cleaning water to water the garden plants ?!"

Establishing gray water networks in certain areas and building a treatment plant

Awareness of the use of gray water

Success indicators/milestones:

Dependence on a new water source

Increase the green area

Create new jobs

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:



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Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.1			
Action – Title:				



Carbon Farming: Biochar for Soil Remediation

Goals and strategy:

Observed improvement of water quality, reduce soil emissions of greenhouse gases, reduce nutrient leaching, reduce soil acidity, and reduce irrigation and fertilizer requirements accompanied with the application of biochar.

Deir Alla actuates regenerative economic possibilities inherent in agriculture (from waste - to - energy - to soil - to - crops - waste, etc.) to boost local economy and livelihoods.

Initial situation:

Deir Alla used to host a compost facility. Its closure was determined to be the cost of the treated compost compared to other items on the market.

Farmers use untreated animal manure (because it's readily available); however, it can be counter productive to human/soil/air health and quality.

Deir Alla continues to experience deteriorating soil quality and water scarcity

Changing climate forcing farmers to reconsider the types of crops, pesticides and fertilizers (and often misapplying or overapplying) in order to compensate for losses due to climate impacts.

Description:

Production of biochar requires organic wastes; creating an economic commodity from a mixture of organic materials

Depending on the composition of the biochar (i.e. its inputs and processing method), it is a soil amender/remediator, a carbon sequesterer, aids soils in retaining water, a renewable energy source.

The creation of incentives for the collection of requisite inputs needed for biochar production as well as leveraging activities, enforcement and/or incentives and pilot areas to test the application of biochar on agricultural fields is needed to help establish the market are needed.

Capacity building with farmers (benefits of compost, balancing between proper application of pesticides and fertilizers)

Pilot Areas and Research

Partnering with interested research institutions (university and/or National Agricultural Research Center) would be beneficial to quantitatively determining the benefits of the product in the municipality.

The Pilot Areas would aid in building awareness and allowing farmers and stakeholder to see the benefits and understand the products' application in a hands-on way.

Gender Mainstreaming:

Gender mainstreamed into results (women trained to conduct Training of Trainers (ToT) on practices, studies, feasibility of Action; monitoring of participating sites/homes. Women's organizations can take the lead and adapt best practices of biochar production and community mobilization to apply the appropriate technologies and skills sets to create a marketable product specifically made to address a critical issue facing the Ghor region. Training of Trainers groups can develop flyers / Guidebooks for the practical application of identifying quality inputs for quality outputs, scientifically determining the right mix of inputs for impactful outputs as well as how to market the product (report results). Can be established as a Public-Private Partnership with the municipality.



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Initiator:	
Actors:	
NGO / CBO, National Agricultural Research Center	
Target group:	
Action steps and timetable: Two years	
Establish partnership with research institution Determine where to do the project Educate and motivate farmers by reducing fees Use of low-energy irrigation systems Use of solar-based irrigation water pumps Production of Compost/ Biochar Establish Pilot Areas; pilots lasting between 6mo-1 year	
Success indicators/milestones:	
Adoption of five farms for low-energy irrigation systems Use at least five farms for solar-powered pumps Use of biochar in at least five farms and therefore the spread of biochar can be expanded	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.2	Mid-term	2020-2025	
Action – Title:				



Carbon Farming: Composting for Compliance & Soil Health

Goals and strategy:

Production of Quality Compost serves multiple outcomes such as reducing organic wastes to landfill (mitigation) , rejuvenating agricultural (and grazing) fields and slowing desertification by improving the quality of soils.

Provide additional employment opportunities in addition to promoting a regenerative economy.

Initial situation:

The municipality is currently working on a twinning project with the German city of Jena for organic waste management and in cooperation with German Corporation for International Cooperation (GIZ).

Also, in coordination with GIZ, the municipality is working to implement a comprehensive strategy for solid waste management.

Municipal residents use traditional methods of agriculture and irrigation and mainly use chemical fertilizers and pesticides

The Municipality suffers from environmental pollution resulting from agricultural activity due to the use of traditional methods in agriculture, especially protected crops within green houses .

All studies and procedures for financing the acquisition, rehabilitation and operation of organic manure plant have been completed.

Details

The organic fertilizer plant will be purchased to be owned by the municipality as an investment and will be handled to private sector for management.

Biowastes including animal manure, organic materials (household-based) and woody materials are utilized in the production of quality compost.

Produce quality compost and reduce the amount of chemicals applied to agricultural fields

The utilization of agricultural and household biowastes to produce quality compost for agricultural applications. Market and feasibility studies would be integrated components.

Combine with action Sorting-at-source (SAS) for collecting organics from markets and other sources of bulk biowastes.

Capacity building and coordination with farmers (benefits of compost, balancing between proper application of pesticides and fertilizers)

Building capacity to improve enforcement of the Waste Management Act, which prohibits the use of raw animal waste in agricultural fields. In this way, the law becomes a mechanism for marketing the product manure.

Capacity Building to improve enforcement of waste law, which dictates that raw manure cannot be applied to agricultural fields. In this way, the law becomes a mechanism for the compost market.

Capacity building/sub action: training for farmers about agricultural best practices (pesticide and fertilizer application, benefits of compost, irrigation technology, etc.)



Pilot Areas & Research

Partnering with interested research institutions (university and/or National Agricultural Research Center) would be beneficial to quantitatively determining the benefits of the product in the municipality.

The Pilot Areas would aid in building awareness and allowing farmers and stakeholder to see the benefits and understand the products' application in a hands-on way.

Gender Mainstreaming:

The operating model can be modelled after the Composting facility in Mafraq in which women are staff and managers. The facility provides a daycare to enable women who have young children to work at the facility.

Remove barriers traditionally placed on women that compound their workload.

Actors:

NGO / CBO, National Agricultural Research Center

Target group:

Action steps and timetable:

Establish partnership with research institution

Conduct an in-depth Market and Feasibility Study

Understand the quantities and composition of potential input materials and select an experienced NGO/consultancy to establish operational framework for successful launch and operation

Locate the project

Educating farmers and motivating them by reducing fees, decreasing negative environmental impact as well as the cost-benefits of composting

The operator (under the PPP with the municipality) helps to establish Pilot areas/farms to showcase the use of the compost in combination, in absence and in comparison with traditional applications of fertilizers

Establish Pilot Areas; pilots lasting between 6mo-1 year

Success indicators/milestones:

Increased reliance on compost by farmers

Soil quality improves as well as water retention in agricultural fields

Resilience Factor:

Reduction in the amount of chemical fertilizer

Reduction in the amount of organic waste and untreated manure applied onto agricultural fields

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:



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Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.3			
Action – Title:				



Solar in Desalinization and Irrigation to Support Agrarian Economy

Vision and Goals:

Decreased cost of water distribution in agriculture.

Improved water quality and increased water availability for agricultural purposes.

Initial situation:

Contributing to soil salinity is the local behavior of adding salt to cesspit tanks as a means to dry (decrease the weight) of deposits to decrease (decrease the frequency of pick ups) the cost of collection when the tanks become full. The tanks are deteriorating and leak their contents, including the salt and other questionable materials into the surrounding environments.

Groundwater is increasingly salinated and sparse due to water demand (reducing overall groundwater quantities), over-application of fertilizers and pesticides, as well as cesspit mismanagement.

Details:

Uses of PV in water withdrawal and irrigation.

Investigation of low-cost and decentralized units for solar - water desalination such as "Solar Stills", "Solar powered Humidification- Dehumidification (HDH) desalination", "Solar diffusion driven desalination process", "Solar membrane distillation", "concentrating solar energy for desalination", "Solar Pond Distillation".

Designate pilot areas to test technologies and their application in irrigation systems

Gender Mainstreaming:

Active participation of women's associations in implementation
Improving and developing the role of women's associations in the community from traditional roles (charity,) to more leadership, renewable and related sectors related to climate change (water, energy and health)

Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills); improving services and infrastructure (nursery, transportation..) to enhance women's economic participation; safeguard labor rights, particularly for those who work in agriculture; removal of barriers traditionally placed on women that compound their workload; improving women's access to reproductive health services.

Initiator:

NGO, Municipal Administration

Actors:

National Center for Agricultural Research and Extension (NCARE), NGOs, Private Sector, University

Action steps and timetable:

Identify liaison officers

Contract an NGO or consulting firm to develop and recommend a standard for environmentally friendly desalination technologies aimed specifically at reducing energy consumption at desalination plants



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Contract a consulting firm to study the benefits of supporting locally produced and assembled desalination units in the context of promoting the green economy and supporting national industry; present best findings (incentives) as a recommendation

Ensuring equal opportunities for males and females

Promoting the role of women as volunteers and workers with symbolic rewards.

Training engineers/engineers on alternative energy matters. Conduct a training program for best practices of O&M of new standardized environmentally friendly desalination technologies aimed specifically at reducing energy consumption at desalination plants

Pilot new Technologies in sites

Monitor and evaluate Pilots, disseminate results

To benefit from the return of renewable energy to conduct awareness workshops.

Consider the choice according to efficiency and open the way for females to work in electromagnetic fields.

It is preferable to take a sample of socially active women, train them to separate from the source, distribute baskets and then raise awareness.

Research on new support for solar-based pumps

Success indicators/milestones:

Improved quality of water for agriculture

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)

Mitigative / Adaptive Impact:

Added value for the local economy:



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.4		mid-term	
Action – Title:				
Innovation in Agriculture: Climate Resilience, Technologies & Best Practices				
Goals and strategy:				
<p>Establish a program of continuous training and capacity-building To enhance the capacities of current breeding programs through facilities-upgrading and the adoption of modern tools and training.</p> <p>Deir Alla is established as a model site with Pilot farms for research on breeding, cultivating planting resilient crops that improve and retain groundwater.</p> <p>Combined use of graywater technology and irrigation improves agricultural output.</p> <p>Water quality and quantity is improved through irrigation technologies and the selection of soil- and water-enhancing flora varieties.</p> <p>Deir Alla is a represents regional agricultural innovations.</p>				
Initial situation:				
<p>During a previous training and capacity building initiative that took place, farmers highly valued the expert inputs on best practices but this type of training requires consistent updates due to the intensity of climate-related and environmental impacts of the region</p> <p>Environmental pollution resulting from agricultural activity</p> <p>Lack of qualification, training and development of scientific capacities</p> <p>There has been minimal application of advanced irrigation technologies (low energy) as well as systems that are able to distribute 'treated water'. Meanwhile, the agricultural sector requires this technology and its proper application.</p> <p>Many houses use cesspits, which have contributed to environmental (water and soil) contamination.</p>				
Details:				
<p>Establishment of a Local Agricultural Extension: Investing in Outcomes for Climate-Resilient Crops, Ag Best Practices</p> <p>Extension services are meant to bridge the gap between research and infield crop production. It is a vehicle to carry forward and help farmers apply latest research, production techniques, processes, process steps to produce crops efficiently by educating them. An Extension workers is also a 'Crop Doctor', who is expected to provide neutral advice to farmers on fertilization and crop protection issues that farmers face during crop production cycle.</p> <p>* proper dimension your farm by making use of your local resources/plot by Business model (one crop vs multiple/rotation);</p> <p>*crop farming strategies (conventional vs conversion vs organic)</p> <p>*precision farming (sensors kit, ERP management app, drones?)</p> <p>Deir Alla partners with a university (universities) for the identification of climate resilient crops that are marketable.</p>				



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Partner with universities and research initiatives for sustained momentum, sharing of resources, expertise, practical experience to enhance the agricultural sector between stakeholders.

Practical application of studies related to those crops

Opening new markets for farmers

Technology Saturation in Agriculture

Irrigation with low-energy and graywater technologies for grazing crops

Rainwater harvesting and graywater technologies can provide an input for irrigation technology (with modifications).

Designing financial support mechanism

Piloting Innovation

Initiatives (climate-resilient crops, irrigation and agricultural Best Practices) would be the subject of an ongoing pilot series for training, research and capacity building with farmers. Ideally, it would also support an Innovation Hub, wherein entrepreneurial ideas could find support for solutions for increased water efficiency in agriculture; improving water quality through proper identification of flora (plant varieties) that help filter and retain groundwater (in agriculture, grazing land, etc), as well as improving job opportunities.

The university(ies) could annually/bi-annually host trainings and applications of technologies and best practices to farmers.

The university(ies) could benefit from piloting technologies, new methods leading to greater energy and water efficiency, reducing salinization of soils, etc.

Gender Mainstreaming:

Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities.

Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation

Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills).

Gender mainstreaming can take hold in the various aspects of the project from working to coordinate the vertical and horizontal alignment of stakeholders.

Initiator:

Actors:

Target group:

Action steps and timetable:

Identify liaison officers



Ensure the rights of farmers (Some women run some nurseries and farms in the area. "They must be reached in any agriculture project through the associations and the Directorate of Agriculture")

A Map of the associations in the area.

Establishing a list of criteria for selecting associations.

Stimulate and guide the local community and associations towards climate change issues by the municipality.

Study of plants resistant to climate change

Select a farm to experience the plants

Economic feasibility study and market viability of product consumption

Educate farmers about plants

Success indicators/milestones:

publishing of studies and economic feasibility for public

Raise the economic level of farmers

Create new jobs

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.5		mid-term	
Action – Title:				
Drip, Subsurface Irrigation Technology and Capacity Building and farm-level water harvesting				
Goals and strategy:				
Deir Alla is a represents regional agricultural innovations.				
Expand water-saving technologies to deliver socio-economic and environmental benefits				
Initial situation:				
<p>Water scarcity and concerns over water quality are prevalent</p> <p>There has been minimal application of advanced irrigation technologies (low energy) as well as systems that are able to distribute 'treated water'. Meanwhile, the agricultural sector requires this technology and its proper application.</p> <p>Rainfall can be sudden and intense</p>				
Details:				
<i>Drip Irrigation</i>				
<p>Improve the efficiency of water supply to help farmers adapt to climate change by reducing water losses from evaporation, which is anticipated to increase with climate change.</p> <p>Drip irrigation deliver controlled water quantities directly to the soil of crops and can provide as much as 90% water-use efficiency (TNA, 2017).</p> <p>Provide economic incentives and subsidized tariffs for irrigation and water-saving practices to increase efficient use by land-owners and farmers</p> <p>Conduct feasibility studies for low-energy, Solar PV-powered drip irrigation systems. Pilot areas should examine the efficiency of delivering varied degrees of water quality to plan and educate about maintenance and improve drip-technologies applications (irrigating crops, delivering water to areas targeted for reforestation (with treated wastewater, etc.).</p>				
<i>Water Harvesting</i>				
<p>Small-scale collection infrastructure to contribute to the volume of freshwater available during periods of low water.</p> <p>Terracing, retention ditches, trash lines and (tree lines/ green buffers) can reduce soil erosion and recharging groundwater.</p> <p>Below-ground tanks and small reservoirs are options for implementation, pending feasibility studies and pilot launches.</p>				
<i>Piloting Innovation</i>				
<p>The university(ies) could annually/bi-annually host trainings and applications of technologies and best practices to farmers.</p> <p>The university(ies) could benefit from piloting technologies, new methods leading to greater energy and water efficiency, reducing salinization of soils, etc.</p>				
Gender Mainstreaming:				



Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities.

Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation

Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills).

Gender mainstreaming can take hold in the various aspects of the project from working to coordinate the vertical and horizontal alignment of stakeholders.

Initiator:

Farmers Association, Municipal Administration

Actors:

Ministry of Agriculture, Ministry of Water and Irrigation

Target group:

Agricultural communities

Action steps and timetable:

Identification of irrigation and water harvesting technologies and strategies available locally

Conduct needs assessment

Identify and contact centers and experts to implement technical and scientific assessments, for which the results are published publicly

Plan pilot areas to test irrigation systems

Conduct regular consultations with farmers and assess the viability of systems and water catchment technology

Conduct trainings based on findings

Develop strategies to assist farmers in financing drip irrigation technologies as well as incentive mechanisms

Exchange knowledge regionally

Success indicators/milestones:

publishing of studies and economic feasibility for public

Decreased water loss

Raise the economic level of farmers

Create new jobs

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)



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**Added value for the local
economy:**

TNC, 2017

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Agriculture	6.6		mid-term	
Action – Title:				
Climate-Resilient Crops and Marketing				
Goals and strategy:				
<p>Improved tolerance of crops to changing climatic and environmental conditions</p> <p>Improve livelihoods of farmers</p> <p>Reduce use of pesticides and fertilizers</p> <p>Reduce water consumption</p> <p>Support conservation (Biodiversity)</p>				
Initial situation:				
<p>During a previous training and capacity building initiative that took place, farmers highly valued the expert inputs on best practices but this type of training requires consistent updates due to the intensity of climate-related and environmental impacts of the region</p> <p>Environmental pollution resulting from agricultural activity</p> <p>Lack of qualification, training and development of scientific capacities</p> <p>There has been minimal application of advanced irrigation technologies (low energy) as well as systems that are able to distribute 'treated water'. Meanwhile, the agricultural sector requires this technology and its proper application.</p> <p>Many houses use cesspits, which have contributed to environmental (water and soil) contamination.</p>				
Details:				
<p>Establishment of stakeholder network between research institutions, farmers and international funders to support the initiation of a modern breeding program to produce climate-resilient varieties.</p> <p>Promote knowledge transfer and increasing public awareness regarding the benefits of the improved varieties; enhance the marketability of these crops.</p>				
Gender Mainstreaming:				
<p>Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities.</p> <p>Improving knowledge and concept of climate change and gender integration</p> <p>Unbiased training and responsibilities are available to all, and efforts are made to remove barriers to women's participation</p> <p>Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills).</p> <p>removal of barriers traditionally placed on women that compound their workload; improving women's access to reproductive health services.</p> <p>Gender mainstreaming can take hold in the various aspects of the project from working to coordinate the vertical and horizontal alignment of stakeholders involved in the establishment and procurement of funds for the project. Additionally, there are various economic and technical areas</p>				



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of expertise resulting from by products and auxiliary activities of the reforestation project that could be valuable to women in their respective fields and their communities.

Initiator:

Municipal Administration, Agricultural Community

Actors:

Municipal Administration, Ministry of Agriculture, Ministry of Environment, Universities

Target group:

Agricultural Community, Consumers

Action steps and timetable:

- institutionalize a modern breeding program to produce climate-resilient crop varieties in collaboration with local, regional and international organizations
- introduce modern tools and technologies to support programs
- partner with local research institutions to support the longevity/sustainability of the initiative
- determine the framework for seed (low-cost) distribution for farmers
- launching rewards program for best farming practices using climate change resilient crops

Marketing

Conduct Market studies for crops, build acceptance and awareness about the crop varieties introduced through the initiative

Success indicators/milestones:

- publishing of studies and economic feasibility for public
- Raise the economic level of farmers
- Create new jobs

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)

Added value for the local economy:

TNC, 2017.



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	8.1			
Action – Title:				
Municipal Mitigation Strategy				
Vision and Goals:				
<p>Solar PV Saturation: > 10 % of households (1, 573 households (based on 2019 population and average household size) utilize solar power for electrification and 20% (3, 146 households) equipped with solar water heaters by 2030, in line with the Technology Needs Assessment (2017)goals.</p> <p>Deir Alla Municipality's energy strategy outlines the pathways to develop energy from renewable energy sources, contributing to national efforts for emissions reductions as well as improving local resiliency whereby local renewable energy sources support the energy needs of the local community.</p> <p>Reducing cost of energy bills when households amid extreme summer heat and reducing the energy costs associated with water use and economic activities.</p> <p>Mitigation of emissions the adoption of renewable and alternative energy sources to diversify local energy portfolio</p>				
Initial situation:				
<p>Deir Alla Municipality is characterized by its high summer temperatures. Househlds use air conditioners to offset the heat which consume significant amounts of energy.</p> <p>The main source of municipal water is underground, which entails energy costs to withdrawal water.</p> <p>Agricultural (organic waste residues) waste quantities are abundant and are burned or fed to fodder. A fraction of the quantity of this waste may be utilized as energy.</p> <p>The SEED project, which worked to install solar PV units on households, ends in March 2020.</p>				
Details:				
<p><i>Municipal Buildings - Energy Efficiency Regulatoins Review:</i> Review of building approval and monitoring policies to increase energy efficiency of public buildings, as well as the construction and management of public buildings.</p> <p><i>Municipal Buildings - LED Streetlighting:</i> Integrate public lighting</p> <p><i>Build Awareness:</i> Building awareness and buy-in with the community and stakeholders, improving energy efficiency compliance.</p> <p>Agriculture</p> <p><i>Uses of PV in water withdrawal and irrigation.</i> Capitalize on successful implementation and research of low-energy drip irrigation in Jordan and the region.</p>				





Investigation and application of low-cost and decentralized units for solar for Pilot Areas - partner with stakeholders and research institutions to assess the viability of potential applicable technologies for water desalination.

Waste Management and Treatment

Revision of waste fees. Study and re-evaluate waste fees, conduct awareness initiatives and training (and consider developing innovative incentive mechanisms) to improve public/commercial incentives for compliance in order to be able to collect a larger portion of biowastes for alternative energy options.

The municipality improves solid waste management processes including treatment in the municipality.

- Purchase and placement of waste collection boxes
- Separation at source in pilot areas; separation at source is a gateway to convert waste into goods. Successful sorting-at-source initiatives could benefit this Action as organic wastes would be inputs for the energy production
- Feasibility studies for and energy source options from waste streams for biogas (organic waste); Biogas and sewage treatment. The types of options vary greatly (low-high investment, etc.); however, Digesters, such as floating drum digesters would be one technology to consider. Conduct a feasibility study for the use of organic waste (e.g. sludge deposits from suction drilling or from the current wastewater treatment plant, animal wastes, food leftovers, etc.) to obtain energy as well as reduce wastewater treatment costs.

Gender Mainstreaming:

Engaging women through outreach (media, participation), capacity-building and training to be a part of the strategic process of reducing emissions and increasing economic opportunities in renewable energy sources. Awareness initiatives address men and women to improve energy efficiency.



Municipality enables female participation at all stages (scoping, implementation and evaluation) of the Action and its components.

Active participation of women's associations in implementation

Initiator:

Municipal Administration

Actors:

Municipal Administration's Development Unit, Local Experts, Ministry of Energy and Mineral Resources, Ministry of Environment

Action steps and timetable:

Preparation for implementation of comprehensive program of incentives for users

Identify Initiative liaison officers

Study and establish goals for emissions reductions and shares by renewable energy source

Hold conference for stakeholders to discuss current situations, development and required improvements by goal year



Dissemination of proposal documents and documents of enforcement to concerned governmental bodies

Ensure equal opportunities for males and females

Promote the role of women as volunteers and workers with symbolic rewards.

Train engineers/engineers on alternative energy matters.

Conduct Awareness workshops on Renewable/Alternative Energy

Consider the choice of energy technology according to efficiency and open the way for females to work in the renewable energy field and its applications in Deir Alla

Ensure that the municipality supports the continuity of waste collection and sorting, eventually leading to sorting at source

The town hall functions as a Model of Green Building principles

Identify solutions for inorganic agricultural waste

It is preferable to take a sample of socially active women, train them to separate from the source, distribute baskets and then raise awareness.

Research new support for solar-based pumps and their practical application

Municipal buildings have to switch to energy-saving lighting, powered by PV solar units.

Success indicators/milestones:

Reduced energy spending of the municipality

Reduced waste volumes of inorganic agricultural waste piled on street sides

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

To be estimated

Savings of GHG emissions (t/a)

Depending on the emission factor for electricity in Jordan

Added value for the local economy:

Improved job market for skilled technical persons as well as professional training opportunities. Impact of actions will be reflected in different sectors (energy, residential and agriculture).

Further remarks:



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Field of action:	Number :	Type of action:	Starting the action:	Duration of the action
Climate	8.2			permanent
Action – Title:				
Climate Action Concept				
Goals and strategy:				
<p>The development of an integrated plan to manage the factors of adaptation and response and improve the handling of the effects of climate change through the development of an integrated systems and mechanisms that conserve and improve (the quantities and quality) natural resources and developing the local economy sustainably.</p> <p>Deir Alla becomes more resilient to current and projected impacts of climate change (such as extreme heat, leading to increased energy and water demands) by diversifying its energy resources, particularly renewable energy sources for protecting homes (AC) and water treatment.</p>				
Initial situation:				
There is a climate strategy but it is not publicly available. The public currently experiences the impacts of climate change across sectors.				
Description:				
<p>This Action is about formalizing the municipality's intention to achieve improved local resilience by working towards the goals/visions outlined by the Resilience Ready Climate Community Group (i.e. the values determined of high importance). These include the following:</p> <ul style="list-style-type: none"> Improve Soil Quality and Long-term Resilience of Agricultural Activities Improve the Standard of Living and Expand Employment Opportunities Develop and Align Local Climate Action with National Strategies, Initiatives, and Support Mechanisms Cultivate the potential of Human Capital (for example - capacity building, problem solving skills and leadership among stakeholders) Promote Local Innovation in Climate Action Secure Innovative, Mechanisms and Means for Climate Financing of Local Action Implement Climate Action in a Sustained Way that Support and Reinforced the Local Economy Improve Local Air Quality and Safeguarding against related Health Risks Improve Overall Environmental Conditions (Quality and Quantify of Natural Resources) Increase and Enhance Cooperation between Municipality, Private Entities and Community, improving Mitigative, Adaptive and Gender Mainstreaming Initiatives 				
Initiator:				
City administration				
Actors:				
City administration, development department				
Target group:				
City administration, citizens				
Action steps and timetable:				



Endorsement of the Local Climate Action Plan: The Local Climate Action Plan (LCAP) and its List of Actions (LoA) is reviewed by the mayor, relevant municipal staff and RRCCG. It is forwarded to the City Council for approval.

Formation of the Climate Implementation Team: Climate (Implementation) team is formed and approved (members represent the knowledge, experience and skills necessary to lead the implementation of the LCAP and its Mitigation, Adaptation and Gender Mainstreaming components). Associations and stakeholders are engaged in the election of members and in the announcement of the intention to respond to climate impacts.

Outline Process for Improved Data Collection to incorporate more insights into the climate context of the municipality.

A public formally announces the LCAP (and amendments if made) as well as generalized timeline for implementation.

Develop a 'Climate Primer', detailing the highlights of the LCAP and its List of Actions, overviewing national-level climate strategies' implications for local-level action to share with the RRCCG and Climate Implementation Team.

Initiate municipal-wide awareness on climate impacts, the LCAP and intended processes for the planning, implementation and evaluation of Actions to take place in the municipality.

The Climate Concept:

Will quantitatively outline the indicators relating to the 10 Goals identified by the RRCCG (above).

Will quantitatively outline goals and indicators to **improve energy efficiency and emissions reductions by sector.**

Outlining and announcing investment decisions (such as renewable energies and Actions of the Local Climate Action Plan) to align and motivate local stakeholders to move along a shared development path.

Create an online platform(s) to make the concept publically available

Gender Mainstreaming:

Building the capacity of municipal workers in gender and women's empowerment in climate change aspects.

Participation of male, female and youth workers in supervising and implementing Actions

Conducting unbiased training and delegation of responsibilities and removing barriers to women's participation

Information is publically available, accessible and processes of data collection and analyses are transparent

Participation of men, women, young people and persons with disabilities in discussion sessions and identifying problems, proposals and priorities

Location and timing of meetings facilitates cultural needs (segregated rooms and/or providing childcare, location is accessible to the disabled)

A social and gender expert is present at functions, events centered around community engagement





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Media shows women as beneficiaries as decision makers in climate-change initiatives
 Participation of women researchers and women's associations in the data collection process
 Women leadership associations' capacities are developed to specialize in climate change and related sectors

Success

indicators/milestones:

Local Climate Action Plan and List of Actions is endorsed
 Community-identified goals are assigned quantitative indicators against which to measure progress and achievement

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Added value for the local economy:

Accompanying measures:

Further remarks:



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water, Urban Development	8.3			
Action – Title:				
Urban Green Canopies with vertical/Roof Farming and Water Capture and Re-use				
Vision and Goals:				
<p>Diversifying water supplies for residential areas, schools and innovating new water collection options for agricultural areas .</p> <p>Increase the green space and improve air quality</p> <p>Increase building energy efficiency</p> <p>Promoting a cheap and viable sustainable development-oriented technology of roof-top Rain Water Harvesting.</p> <p>Counter Urban-Heat Island Effect with Rooftop and Vertical Gardens</p>				
Initial situation:				
<p>Municipal water available for use is scarce</p> <p>Air quality and the amount of greenspace was a public concern.</p>				
Description:				
<p>Economic opportunities for groups interested in developing kits, installation and capacity building for cultivation of RVFs.</p>				
<i>Municipal Rooftops</i>				
<p>Small-scale, rooftop and/or vertical farming of a small range of crops; the municipality's roof can serve as a communal garden/rooftop park (beekeeping). Sound studies should be undertaken as part of the Training of Trainers (ToT) programs.</p>				
<i>Rainwater Harvesting Piloting in Communities and Urban Environment</i>				
<p>Pilot areas and communities should be selected in order to test designs and applications of Rainwater Harvesting technologies on various surfaces.</p> <p>Job creation if action can serve as a case study for localized constructions of vertical agriculture techniques and use of greywater that can be adopted in other communities; training, construction and sales of materials / starter kits</p> <p>Roof, vertical and fence gardens (RVF) gardens to grow plants and shrubs to aid in cooling and clean the air by introducing more plants into our polluted urban spaces.</p> <p>Cooling the urban environment and making use of greywater technologies. Vegetated areas provide for a cooler environment while pavement (surface temperature) artificially increases air temperatures (urban heat island).</p>				
Gender Mainstreaming:				



Gender is mainstreamed into results (Training of Trainers initiative for practical applications and economizing of the models). ToTs establish best practices, studies, feasibility of Action; monitoring of participating sites/homes; and developing framework for capitalizing of a marketing goods grown and construction of 'rooftop/vertical' kits as well as those that make use of greywater technologies and their practical application). ToTs can develop Guidebooks for the practical application of feasibility procedures, technical application)

Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills); improving services and infrastructure (nursery, transportation..) to enhance women's economic participation; safeguard labor rights, particularly for those who work in agriculture; removal of barriers traditionally placed on women that compound their workload; improving women's access to reproductive health services.

Initiator:

Municipal Administration, NGO / CBO

Actors:

Municipal Administration, Engineering Assoc., Universities, Jordan Green Building Council, Ministry of Local Administration, Water Authority of Jordan

Target group:

Pilot Groups with in the residential and commercial communities

Action steps and timetable:

Select specific surfaces to start
Determine the sale price of water
Raise awareness of the importance and types of plants
Attention to placing water tanks in the urban/peri-urban environment.
Conduct technical assessment and screening study to identify the most appropriate modality for RWH Technology by Building Type
Host consortium of local technical and engineering teams to explore RWH technologies
Showcase results of consortium during a workshop
Revise or develop new water efficiency code or by-law for buildings to regulate water efficiency aspects, including RWH and regulate incentives, tax cuts and fees deductions aimed at increasing compliance of housing construction companies with roof-top RWH directives (building codes); enhance feasibility and payback period of technology
Implement Installation in **Pilot areas** that demonstrate models by building type
Develop and implement relevant trainings for construction/assembly and maintenance

Success indicators/milestones:

Self-sufficiency
Increase the green area
Create new jobs
If vegetation is situated to cover building surfaces, then evaporative cooling can reduce the need for air conditioning by reducing the air temperature immediately adjacent to the building. Vegetation has shown to reduce energy need.

Total expenditure/(start-up) costs:



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Financing (sponsoring, funding):	
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Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Urban Development & Mobility	9.3			
Action – Title:				
Recreation and Pedestrian Infrastructure				
Vision and Goals:				
<p>Recreational areas are accessible and appealing to the public.</p> <p>Recreational areas, while areas for community activities, are also able to reduce the risk of exposure to climate impacts and promote healthy outdoor engagement.</p> <p>Integrate adaptive and mitigation technologies in the parks.</p>				
Initial situation:				
<p>Deir Alla's lack of greenery and water means that recreational areas and the people who visit them (as well as shrubbery that may be present) are vulnerable to the heat.</p> <p>Places for recreation and footpaths are not accessible. Sidewalks (if they are present) are, even in high-traffic areas, are open directly to the summer heat and sun.</p>				
Details:				
<p>A USAID project is currently supporting the establishment of gardens and recreational areas. Some of the features of these gardens will be rainwater harvest and safety equipment. <i>(See Action 1.2.2 "Advancing Public Transportation for Climate, Accessibility and Resilient Services (CARS)"</i></p> <p>Enhance pedestrian infrastructure (sidewalks, walkways, [...]) with a shaded pedestrian infrastructure that can be walked to cool regular traffic areas (market areas) and routes to tourist and recreational areas.</p> <p>Pedestrian paths are cooled with green blinds where possible; other umbrellas can be built and insulated to help reverse sunlight in an effort to beautify and cool these areas.</p> <p>These paths should be equipped with waste collection bins, preferably (recyclable boxes) as soon as possible. <i>See Action 3.5.4 "Rainwater Harvesting and Urban Greening with Urban Canopies"</i></p> <p>Economic opportunities for groups interested in developing kits, installation and capacity building for cultivation of RVFs.</p> <p>Cooling the urban environment and making use of greywater technologies. Vegetated areas provide for a cooler environment while pavement (surface temperature) artificially increases air temperatures (urban heat island).</p>				
Gender Mainstreaming:				
<p>The mobility of women and persons with disabilities opens up additional employment and entertainment opportunities. Consultants will be sought with local stakeholders to achieve the objectives of the procedures, including improving access to the city and nearby destinations for persons with disabilities, as well as considering strengthening routes to destinations that host jobs for women and scheduling transfers to meet demand.</p>				
Initiator:				



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Municipal Administration	
Actors:	
Municipal Administration, NGO, public, donors	
Target group:	
Action steps and timetable:	
Success indicators/milestones:	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
	9.1			
Action – Title:				
Rehabilitation of Drinking Water Sources				
Vision and Goals:				
Initial situation:				
Municipal water available for use is scarce and water is contaminated by effluent from cesspits, agricultural pesticides and from illegal dumping of wastes in area waterways.				
Details				
<p>Cooperation is taking place with JICA to rehabilitate and connect the drinking water sources with a conveyor line to serve the residents of the municipality</p> <p>Sewage and water are not the responsibility and mandate of the municipality, but the municipality is working on initiating and submitting project proposals for the concerned parties and donors to finance projects that serve the residents of the municipality.</p> <p>Phases 1 and 2 of the project will improve water supply and quality for citizens, especially in the Ain Al Basha and Deir Alla Maadi areas</p> <p>The project aims to improve the state of water supply, to reduce water losses in the network and to decrease electricity consumption in Deir Alla and Ain Al Basha, where the water is supplied from the Zai Treatment Plant, which was expanded with a Japanese Grant Aid project totaling approximately \$70 million in 2001.</p> <p>This project installed 35.24 kilometers of pipes, constructed three reservoirs with a total capacity of 5,300 cubic meters and a pumping station and carried out related works. The expected number of beneficiaries of this project is around 264,000 people, the statement concluded.</p>				
Gender Mainstreaming:				
Initiator:				
Deir Alla Municipality				
Actors:				
Water Authority of Jordan, JICA, Deir Alla Municipality				
Action steps and timetable:				
Project Activities are Underway				
Success indicators/milestones:				
Total expenditure/(start-up) costs:				



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Financing (sponsoring, funding):	
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Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
none	
Added value for the local economy:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Health, Water	9.2		short-term	Permanent
Action – Title:				
Master Plan for Municipal Sanitation				
Goals and strategy:				
Request stakeholders' project documents for goals, strategies, steps and timetable.				
Initial situation:				
<p>Contributing to soil salinity is the local behavior of adding salt to cesspit tanks as a means to dry (decrease the weight) of deposits to decrease (decrease the frequency of pick ups) the cost of collection when the tanks become full. The tanks are deteriorating and leak their contents, including the salt and other questionable materials into the surrounding environments.</p> <p>Contamination from cesspits as well as residents' attempt to extend the periods between transferring sewage has been done with adding salt to the pits, causing added concerns about contributing to the salination of soils.</p>				
Details :				
The municipality is to cooperate with the Jordan Valley Authority to prepare a Master Plan for municipal sanitation and address the issue of unlined cesspits that are suspected of contributing greatly to groundwater contamination.				
Initiator:				
Jordan Valley Authority				
Actors:				
Deir Alla Municipality and Jordan Valley Authority, and EcoPeace				
Target group:				
Action steps and timetable:				
<ul style="list-style-type: none"> * Assess water losses and develop baseline for water loss and threats to water quality * Identify, assess and address sources of contamination (leakage from cesspits, runoff (from developed areas and agriculture)) * Contact relevant ministry for funds for infrastructure development * Conduct periodic testing of water quality * Capacity building with the community about water resources protection and efficiency * Feasibility assessment of available options * Connect with other relevant Actions: Rainwater harvesting, Greywater Reuse, Decentralized wastewater treatment * Conduct consultative process with stakeholders to evolve acceptance of physical, financial and managerial aspects 				
Success indicators/milestones:				



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Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
.	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
To be estimated	Depending on the emission factor for electricity in Jordan
Added value for the local economy:	



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water	10.1			
Action – Title:				
Reforestation of Ecological Corridor				
Vision and Goals:				
<p>Diversify water supplies by pairing buffering and Rainwater Harvesting (RWH) technologies for the two-fold benefits of collecting rainwater and diverting risks away from urban/built areas and decreasing the amount of runoff that damages farmers' investments in the application of fertilizers and pesticides.</p> <p>Increase water and wastewater infrastructure efficiency</p> <p>Improve long-term resilience of water supply</p>				
Initial situation:				
<p>Sudden and intense rains decrease soil quality of the soil and water because the rains often wash away the pesticides and fertilizers that farmers have applied to fields.</p> <p>Farmers experience economic losses when the heavy rainfall washes away their investments.</p> <p>Urban infrastructure is also damaged as a result of the heavy rainfalls.</p>				
Description:				
<p>Restore natural vegetation, support riparian areas and ecosystems services, and biodiversity. Improvement of side valleys channel system and discharge channels; the reintroduction of native plants and forest species to this area.</p>				
Reforestation				
<p>Construction of a well for collection rainwater to irrigate a planned reforestation area in the Ecological Corridor of Deir Alla.</p> <p>Improve and replant natural trees and plants in and around dams such as: Salix spp., Populus euphratica, Tamarix Spp, Juncus spp. and Phragmytis australis. Pistacia atlantica not Tamarix or Phragmitis. Of particular significance to the eastern part of the Lower Jordan River basin is the Ceratonia siliqua in the North part and the Acacia raddiana and Salvadora in the South part.</p> <p>Improve channel systems and discharge channels and replant with natural plant and forest species such as: Salix spp., Populus Euphratica, Tamarix Spp, Juncus spp., Acacia spp., Ziziphus spp., and Phragmytis australis.</p> <p>Establish picnic areas close to each Dam complete with recreational parks and information centers.</p> <p>Reforestation of the would be to minimize the economic losses (experienced by farmers and urban community) during times of flash flooding down the valley and into the municipality that wash away agricultural investments (fertilizers, pesticides, infrastructure).</p>				



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Improve the aesthetic value of the area while improving water and soil quality, buffering agricultural lands, isolating agricultural land (by placing space or scope separating it from the rest of the regions)

Gender Mainstreaming:

Building capacities and awareness in ecological restoration, environmental management and improved agricultural practices to restore the ecological significance of the municipality through participation in building a baseline for restoration, outreach and monitoring.

Initiator:

Municipal Administration

Actors:

Ministry of Local Administration, Ministry of Environment, National Agricultural Research Center, Charity, agricultural association, EcoPeace

Target group:

Action steps and timetable:

Determine the sale price of water
Attention to placing water tanks on the edges of the mountains
Prepare an engineering and agricultural strategy; developing required documents to ensure reforestation initiative contains the mechanism(s) needed to improve water scarcity in the area for the local economy and will not be an immediate strain.
Secure financing
Define operational plan and marketing strategy if the reforesting area is going to produce a good

Success indicators/milestones:

Protection and restoration of the natural flora structure of ecosystems in the sub watersheds within the Eastern Lower Jordan River watershed; in particular around dams and side valleys.
Restoration of the ecosystem services of the Eastern Lower Jordan River watershed.
Direct positive impact on the LJR through enhancing biodiversity and ecological corridors in the basin.
Reduce water runoff
Find a new water source
Reduce dependence on groundwater pumping

Total expenditure/(start-up) costs:

Resilience Factor:

Reduce dependence on groundwater pumping

Financing (sponsoring, funding):

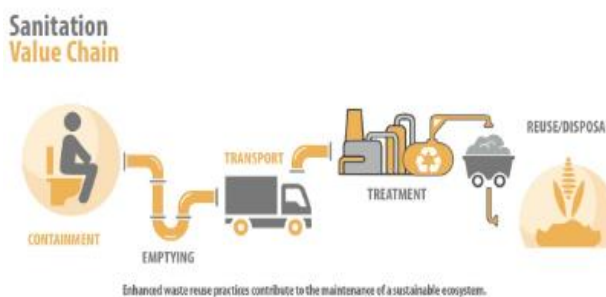
Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

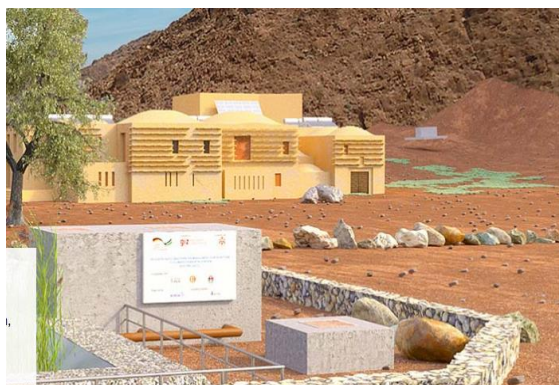
Savings of GHG emissions (t/a)

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Biodiversity	10.2		2021	
Action – Title:				
Constructed Wetland for Effluent Wastewater Treatment, Ecological Restoration				
Vision and Goals:				
Recovering wastewater for wetland development and irrigation. Deteriorated water quality of water sources in the municipality including King Abdullah Canal and groundwater.				
Initial situation:				

Maximizing Reuse of Water (Borda, ISSRAR) in Azraq, Jordan, aims to restore local ecology and landscapes by recovering wastewater for irrigation.



Integrated wastewater reuse at Feynan Ecolodge



There is a Decentralized Wastewater Treatment Research and Demonstration Facility in Fuhais, Jordan



Details:

Constructed wetlands are treatment systems that use natural processes involving wetland vegetation, soils, and their associated microbial assemblages to improve water quality. Providing significant water quality benefits while demonstrating additional benefits such as wildlife habitat. The projects includes systems involving both constructed and natural wetlands, habitat creation and restoration and the improvement of municipal effluent, urban stormwater and river water quality. These wetlands may be able to serve the dual purpose of 1) reviving a local ecology and 2) improving water quality

Gender Mainstreaming:

Active participation of women's associations in implementation
Improving and developing the role of women's associations in the community from traditional roles (charity,) to more leadership, renewable and related sectors related to climate change (water, energy and health)

Creating suitable economic opportunities for women to improve their income, including training opportunities in non-traditional skills (such as project-related technical and technological skills); improving services and infrastructure (nursery, transportation..) to enhance women's economic participation; safeguard labor rights, particularly for those who work in agriculture.

Initiator:

Municipal Administration,

Actors:

Municipal Administration, Water Authority of Jordan, Ministry of Agriculture, Ministry of Environment

Action steps and timetable:

Seek consultation with the respective ministries of relation to the project



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Assess the level of integration (Deir Alla has a wastewater treatment facility that produces a 'waste', the cesspits create unfavorable water conditions, etc) to address groundwater quality as well as improve the quality of water treatment alongside ongoing initiatives

Engage Stakeholders

Select and zone land for project; design considerations

Determine (and design for) extent that wetland can serve the dual purpose of 1) reviving a local ecology and 2) improving water quality

Implement project

Evaluate results & Publish as a Case Study

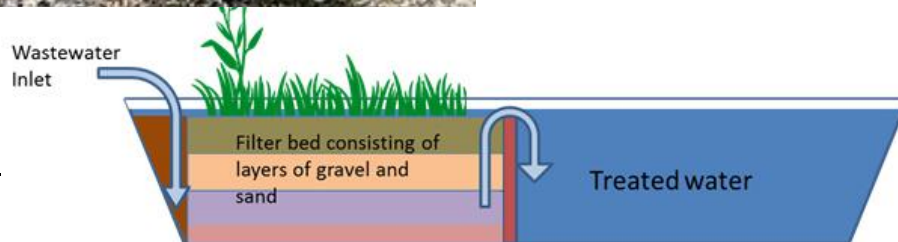
Success indicators/milestones:

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)





Field of action:	7.1	Type of action:	Starting the action:	Duration of the action
Awareness	3.1.2		mid-term	Permanent
Action – Title:				
Continuation of the Learning Center's Activities After March 2020				
Goals and strategy:				
Community youth and communities are engaged in learning and awareness of climate and climate solutions increase.				
Initial situation:				
The Learning Centre has been established for four years and has done an excellent job of educating, informing and motivating different target groups. Fifteen employees are funded to work until March 2020.				
Description:				
The continuation of the learning center is in the interest of the municipality in terms of raising awareness, building the municipal staff's capacities in renewable energy technologies and involving the public in exploring options for climate mitigation and adaptation actions.				
Gender Mainstreaming:				
Initiator:				
Municipal Administration				
Actors:				
Donor Country				
Target group:				
Public				
Action steps and timetable:				
<p>Secure a means of financing the Training Center</p> <p>Public Relations, Community outreach and training</p> <p>Raising the level of education for school students and young people</p> <p>Attracting and developing interested people</p> <p>Define a corporate identity logo for climate protection measures of the municipality</p> <p>Conduct awareness campaigns: for example, for energy efficient behaviors and technologies - high efficient air conditions, no use of water based Acs; trainings for youth ambassadors and youth-based media on climate change; and hosting community engagement roundtables.</p>				
<i>Youth Innovation League</i>				
Host and finance a Youth Innovation League, in which youth develop their own ideas to counter local challenges				



Organize awareness campaigns for schools on climate relevant issues "climate days" (energy efficiency, renewable energy, adaptation measures, reduction/separation of waste, recycling/up-cycling,

Conduct a workshop with school children on how to reduce energy consumption and greenhouse gas emissions (together with school teachers)

Workshop with interested citizens on how to reduce energy consumption and greenhouse gas emissions; Result of workshop should be that several households participate in a kind of 'pilot' to evaluate the impact of energy efficiency practices and lessons given at the center.

Energy-Efficiency (or no-waste, etc.) Pledge:

Energy-Efficiency (or no-waste, etc.) Pledge: the center hosts a training/workshop with the community. They learn about energy efficient measures, and as part of a mini- and informal-pilot initiative, participants can take part in a pledge to attempt and report on the results of applying what they've learned. Namely intended for youth.

Energy-efficiency pledge: the center hosts a training/workshop with the community. They learn about energy efficient measures,

Success indicators/milestones:

Growing the local green economy

Best practices are applied and this translates into quantified improvements in electricity consumption (and/or by way of other selected indicators for other initiatives (waste, skills, etc.).

Total expenditure/(start-up) costs:

Financing (sponsoring, funding):

Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

Savings of GHG emissions (t/a)

Resilience Factor:

Raising the level of innovation in the field of green technologies

Raising the level of the green economy

Further Remarks: Information about the project for other municipalities, use multiplier effect, check transferability



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy & Urban Development	7.2		Short term - 2020	
Action – Title:				
Deir Alla's Regenerative Green Initiatives Fund				
Vision and Goals:				
Initiative incentivizes youth participation to develop solutions on the main topics in climate change and the environment.				
Initial situation:				
Donors have slowed and /or stopped funding, knowing that the municipality is financially independent.				
Details:				
Engage schools and the Ministry of Education to host a competition(s) among schools on energy savings, enviro issues; innovative solutions. Municipal component - installation of PV, energy-saving activities that have the potential to redirect the financial savings to fund new initiatives (1-year allocation min) The financial savings of energy-efficiency competitions or from utilization of renewable energy technologies (a percentage) is allocated to a 'Green Fund' to provide for innovation in new initiatives. The initiatives will particularly be a means for youth participation.				
Gender Mainstreaming:				
Regarding training, the women's community groups should be identified and supported in building their capacities to be trainers of trainers to later conduct Leadership and Awareness activities in coordination and with the support of the municipality.				
Initiator:				
Municipal Administration				
Actors:				
Target group:				
Action steps and timetable:				
Success indicators/milestones:				
Action provides for a localized means to aid in generating support for "Green Initiatives" that cultivate youth and public engagement and awareness in finding solutions to climate impacts.				
Total expenditure/(start-up) costs:				
Financing (sponsoring, funding):				



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Energy and greenhouse gas savings:

Savings of end energy (MWh/a)

**Savings of GHG
emissions (t/a)**

Added value for the local economy:



Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Communication	7.3			
Action – Title:				
Climate Action Website				
Vision and Goals:				
<p>Improved awareness and public engagement on the topics of climate change.</p> <p>Media (reports, pictures, documents, announcements, etc) are regularly made available to the public, improving transparency and accountability.</p>				
Initial situation:				
<p>Existing information on past and current projects and future plans are not readily available to the public. This information is nearly exclusively within the municipality or with the donor(s) of a particular project.</p> <p>There are few, if any, official reports nor documentation on local impacts of climate change.</p>				
Details:				
<p>An online platform is a means to communicate in various ways with the public. It can be the source of videos, short articles, reports/documents, data and project updates.</p> <p>The online platform, in combination with social media, can also be a means for collecting information from the public.</p> <p>It is a means for generating interest, highlighting local stories and personalities to build interest and knowledge about climate and what the municipality is doing to address its negative impacts.</p>				
Gender Mainstreaming:				
See steps below.				
Initiator:				
Municipal Administration,				
Actors:				
Municipal Administration, NGO, Youth Group				
Action steps and timetable:				
<p>Website is established</p> <p>Past and ongoing projects relating to climate change are documented (digitized) so that they can be read and searched for online.</p> <p>Media (reports, pictures, announcements, documents, the Local Climate Action Plan, List of Actions, and project updates; report on community perspectives as well as those of officials), are posted and made available to the public; Media campaigns promote women's empowerment, highlighting professional and leadership capacities</p> <ul style="list-style-type: none"> • Media shows women as beneficiaries as decision makers in climate-change initiatives • The media shows men are as interested in family matters as they are with public affairs <p>Youth leaders are engaged to assist in the maintenance of material for the website (developing articles, videos, surveys and polls relevant to the story(ies) of counterin climate change in the municipality</p>				



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Success indicators/milestones:	
Total expenditure/(start-up) costs:	
Financing (sponsoring, funding):	
Energy and greenhouse gas savings:	
Savings of end energy (MWh/a)	Savings of GHG emissions (t/a)
Mitigative / Adaptive Impact:	
Added value for the local economy:	

9.ANEX:

9.1 Emissions Ambitions Approval/Amendments

دير علا				اسم البلدية
نماذج للسيناريوهات التي تطمح لخفض الانبعاثات الطاقة ضمن خطة العمل التكنولوجية وقطاع النفايات				
% تخفيض المقدر لإجمالي الانبعاثات	% تخفيض الطلب على كهرباء للمنازل	كمية CO2 المكافئة التي ستتم تخفيضها	الهدف كنسبة مئوية	الخلايا الشمسية: تركيب وحدات الطاقة الشمسية الكهروضوئية ووحدات سخانات المياه بالطاقة الشمسية لتلبية الطلب على الكهرباء من الأسر (التي تعتبر متبادلة في تقدير النموذج)
0.25	%4	0.46	4% خلال 2020	2018
%5	%10	1.1	10% خلال 2025	2025
%8	%15	1.64	15% خلال 2030	2030
% تخفيض المقدر لإجمالي الانبعاثات	% تخفيض الطلب على الكهرباء لمباني البلدية وإضاءة الشوارع	كمية CO2 المكافئة التي ستتم تخفيضها	الهدف كنسبة مئوية	المباني العامة: تركيب وحدات الطاقة الشمسية الكهروضوئية لتلبية الطلب على الكهرباء من لمباني البلدية وإنارة الشوارع
%0.2	%5	0.08	-	2018
%4	%100	1.42	100% خلال 2025	2025
% تخفيض المقدر لإجمالي الانبعاثات	% تخفيض النفايات الصلبة	كمية CO2 المكافئة التي ستتم تخفيضها	الهدف كنسبة مئوية	النفايات: اذا تم معالجة 5% من النفايات (مقسمة 10% عضوية، 5% بلاستيكية، 5% ورقية) في عام 2025، و 10% (مقسمة 20% عضوية، 10% بلاستيكية، 10% ورقية) في عام 2025
-	-	-	-	2018
%0.08	%5	0.027	5% خلال 2025 10%	2025
%0.33	%10	0.011	10% خلال 2030 15%	2030
% تخفيض المقدر لإجمالي الانبعاثات	% تخفيض الطلب على الكهرباء في القطاع	كمية CO2 المكافئة التي ستتم تخفيضها	الهدف كنسبة مئوية	الزراعة: استهداف كفاءة الطاقة والطاقة المتجددة في قطاع الصناعات الصغيرة/الخفيفة والتجارية
-	-	-	-	2018
%0.212	%20	0.016	20% خلال 2025	2025
%0.318	%30	0.024	30% خلال 2030	2030
% تخفيض المقدر لإجمالي الانبعاثات	% تخفيض الطلب على ضخ المياه	كمية CO2 المكافئة التي ستتم تخفيضها	الهدف كنسبة مئوية	تحويل شبكة محطات الضخ الحكومية إلى الطاقة الشمسية الكهروضوئية بحلول عام 2030 (TAP، 2017) اقتداء بالبيانات للكهرباء في القطاعات على اساس الطلب (EDCO، 2018)
-	-	-	-	2018



%1	%15	0.3	15% خلال 2025 20%	2025
%2	%20	0.59	20% خلال 2030 50% هناك شراكة مع بنك تنمية المدن والقرى بهدف تحويل كل مباني البلدية الى الطاقة الكهروضوئية	2030

* نود أعلامكم بان الأهداف التي وضعت لخفض الانبعاثات بناء على دراسات بيئية وطنية، وأخذ بعين الاعتبار من قبل الخبراء للمشروع خصوصية البلدية.

مقترحات التعديل:

تم الاجتماع في دار البلدية يوم الاربعاء الموافق 2020/02/26 حيث تم مناقشة كميات التخفيض على الانبعاثات الكربونية و اشار اعضاء الفريق الى ان النسب المتوقعة للتخفيض اعلى من النسب الموضوعه داخل الجدول نظرا لسياسات التحول نحو الطاقة الشمسية وزيادة الرقعة الخضراء و انارة الشوارع بالطاقة الشمسية وتحويل مباني البلدية الى الطاقة الشمسية والاجراءات الاخرى المتبعة بهذا الخصوص اضافة الى وعي المواطنين واهتمامهم بالتحول نحو الطاقة الشمسية لتخفيض كلف الطاقة عليهم وفي النهاية تمت الموافقة على الجدول والتعديلات المدرجة عليه.

حضر الاجتماع :

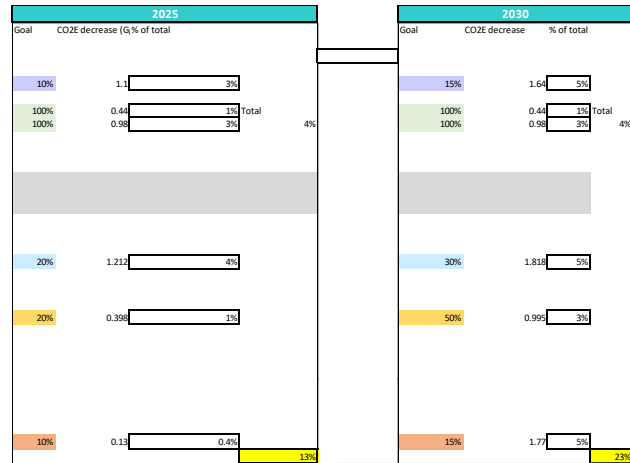
1. م. امل مصطفى الحوارات رئيس وحدة التنمية المحلية بلدية ديرعلا الجديدة
2. سميح سلمان هاشم عضو فريق الصمود المجتمعي في مجابهة اثار التغير المناخي
3. عصمت عبد الرحمن البلاونة عضو فريق الصمود المجتمعي في مجابهة اثار التغير المناخي
4. منار معروف النعيم عضو فريق الصمود المجتمعي في مجابهة اثار التغير المناخي

نقر نحن الحضور بمناقشة الجدول لنماذج لسيناريوهات التي تطمح لخفض الانبعاثات الطاقة ضمن خطة العمل التكنولوجية وقطاع النفايات وتمت الموافقة عليه للعمل على تحقيقها.

نقر نحن الحضور بمناقشة الجدول لنماذج لسيناريوهات التي تطمح لخفض الانبعاثات الطاقة ضمن خطة العمل التكنولوجية وقطاع النفايات، اقترح تعديل هدف أو أكثر.

9.2 Emissions and Actions Data Exercises Summary

Category	CO2e In Gg
ENERGY	10.50
Averged (Solar PV/HH) as of '18 (counted toward total residential emissions)	0.29
Averged (Solar Heat) as of '18 (counted toward total residential emissions)	0.03
Residential	10.50
Government	0.44
Street Lighting	0.98
Total	1.42
INDUSTRY	
Commercial Sector	1.39
Small Industry	0.23
Total	1.62
AGRICULTURE	
Agriculture	6.06
Total	6.06
WATER	
Water Pumping	1.99
Total	1.99
Transport	
Municipal Vehicles	0.19
Transportation	
Municipal Commuters	
Total	0.19
Solid Waste	
	11.41
Total	11.41
TOTAL (Gg of CO2e)	33.19
Population 2018	55131
Population 2030	71788
CO2e/cap (2018)	0.000600288
CO2e total 2030	43.22
Difference in CO2e between 2018, 2030	10.03
PV Solar	0.29
Solar Waterheaters	0.03
Remaining CO2e of Residences	10.18



Residential	10.50
Municipal	0.44
Street Lighting	0.98
Commercial	1.39
Small Industry	0.23
Agriculture	6.06
Water Pumping	1.99
Municipal Vehicle	0.19
Solid Waste	11.41

- Residential
- Municipal
- Street Lighting
- Commercial
- Small Industry
- Agriculture
- Water Pumping
- Municipal Vehicles
- Solid Waste

Chart Title

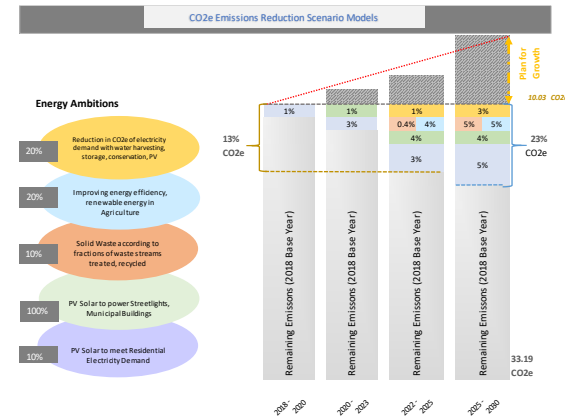
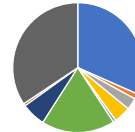
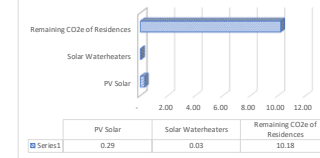


CHART TITLE



The scenarios below are intended as illustrations for achieving the emissions ambitions (as well as adaptive measures) above. Being illustrations, they are not meant to be the means, or at least the only means, for achieving emissions ambitions. However, they are exercises that show the importance of establishing goals and investigating the means for achieving them. For example, if reducing emissions means improving water harvesting techniques, below you will find an illustration that compares the emissions reduction goal to the surface area needed to collect water. Again, however, in order for these scenarios to become actions, further investigation regarding the details of multiple aspects influencing efficiency and efficacy would need to be conducted.

Solar Panels on Rooftops

1. How much was achieved in CO2e reductions with PV Solar on roofs?

CO2e averted by PV solar (proof)	0.46 0.01
----------------------------------	--------------

2. What percentage of HH are already covered?

% of HH covered	0.041867338	4%
% of electricity covered by PV solar	0.041867338	4%

3. What is the true consumption (electricity demand) of all households in the municipality?

Residential Elec consumption (kWh)	49811855
# of HH	10385
# of HH with PV roof	435
# of HH without	9950
CO2e / HH (Gg of CO2e)	0.001055276392
Elec Consumption / HH (kWh)	4,796.5195
CO2e/kWh	0.00000021079
Total Power Demand	49,811,855.00

SCENARIOS: Solar PV on Rooftops

*If to reduce emissions of residences by 10% through Solar PV on roofs by 2025...

# of HH still need PV?	603.50	Total HH	1,038.50
how much CO2e would be averted?	1.05	% of Total	0.03
how much less electricity consumption?	2,894,699.52		
How much more (Gg of CO2e) averted (603 additional PV Units)	0.6102		
How much was averted (just 603 PV units)	0.4398		

*If to reduce emissions of residences by 15% through Solar PV on roofs by 2025...

# of HH still need PV?	954.25	Total HH	1,992.75
how much CO2e would be averted?	1.58	% of Total	0.05
how much less electricity consumption?	4,577,078.73		
How much more averted (954 additional PV units) (kWh)	4,830.0831		
How much more was averted (with 954 PV units) (CO2e)	0.5250		

4. How many households in total with the implementation of the scenarios achieved?

5. Reductions in kWh? **9,558,264 kWh**

6. Reductions in CO2e overall from Action overall? **2.01 CO2e**

Water Heaters

1. How much was achieved in CO2e reductions with PV Water Heaters?

CO2e averted by PV Water	0.03095
--------------------------	---------

2.

% of HH covered	0.002599904	0.26%
	0	0.00%

3.

Residential Elec consumpt	10,783,290.00	Solar WH Stats	Sunny days	315	Unsunny Days	50
# of HH	10385	# days /year		16		8
# of HH with PV WH	22	kWh generated				
# of HH without	10358					
kWh of all WH annually (k)	146,880	*Because there is no indication of to what extent the utilization of solar water heaters contributes to a reduction in CO2e that would otherwise be generated when electricity is supplied from the grid, CO2e was calculated but it is not illustrated as a reduction in the scenario. For example, knowing how many hours a day that the solar water heaters are in use, would make this estimate more representative and their CO2e (inclusive of N2O) could be counted toward CO2e reduction.				
kg of CO2 from WH	29663.88					
CO2 + CH4 averted	30850.44019					
CO2e (inclusive of N2O) (t)	0.030949882					

Roof-top Rainwater Harvesting

1. How much water is supplied to the municipality annually?

Water pumping (kWh, 2018, IDECO)	9,443,850
CO2e generated by water pumping	1.99
1 kWh =	0.0000002107 Gg
Water Supplied (m3)	3305348
After Water Loss (NRW = 50%)	1652674
Water Services reach (people) (80% of popula	44104.80
Water per Capita supplied by WAJ (m3)	37.47
Water per HH (if water is evenly distributed)	166.30

2. How much CO2e is produced by electricity use to pump water?

CO2e / m3 of water pumped (Gg)	0.000000602	2.86 kWh/m3
CO2e/m3 of water that reaches homes (Gg) (t)	0.000001204	5.71 kWh/m3
m3/kWh of pumped water	0.35	
Gg/m3 of pumped water	0.00000021072	
m3/kWh of received water	0.18	
Gg/m3 of water received	0.00000021072	

3. How much rainwater can be collected in Ajayun to offset emissions from electricity (consumption) used to pump water?

kWh/m3 of WAJ water pun	2.86
Average rainfall in Deir All	279
Average Area of Roof (m2)	48
Factor Loss Coefficient	0.9
TOTAL Rainwater that is av	125,168.33
Rainwater per HH (total po	12.0528
Potential offset (Gg)/HH	0.00001451

SCENARIOS: Roof-top Rainwater Harvesting

*Reduce emissions of electricity used to pump water by 15% by securing a portion of water through RWH by 2025...

CO2e Aversion if 15% Ach	0.2985	0.15 % of total
Gg Aversion to kWh (kWh)	0.000000629	1,416,578 kWh
m3 of Aversion	247,901.10	
# of HHs to fulfill goal	20,567.93	1.98 % of HHs
m2 of surface are needed	987,260.45	m2 of surface space
dunams of surface area	987.26	dunams

*Reduce emissions of electricity used to pump water by 20% by securing a portion of water through RWH by 2030...

CO2e Aversion if 15% Ach	0.398	0.2 % of total
Gg Aversion to kWh (kWh)	0.000000839	1,888,770 kWh
m3 of Aversion	330,534.80	
# of HHs to fulfill goal	27,422.81	2.64 % of HHs
m2 of surface are needed	1,316,347.27	m2 of surface space
dunams of surface area	1,316.35	dunams

Acronyms:

HH	Households
SW	Solid Waste
CO2e	Carbon Equivalent
kWh	Kilowatt Hours
Gg	Gigagrams
Elec	Electric
PV	Photovoltaic
WAJ	Water Authority of Jordan
kg	Kilograms

9.3 Focus Group, RRCCG Memos

Baseline Investigations (Focus Group)

September 2019

of participants (58)

of women (30)

of men (28)

of in the 1st session ()

of in the 2nd session ()

In spite of the high awareness among the people of the region in the field of environment, climate change and the terms "adaptation" and "mitigation" and water harvesting and gray water, the region still greatly suffers from the effects of climate change.

The area suffers from the very high temperatures, reportedly, due to the large use of greenhouses, forcing people to buy air conditioners, as before they were not needed, because the summer was cool and unaffected by the greenhouses.

There are no sewage networks in the area, and cesspits are used; this led to the contamination of wells and high salinity in the soil. These contribute to the destruction of some houses and the death of many trees.

Soil salinity has also led to the transference of water from cesspits (in the ground) and rising to the surface, and thus: the emission of harmful gases and odors, air and soil pollution and others.

Residents of the area are doing some wrong practices, such as:

- 1- improper disposal of waste, by burning it or the random throwing. There is a landfill in the area, but there is no Waste treatment process, it does the sorting process only, thus, it emits harmful gases and unpleasant odors.
- 2- The widespread use of untreated organic fertilizer by many farmers / there should be a control. Because it causes unpleasant odor and air pollution.

The region suffers from several economic problems, including:

- 1- Difficulty in marketing agricultural products.
- 2- Unemployment.
- 3- the cost of air conditioning - 1300 dinars.
- 4- There are projects, but the lack of understanding (of these projects and/or their intended results) by the people, leads to the lack of appetite to work in them and thus it fails.
- 5- There is no land classified as industrial land and thus exists multiple land ownership.
- 6- No projects can be applied to the land of Deir alla because the land is in the hands of the Jordan Valley Authority.

7- Urbanization of agricultural lands.

For current projects in the municipality:

- 1- Municipal waste sorting project (waste to positive energy) with GIZ, which led to the reduction of unemployment in the region.
- 2- alternative energy: Some solar panels have been installed on the roofs of some houses.
- 3- Raising the students' awareness about water harvesting and the environment in general through the school radio.
- 4- Energy saving project by using LED lighting units.

Ideas and suggestions:

- 1- Reducing the use of personal cars and replacing them with bicycles.
- 2- Disposal or replacement of greenhouses in other ways environmentally friendly.
- 3- Use of washing water for irrigation.
- 4- Sorting waste in the house.
- 5- Making soap from rotten olive oil.
- 6- Reuse of household waste of clothing and fabrics using gypsum and making beautiful statues.
- 7- Paint the roofs of houses in white, so it could help to reduce the temperature in houses.
- 8- cultivation of Jojoba or hohoba, it is a plant that does not require continuous irrigation, and 1 ton of it is equivalent to the production of 10 tons of olives for oil, used in the manufacture of perfumes, cosmetics and medicines.
- 9- Giving youth authority or facilities to implement their projects.
- 10- Networking or gathering the responsible authorities to facilitate the construction of projects.
- 11- A project for licensing agricultural buildings.
- 12- Providing the farmers' houses in the agricultural lands with water, electricity and others (because they are not provided), thus increasing the agricultural production by these farmers.

RRCCG Formation & Actions Prioritization

Municipality: Deir Alla

Date: 7/9/2019

Team: Colette Linton, Abdullah Al-Shamali

The purpose of the visit is:

This visit was the second working group meeting and was broken down into two sessions: the first with the mayor and head of the local development unit and the second with local stakeholders (of which some from the first working group, and other representing local ministries and organizations).

The first meeting with the mayor and the director of local development was to:

- Update the mayor of the status of the list of actions to be included in the local climate action plan;
- Establish support from the Mayor to establish the Resilience Ready Climate Community Group (RRCCG) as an important instrument to align stakeholders (as well as gain the perspectives of, build ownership with and sustain momentum) around actions to address climate change with participants. The Mayor and head of the Local Development Unit were encouraged to introduce the concepts of the RRCCG during the second session of the working group as a means for strengthening the relationship with the community and stakeholders in the development and implementation of actions. The mayor and local development unit were also given an overview of the draft Terms of Cooperation of the RRCCG which is to be revised, including the initial identification of members and points of contact (by default – the head of the Local Development Unit) by October 14th. The Director of Local Development presents the idea of the RRCCG as a means to address climate change to the participants in the second session in order to identify the members and establish a means for sharing updates related to the project in the time-being through a medium of choice with the RRCCG.
- The team also discussed the planned exercise to be held during the second session with the goals to explore potential pilot projects in the municipality and confirm that there will be coordination between the experts and the RRCCG ahead of the workshop on October 14-15.

The second session is conducted with the representatives of ministries in the municipality (environment, agriculture, water, ...) the private sector, representatives working in conservation, and three or four representatives invited from the first working group meeting.

Activities of the second session include:

- A standard measurement of participants' criteria using a worksheet distributed by the team; the evaluation of the results of the criteria will be used to set priorities and level 1 and 2 of the list of procedures (standards working sheet in annex);

- A roundtable discussion on climate change and how its impact is experienced locally, and talk about local actions and possible solutions to challenges and problems;
- Introducing the principle of the work of the "RRCCG" by the Head of Local Development as a means of continuing the discussion on the topic and updating people interested in the latest developments and reaching a collective agreement on the first and second level of procedures and pilot project The proposal.

Preliminarily, but to be used in tandem with the list of actions developed by the experts, the municipality was provided with the instruction to start thinking critically about possible pilot projects. An Information Sheet (see annex) was shared (with a note that while all components are valuable, the top-half of the sheet is the basic project information that will be helpful in preparation for activities during the workshop).

Visit Overview:

Initially, the meeting was held with Mayor Mustafa Al-Shati and Amal, who also works in the municipality, who coordinates climate change and deals with donors. The project explained to them the purpose of the visit and what the municipality was required to do. The refore, the meeting was carried out with members of the local community and discussed the most important projects that they consider must be implemented to address the effects of climate change in the municipality and the Community Resilience Group to address climate change.

The ideas of actions and projects and what could be done were different from person to person and there was a difference of opinion, but most of what was repeated was raising awareness among the community about healthy behaviors towards the environment.

Summary of actions proposed by the group:

- **Supporting Farmers**

Impact(s):

A group of farmers talked about the new difficulties they face that they have linked to climate change, and one of the problems is that the increasing temperatures, as well as the ranges between the highest and lowest annual temperatures, are negatively impacting crops (the types of crops that can be grown and the agricultural seasons) in addition to increasing soil salinity and the emergence of new diseases and viruses affecting vegetables. Also, the low efficiency of greenhouses in the new weather conditions and depleting numbers of farmers in the agricultural sector.

Idea(s):

Study possible solutions for farmers and types of climate-friendly crops and their applicability for cultivation in Deir Alla, a means for enabling farmers with knowledge and tools to meet new conditions and increase production efficiency.

Farmers would like to see a previous project return: “Integrated Best Management Practices for Crop Production”, during which farmers were trained in what types of crops could be grown, proper application of fertilizers and pesticides (their timing and amounts to be applied) and drip-irrigation technologies.

- **Increasing Green Spaces**

Impact(s):

There is very little green space in the municipality and there is a shortage of water resources to irrigate the trees.

Idea(s):

The green spaces of the municipality, either in the form of parks or trees planted along the road leading to the municipality to signify their presence and provide shade.

Enlisting the community (schools) to propose ideas for solutions to climate change, the municipality evaluating the submitted ideas and distributing awards to the winning ideas.

- **Infrastructure Improvement Projects**

Impact(s):

As the rains have increased in winter, flash flooding occurs, washing away walls, pesticides, fertilizers and seeds.

On the other hand, the electricity bill for street lighting is big and weighs on the municipality.

Idea(s):

- Rehabilitation of the wadis and or technology to channel the flow of rainwater that runs through municipal areas;
- Tightly managed street lighting in the municipality, turning on at the time of dusk and off at dawn. Additionally, this technology would be able to adjust its intensity gradually increasing or decreasing depending on the time of day.

- **Raising awareness**

Impact(s):

There is too much waste on the streets and there is no awareness of climate change in the community.

Idea(s):

Start with campaigns to raise awareness about the importance of recycling and waste management behaviors. The municipality begins by distributing dedicated containers (bins) to separate waste from the source and also to raise awareness about the effects of climate change. These campaigns are aimed at school children, housewives and children in general and also to speak on these topics in mosques. To involve the community in the process of making ideas and projects by creating an electronic platform (application or otherwise) on which the municipal residents, students, youth and farmers, can propose ideas and procedures to adapt to climate change, and allocate a sum to the best ideas to motivate the community to participate.

- **Recycling:**

Impact(s):

Difficulty in finding jobs for women and limited sources of income.

Idea(s):

Training local women in making products using waste materials, and then using them or selling them as a source of income.

Attends sheet

No.	Name	الاسم	Organization	Responsibility
1	Amani Abu Mowleh	اماني رياض ابو مولة	Municipality of Ruwaiha/Board Member	Gander
2	Manar AL-Neim	منار النعيم	Social activity	Gander
3	Esamt Mahmoud	عصمت محمود	Meteorological	Adaptaion
4	Bakier Brakat	بكر بركات	Manger of agriculture director in Jordan valley	Mitigation
6	Mohamed Abo Sido	حسن ابو سيدو	farmer	Mitigation



Ministry of Environment

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



التعاون
الألماني

DEUTSCHE ZUSAMMENARBEIT



وزارة الشؤون البلدية
Ministry of Municipal Affairs

7	Adnan Amro	عدنان عمرو	Manger at the Amro and his partner company	Mitigation
8	Samieh Salman	سميح سلمان	Private sector	Mitigation
9	Hamzeih Abo Dalieh	حمزة ابو دلة	The Executive Director and the Prosecutor of the Court	Gander

RRCCG Focal Points, Actions Development

24 November 2019, a Focus group was held in Dair Alla Municipality to finalize the drafted local climate action plan in the region. The meeting was held with members of the RRCCG. Then Liaison officers were selected for mitigation, adaptation and gender mainstreaming and divided the focus group into two sessions (mitigation/adaptation and gender mainstreaming).

Adaptation and Gender Mainstreaming Session

The expert illumination the project and who that stapes have been in scientific and asked the RRCCG attendees to explain the step if their municipality wants to implement the project and the period tame each step the expert it as well as the effect for implementation of it. That illustrated in the actions table.

Gender Mainstreaming Session:

The session was good but insufficient; the attendees corrected and gave some additional information that was not given in the previous focus groups. As the residents of the region rely on water cooling (this method leads to waste a large quantities of water and electricity), the project of "electromagnetic system" fields in the region was built with funding from SEED. Electricity will be sold to the Electricity Company, which will sell electricity to the municipality with a low price. As for the project "Waste to Renewable Energy", the associations will carry out "Door to Door" campaigns where they will visit each house individually and educate the people.

One of the most important suggestions:

A platform to document experiences and success stories of adaptation / mitigation on climate change taken by the people of the region.

As for the identification (Steps, Timeline, Success Indicators, Mitigative/Adaptive and gender mainstreaming Impact) of projects, not all projects have been discussed and studied.

The following projects were discussed:

Waste Section:

Not all solid waste projects were discussed.

The first project, "Upgrading Textiles" was discussed, as it is an existing project in the municipality, but one step has been added: giving the collected clothes to the sewing associations / sewing factories, to redesign the clothes or make new products. Like bags and bed covers.

Water and Agriculture section:

few water and agriculture projects were discussed.

مشروع "تجريب الإبتكار لأصناف النباتات التي ترفع منسوب المياه، وتحسين نوعية التربة، والفرصة الاقتصادية"					
NO.	Step	Details	Timeline	Success Indicators	Mitigative/Adaptive and gender



					mainstreaming Impact
1.	Identify liaison officers				
2.	Ensure the rights of farmers	Some women run some nurseries and farms in the area. "They must be reached in any agriculture project through the associations and the Directorate of Agriculture"			
3.	A Map of the associations in the area.				
4.	Establishing a list of criteria for selecting associations.				
5.	Stimulate and guide the local community and associations towards climate change issues by the municipality.				

مشروع "إعادة استخدام المياه الرمادية"					
NO.	Step	Details	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Identify liaison officers				
2.	Holding discussion sessions for women.	Holding sessions for women to share experiences on water recycling. "One of the ladies reused chicken cleaning water to			

		water the garden plants ?!"			
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Energy section:

The “SEED Experience on gender mainstreaming” step was adopted in all projects.

Only one step has been adopted for the “Green Initiatives Fund in Deir Alla” project, “Review of legislation regarding municipal support to the community as an incentive to participate”.

مشروع "استراتيجية التخفيف على مستوى البلدية" موضوع "الطاقة الشمسية الكهروضوئية"					
NO.	Step	Details	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Identify liaison officers		3 Months		
2.	Ensure equal opportunities for males and females	Engineers			
3.	Training engineers on alternative energy matters.				
4.	Benefiting from the renewable energy yield to conduct awareness workshops.	<ul style="list-style-type: none"> For males and females. Community themes. 			
5.	Consideration by efficiency and open the field for females to work in electromagnetic fields.				

*The Timeline depends on project start-up - ongoing

مشروع "استراتيجية التخفيف على مستوى البلدية" موضوع "الطاقة من النفايات والغاز الحيوي"					
NO.	Step	Details	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Identify liaison officers				



2.	Continuity of Merging the gender mainstreaming in the project	<ul style="list-style-type: none"> - The operational cost is equal to 60 thousand JOD. - Approximately 4 thousand JOD for waste management. - The municipality's support is estimated at 45,000 JOD. 			
3.	Promote the role of women as volunteers and workers with nominal rewards.				
4.	Ensure the support of the municipality for the continuity of waste collection and sorting.				

Other projects related to “urban development ,transport” ,have not been Discussed and none of the (Steps, Timeline, Success Indicators, Mitigative/Adaptive and gender mainstreaming Impact) have been identified.

Attends sheet

No.	Name	الاسم	Organization	Responsibility
1	Amani Abu Mowleh	اماني رياض ابو مولة	Municipality of Ruwaiha/Board Member	Gander
2	Manar AL-Neim	منار النعيم	Social activity	Gander
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6	Mohamed Abo Sido	حسن ابو سيدو	farmer	Mitigation



7	Adnan Amro	عدنان عمرو	Manger at the Amro and his partner company	Mitigation
8	Samieh Salman	سميح سلمان	Private sector	Mitigation
9	Hamzeih Abo Dalieh	حمزة ابو دلة	The Executive Director and the Prosecutor of the Court	Gander
10	Huasin AL- fawa'er	حسين الفواعير	farmer	

Focal Point for	Name
Mitigation	Huasin AL-fawa'er
Adaption	Esamt Mahmoud
Gander	Manar AL-Neim

9.4 Baselines

Mitigation

تطوير خطط العمل المناخية المحلية في بلديات دير علا									
المتطلبات البيانية الأساسية									
التخفيف									
البيانات الاساسية									
مساحة البلدية			2 كم (35)						
الهطول السنوي			278.8 مم/سنة						
مناخ البلدية			حارة صيفا ودافئة شتاء						
سنة التخطيط الأساسية والسنة المستهدفة									
سنة الأساس (سنة جرد الانبعاثات في الاردن)			السنة المستهدفة (اختر السنة التي توافق مع إستراتيجية المناخ في الاردن)						
سكان البلدية وسكان غير مقيمين									
تعداد السكان المقيمين يومياً			63000 نسمة						
تعداد السكان الغير مقيمين يومياً			8000						
بيانات جرد انبعاثات الغازات الدفيئة في المجتمع (من الناحية المثالية)									
قاعدة جرد عوامل انبعاثات الغازات الدفيئة في البلدية (بالتوافق مع البروتوكول العالمي لقوائم جرد انبعاثات غازات الدفيئة على نطاق المجتمع (GPC)			لا يوجد						
بيانات طاقة المباني للقطاع الخاص									
درجة الحرارة		45 درجة العظمى		درجة الرطوبة		الارتفاع عن سطح البحر		244 م تحت البحر	
بيانات الجرد الغازات الدفيئة للقطاع الخاص									
انبعاثات الغازات الدفيئة في البلدية			المباني التجارية		المباني السكنية				
التركيب السكاني									
متوسط عدد افراد الاسرة					5 أفراد				
توزيع السكان حسب الدخل (بالنسبة المئوية)									
المرتفع	من 5	فوق متوسط	10	تحت متوسط	40	منخفض	30	غير ثابت (عمل غير رسمي)	15
توزيع المنازل حسب نوع الدخل (بالنسبة المئوية)									
منازل مستقلة	100	منازل مستقلة	95	منازل مستقلة	80	منازل مستقلة	70	منازل مستقلة	60



40	شقق سكنية	30	شقق سكنية	20	شقق سكنية	5	شقق سكنية	0	شقق سكنية
مساحة التجارية لكل فرد									
	مساحة المستشفى				مساحة المكتب				مساحة التجزئة
	مساحات اخرى				مساحة الفندق				مساحة التعليم
تشبع خدمة الكهرباء									
مبنى البلدية وبيانات الطاقة العامة للإضاءة (سنة الاساس)									
بيانات جرد البلدية									
	كمية استهلاك المياه	كمية استهلاك الغاز (اسطوانة)	المساحة 2 م ²	كمية استهلاك الطاقة (كيلو واط. ساعة)	نوع المبنى				الرقم
	336 دينار كل ثلاث اشهر			2400 دينار	مبنى البلدية الرئيسي				1
					مباني الاخرى				
يزيد اسطوانه لكل مبنى خلال الشتاء (4 أشهر) لكل مبنى					إسطوانة لكل مبنى مجموعها 11 إسطوانة				
		المساحة			نوع المبنى				
		كمية استهلاك الغاز الطبيعي للمبنى (متر مكعب)		2400 شهري	كمية استهلاك الكهرباء للمبنى (كيلو واط)				
		متوسط ساعات تشغيل إنارة الشوارع يوميا (ساعة/يوم)		27000	إجمالي استهلاك مصابيح إنارة الشوارع (تيرا. واط/ساعة)				
31%	نسبة الاضاءة LEEDfor the Lithume			لا يوجد اشارات مرور	إجمالي استهلاك إشارات المرور في الشوارع (تيرا. واط/ساعة)				
بيانات توليد الطاقة الكهربائية للشبكة الوطنية الخاصة بالبلدية									
									نسبة استهلاك الكهرباء للقطاعات
2	منزلي	22	صناعي	10	تجاري	10	ضخ المياه	46	إنارة الشوارع
النسبة المئوية لها من الانتاج		مصدر/ نوع الطاقة			النسبة المئوية لها من الانتاج		مصدر/ نوع الطاقة		
		غاز طبيعي	غاز						طاقة المتجددة
		النفائات الصلبة البلدية						الطاقة الشمسية (فوتائية ضوئية)	
		زيت الوقود المقطر	الوقود					الطاقة الشمسية (المركزة)	
		الفحم						الرياح	
		مختلط (قطاع الطاقة الكهربائية)						كهرومائية (كبيرة، صغيرة)	
									الكتلة الحيوية
بيانات النفائات الصلبة									
1.1	كغ/شخص. اليوم	معدل التوليد			70 طن/يوم	الانتاج اليومي / الحمولة			
مكونات النفائات الصلبة للبلدية									
	النسبة المئوية %	نوع النفائات الصلبة	الرقم	النسبة المئوية %	نوع النفائات الصلبة	الرقم	النوع		
	13	البلاستيك	6	14	الورق/الكرتون	1	المنزلية		



2	المعادن	7	5	المنسوجات	2
2.5	زجاج	8	55	النفايات العضوية	3
2.5	اخرى	9	6	خشب	4
			0	المطاط والجلد	5
التجارية		السكنية /الانشائية		النفايات الصلبة	
الصناعية		الزراعية		الأخرى	
إدارة النفايات الصلبة حسب نوع النفايات بالنسب المئوية %					
13	عدد الاليات	60دو نم	مساحة مستخدمة	364 دونم	مساحة الاجمالية
					15 منذ سنة
					الانشاء
					طمر العشوا تي
					إعادة التدوير
					حرق(حاراق)
بيانات استهلاك الطاقة السنوية لمركبات تجميع النفايات لسنة الأساس					
100 كم	المسافة لمكب الإكيدر (كم)	7 كم	المسافة للمحطة التحويلية (كم)	لا	يوجد مكب في حدود البلدية
					عدد شاحنات الديزل
					الوقود الاساسي
					كفاءة شاحنات الديزل (كم/ لتر)
طرق معالجة المياه العادة للبلدية					
					استهلاك مباني البلدية للمياه
					استهلاك مباني المنازل للمياه
معالجة اللامركزية نسبة الاستخدام			معالجة المركزية		
0	نظام صرف الصحي	100%	الحفر الامتصاصية	اسم المحطة	هل تعالج مياه الصرف الصحي؟ نعم
مصادر المياه في البلدية					
0%	تحلية المياه (مياه البحر)	100 %	مياه جوفية	0%	تحلية المياه (ذات ملوحة متوسطة)
0%	مياه سطحية	قليلة جدا	مياه معاد تدويرها	0%	عمق المياه الجوفية
300-700م	عمق مصدر المياه الجوفية (بالامتار)				
300-400م	متوسط عمق مصدر المياه الجوفية (بالامتار)				
	كمية الطاقة لضخ المياه الجوفية / كثافة الطاقة المائية (كيلو واط.ساعة/سنة			كمية الطاقة لضخ المياه الجوفية / كثافة الطاقة المائية (كيلو واط.ساعة/ميغا لتر)	
فاتورة المياه كل ثلاثة شهور 1336 دينار					
86.60%	تشبع خدمة المياه (نسبة المئوية للسكان في البلدية الذين يحصلون على خدمة المياه المحسنة)				
بيانات النقل معدل الرحلات (رحلات/يوم/مواطن)					



متوسط طول الرحلة (كم/ رحلة)		النسبة المئوية			مصدر الرحلة		
		كالركاب من الاجمالي			الرحلات المفترض للافراد		
		كشحن من الاجمالي					
		كالركاب من الاجمالي			نسبة الرحلات المفترض للبلدية		
		كشحن من الاجمالي					
كمية المحروقات بالليلتر	المسافة المقطوعة	رقم المركبة	صفة الاستعمال	النوع	الرقم	المسافة المقطوعة لكل مركبة (كم) لكل مركبة /سنة	نشاط المركبة
3915.069	31259	5\21 241	سوزوكي 4*4	جيب	1		
1320	13279	5\25 808	اسوزو	بكب	2		
853	8598	5\25 805	اسوزو		3		
4496	43492	5\23 835	ميتسوبيشي		4		
3658	34331	5\20 763	تويوتا		5		
3256	27207	5\81 17	ميتسوبيشي		6		
2909	28946	5\55 31	اسوزو		7		
734	6354	5\12 822	ميتسوبيشي		8		
457	5161	5\27 104	اسوزو		9		
179	1355	5\27 101	اسوزو		10		
1014	8686	5\81 86	اسوزو		11		
939	12310	5\69 05	اسوزو		12		
2695	15566	5\21 018	هونداي		قلاب		
3843	19488	5\21 723	اسوزو	14			
1758	7680	5\21 003	هونداي	15			
2950	7452	5\20 544	نيسان	16			
4730	9276	5\12 279	صهريج نضح		17		
1830	11333	5\15 93	ثلاجة تويوتا		18		



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7131	16328	5\23 496	فولفو	كابسة	19						
9367	20869	5\22 554	اسوزو		20						
6350	14578	5\22 768	JAC		21						
9210	16362	5\19 667	مرسيدس		22						
5695	15698	5\13 352	مرسيدس		23						
4783	11477	5\95 71	مرسيدس		24						
5520	13797	5\11 130	مرسيدس		25						
10329	732.7 ساعة	5\10 573	كتربلير	لودر	26						
		5\26 341	لودر بوب كات		27						
100	20 ساعة	5\17 228	مدحلة يوماج		28						
750	321	5\10 435	تركتور		29						
2460	11965	5\20 728	رافعة الإنارة أسوزو		30						
			سيارة		1	للافراد					
			باص		2						
			أخرى		3						
نسبة الرحلات الركاب في كل من											
25	حافلة عادية	25	حافلة صغيره	0	ميكرو باص	0	سيارة اجرة	0	دراجة النارية	40	سيارات
0			أخرى	5	على الاقدا م	5	دراجة هاوائية	0			حافلات التردد السريع



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Adaptation

تطوير خطط العمل المناخية المحلية في بلديات دير علا

المتطلبات البيانية الأساسية

التكيف

الأساسيات (الظروف الحالية للبلدية)

الكفاءات والمهارات والموارد البشرية لا تفي بالتوقعات المطلوبة للقيام بدور نموي فعال	الظروف الاقتصادية
الدخل المنخفض لاعتماد السكان على القطاع الزراعي في العمل	
توقف التمويل من الجهات المانحة حيث ان البلدية مؤسسة مستقلة ماليا وغير قادرة على تمويل مشاريع بيئية فالموارد والامكانيات المالية لدى البلدية محدودة.	
تداخل الصلاحيات بين البلدية وسلطة وادي الاردن	الظروف السياسية
نقص التأهيل والتدريب واستحداث الكفاءات العلمية.	الظروف الاجتماعية
الكفاءات والمهارات والموارد البشرية لا تفي بالتوقعات المطلوبة للقيام بدور تنموي فاعل	الظروف البيئية
تميز بلدية دير علا بتسجيلها لاعلى درجات حرار في الصيف مما يؤدي تقليل الطاقة الانتاجية للعاملين في المنطقة ولجوئهم لاستخدام اجهزة التكيف التي تستهلك المياه والطاقة بشكل كبير.	
المبنى الجديد للبلدية يمتاز بالعزل باستخدام بوليسترين بالسقف والجدران واما الشبابيك الزجاج عازل (glass Duple	
وجود محاجر غير مرخصة في البلدية	
تعاني البلدية من التلوث البيئي الناتج عن النشاط الزراعي بسبب استخدام الطرق التقليدية في الزراعة وخصوصا الزراعات المحمية داخل البيوت البلاستيكية	

الأنشطة

الانشطة الجارية

مشاريع (فتح وتعبيد الشوارع.انشاء عبارات وجدران استنادية. اناارة الشوارع)	النشطة الخدمية
استحداث لغرفة عمليات في الحالات الطارئة مثل السيول والفيضانات يرأسها رئيس البلدية مع متصرفية دير علا	النشاط تنموية واستثمارية
استمرار بلدية ديرعلا في مشروع التوأمة مع بلدية جينا الالمانية من خلال منظمة المدن المترابطة وتم استكمال كافة الدراسات والإجراءات الخاصة بتمويل استملاك مصنع السماد العضوي وإعادة تأهيله وتشغيله مما يساهم في استكمال عملية ادارة النفايات الصلبة وتشغيل ايدي عاملة ورفد البلدية بعائد مالي	
مشروع النفايات الى طاقة ايجابية حيث شغل المشروع حتى الآن اكثر من 1000 عامل مما ساهم في تحسين الظروف المعيشية للأسر الفقيرة في المنطقة... كما أن المشروع ساهم في رفع وعي المواطنين اتجاه التعامل مع النفايات الصلبة حيث تعكف البلدية حاليا على انشاء محطة فرز للنفايات الصلبة الجافة حيث يتم تمويل هذا المشروع من (G.I.Z)) وجزء من استكمال المحطة من وزارة البلديات. • من الجدير بالذكر ان بلدية ديرعلا الجديدة هي البلدية الوحيدة التي استمرت بالتوأمة مع بلدية جينا الالمانية حيث قامت البلدية ولأكثر من مرة باستضافة الفريق الالمانى وعمل دراسات تحليل نسب النفايات بأخذ عينات حقيقية ومن	



اماكن متنوعة لتحديد القيمة الاقتصادية للمواد الموجودة في حال تم فرزها وتجميعها وتعكف البلدية على نشر نتائج الدراسات بالتعاون مع احدى الجامعات الاردنية	
شراء معدات للطوارئ مثل مواير شفط المياه وتنكات وصهاريج واكياس رمل وعمل قنوات تصريف كاجراءات احترازية لمواجهة الفيضانات الومضية	
مشاريع (مبنى البلدية. مجمع استثماري)	
مشروع تحويل النفايات الى طاقة ايجابية. مشروع الخلايا الشمسية	النشاط بيئية
مشروع خطط العمل المناخي لمجابهة التغير المناخي	
مشروع التوؤمة مع لدية جينا الالمانية لاستملاك مصنع السماد العضوي	
سياحة الدينية(مقام الصحابي أبو عبيدة عامر بن الجراح ومقام الصحابي ضرار بن الازور)	النشاط السياحي
سياحة الاستجمامية(تل المزار. تل الفخار. تل قعدان. تل ابو سريوط. تل السعيدية. تل الخصاص وتل الفخار)	
تربتها الخصوبة ووفرة المياه نسبة الزراعة عالية جدا	النشاط الزراعي
النشاط التجاري عالي ويتم جمع وفرز الورق والكرتون وبيعه	النشاط التجاري
النشطة المخطط لها	
افتح وتعبيد الشوارع , انشاء عبارات وجدران استنادية , انارة الشوارع	النشطة الخدمية
مبنى البلدية , مجمع استثماري	النشاط تنموية واستثمارية
مشروع التغير المناخي لجنوب البحر الابيض المتوسط	
مشروع مجابهة آثار التغير المناخي بوضع خطط وحلول علمية وعملية .	النشاط بيئية
مشروع النفايات الى طاقة ايجابية , مشروع الخلايا الشمسية	
—	النشاط السياحي
زراعة نبايات التي تحتاج لكميات مياه أقل للري لتناسب تغيي المناي	النشاط الزراعي
—	النشاط التجاري
مشروع فرز النفايات الصلبة الجافة	
مشروع الصرف الصحي	
الاستراتيجيات	
الخطط والسياسات والبرامج ذات الصلة التي تعمل أو من المحتمل أن يكون لها تأثير على القطاعات المحددة	الرقم
تسعى البلدية الى تطوير خطة متكاملة لإدارة عوامل التكيف والاستجابة وتحسين التعامل مع اثار التغير المناخي من خلال وضع منظومة متكاملة .	1
واقترح حزمة من المشاريع التي يتم السعي لاحقا لاستقطاب جهات مانحة تعمل على التمويل ومساعدة البلدية في التطبيق وصولا الى خطة حقيقية ومستدامة للتعامل مع المؤثرات البيئية .	2
المشاريع	
—	مشاريع خدماتي
مشاريع الطاقة الشمسية (محاظفه على البيئة وتقليل فتورة الكهرباء) وقد تم على ثلاث اقسام: 1. المنازل 2. مراكز الصحية ذو قدرة 7.5 ك.س 3. المدارس (التعليم) ذو قدرة 14-20 ك.س	مشاريع استثمارية
انشاء مسلخ حديث (عمل ايراد مالي وتشغيل ايدي عاملة).	
محطة فرز النفايات الصلبة(تحويل النفايات الى طتقة ايجابية وتشغيل ايدي عاملة وتقليل كمية النفايات موجهة للكمز وزيادة الوعي البيئي وتغير ثقافة المجتمع)	



مزرعة النخيل (تحسين المناخ في المنطقة ورفد البلديات باريادات)	
مشاريع تنموية	-
تأثير المناخ	
من خلال المسوحات الميدانية لتحديد مخاطر أثر التغير المناخي على مناطق البلدية كانت انتاج ما يلي :	
1	شهدت المنطقة في الآونة الاخيرة ارتفاع واضح في درجات الحرارة ولأيام متتالية وطويلة كما عانت من نشوب الحرائق جراء ذلك
2	فصل الشتاء الذي شهد هطولا غزيرا للأمطار وفصلا شتويا باردا غير المعتاد عليه في المنطقة مما نتج عن ذلك سيولا وفيضانات أثرت على المساكن والأفراد
3	على البلدية الزيادة في الانفاق لاستعداد وتجهيز فرق الطوارئ سواء كوادر بشرية او اليات
4	تأثرت الزراعة المكشوفة من الصقيع
5	تأثر البيوت البلاستيكية بسبب سرعة الرياح الشديدة.
البيانات النوعية	
موارد البيانات والتقييم المستخدمة لتقييم التهديدات ونقاط الضعف والآثار المترتبة على البلديات:	
	المصدر الاساسي للمياه البلدية هو المياه الجوفية حيث يوجد ضمن حدود البلدية 6 ابار رئيسية احداها ملك خاص والباقي ملك للحكومة.
	تصل المياه البلدية للمنازل بانتظام حوالي 4 مرات في الشهر
	شبكة المياه بحاجة الى تحسين
	نظرا لارتفاع درجات الحرارة في المنطقة فان السكان يستخدمون المياه بشكل كبير للتبريد وخاصة في اجهزة التكييف المعتمدة على المياه حيث يستهلك الجهاز الواحد حوالي 60 لتر من المياه في اليوم.
	تعتبر مياه البلدية المتوفرة للاستخدام شحيحة
	لا يوجد شبكة للصرف الصحي في البلدية رغم ان تكلفتها متوفرة من اقتطاعات وزارة المياه من فواتير المواطنين
	جميع المنازل مشبوكة بحفر امتصاصية للتصريف مما يؤدي الى تلوث المياه الجوفية.
	الحفر الامتصاصية اما ان تكون اسمنتية ومغلقة بالاسمنت او مغلقة بالزنيكو والترية فقط
	يقوم حاليا بنك التنمية الفرنسي باجراء دراسة تأسيس شبكة للصرف الصحي في المنطقة .
	تعد الزراعة النشاط الاساسي لسكان مناطق البلدية حيث ان مناطق الاغوار تتميز بالاراضي الخصبة وذات مناخ مناسب لاغلب انواع الزراعات الموسمية كما ان مياه الري متوفرة فيها.
	عدة جهات اتجهت الى الاستثمار في القطاع الزراعي من خلال انشاء مشاغل لتدريج الخضار وزراعة اصناف معينة لغايات التصدير وأيضا انتشرت الزراعة المحمية داخل البيوت البلاستيكية مما ساهم في رفع درجات الحرارة واثرت على نوعية الارض التي يتم زراعتها بأصناف محددة يتم تكرارها وأيضا استخدام المبيدات الحشرية الكيماوية تعتبر سبب مباشر لتغيير نوعية الارض والبيئة .
	يتوجه العديد من المزارعين لزراعة النخيل نظرا لتأقلمه مع التغير المناخي الحاصل
	من المشاكل البيئية التي تواجه البلدية التخلص من عبوات الاسمدة والبيدات حيث انها تعد نفايات خطرة ولا يجوز اعادة استخدامها او تدويرها.
	يوجد المواشي التي ترعى في فصل الربيع وتعتمد على الاعلاف في مواسم الجفاف وينتج عنها كميات كبيرة من المخلفات التي يجب ان تستثمر في انتاج السماد العضوي المعالج بالاضافة لغاز الميثان الحيوي.
	المصدر الاساسي للري هو سد الملك طلال وقناة الملك عبدالله وغالبية المزارع مزودة بشبكات للري بالتنقيط
	من مخلفات الانتاج الحيواني والتي تشكل خطر على البيئة هو الدم الناتج من المسلخ
	يوجد في المنطقة مشاريع زراعية استثمارية كبيرة مثل مزارع الفراولة والبطاطا والبطاطا الشيبس بالاضافة الى مزارع انتاج البذور



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يستخدم اغلب المزارعين في المنطقة الاساليب التقليدية في الزراعة وخصوصا داخل البيوت البلاستيكية.	
يعتمد المزارعون على الاسمدة والمبيدات الكيماوية بشكل كبير بالاضافة الى الاسمدة العضوية (الزبل)	
نسبة الوعي بالبدائل الزراعية البيئية قليل جدا من انماط زراعية مختلفة واستخدام طاردات طبيعية للحشرات والافات الزراعية	
—	
—	
—	
—	
—	
معلومات اخرى	
البيانات الكمية	
بيانات من مجموعة من المصادر التي تم جمعها حول كيفية تأثير العواقب الاقتصادية والتنموية والمناخية (في السابق أو الحاضر) على النظم الفنية والمؤسسية للبلديات	

Gender Mainstreaming

تطوير خطط العمل المناخية المحلية في بلدية دير علا

المتطلبات البيانية الأساسية

الموارد البشرية

جرد الموظفين

الاناث	الذكور	العدد الكلي	الوظيفة	الرقم
		285	الموظفين في المركز	1
			الموظفين في المناطق	2
0	10	10	مدراء/مديرات الوحدات	3
6	7	13	رؤساء الاقسام	4
			المشرفين	5
			الفئة الثالثة	6
			الوظائف الميدانية	7
			لجنة العطاءات الحالية	8
9	11	20	حملة الشهادات المتوسطة/ دبلوم	9
12	10	22	حملة الشهادات الجامعية الاولى	10
0	0	0	حملة شهادات الدراسات العليا	11
5	32	37	حملة شهادة التوجيهي	12
0	53	53	حملة شهادات اقل من التوجيهي	13
			حملة شهادة الهندسة	14
			أعضاء المجلس البلدي	15
			المستفيد من المجتمع المحلي من دورات البلدية خلال ثلاث أشهر	16

الدورات التي تقدمها البلدية

الرقم	المكان	اسم المدرب ومكان العمل	اسم الدورة	الفئة المستهدفة

البرامج التنموية في وحدة التنمية



Ministry of Environment

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وزارة الشؤون البلدية
Ministry of Municipal Affairs

الجهة الممولة او الداعمة	تاريخ المباشرة والنتهاء	الاسم	الرقم	نوع البرنامج التمنوي	
			1	الدراسات	
			2		
			1	المشاريع	
			2		
الجمعيات المسجلة ضمن البلدية					
الرقم /الايمل	اسم المدير	عنوان	نوعها	الاسم	الرقم
77794500 0	فايز كبها		شبابية	جمعية شباب وادي الاردن	1
77660100 3	منير		تنموي	جمعية سيدات الريان	2
					3
					4
الفاعلين في القطاع الخاص ضمن البلدية					
الرقم /الايمل	عنوان	نوعها	الاسم المنشأة		الرقم
			مزارع ابو سيدو		1
			مزرعة راكان الفاعوري		2
			مزرعة مقوار /الرويجة		3
			مصنع العقيد لتدريج الخضار		4
					5
					6

9.5 Gender Mainstreaming

Deir Alla Municipality - Balqa Governorate

Gender integration and gender justice methodology

Introduction

There is no doubt that the issue of climate change has become an important issue of our time, given its association and direct impact on vital sectors, whether agricultural, water or health. The effects of climate on human society, and our ability to mitigate and adapt to them, are carried out through all social factors, including looking at gender and gender justice in society. about all the major challenges we face almost daily.

Although issues of climate change, gender, economic, health and environmental factors, water, energy and agriculture issues interact strongly, the international community is still not at the level required to explore, analyze and understand that relationship, and to highlight gender as an important dimension. In policies, conventions and programs, and in adaptation and mitigation measures associated with climate change at the international, national and local levels. The UNFCCC has adhered to a gender perspective, and that commitment was reflected in the Paris 2015 Agreement, particularly in the preamble; article VII, which focuses on (adaptation); and article 1, which focuses on (capacity building), except That it has not been addressed in mitigation and technology transfer. On the other hand, there is international interest in achieving sustainable development goals and goals, including Goal 13 of taking urgent action to address climate change on the one hand, and the fifth goal on empowerment and gender equality on the other. How these two fundamental objectives can be linked, whether at the international or national level. This is not much different in the case of international conventions on women and binding on states, and in particular the Convention on the Elimination of All Forms of Gender Discrimination (CEDAW), which follows international and national reports in this regard, little is said in the link between Climate change and gender.

The few important studies and reports linking climate change to gender have shown that men and women are differently affected by persistent climate change. For example, natural disasters such as droughts, floods and storms claim the lives of women. More than men. The majority of studies have also shown that women and girls are at greater risk from the consequences of drought, water shortages and food insecurity, who may be significantly affected by undernutrition and malaria. To be more at risk than unmarried women, and that social isolation, especially older men, may be a risk factor. Socially constructed roles also affect men's responses to disasters; More likely to die in high-risk natural events. On the other hand, the threat to a woman's life may be linked to her family decision. For example, women can only leave the home in dangerous situations with the consent of their husband, and low access to important life skills, such as swimming education for girls, can significantly reduce Their survival in flood disasters.

Men and women differ in their roles, behaviours and attitudes with regard to actions that can help mitigate climate change. Surveys show that men consume more energy than women in many countries, particularly with regard to private transport, while women are often responsible for most household consumption decisions, including in relation to food, water and household energy. There is also evidence of gender differences in relation to the health and safety risks of new technologies to reduce greenhouse gas emissions.



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Why gender in the municipal action plan on climate change

Adapting and mitigating the effects of climate change in Jordan is critical to protecting livelihoods and making continued progress towards sustainable development. Climate change affects all members of society and its effects on men and women, children and the elderly, can vary. It is therefore important to understand the gender dimension and gender justice when working on adaptation and mitigation measures because of the different gender roles they play in their society, and therefore the different impacts of climate change and its policies and programs on their lives and decisions.

This part of the plan aims to provide a framework to strengthen the work of municipalities and partners in the development of climate change-related interventions, programs and activities, which take into account the needs of all members of society: males and females, young people, children and adults, people with disabilities, and the poor. And the marginalized.

Methodology for preparing this part of the plan:

The team was committed to integrating gender into the stages of methodology design, tools, data collection and the development of the municipal action plan framework. Several procedures have been implemented, and gender-sensitive methodologies have been used in collaboration with municipalities and the group of experts. The following have been done:

- The gender expert's involvement from the early stages of methodology design and action plans.
- An office review of national policies and strategies related to climate change and related sectors of the environment, water, energy and agriculture, and its arbitration of gender methodology.
- Access to municipal programs and projects related to climate change and related sectors;
- In-depth interviews with stakeholders in municipalities, ministries and institutions associated with climate change;
- Conduct focused panel discussions with civil society, taking into account the holding of one group with young people, one with women's associations, and another with stakeholders.
- The study of the institutional culture of the municipality and their awareness of climate change issues on the one hand, women's empowerment and gender justice on the other;
- To study priorities in activities proposed by municipalities with a team of experts on adaptation and mitigation of the effects of climate change, and to strengthen them with the entrances to women's empowerment and women's organizations.

Basic concepts

Before going into this part, it is necessary to begin by reviewing the most fundamental concepts that should be taken into account in the context of gender understanding, analysis, integration and climate change.

The concept of gender: the set of roles and responsibilities defined by society for both males and females, which are determined by the culture, organization, religious beliefs and economic needs of society, not on differences Biological (nationality), where it is acquired through social interaction, is susceptible to change over time, and varies from one society to another and from one culture to another.

Gender and gender: The concept of sex refers to the biological and physical differences between males and females, which take on a cosmic character that does not vary by time and place.

Gender integration: The definition introduced by the Economic and Social Council of the United Nations (ECOSOC) in July 1997 may be one of the most common definitions formulated for the concept of gender integration at the global level. For that definition, the integration of gender reflects "the process of assessing the implications of any planned action on women and men, including legislation, policies or programs in any area, and at all levels. It is a strategy to make the concerns and experiences of women and men an integral part of the design, implementation, control and evaluation of policies and programs in the political, economic and social spheres, so that they benefit both women and men, and that gender inequality does not last. In other words, it can be said that the ultimate goal of gender integration is to achieve gender equality." Gender is usually integrated at all stages, from policy analysis and design to programme and project implementation, and also includes initiatives to make women and men express their visions and experiences, and participate in decision-making in various areas, in order to achieve justice. True gender equality.

دمج النوع الاجتماعي / الجندر في الأردن

Jordan is a middle-income country with limited natural resources, where Jordan has invested long in its human resources. The government's commitment to the rights of the people of The O'Rey, the government of the People's Republic of China, the rights of the people and the rights of the people of The O'Rey, the right to life and the rights of the people of The O'Reita, the right to life and the right to life, are the most important of the fundamental rights of the people. One of the most important components of Jordan's adoption in order to promote justice and gender equality is the establishment of the Jordanian National Commission for Women's Affairs and the Network of Gender Liaison Officers in the Public Sector.

Jordanian National Committee for Women's Affairs: By 1992 Cabinet Decree, the National Women's Committee was established as the reference to all official bodies in determining priorities, plans and programs relating to women, and defending their rights in order to achieve a higher level of social justice and equality between men and women. The Committee is also the representative of the Kingdom of Jordan in all matters relating to local, regional and international women's affairs.

Network of Gender Liaison Officers in the Government Sector: This network includes the majority of government ministries and institutions with the aim of supporting the generalization of gender sensitivity in national policies and programs in all development sectors. The network's members are focal points between ministries and government institutions on the one hand and the Jordanian National Committee for Women's Affairs on the other. The organizational structure of gender liaison officers varies from institution to institution, and not all ministries and government institutions have gender-qualified divisions or teams. Climate and municipalities (environment, agriculture, water, energy, local administration, Ministry of Planning and International Cooperation, health). But with general suspicion, there is a growing tendency to recognize the importance of gender integration.

However, there is no doubt that available national data show that there is a gender gap in Jordan in the development, humanitarian and human rights sectors. Jordan was still lagging behind in bridging the gender gap. In the latest Gender Gap Report of the World Economic Forum (2018), Jordan is at the bottom of countries in the level of progress in

bridging the gender gap. Jordan ranks 138 out of a list of 149 countries, among indicators of indicators of focus: education, health, political participation and economic empowerment.

National policies and plans for climate change, women's empowerment and gender justice.

Jordan is one of the region's leading countries in highlighting gender issues in national plans to address the consequences of climate change. Jordan's 2010 Climate Change Action Plan was the main driver of national gender dialogue. Climate change has also been a major influence on the Kingdom's national climate plans and global climate commitments. Gender was expressed as a national priority in the third national report of the United Nations Convention on Climate Change.

The national climate change policy for 2013-2020 expressly stated that the policy's objective is to seek to build the capacity of communities and institutions in Jordan, taking into account gender and meeting the needs of vulnerable groups, to adapt to climate change and improve mitigation opportunities; The policy also recognized the fundamental role of women in the water, agriculture, energy and waste management sectors, and the significant contribution that women can make to adapt to climate change and mitigate its effects. Several measures have been proposed to mitigate the effects of climate change on vulnerable groups, including: supporting NGOs and community organizations, raising awareness of energy efficiency, adopting new clean energy sources and technologies, and providing solar water heaters and panels. Building codes to enhance energy efficiency through proper building insulation are planned for poor communities in hot and cold weather conditions.

The 2018 National Climate Change Adaptation Plan also devoted a special section on the basic principles to be taken into account for the integration of gender into national action plans, taking into account Jordan's commitment to mainstreaming the gender perspective in the context of sustainable development. The plan emphasized the need to provide guidelines for gender integration mechanisms in each sector; budgetary provision; identifying inputs for each sector; developing and applying gender-sensitive criteria in selecting adaptation options and prioritizing them; establishing data, developing collection and evaluation mechanisms, and identifying follow-up and evaluation indicators. On the other hand, the adaptation plan called for the National Climate Change Commission (NCCC) to be mandated to generalize gender sensitivity and vulnerable groups in all climate-related initiatives and projects, in all sectors and at all relevant levels. Social and vulnerable groups within that committee, to participate in the activities and procedures of the national adaptation plan, nationally defined contributions to reducing greenhouse gas emissions, as well as in sectoral discussions.

The adaptation plan emphasized that there were still challenges to the effective consideration of the gender perspective and vulnerable groups in climate change policies, as the National Climate Change Policy 2013-2020 provided general recommendations, but more guidance on practical solutions and specific criteria was needed. The government's policy of "social and economic development" is to provide a comprehensive and comprehensive framework for the development of the country's economy. The government's efforts to address the gender-based violence in the country are being addressed. Finally, the lack of sustainable funds to increase the resilience of women and vulnerable groups.

National policies and coordination between relevant sectors in climate change and gender justice

Although the National Plan and Climate Change Policy has partially devoted attention to women's empowerment and gender equality, on the other hand, that enthusiasm and interest is not clearly indicated in national strategies, Jordan vision 2025, and the programs, projects and allocations that follow. Finance in various sectors associated with climate change.

The reform, the interest in women's empowerment and respect for gender equality is linked to programs and sectors affected by climate change, linked to donors, without a national strategy and reference that ensures effective coordination between sectors associated with climate change, and follow-up. The extent to which gender justice is achieved in those sectors. It is noteworthy that the methodology of participation of women's organizations in the programs implemented is more specific ally in the programs we have reviewed.

On the other hand, the mandate of the National Committee for Climate Change JNCCC and its advisory committee to generalize gender sensitivity in all sectors, climate-related initiatives and projects alone will not establish mechanisms for gender integration and gender justice. The experiences of countries and Jordan, among other things, have shown that the integration of gender through the advisory committees alone will not lead to gender integration, as they are constantly changing and may not have sufficient powers to influence development sectors.

Deir Alla Municipality - Municipal Workers

The government's work on the issue of women's rights is being discussed in the national and local context. The number of women in the public service is 13.5 per cent. There are no female directors out of 10, while there are 13 department heads, 46% of whom are female.

The forms were randomly distributed to employees, 12 forms were filled out by employees; 33.3% were female, 66.7% male, 50.0% mentor, 25.0% diploma, and 25.0% bachelor's degree. The majority of those who participated in the survey have been working in the municipality for many years. The majority of female workers indicated that during 2018-2019 they did not have training and capacity-building opportunities in the municipality, helping them to master the various skills associated with their work as well as on various development issues. Approximately 66.6% did not participate in training opportunities held within the municipality, and more than 75% generally did not take part in courses outside the municipality. They attributed this to a variety of reasons, the most important of which is that 72.7% of the training courses are not available, and among the answers of female employees is that they do not participate in training courses for religious reasons. The nature of the courses for those who have already enrolled, if they are internal and external training courses, varied from computer-related and archival topics to courses related to climate change, such as water demand management, energy and waste, as well as leadership skills training.

As for their knowledge of the concept of gender, 58.3% of workers said they had never heard of the term, and 41.7% of respondents showed that there were programs for women in the municipality. 58.3% of municipal workers indicated that they had special programs between the municipality and the community through the Development Unit. When asked about their knowledge of climate change, 91.7% indicated that they had some knowledge of the concept of climate change. However, they are unsure whether there are programs in the municipality associated with climate change, with 58.3% doubting that municipal programs include climate change-related activities. Respondents also stated that the municipality faced many challenges, the most important of which were:

- Fiscal deficit
- The imbalance in the administrative structure
- Lack of staff, poor qualifications
- There are no land acquisitions to carry out projects
- There are no special programs in women's empowerment
- High cost of electricity
- The problem of pumping water

Gender analysis in Deir Alla municipality revealed that workers take a skeptical attitude towards women's potential and their ability to bring about change in society, as 50% of the sample showed that they do not believe that women are able to work in all areas just like men, and more than 30% of them do not see that Women are able to be mayors, 40% do not respect men who help their wives in housework, and more than 65% of respondents said that women should do more to reach the same results as men. In contrast, 75% of respondents still believe that women are able to plan and change in society.

Table: The view of workers in deir Alla municipality on a number of issues related to gender justice

I don't agree at all. T %	I don't agree. T %	I do not know T %	I agree T %	I strongly agree. T %	Paragraph
3 25.0	3 25.0	0	4 33.3	2 16.7	Women are able to work in all areas just like men.
1 8.3	4 33.3	0	4 33.3	7 58.3	I respect the man who helps his wife with the housework.
1 8.3	2 16.7	0	7 58.3	2 16.7	I believe in women's ability to plan and change in society.
2 16.7	6 50.0	2 16.7	1 8.3	1 8.3	I don't believe women can be mayors.
4 33.3	0	2 16.7	2 16.7	4 33.3	Women have to make a double effort and intelligence to reach the same results as men.

Deir Alla Municipality - Community

To get to know the municipality of Deir Alla and its community, it was necessary to hold a series of panel discussions and meetings with the local community in Deir Alla municipality, and to talk to them about their view on the economic and educational situation, women's empowerment and issues related to climate change, and proposals in community projects to address change. climate and empower women and girls in particular.

In August 2019, the project team held a discussion session with women's associations, leaders, young girls, young male and female leaders, and the third group consisted mostly of municipal, community, private sector, media, environmental, agriculture and meteorological departments, and a number of Few women in leadership positions.

The total number of participants in the three groups was 58 participants, roughly equal to 30 females and 28 males. An additional discussion session was held in September 2019 with the committee, which was created within the local community and the municipality of Deir Alla under the name of the National Resilience Group for Climate Change.

The economic and social situation in deir Ala municipality

The Deir Alla Brigade has an area of 35 square kilometres, a population of 75,000,²¹a relatively high family size of 5.3 people, and a dependency rate of 53.3%. However, the brigade suffers from difficult economic conditions, despite its popularity with agriculture, and the region has natural wealth, but the unemployment of young men and women is on the rise, and poverty is rising. "Deir Alla has a high climate and food basket in Jordan, feeding all the people of Jordan vegetables and fruits, and I imagine that she is the lifeblood of Jordan." "Deir Ala is located in the middle of the Jordan Valley and I consider it the capital of the Jordan Valley, because it has a percentage of educated people and well-educated people, and it has prosperity and development in various sectors, whether the education sector or the health sector and the agricultural sector."

Existing programs and activities between the municipality and the community

The discussion sessions in Deir Alla were very organized, showing the community's interest in the municipality's activities. On the other hand, the municipality was fully aware of those involved in climate change and women's empowerment, and therefore invited it to discuss, and the mayor himself participated in one of the meetings, confirming that there was a very appropriate relationship between the municipality and the community in the implementation of programs and projects. The participation of women's associations and leaders has had a positive impact on the panel of experts in their knowledge of issues related to climate change and women's empowerment. Deir Alla municipality has many development programs and projects, specifically related to climate change, and is funded by donors and international institutions including GiZ Germany, Seed Canada and Global Nature Fund.

The background and experiences of participants and participants in all sectors associated with climate change: energy, water, agriculture, health, meteorology, the private sector, farmers, and even the media, schools, women's associations, as well as members of the municipal council, deputies and deputies Former. When the associations and community leaders were asked about the nature of cooperation between them and the municipality, participants and participants in the discussion sessions and meetings agreed that their relationship with the municipality was at a high level of Consensus, cooperation and solidarity, and they are strong participants in all activities and projects. As a result of the high awareness of the community and the participants, a number of them indicated objections in the nature of the work, and valuable observations in the methodology of the work. to develop and update.

We must also emphasize that the presence of an interested and conscious mayor and head of a leadership department in the local development directorate in Deir Alla municipality may play a very important role in strengthening the network of relations with the local community. This was felt by the group of experts in the level

²¹ Ministry of Planning and International Cooperation.2017. Al-Balqa Governorate Development Program 2017-2019. P. 10.

of organization of meetings and discussion sessions held under the auspices of the municipality. However, more work is needed to empower all municipal workers, male and female, to be aware of their municipality's climate change-related activities, thus ensuring that this has an impact on all members of society. Although the sample of respondents to the survey could not be circulated, the responses showed the municipality's failure to disseminate and share information among its staff, and the lack of knowledge of projects related to climate change in the municipality.

Climate Change and Deir Alla Municipality: Identifying Problems

Discussion groups have demonstrated accumulated knowledge, information and experience on many issues related to climate change, and associations and leaders of women and young women have also been distinguished by that knowledge and experience. The problems faced by the general were concentrated in the sharp rise in temperatures in the summer, the suffering of its inhabitants from the cost of energy bills, and a decrease in agricultural products in Deir Alla and in the Jordan Valley: "Our products were reaching outside the Arab world, even if we were compared between the 1970s and 1980s, We find that agriculture has declined by global warming."

Among the problems also raised by the discussion groups are the problem of sanitation, the suffering of the brigade from the absorption pits, the need to get rid of wastewater monthly, the use of salt by the population, and the resulting high salinity of the soil: "Dunya has a big problem in Deir Alla is High salinity in the soil and high salinity rate destroy homes, either the surface of the house fell or tiles or bricks salt " "The absorbent hole is four walls and the floor, we put two bags to three bags of salt to absorb more water and seeps into the ground, and therefore the biggest problem suffered by the brigade Deir Alla in terms of the environment, which is the high salinity of the soil."

Discussion groups have also raised problems in the behavior of society, including the disposal of household waste by burning it, and the encroachment of water lines by sabotage and fracking.

Climate Change and Deir Alla Municipality: Projects implemented and previous experiences

Due to the important and sensitive location of Deir Alla on the map of Jordan and the region, and given the fact that Deir Alla is the lifeblood of agriculture in Jordan, and its impact on the further effects of climate change, the Brigade has had many programs, activities and initiatives that directly or indirectly respond to the effects of Climate change. Participants mentioned their experiences and knowledge formed through their initiatives and activities.

The municipality is implementing several projects, where it recently signed an agreement to build a solar field with a capacity of 950 kWh, which will cover street lighting units, municipal facilities and buildings, which will cover approximately 65-70% of the municipal needs. And mineral wealth to provide the municipality with energy-saving units AD to complete the shelters of Deir Alla of renewable energy. In addition to the municipal project in converting waste into positive energy, this project employed more than (1000) workers, the majority of them male, workers, facilitators, where the goal of the project is to reduce unemployment, and break the reservation of social defect supposing young people, as it aims to Raising awareness of the right behaviors in the management of solid waste, sorting it, through project management and distribution of containers to specific experimental areas. The municipality also has a solid waste plant, funded by GIZ and the Ministry of Municipalities, which will be operational at the end of this year, with the aim of sorting plastic, paper, cardboard and metal at this plant. Organic, rehabilitated and operated in partnership with the German municipality of Yina.

A group of associations also indicated that they participated with the municipality in the alternative energy project, through the installation of solar cells for a number of (750) houses inside the Brigade of Deir Alla: "There has become a positive trend for people to go to install solar cells, however, the production of electricity for these solar cells is limited 2 kilowatts per day, It's just for the benefit of reducing you from the top bracket, so the energy bill is kind of acceptable."

As the leaders of the school principals said in the water harvest in schools: "School roofs have been exploited, where there are gutters or special things and therefore extended to school gardens, and the idea of grey water or wastewater through the students' bars, We have developed a technology of its own that is distributed to irrigated trees, as well as through the school radio program to talk about water harvesting and talk about how to exploit water."

Activists also discussed their experiences as a women's sector and their work with academic institutions such as the University of Science and Technology, where women worked on the initiative of the role of women in integrity and transparency, and maintaining the management of drinking water: "I worked with the University of Science to attack the conveyor lines, sometimes assaulted "By citizens in low places and therefore do not reach high places sometimes they are attacked because of the watering of livestock and sheep, agriculture, home gardens. "

The working groups also presented the experiences of women's associations and leaders from schools in initiatives related to waste, disposal and recycling, "We were getting rid of papers and waste instead of burning them our job was to rotate the papers where we make special baskets for paper and special baskets for plastic and special baskets. For metals based on recycling, When the waste was piling up inside the school, we used to burn this waste." "We worked a project to train (100) women to convert household waste into a material used for agriculture, how to put it in agricultural docks we put in the home garden, and this project succeeded, but in the end they worked for their homes. She works small holes next to her house and puts some what organic waste inside her and this project was very successful."

Climate Change and Deir Alla Region: Key Measures

Through the methodology that has been used to identify the reality of the situation in the municipality of workers and the community, we must take into account key points in working with the community that it suffers from poverty and high unemployment rates among young people and university graduates, and that there is a high energy consumption due to High summer temperatures, limited proportion of non-agricultural investments linked to Deir Alla's agricultural nature, and municipality suffers from a lack of financial and human resources. On the other hand, the accumulated experience of the municipality in working with international institutions should be taken into account in various development projects, as well as projects within the framework of climate change. Also, focus group discussions are based on the experiences and experiences of participants accumulated from previous projects in the target areas of climate change.

1. Any action should take into account high unemployment rates, power relations and decision-making in the municipality and other local authorities.
2. It may be necessary to attach any action or project to a package of intensive and enhanced training and awareness of climate change concepts for municipal and local council workers, community organizations,

student and student schools, universities, and directorates related to the Brigade (this training should include The main topics in climate change and the environment, the importance of meaningful participation of society, youth and women, and working for society with it). This is through the active participation of women's organizations, youth associations and people with disabilities, and the use of an appropriate and easy-to-implement motivational methodology such as competitions, competitions for best practices and initiatives in the face of climate change, and tourism visits.

3. Support dialogue with decision makers and stakeholders from the Jordan Valley Authority, the Directorates of Health, Agriculture, Education and the Environment, and others to discuss climate change policies. These meetings should help coordinate, identify, identify and build capacity for stakeholders on climate change topics.
4. Strengthening the municipality's role in supervising regular activities carried out by groups of society. This should include community activity every month/two months. This may be like: cleaning days; tree planting days; The municipality can contribute to encouraging the marketing of women's products and associations of food, juices and crafts on the one hand, marketing and spreading awareness of the importance of clean energy, rationalizing electricity and water, and recycling grey water for use in homes and schools on the other, with the possibility of distributing any free means. Help with that.

Climate Change and The Deir Alla Brigade: Measures to Integrate Gender

The integration of gender is a strategy and a methodology of action and not an objective or activity in itself, it is a strategy that ensures that the needs, experiences and experiences of the members of society, women, men, children, adults and persons with disabilities, are an integral part of the design, implementation, control, follow-up and evaluation of indicators and outputs for any Policies, projects and procedures to be adopted and implemented in Deir Alla municipality as part of the municipality's action plan to address climate change. The outcome of a programme benefits both women and men, and justice and gender equality are achieved.

Gender is usually integrated at all stages, from the analysis and design of problems, initiatives and actions to the implementation of programs and projects, their evaluation and lessons learned. It also includes initiatives to make women and men express their visions and experiences and participate in decision-making in various fields, in order to achieve true gender justice and equality.

The following is a proposal for measures to be taken when incorporating gender tools into the municipalities' action plan, activities and projects:

المرحلة	Practical Gender needs procedures ²²	Strategic gender interests ²³
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²² Practical gender needs are the needs of women or men that relate to responsibilities and tasks associated with their traditional gender roles or to immediate perceived necessity. Responding to practical needs can improve quality of life but not challenge gender divisions or men's and women's position in society. Practical needs generally involve issues of condition or access.

²³ Strategic gender interests concern the position of women and men in relation to each other in a given society. The government's decision to re-implement the new government is a major political and economic decision. Addressing strategic gender interests women's and men's to achieve greater equality and to change existing gender roles and stereotypes. Gender interests generally involve issues of position, control, and power.



Identify actions/initiatives/projects	<p>Active participation of men, women, young people of both sexes and persons with disabilities in discussion sessions and identifying problems, proposals and priorities</p> <ul style="list-style-type: none"> - Equal numbers of both sexes - Meeting times in harmony with women's care roles (caring for children and household chores) - A good place to meet and discuss - Not mixing if it causes special harassment for young women and young women - Ensure a place to care for children or persons with disabilities who need constant care during meeting and discussion - Providing adequate infrastructure for people with disabilities (deaf and dumb signal specialist, no high-level access) - Suitable and separate bathrooms and health facilities 	<p>Women leaders in the community and the local council are aware of the current status of gender equality</p> <p>Men's participation in family care work</p>
	The presence of a social type expert in all steps to determine procedures	Gender integration policy in Deir Alla municipality, linked to international and national vision
	Availability of funding and motivation without gender discrimination	A reference point in the gender to which the municipality of Deir Alla belongs
	Knowledge of the concept of climate change and the gender perspective of municipal and community workers	Budget for women's empowerment programs in measures taken in climate change in the municipality



<p>Implementation of the procedure/initiative</p>	<ul style="list-style-type: none"> - Building the capacity of municipal workers, male and female in the municipality on climate change - Building the capacity of municipal workers in gender and women's empowerment - Participation of male and female workers, especially young people, in supervising and implementing the procedure/initiative - Equal training opportunities and solutions to any causes that prevent women from participating in internships and working in the field - Exchange of information and dissemination of knowledge among municipal workers - Identify the reasons why the employee is not involved in field work, and study the presentation of positive incentives for women's participation in the field - Distribution of responsibilities between engineers and engineers in the implementation of the procedure 	<p>A career more interested in achieving equality for women working in the municipality to lead projects and departments</p> <p>Report any violation of discrimination against women in the municipality</p> <p>Make work in the field in the municipality more gender-sensitive</p>
	<p>The government's work on the law is being considered by the Government of the United States of Central And Central Africa.</p>	<p>Recognition of the welfare economy and the responsibilities it requires</p> <p>Men's participation in family care and domestic work</p>



	<p>Well-thought-out media and advertising campaigns for initiatives that include messages for women's empowerment.</p> <p>Combining the traditional role of women and girls in the family, and their economic, community and leadership roles.</p> <p>Highlighting the role of leading women - Engineer/Deputy/School Director or Association in media campaigns</p>	<p>Media shows women as beneficiaries and decision makers in climate change initiatives</p> <p>The media shows men, young men and children who are as interested in family matters as they are concerned with public affairs</p>
	<p>Creating suitable economic opportunities for women to improve their income</p> <ul style="list-style-type: none"> - Training and qualification with non-traditional skills(stereotypes of traditional, economically useless professions, handicrafts, sewing, cooking) - Training in project-related technology skills (stereotypethat women are not interested in technology or forgotten) - Get information - Creating the right place to work (nursery, transportation..) - Guarantee of labor and professional rights (thosewho work in agriculture) - No additional unconsidered burdens on women(loop burdens, or working hours added to family tasks) - Improving women's access to reproductive health services (relatively high family size and high fertility) 	<p>Recognition of the welfare economy and the responsibilities it requires</p> <p>Men's participation in family care and domestic work</p> <p>Women's control over their movement, income and property.</p> <p>Women's active participation in family and community decisions</p>
	<p>Active participation of women's associations in implementation</p>	<p>A network of women's associations in Deir Alla municipality works with their counterparts at the provincial, regional and regional levels within a</p>



	<p>Active participation of young people and young people</p> <p>Active participation of female and male schools</p> <p>Active participation of people with disabilities</p> <p>Improving and developing the role of women's associations in the community from traditional roles (charity, orphan care, sewing, beautification and cooking) to more leadership, renewable and related sectors related to climate change (water, energy and health)</p>	<p>national and international vision within the fifth sustainable development goal: empowering women and achieving justice and gender equality.</p> <p>Associations capable of writing projects and concluding agreements with national donors</p> <p>Leading women's associations specializing in climate change and related sectors</p>
Follow-up and evaluation	<p>Track the numbers of beneficiaries/participants in initiatives disaggregated by gender, age and geographical area of the municipality</p> <p>Tracking the numbers of leaders and decision makers in the municipality classified by sex</p> <p>Participation of women researchers and women's associations in data collection</p>	<p>Study the impact of initiatives on the lives of both women and men family, community and health (knowledge, direction and behaviour)</p> <p>Study any outcomes associated with girls and boys within the family (no discrimination, equal educational opportunities, no violence)</p> <p>Study the impact of initiatives on municipal workers (knowledge, direction, behaviour and opportunities for gender justice)</p> <p>Documenting stories and experiences</p>



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