Ministry of Environment

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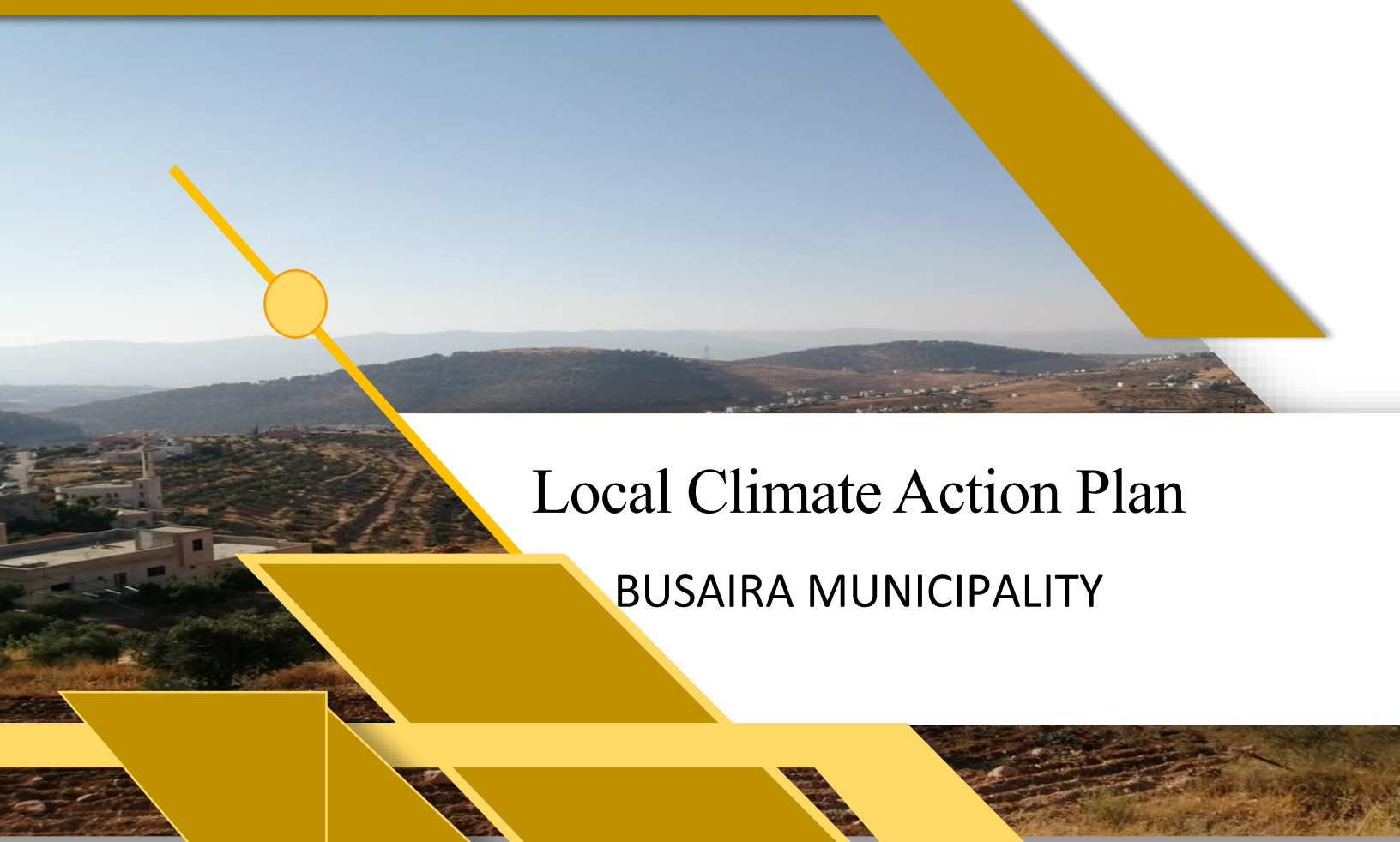
التعاون الألماني
DEUTSCHE ZUSAMMENARBEIT



Local Climate Action Plan

BUSAIRA MUNICIPALITY

DIMETRIC
Development Dimension for Environment and Disaster Risk Reduction Consultancies

Contents

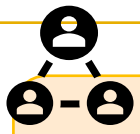
Table of Acronyms

BMU	German Ministry for the Environment, Nature Conservation and Nuclear Safety
CBO	Community Based Organizations
CO_2e	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

Municipality of Busaira's Vision for the Future

"Along the path to the year 2030, the Municipality of Busaira will strive to be a prosperous city by fostering social harmony, safeguarding the natural beauty of city through environmentally conscious practices, enhancing resource-efficient and establishing the Municipality of Busaira as a model for sustainable development"

~ Busaira'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 Busaira's vision of becoming a self-sustaining city step-by-step, through innovative projects.

Municipal Endorsement of the Local Climate Action Plan

Endorsement of Busaira 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.

Busaira Municipality City Council Members

Executive Summary

Climate change is forcing the people to think outside the box when it comes to interactions between human beings and nature. Formerly established strategies need to be re-considered in the new evolving context of global warming.

This Local Climate Action Plan (LCAP) and the List of Actions (LoA) that accompanies the Plan provides the Municipality of Busaira, with a strategy the maneuver the consequences on the ground within municipal borders. Assuring a higher acceptance of the LCAP and the LoA, a Resilience Ready Climate Community Group (RRCCG) was established, consisting out of stakeholders from the community and municipal representatives. This provided a platform, from which various perspectives from all stakeholders could be communicated and considered. Furthermore, the RRCCG played a role in customizing the Actions to Busaira's needs.

Overall, the municipality is challenged by several factors, from the lack of reliable water resources, quantities of illegally dumped waste and manure, to no existing sewage system and an increasing population rate. At the same time, the location is favorable for wind farms and has the tourist-attracting nature reserve Dana Biosphere Reserve, an ecosystem of ever-rarer flora and fauna native to Jordan. The community of Busaira also reports risks to its resources due to the industrial activity around of the municipality's territory.

Cushioning the impacts of climate change on the municipality is to be partially achieved through renewable energies, that not only reduce greenhouse gases (GHGs) but also may provide a cheaper energy resource if provided through the right mechanism. Busaira aims specifically at the processing of solid waste to energy and harvesting greywater for reductions of the municipality's emissions by 20% in 2025. Renewable energy technologies are also outlined in the LoA as a means to contribute also to the socio-economic situation of the community.

The adaptive capacities of Busaira were examined, and the RRCCG identified agricultural risk as most pressing, such as wastewater treatment, enhancing agricultural practices, conserving water, desalination and the rehabilitation of springs, as the main concerns. This may not surprise taking into account that 70% of the community are depending on rangelands for their economic well-being and the reasonable fear of desertification in the area, where the only precipitation is recorded as snow during the winter.

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 CO_2e 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.

The mitigative and adaptive measures are going hand in hand with a gender mainstreaming approach, which is justified through the study results putting women in a more vulnerable situation because of their socially constructed role. The step-by-step LCAP developing process was accompanied by a gender expert, focusing on women empowerment, and raising awareness for the need of including women in the mitigation and adaptation actions, in order to every human being less affected by the negative impacts climate change is confronting them with.

Table 1 Local Climate Action Plan Snapshot

Local Climate Action Plan Snapshot		
Emissions Ambitions		**Adaptation Action Areas**
		NDC categories with the addition of "Communication & Public Awareness"
% of Residential energy demand met through the installation of PV Solar and solar water heater units		Water
Ambition	% CO_2e Decrease from Total	Water Treatment and Efficiency
10% of Households have PV solar to supply their needs by 2025	3%	Improved water storage and harvesting, wastewater treatment (decrease contamination from sewage), and applications of graywater technologies to diversify water resources.
15% of Households have PV solar to supply their needs by 2030	4%	
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	5%	Investigating crop patterns and climate resilient crop varieties to benefit farmers but not to the detriment of the neighboring ecosystems; enhancing capacities for farmland and livestock management to safeguard common-shared resources; investing in long-term community agriculture investments (permaculture, hydroponics)
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% of Solid Waste averted from landfill		Communication, Awareness & Advocacy
Ambition	% CO_2e Decrease from Total	Awareness, Capacity Building & Knowledge Sharing
5% by 2025	.3%	The community expressed turning the municipality into a hub of knowledge, research and innovative applications of data analyses, technologies and community engagement into ever-evolving actions to enhance local resilience and improve natural resources.
10% by 2030	1.1%	
% of Decreased Emissions through energy efficiency and renewable energy saturation in the commercial, small industry sector		Biodiversity, Ecosystems & Protected Areas
Ambition	% CO_2e Decrease from Total	Ecosystems Revitalization
15% of CO_2e from electricity consumption reduced by 2025	.8%	The steady revitalization of ecosystems (or constructed ecosystems); rehabilitation of grazing land; forest protection and improving soil and water quality
20% of CO_2e from electricity consumption reduced by 2030	1.1%	
% of grid government pumping stations reduce GHG's from non-renewable energy		Urban Development & Mobility
Ambition		Development of Infrastructure
15% by 2025	1.2%	Development of culverts, redirection of rainwater runoff, increase capacity of Qarqur Dam; develop sanitation plan and guidebook for green building technology for the municipality.
20% by 2030	1.6%	

Gender Mainstreaming

- 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
- Establishing a System for Monitoring Energy Consumption of Municipal Buildings
- Public Building Energy Efficiency & Zero-Refuse (Paper, Plastic) Initiative

Transport

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

Waste

- Commercial-Residential Sorting-At-source Recyclables Collection: Gateway to Waste to Energy Optioneering
- Extracting Energetic, Economic Value from Organic Wastes
- Reduce, Reuse, Recycle: Commercial - Residential Sorting-At-Source Recyclables Collection

Industry

- Renewable Energies for Local Businesses

Water

- Greywater Reuse in Restricted Irrigation (Grazeland Rehabilitation)
- Rainwater Harvesting: Cisterns

Agriculture and Food Security

- Carbon Farming: Composting for Compliance & Soil Health
- Urban Greening: Roof-vertical Gardens and Permaculture
- Hydroponics

Urban Development & Mobility

- Municipal Climate Concept
- Urban Greening: Roof-vertical Gardens and Permaculture

Health

- Rehabilitation of Lafarg Park
- Master Plan for Municipal Sanitation

Biodiversity, Ecosystems and Protected Areas

- Constructed Wetland for Effluent Wastewater Treatment, Ecological Restoration

Communication, Public Awareness & Advocacy

- Environmental Observatory
- Resource Mobilization to Improve Environmental Governance, focusing on building the Scientific, Technical and Advocative Capacities for Municipality, NGOs

1. Introduction

The ongoing pressures to counter climate change have caught the attention Municipality of Busaira'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 Busaira'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 Busaira 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 Busaira 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 Busaira represents a community vulnerable to climate change, potentially including an overall decrease in precipitation, increased occurances of drought, and increased evaporation[1], 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 Busaira 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.

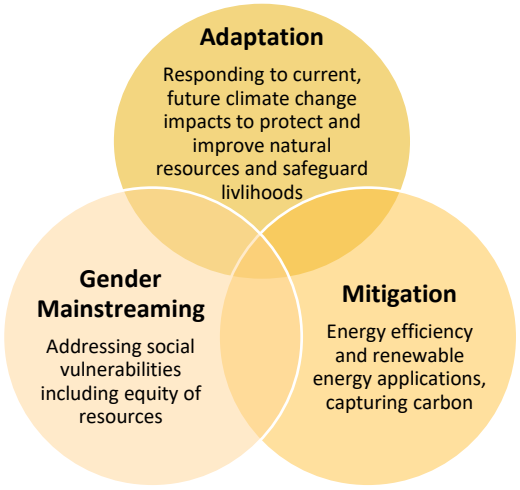


Figure 1 Framework of the LCAP and its Actions.

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

3. Municipal Profile

The Municipality of Busaira is a community of ecological and historical significance, known for its springs and mountainous terrain, which ranges from 900m – 1,600m above sea level. Located in Jordan's central western region, it hosts a population of 17,386[2] at the edge of Jordan's largest nature reserve - the Dana Biosphere Reserve. It is home to archeological sites, a considerable farming and grazing community and individuals invested in safeguarding their natural and cultural heritage from climate and developmental consequences.

Figure 2 Entering Busaira Municipality

Areas under municipal boundaries and administrative divisions include the Gharandal region ,AL-Rashdih region, Sail Rab'a region, Lahthah region, AL-Dahal region and Om AL-Sarab region. Overall, there are about 3,000 households within the municipality. Unemployment is about 35 percent.

The Municipality of Busaira has typically had mild summers and cold winters, reaching 35°C and -5°C (particularly in its highest elevations), respectively.

Energy

The area of the municipality has the potential to host wind and solar energy technologies. Located within its boundary of the municipality is the Tafila Wind Farm (117 MW) – Jordan Wind Project Company, as well as the sites of the planned project of General Electric (to produce 100 MW once operational) and another planned for 2020 by a Korean wind power plant (about 49 MW) wind farm.

Transportation

Within the municipality, privately-run buses conduct services to Amman, Aqaba and intra-municipal routes. Scheduling (departures, arrivals) of routes is irregular. Overall organization of services and oversight to reduce this sector's impact on the local community and environment is required.

Of the vehicles operated by the municipality, the solid waste collection vehicles have been equipped with GPS devices to monitor fuel consumption.

[2] Ministry of Planning and International Cooperation.2018.

Waste

In addition to the amount of municipal wases generated in the municipality, there are also large quantities of manure from livestock. Disposal of these wastes is informal which results in these wastes being discarded into the valleys because collecting it raises a concern over health issues and stench.

There is no sewage infrastructure and therefore houses use unlined cesspits, which exacerbate the problems of water contamination and health of the springs due to wastewater seepage. Some observations noted negative impacts to vegetated areas.

Industry

Located within the Municipality of Busaira is the Lafarg Cement Factory and the Traditional Fashion Company for the Garment Industry, established in 2017, which employs about 700 local women. It offers training and is a formidable place for employment.

Industries, either locally based or located nearby, are not viewed favorably due to numerous suspicions of environmental degradation that has occurred as a result of their activities. The main source of contention stems from concerns and reports of improper disposal of hazardous wastes which have, in turn, resulted in observations of decreased air quality, degraded water resources and exacerbated local soil quality as well.

The community continues to call for a renewed partnership between the private (local and regional) sector and the public sector to improve livelihoods, repair natural resources and improve the local community's overall resilience to climate change.

The municipality features archeological and historically significant sites.

Water

The Municipality relies mainly on the Al-Hasa spring (located outside the municipality) water to supply homes with drinking water; however, water continously grows more scarce in terms of quanities of water as well as potable water.

The average rainfall of 200 mm is in the form of snow in the highest areas, but water quantities dwindle in the summer, except for some areas but even they have poor abilities to extract water due to overall scarcity of this resource in the municipality.

Figure 3 A sign, located at the mouth of a spring, cautions that the water is not potable.

Water consumption amounts to about 188 liters daily. No licenses have been issued to dig wells in the area; however, even if they were given, wells would need to reach about 100 meters below ground to extract this resource.

Diminished water quality, due to pollution from cesspits and nearby industrial activities have been a source of frustration which has led the municipality to seek options for water harvesting. The Qarqour Dam, constructed in 2017, reached its full capacity – 35,000 million cubic meters last year (2019), which was utilized in irrigation,

representing additional latent opportunities in water harvesting. Water collection is possible in Wadi Sil Rayah, Ghuwairiya, and Wadi Abu Jahl.

Three water harvesting projects have been implemented in the municipality with one being successful.

Agriculture

Approximately 70 percent of the population is engaged in the agricultural sector, cultivating fruit-bearing trees including olives, figs, pomeganaes and almonds, as well as grapes. Contemporary farming methods such as the use of irigation, chemical pesticides and fertilizers are applied to crop areas. Water to supply for agricultural activities is sourced from groundwater. as once there Herding livestock is also considerable with a reported 36,000 - 54,000 sheep.

Figure 4 A rock quarry, which in addition to the Al-Rashida Cement Factory, has raised intense concern among the community about the negative impacts of industrial activities on natural resources and community health.

Loss of pastures and loss of agricultural crops due to successive dry seasons and declining precipitation have been reported in addition to increased desertification, especially in agricultural lands.

Urban Development

The Municipality of Busaira has experienced a spike in the construction of buildings, particularly households, following the immigration of refugees, creating an example of urban sprawl wherein residences are located considerable distances from each other while still within the urban environment.

Infrastructure is in disrepair and continues to be threatened by further deterioration resulting from increased occurrences of intense rainfall. Additionally, as mentioned above, the lack of adequate infrastructure and the sewage network, street collapses, need for retaining walls, and water network is in need of rehabilitation. Recently, the municipality installed 1,600 LED lamps for street lighting and is planning to install another 800 LED lamps.

There are three public parks within the municipality with two more parks planned in partnership with the private sector.

Health

Sanitation is and water quality is a significant concern in the municipality. Additionally, concerns surrounding the impact of industrial activity surrounding the municipality. Although discussed heavily, documentation and measured impacts, resulting from industrial activities, on the local community's health; air, water and soil quality, is lacking. However, these validated concerns represent formidable opportunities for data collection, scientific investigation and public-private partnerships to both accurately document causes address these concerns adequately.

Local incomes, considered low on average, would also be a factor limiting community resilience against current and future climate hazards and impacts.

The Municipality is home to the Dana Biosphere Reserve, a protected area containing mammals, birds, and rare flora. It‘s a popular destination for large numbers of tourists. Although the reserve is a gem of the region, its integrity as a protected area is being threatened by local activities. Reportedly, the lack of appropriate sewage networks has resulted in wastewater flowing into the reserve creating “sewage swamps”[3]. The overall decline of water quality and its growing scarcity has exacerbated negative impacts on aviary migration to the area, and decreased observations of the flora and fauna species that are iconic to the reserve. These impacts resulting from development as well as climate limit the ability of local ecosystems to recover and/or face future climate impacts that are anticipated to exacerbate the situation.

Figure 5 View of Dana Biosphere Reserve from the Municipality of Busaira.

[3] Al Rai (2019). أودية في ضانا تتحول إلى مستنقعات للصرف الصحي - صحيفة الرأي

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

Climate change impacts at the local level take various shapes and forms, disrupting the activities of various sectors, as much as livelihoods and health as much as economic productivity. The following illustrates the potential impacts of climate change in the Municipality of Busaira.

Energy

Decreased Rainfall

- Less groundwater recharge and groundwater level decline leads 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
- If solar panels are installed in Busaira, drier conditions may increase of dust in the air, entailing more 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
- Increased energy demand to pump water

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
- Increased need for energy to power water pump
- Increased energy demand, increases the need to seek out renewable energy sources

Intense Weather Events

- Power cuts/blackouts resulting from increased energy consumption (potentially increased costs) in response to high temperatures.
- Variations in fuel consumption and need; 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 individuals' 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 risks 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, black ice, snow)
- Commuters are less inclined to walk or bike, influencing generation of emissions

Waste

Decreased Rainfall

- More difficult for contaminants to be naturally filtered, aggravating soil and water quality ; increased concentration of contamination in surface and groundwater from waste (contaminants released from breakdown of plastics/litter, wastewater, etc.)
- 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
- Threats to water quality as reported in Busaira (dumping of wastewater into the reserve)

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 into protected areas 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
- Organic wastes, such as manure, become an increasing nuisance if not collected, attracting pests and producing odors
- Increased need to control disposal, flammable waste
- Increased consideration for the health and safety of waste collection workers

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,

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
- Possible increase in the amount of dust in the air
- Marketing seasons for the food and clothes, for example, shift

Increased Occurrence of Drought

- Financial stress to finance energy for cooling and water at times when there is a scarcity of either
- Corporate responsibility (impacts of local industry on local resources and health) become more emphasized as quality and quantity of resources are strained
- Possible increase in work-related illnesses/injuries, rescheduling of shifts

Higher Temperatures

- Decline in tourism and income
- Financial losses for livestock owners and farmers
- Increased demand for shared water resources with neighboring industry
- Productivity of the local workforce may be influenced; increased need for safety precautions

Intense Weather Events

- Contaminants (resulting from economic activities) entering waterways

Water

Decreased Rainfall

- Groundwater quality decline (increased salination due to dropping water table and contamination from unlined cesspits)
- Disappearance of springs (due to dropping water table)
- Drop in the water table, increased expense for water withdrawals
- Potentially increased water withdrawal from Qarqour Dam for irrigation

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 evapotranspiration[4]; increased evaporation from uncovered water storage containers (Qarqour Dam)

[4] 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.

Intense Weather Events

- If not captured (harvested) nor channeled, it can be a lost and destructive commodity

Agriculture & Food Security

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
- Increased salination of water supplies (in turn, water of decreased quality, even when treated, can disrupt the efficiency of irrigation systems contributing to higher maintenance expenses).
- Ground cover, indigenous to the area (weeds), decreases contributing to erosion and desertification
- Currently rain-fed crops would increasingly depend on irrigation, which may stress the water supply of Qarqour Dam.

Increased Occurrence of Drought

- 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
- Increased need for improving soil quality and soil's ability to retain water
- 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
- Increasing fragility, desertification of rangelands

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 (milk, eggs, meat) 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)
- Higher inclination among farmers to abandon agricultural sector
- Increased occurrence of soil erosion and washing away of crops, fertilizers and pesticides as a result of heavy rain runoff

Urban Development

Decreased Rainfall

- Decreased regeneration capability of forests (see water) is further affected by the felling of trees if households struggle to afford energy bills (heating of homes in winter).
- The possibility of increased occurrence of violations and vandalism as a result of natural resource scarcity (water) 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
- Species migrations, which were observed in previous years, continue as species seek more favorable conditions

Intense Weather Events

- Damage to homes, businesses and infrastructure from flash floods, landslides and wind

- Disruptions to 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
- Potential increased occurrence of illness
- Increased stress and anxiety as rainfall impacts local economy and livelihoods

Increased Occurrence of Drought

- Negative socio-economic impact, particularly for agricultural families
- Potential increase in the prevalence of respiratory diseases

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
- Potential 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[5], affecting rural families disproportionately
- Increased presence of pests (flies, mosquitos)

Intense Weather Events

- Injury and/or illness resulting from flashfloods

Biodiversity, Ecosystems & Protected Areas

Decreased Rainfall

- Possible reduction in the indigenous flora and fauna
- Interference to the tourism industry
- Urgent need for studies that detail specific adaptation pathways for local flora and fauna
- Increased dependence of animals on supplied, irrigated water

Increased Occurrence of Drought

- Increased occurrence of wildfires
- Weakening of local ecosystems
- Declines in rangeland and forest-floor cover
- Areas in Busaira become less attractive (as an ecosystem) to migrating birds

Higher Temperatures

- Decline in tourism and negative impacts to local economy
- Disappearance of species (migratory birds stop using Busaira as a way-stop, favoring other locations), decrease in flora and fauna that cannot adapt to changing temperatures nor impacts of development
- Ecosystems susceptible to invasive species
- Reduction of wood resources
- Reduced water percolation and purification, reduced aesthetic value as ecosystems are weakened
- Financial losses for herders

Intense Weather Events

- Felling of trees for heating
- Bird migrations could continue to be impacted

[5] Food and Agriculture Organization (FAO) as a, "situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." The definition involves four aspects of food security, namely, food availability, food stability, food access and food utilization.

Figure 6
Overview of the LCAP Development Process

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, ccommunity members, representatives of the private sector, women's associations, media, environmental and agriculture departments were in attendance, totaling 31 participants, 14 females and 17 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 Busaira's RRCCG include: Busaira Environmental Union, Emar Busaira Environmental Association, Busaira Women's Association, representatives of local international donors, representative of Jordan's Water Authority, Dana Biosphere Reserve, Busaira Cultural Legacy Association, representatives of the Ministry of Environment and Ministry of Agriculture (Plant Protection), and local farmers.

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.

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 ACTION SCOPING

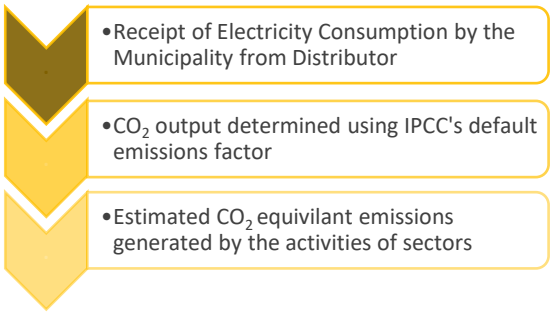


Figure 7 Process of developing CO_2 equivalent quantities for electricity-related emissions of the municipality's residential, governmental, commercial, agricultural, water (pumping) categories.

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, depending on the framework of the initiative.

Energy

Developing a baseline for mitigation Actions began with understanding the amount of CO_2 equivalent (CO2e) emissions associated with localized electricity consumption. This was done by requesting the data for the electricity consumption of the Governorate of Tafileh (municipal-specific data was unavailable) from the regional supplier Electric Distribution Company (EDCO, 2018).

The estimated CO_2e, while based on electricity consumption, does 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. The energy consumed in each of these sectors during the year 2018 was used to estimate the amount of CO_2e based on the International Panel of Climate Change's (2006) Tier 1[6] default emission factors.

Based on the data for electricity consumption of the Tafileh Governorate, the generation of CO_2e was calculated then scaled down to the municipal level by the population of the Municipality of Busaira.

CO_2e from electricity consumption of the residential sector was estimated at 2 Gg of CO_2e in 2018. This would correlate to approximately 0.004 Gg of CO_2e annually per household based on a household electricity consumption from non-renewable energy sources of about 3,000 kWh/year.

Table 2 Emissions generated from annual residential electricity consumption of Tafileh Governorate, scaled down by population.

	Electricity Consumption of Tafileh Governorate (2018; kWh)	Tafileh Governorate (Gg of CO_2e)	Municipality of Busaira (Gg of CO_2e)
Residential	60,441,886	12.21	2.13

Municipal Lighting

In addition to continuing to convert to energy-efficient LED lighting fixtures (having installed 1,600 LED with plans to install another 800), the Municipality of Busaira is seeking to install renewable energy, particularly, solar photovoltaic (PV) systems to achieve reduction in emissions as well as energy efficiency and financial savings.

[6] IPCC (2006) Guidelines for National Greenhouse Gas Inventories

Governmental consumption of electricity and streetlighting of Busaira Municipality correlates to an estimated 0.13 and 0.26 Gg of CO_2e annually, respectively. Installing rooftop solar photovoltaic systems for municipal government electricity demand and street lighting would result in an estimated 5 percent[7] reduction in CO2e generation of emissions categories accounted for in this document.

	Electricity Consumption of Tafileh Governorate (2018; kWh)	Tafileh Governorate (Gg of CO_2e)	Municipality of Busaira (Gg of CO_2e)
Municipal	773,855.58	0.77	0.13
Street Lighting	1,481,306.72	1.48	0.26

Table 3 Emissions generated from annual municipal electricity consumption of Tafileh Governorate, scaled down by population, based on kWh of Electricity supplied by EDCO.

Transportation and Mobility[8]

Cutting emissions within the municipal fleet can be achieved through tracking (GPS devices) the commutes of municipal vehicles, optimizing routes and providing regular maintenance, according to the municipality.

Table 4 Emissions of Municipal Fleet (2018)

	Emissions (Gg)
Municipal Vehicles	0.09

Figure 8 CO2e

Municipal Solid Waste

Jordan's First Biennial Update Report to the United Nations Framework Convention on Climate Change (2017) summarizes the CO_2e of solid waste disposal at the national level for 2012. Scaling the data to represent an estimation of emissions for solid waste disposal in the Municipality of Busaira started with the national population of 2012, estimating solid waste generation (kg) per capita relative to the emissions reported for that year, resulting in CO_2 equivalent per kg of solid waste.

The estimated CO_2e/kg of solid waste of 2012 was applied to the Municipality of Busaira's estimated solid waste generation of 2018, resulting in an estimated CO_2 equivalent generation of about 4 Gg per annum.

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 CO_2e generation of about 0.40 Gg.

	Electricity Consumption of Tafileh Governorate (2018; kWh)	Tafileh Governorate (Gg of CO_2e)	Municipality of Busaira (Gg of CO_2e)
Commercial	7,973,974	*1.61*	0.28
Small Industry	3,110,943	*0.63*	0.11

Table 5 Emissions generated from Industry (economic) electricity consumption from annual (2018) electricity consumption of Tafileh Governorate, scaled down by population, based on kWh of Electricity supplied by EDCO.

Water

[7] IPCC (2014) lists the lifecycle CO2-eq of solar PV rooftop median value at 41gCO_2-eq/kWh, minimum – 2641gCO_2-eq/kWh, max - 6041gCO_2-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.
[8] The number of municipal vehicles does not represent solid waste compactors, nor cabs.

Emissions generated in this sector are based on the electricity consumption for water pumping by the Water Authority of Jordan for the municipality. It does not represent the entire range of emissions inherent to water collection, pumping and distribution at the municipal-community level nor does it fully represent water consumption.

Emissions from electricity used in water pumping accounted for 0.58 Gg of CO_2e generated.

Table 6 Emissions generated from annual electricity consumption for water pumping of Tafileh Governorate, scaled down by population, based on kWh of Electricity supplied by EDCO.

	Electricity Consumption of Tafileh Governorate (2018; kWh)	Tafileh Governorate (Gg of CO_2e)	Municipality of Busaira (Gg of CO_2e)
Water (pumping)	16,516,788	*3.34*	0.58

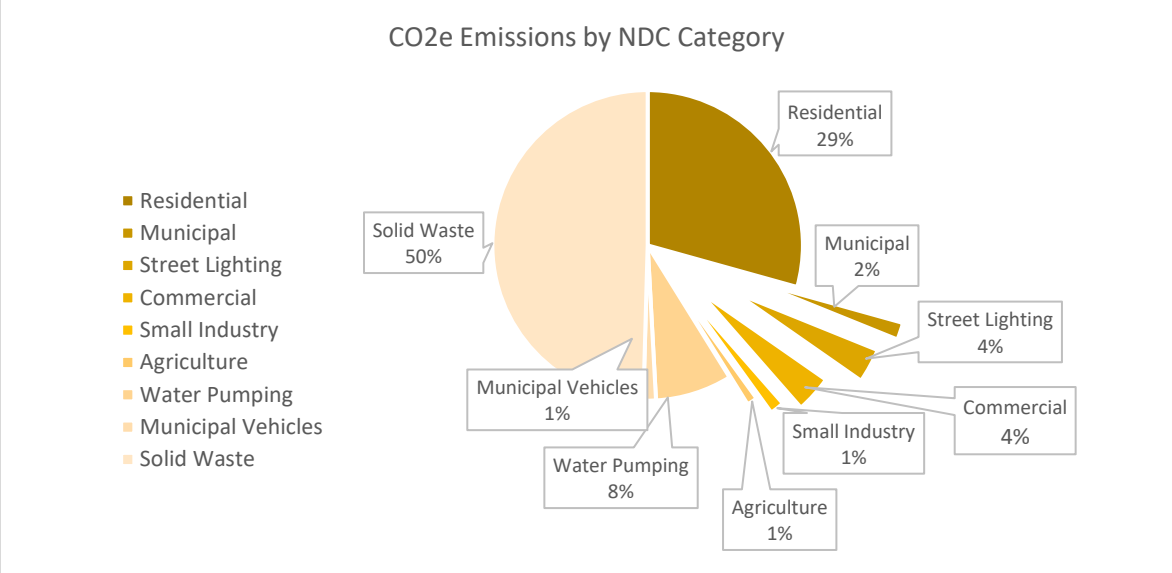
Agriculture

Calculation of CO_2e 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, 0.08 Gg of CO_2e 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.

Table 7 Emissions generated from annual agricultural electricity consumption of Tafileh Governorate, scaled down by population, based on kWh of Electricity supplied by EDCO.

	Electricity Consumption of Tafileh Governorate (2018; kWh)	Tafileh Governorate (Gg of CO_2e)	Municipality of Busaira (Gg of CO_2e)
Agriculture	2,324,368	*0.47*	0.08

Table 8 CO2e Emissions by Category



The CO_2e inventory for municipal operations including municipal buildings, streetlighting, municipal fleet, and solid waste accounts for over half of the emissions included in the assessment. These categories (solid waste, street lighting, municipal fleet and municipal buildings) are an optimal starting point for reducing emissions.

6.2 ADAPTATION ACTION SCOPING FOR BUSAIRA MUNICIPALITY

Climate change and its effects present various challenges in Jordan. The Municipality of Busaira is no different. Climate effects are detailed in the TNC (2014) along two scenarios: some effort internationally is made to reduce emissions (wherein CO_2 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 8.5[9].

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[10]. 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.

[9] Biornes, C. (2015). A guide to Representative Concentration Pathways. CICERO

[10] Definition: evaporation and water requirement of plants

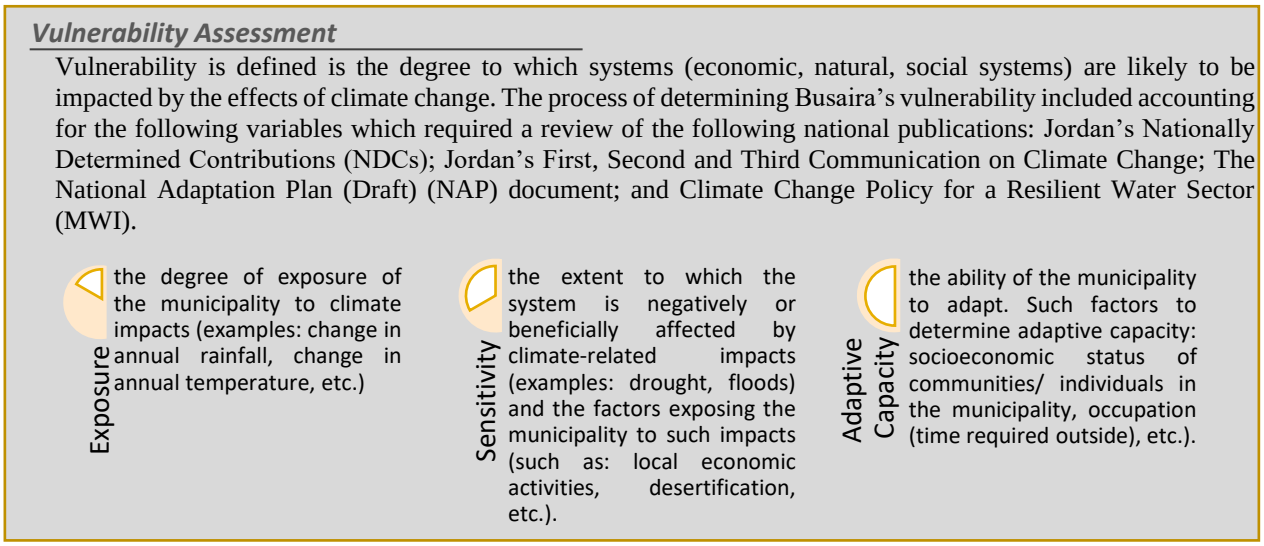


Figure 9 Components of Vulnerability

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 declining groundwater levels and quality, decreased groundwater recharge, declines in livestock products, and disruption of agricultural systems and increased water demand.

Table 9 Risks and Potential Impacts as Ranked by Focus Group Participants of Busaira

Risk	Effects	Percentage	Significance[11]
Rainfall decline	Decline in groundwater levels	85%	3
Higher temperatures	Decrease in groundwater recharge	85%	2
Rainfall decline	Decline in livestock products	81%	2
Rainfall decline	Decline in groundwater quality	77%	2
Rainfall decline	Disruption of agricultural systems	77%	4
Increased drought	Increased water demand	77%	5
Rainfall decline	Decrease in surface water runoff	69%	0
Increased drought	Destruction to agricultural crops	69%	4
Higher temperatures	Decline in agricultural production	50%	2
Increased drought	Spread of disease	50%	1
High temperatures	Decrease surface water runoff	38%	2
Increased floods	Damage to lives and property	27%	1
Increased floods	Destruction to infrastructure	23%	3
Increased floods	Damage to dams	23%	2

The results of the focus group aid in assessing the significance of risks identified nationally and their perceived relative significance at the local level.

[11] Risks Ranked by Significance based on findings in 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 (MWI).

5. 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 water tables (entailing increased power to withdrawal water), and balancing expenses as household expenditures may adjust adversely.

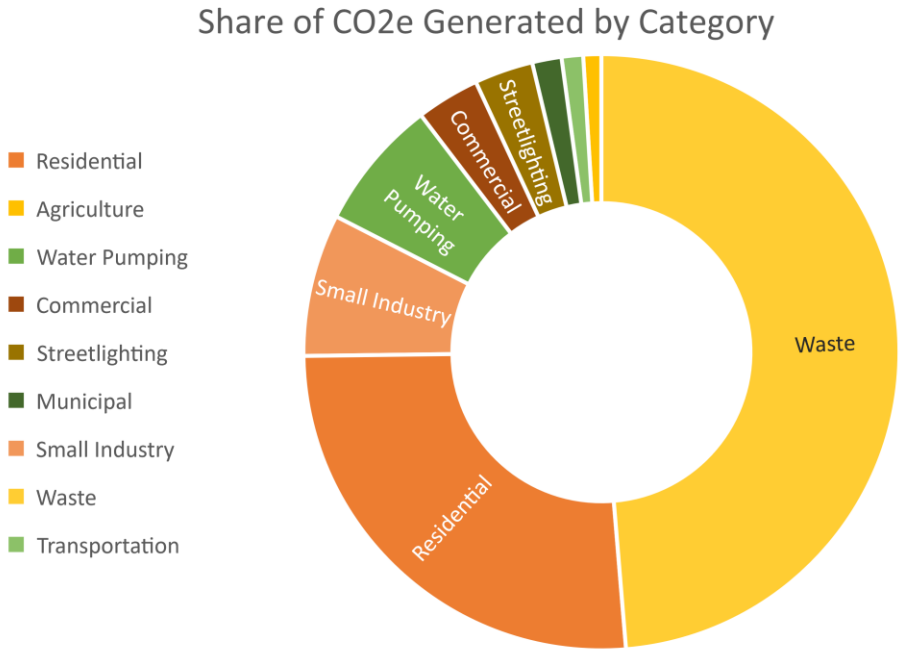


Figure 10 Share of CO2e Generated by Category

The 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			
Installation of PV Solar units to meet electricity demand of households and solar water heater units (*considered mutually exclusive in model estimations*)	Target as a Percentage	Co2e averted (Gg)	%of total estimated emissions
2018	--	--	--
2025	*if 10% by '25*	0.21	3%
2030	*if 15% by '30*	0.32	4%
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	--	--	--
2025	*if 100% by '25*	.39	5%
If 5% of solid waste is treated (10% of organic, 5% of plastic and 5% of paper fractions) by 2025; and 10% (20%, 10% and 10%) by 2030, respectively.	Target as a Percentage	CO2 averted (Gg)	% of total estimated emissions
2018	--	--	--
2025	*If 5% by 2025*	0.02	.3%
2030	*If 10% by 2030*	0.1	1%
Targeting energy efficiency and renewable energy in the commercial, small industry sector.	Target as a Percentage	CO2 averted (Gg)	% of total estimated CO2e
2018	--	--	--
2025	*If 15% by 2025*	0.058	.81%
2030	*If 2% by 2030*	0.078	1.1%
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 15% by 2025*	0.087	1.2%
2030	*If 20% by 2030*	0.116	1.6%

Figure 11 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)) as generalized pathways for reaching the emissions ambitions.

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).

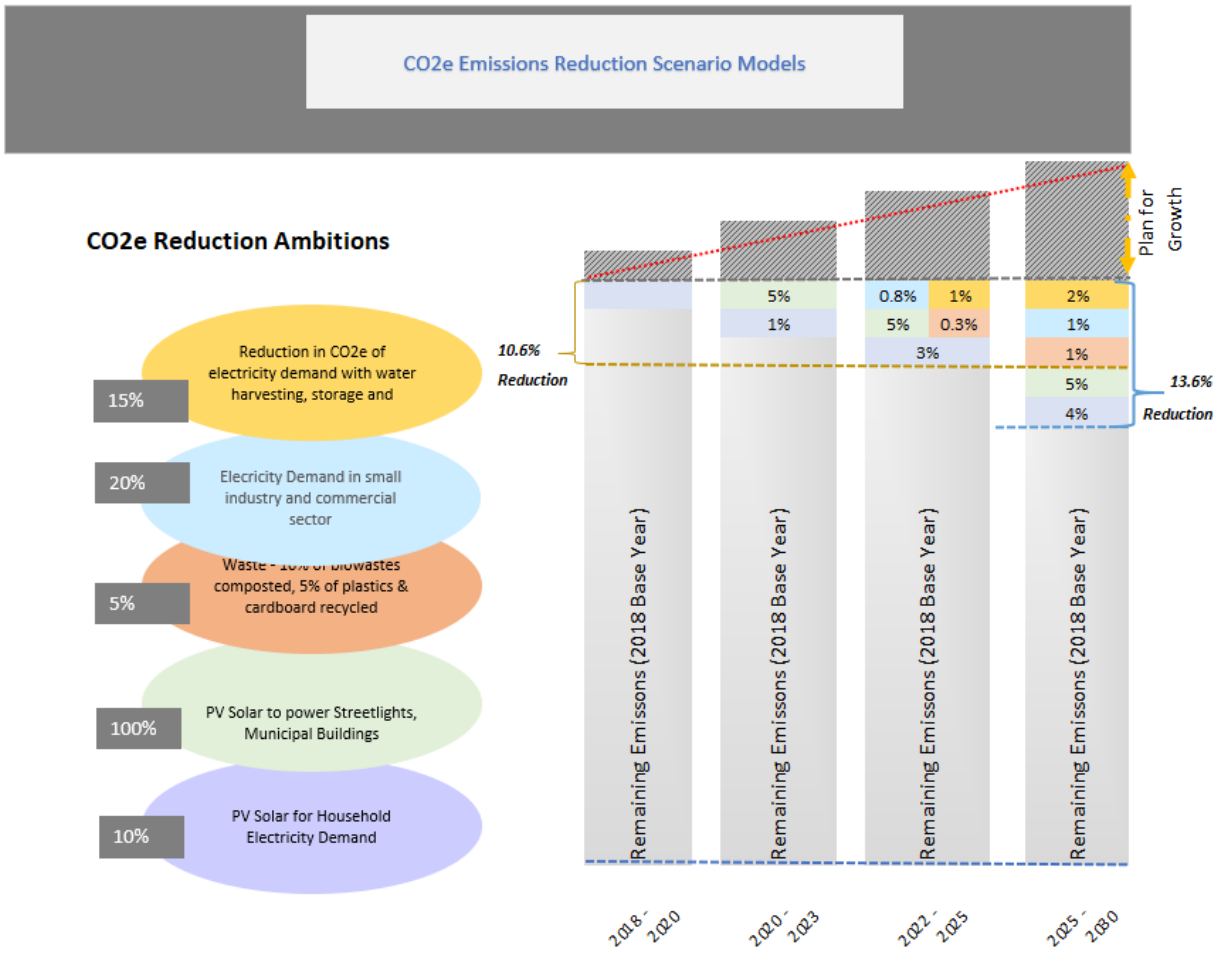


Figure 12 CO2e Emissions Reduction Scenario Model for Municipality of Busaira

Energy & Industry

Community members expressed enthusiasm about their municipality becoming a hub for academics, researchers and tourists alike, making use of the combination of renewable energy installations in the surrounding area, the reserve and archaeological sites. Combined with the application of renewable energy technologies, the municipality Establishing goals for the saturation of residential solar PV, as well as to supply municipal power, can aid municipality plan for the potential socio-economic impacts and need for renewable energy in the community, particularly as climate impacts could vastly impact local livelihoods.

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.). 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 water tables (entailing increased power to withdrawal water), and balancing expenses as household expenditures may adjust adversely.

By 2030, a basic outlook on population growth estimates Busaira Municipality's population to be about 22,700 from 17, 386 persons in 2018[12].

[12] Based on the exponential growth of the total population of the municipality at a national average growth rate of 2.2 percent (MoLA, 2019).

Population growth is an important variable to illustrate the potential increase in electricity consumption, solid waste generation and water demand per capita in the table below, has considerable potential to influence the amount of emissions generated and resources required to support a community facing the impacts of climate change. Waste to energy is an area of interest. Considering water scarcity and creating a livelihood from herding is facing difficulty presently, mitigation Actions should incorporate interdependent aspects of water and agriculture. Looking at one of the main concerns of the municipality – decline in groundwater levels, which stems from the objective situation of groundwater in addition to the concern that area industrial activities contribute to the problem. Corporate Social Responsibility is a framework for engaging the industries.

Agriculture

With such a large proportion of the community engaged in herding practices (as much as 70 percent of the population), applying effective means to regenerate rangelands and combat desertification with vegetation, decreasing violations of waste disposal and improved monitoring of local ecosystems on which the economy is based. This can serve as the basis for awareness and engagement between the municipal administration and local industry.

Transportation

The lack of public infrastructure is another threat to the tourism sector. 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.

Regarding 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. 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-e) could also have a foreseeable impact if the public views mass transit as a viable, cost-effective means of travel.

Biodiversity, Ecosystems & Protected Areas

Maintaining the health of the pine forests, is also an area of mitigation that is represented in Actions as a means to safeguarding air quality and carbon capture. Safeguarding the forests will likely have to be conducted in tandem with renewable and/or producing a local and affordable alternative energy to deter tree felling. Collaborating on a means to collect the amount of wastes accumulating in the forests due to the number of tourists who leave their wastes behind affects the health of the local environment, community and aesthetics.

Population growth, used as a variable to illustrate the potential increase in electricity consumption, solid waste generation and water demand per capita in the table below, has considerable potential to influence the amount of emissions generated and resources required to support a community facing the impacts of climate change. There are options within the scope of mitigation to offset population growth, such as introducing rainwater capture, greywater and water treatment to increase the quantity of water available, which reduces the need to pump and transport water; solar PV to counter the costs of electricity in the residential and commercial sectors; reducing costs and emissions in water treatment; treating waste as a resource for energy and or in the recycling market.

- **Climate-Responsive Building Techniques for Built-Environment (New Construction)**
- **Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms**
- **PV Solar Power for Municipal Buildings**
- **Advancing Public Transportation for Climate, Accessibility and Resilient Services (CARS)**
- **Extracting Energetic, Economic Value from Organic Wastes**

- **Carbon Farming: Composting for Compliance & Soil Health**
- **Innovation in Agriculture: Climate Resilience, Technologies & Best Practices**
- **Rainwater Harvesting and Urban Greening with Urban Canopies**

Inputs for Adaptation Actions

The Municipality of Busaira has demonstrated its concerns over the scarcity and quality of its remaining water resources – its springs and groundwater, on which they depend on water for potable water and for agricultural activities (irrigation). It comes to little surprise then that when the RRCCG was initially queried about adaptation Actions, the responses centered around solutions to the water crisis.

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 ***Wastewater Treatment for use in Irrigation***, Changing ***Agricultural Patterns and the Varieties of Cultivated Crops***, ***Utilization of Water Conservation Technologies*** and ***building Preparedness Against Drought.***

Table 10 Adaptation Options as Ranked by Focus Group Participants of Busaira

Adaptation options	Percentage	Significance[13]
Wastewater treatment for use in irrigation	85%	2
Changing agricultural patterns and cultivated crops	85%	4
Utilization of water conservation technologies	81%	2
Development of an early warning system for drought	81%	1
Desalination of brackish water from wells	77%	4
Rehabilitation of springs	77%	1
Reducing dependence on irrigation	77%	0
Protecting forests and preventing overgrazing	77%	4
Raising awareness about climate change, its impacts and adaptation	73%	5
Adjusting the agricultural calendar	73%	1
Integrated Watershed Management	73%	1
Use of supplementary irrigation	69%	1
Improving the efficiency of water storage systems to reduce evaporation	69%	2
Improving efficiency of irrigation technologies	65%	2

[13] 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

Artificial recharge of groundwater	62%	1
Improving runoff capacity	58%	0
Increasing the efficiency of irrigation systems	50%	3
Introducing new crop varieties	50%	2
Reuse of greywater	42%	1
Development of an early warning system for floods	35%	1

As illustrated in Figure 12, The municipality's unique economy, development, communities and culture compose a mosaic of features that are both, at times, vulnerable to climate change risks. Therefore, Actions in adaptation are intended to act on leverage points (places, often intersectoral, to intervene in a system, community, and or environment), as indicated by the "Action Areas" – (see Figure 12), corresponding to a particular climate risk and effect (Figures 10 and 11).

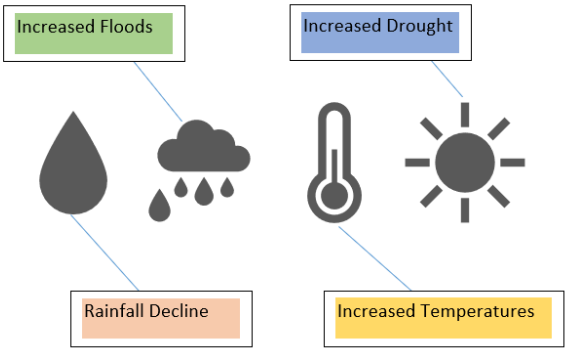
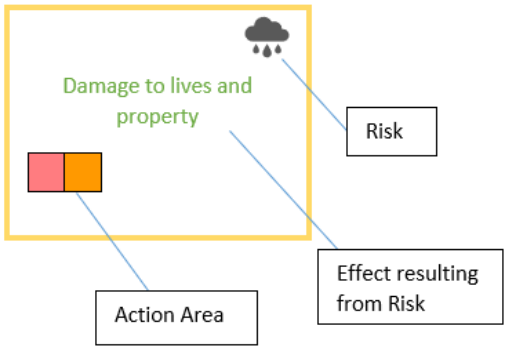


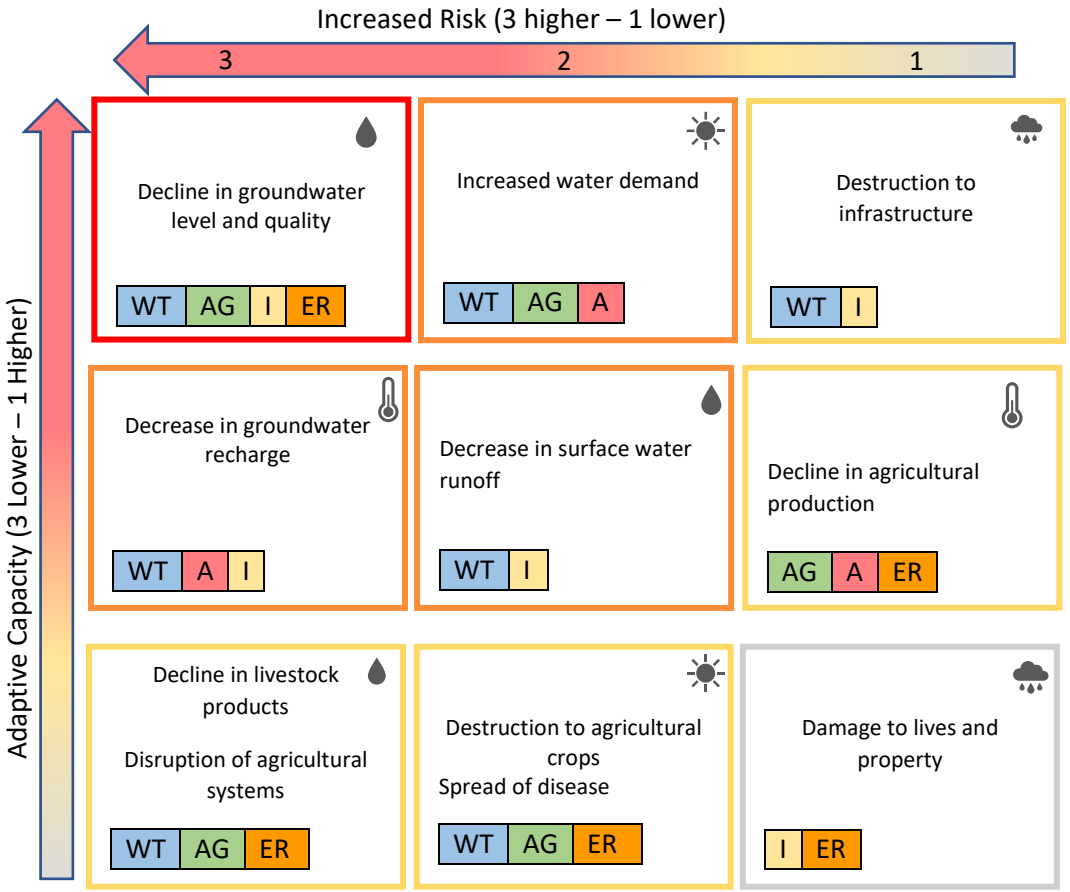
Figure 14 Symbols to indicate Climate Change Risks

Figure 13 Symbols to indicate Climate Change Risks



The risks and their effect(s) were taken from the TNC and ranked by the RRCCG according to their significance (capacity to affect negative consequences) such as increased floods, drought and temperatures and decline in rainfall.

Figure 15 Climate Risks-Action Areas Matrix



Generalized Action Areas			
Action areas are organized by NDC categories with the addition of "Communication & Public Awareness"			
NDC Categorization			
Water	WT	Water Treatment and Efficiency	Improved water storage and harvesting, wastewater treatment (decrease contamination from sewage), and applications of graywater technologies to diversify water resources.
Agriculture & Food Security	AG	Improved Agricultural Practices	Investigating crop patterns and climate resilient crop varieties to benefit farmers but not to the detriment of the neighboring ecosystems; enhancing capacities for farmland and livestock management to safeguard common-shared resources; investing in long-term community agriculture investments (permaculture, hydroponics)
Communication, Awareness & Advocacy	A	Awareness	The community expressed turning the municipality into a hub of knowledge, research and innovative applications of data analyses, technologies and community engagement into ever-evolving actions to enhance local resilience and improve natural resources.
Biodiversity, Ecosystems & Protected Areas	ER	Ecosystems Revitalization	The steady revitalization of ecosystems (or constructed ecosystems); rehabilitation of grazing land; forest protection and improving soil and water quality

Urban Development & Mobility	I	Development of Infrastructure	Development of culverts, redirection of rainwater runoff, increase capacity of Qarqur Dam; develop sanitation plan and guidebook for green building technology for the municipality.

Water

The risks matrix above largely reflects the input of the community, of whom increasing water scarcity and declining water quality are areas requiring urgent action.

Decreased rainfall and increasing temperatures are anticipated to have noticeable effect on the community. Therefore, rainwater capture (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 conserve water in agriculture to reduce water withdrawal and loss.

Rainwater harvesting technologies and cisterns could also aid in addressing flash floods that have, in recent years, accompanied harsh, seasonal rains.

Being that the community subsists on very little water, the municipality should start looking to integrated water strategies which are able to aid in the restoration of rangelands, ecosystems and groundwater. Decentralized wastewater management is one such possibility and its energy needs can be met by renewable energy. Wastewater treatment takes the form of various degrees of technology and treatment. Due to the dire situation of grazelands and ecosystems as well as the low-level of acceptance (initially) of treated wastewater, directing this resource to restoration of landscapes is an optimal start.

Biodiversity, Ecosystems and Protected Areas

The focus on the restoration of ecosystems should be underscored as the region is host to the Dana Biosphere Reserve. Development in recent years has left its mark. Making urban activities ecosystems sensitive and re-wilding areas of the municipality with native plant species can help create a buffer as well as reduce runoff and erosion.

Case Study: Competence Facility for Decentralized Wastewater Management

The Fuheis Demonstration, Research and Training Facility showcases six approaches to integrated wastewater treatment and reuse, of which the treatment systems are operated with raw wastewater and developed specifically for the Jordanian context. The facility enables a side-by-side comparison of the treatment technologies.

The research facility focuses on the following outputs: optimization of technology, nutrient recycling, pathogen removal, wastewater reuse, sludge management and groundwater recharge.

Due to the community's (the RRCCG's) expressed interest in the municipality becoming a hub of information, research and applications of renewable energy and adaptation technologies, both the "Environmental Observatory" and the initiative to mobilize resources to "Improve Environmental Governance, focusing on building the Scientific, Technical and Advocacy Capacities" of the community are to outline the framework through which the Municipality of Busaira can advocate for its customized trajectory for development supported by technical and scientific understanding. Additionally, the Tafileh Technical University would be an advantageous partner in these actions as well as corresponding ministries.

The research hub and innovative components are also inherent in the available actions dedicated to agriculture: composting, capacity building in agricultural best practices, urban farming and hydroponics. While examples and case studies of these options exist in Jordan, none have yet to be proliferated to a level where they've established a new norm for the country, not in terms of systems thinking, use of data nor capitalization on stakeholders' knowledge. The

Municipality of Busaira, in combination with other actions, coordination with the RRCCG members, public and corresponding ministries, should take part in setting the new standard for sustainable development.

Raising awareness is always a crucial component and in order for the community to better mobilize and gain access to the information they need to participate in the municipal initiative effectively, Actions incorporate awareness raising, transparency and capacity building where possible.

Case Study: Wastewater Treatment for Ecological Restoration and Irrigation Source

The Ministry of Water and irrigation under the project "Innovative Sanitation Solutions and Reuse in Arid Regions (ISSRAR)" is to establish a wastewater treatment plant to recover wastewater to restore the local ecology of Azraq as well as provide water for irrigation. Azraq, too, suffers from the accumulation of wastewater and the planned facility is to have an absorptive capacity of 500m3 a day of contaminated water. The facility is to be launched in the first half of this year.

- **Greywater Reuse in Restricted Irrigation (Grazeland Rehabilitation)**
- **Decentralized WWT Systems as Pilot Sites**
- **Rainwater Harvesting: Cisterns**
- **Master Plan for Municipal Sanitation**
- **Constructed Wetland for Effluent Wastewater Treatment as an Ecotechnological Tool for Regenerative Reclamation of Wastewater and Ecological Restoration**
- **Environmental Observatory**
- **Resource Mobilization to Improve Environmental Governance, focusing on building the Scientific, Technical and Advocative Capacities for Municipality, NGOs**
- **Hydroponics**
- **Urban Greening: Roof-vertical Gardens and Permaculture**

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 (assess or availability of transport, finances, etc) which also influences people's responses and adaptive capacity.

Figure 16 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 prevalance 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 Busaira and its community, it was necessary to hold a series of panel discussions and meetings with the local community in Busaira 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 municipality (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 11 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	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
	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
Evaluation	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 on female directors
(2.A) The government has to be able to achieve justice and gender equality
(1) Some/ limited attention to justice and gender equality
(0) The nature of the Action has minimal social components at this time

7. 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.

			Gender Mainstreaming	
		Low Priority		Project has no potential to promote gender equality or women's empowerment
		Medium Priority	G-0	The project addresses gender equality only in some dimensions
	Priority:	High Priority	G-1	Gender is fully relevant, but it is not the main objective; it is mainstreamed into all relevant dimensions of the project
			G-2a	Gender equality/ women's empowerment is one of the main objectives and is integrated in all relevant dimensions of the project.
			G-2b	

No.	Description of planned measures	Priority	A/M	Gender Indicator	Activity		Progress	Responsibility			One-time costs		Ongoing costs (annuall y)		Sum	Status	Means of Financing
					Start	Finish		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		
1.A.2	Solar Saturation & Energy Efficiency in Residential Sector	High Priority	mitigation	G-2a	2021	2027	TBD	Municipal Administration	MDU, LE, MEMR	NGOs, Private Sector, Universities	TBD	TBD	TBD	TBD	TBD		

1.A.3	Climate-Responsive Building Techniques for Built-Environment (New Construction)	Low Priority	mitigation	G-0	2021	2023	TBD	Municipal Administration	MoLA, GBC	TBD	TBD	TBD	TBD	TBD	TBD
1.A.4	LED Streetlighting	High Priority	mitigation	G-0	2020	2021	TBD	Municipal Administration	City Council	SEED, JREEF	TBD	TBD	TBD	TBD	TBD
1.A.5	Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms	High Priority	adaption of mitigation	G-2b	2021	2030	TBD	Municipal Administration	MiEMR, MoF, MoPIC	Donor Country	TBD	TBD	TBD	TBD	TBD
1.A.6	Energy efficiency through Insulation of buildings	High Priority	mitigation	G-0	2021	2023	TBD	Municipal Administration	GBC, MoLA		TBD	TBD	TBD	TBD	TBD
1B. MUNICIPAL BUILDINGS															
1.B.1	Elaborating energy audits for the municipal buildings	Medium Priority	mitigation	G-0	2018	2019	2025	Municipal Administration	Municipal Administration	Municipal Administration, MoLA	TBD	TBD	TBD	TBD	TBD
1.B.2	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

1.B.3	Elaborate and Implement an Energy Directive for Public Buildings	Low Priority	mitigation	G-1	2020	2021	TBD	Municipal Administration	GBC, MoLA	Municipal Administration	TBD	TBD	TBD	TBD	TBD
1.B.4	Public Building Energy Efficiency & Zero-Refuse (Paper, Plastic) Initiative	Low Priority	mitigation	G-1	2020	2021	TBD	Municipal Administration	GBC, MoLA	Municipal Administration	TBD	TBD	TBD	TBD	TBD
1.B.5	PV Solar Power for Municipal Buildings	High Priority	mitigation	G-1	Jul-05	permanent	TBD	Municipal Administration	City Council	TBD	TBD	TBD	TBD	TBD	TBD
1.B.6	Elaboration and implementation of procurement regulations for energy-efficient appliances, e.g. ACs, for the city administration	Low Priority	mitigation	G-0	2020	2021	TBD	TBD	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	permanent	TBD	Municipal Administration	Municipal Administration	Municipal Administration	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 Services (CARS)	Medium Priority	mitigation	G-1	2026	2030	TBD	Municipal Administration	LTRC, MoT, MoPSD, MoPIC	TBD	TBD	TBD	TBD	TBD	TBD
3. WASTE															
3.1	Recalculation of Waste-Collection Fees	Medium Priority	mitigation	G-0	2021	2021	TBD	Municipal Administration	City Council	MoLA Consultancy	TBD	TBD	TBD	TBD	TBD
3.2	Avoidance of Waste in Municipal Administrations	Medium Priority	mitigation	G-0	2020	permanent	TBD	Municipal Administration	City Council	MoLA	TBD	TBD	TBD	TBD	TBD
3.3	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
3.4	Reduce, Reuse, Recycle: Commercial - Residential Sorting-At-Source Recyclables Collection	High Priority	mitigation	G-2a	2021	2026	TBD	Municipal Administration, Solid Waste Department	City Council	Municipal Admnistration, Solid Waste Department, NGOs/CBOs, private sector	TBD	TBD	TBD	TBD	TBD
3.5	Solar Power in Wastewater Treatment	Low Priority	adaption of mitigation	G-0											
4. INDUSTRY															

4.1	Renewable Energies for Local Businesses	Medium Priority	mitigation	G-0	Jul-19	Jun-20	Aug-19	Local Businesses, CBO, NGO		TBD	TBD	TBD	TBD	TBD	TBD
...	see 3.4 “Clusterization of Commercial-Residential Sorting-At-Source/Recycling”, see 1.A.5 “Energy efficiency through insulation of buildings and Enhanced Spatial Planning (Retro-fitting focus)”														
5. WATER															
5.1	Greywater Reuse in Restricted Irrigation (Grazeland Rehabilitation)	High Priority	adaption of mitigation	G-2a	2024		TBD	Municipal Administration, NGO / CBO	WAJ, MoENV	Consultant, Donor, Local NGO, Universities	TBD	TBD	TBD	TBD	TBD
5.2	Decentralized WWT Systems as Pilot Sites	Medium Priority	adaption of mitigation	G-1	2026	2030	TBD	Municipal Administration, WAJ	WAJ	TBD	TBD	TBD	TBD	TBD	TBD
5.3	Rainwater Harvesting: Cisterns	High Priority	adaptation	G-0	2023	2024	TBD	Municipal Administration, WAJ, MoA	MoA, WAJ	TBD	TBD	TBD	TBD	TBD	TBD
5.4	Greywater Reuse and Groundwater Buffer	High Priority	adaption of mitigation	G-2a	2024	2026	TBD	Municipal Administration, NGO / CBO	WAJ, JVA, MoENV	Consultant, Donor, Local NGO, Universities	TBD	TBD	TBD	TBD	TBD
5.5	Rainwater Harvesting & Urban Farming (Urban Gardens)	Medium Priority	adaption of mitigation	G-2a	2023	2024	TBD	Municipal Administration, WAJ, MoA	MoA, WAJ	TBD	TBD	TBD	TBD	TBD	TBD

6. AGRICULTURE AND FOOD SECURITY																
6.1	Carbon Farming: Composting for Compliance & Soil Health	High Priority	adaption of mitigation	G-2b	2020	2023	TBD	Municipal Administration, NGO / CBO	MoLA, MoA	NGO/ CBO, NCARE	TBD	TBD	TBD	TBD	TBD	-
6.2	Solar in Desalinization and Irrigation to Support Agrarian Economy	Low Priority	adaption of mitigation	G-0	2023	2025	TBD	NGO, Private Sector	MoA, MWI	Private Sector	TBD	TBD	TBD	TBD	TBD	
6.3	Innovation in Agriculture: Climate Resilience, Technologies & Best Practices	High Priority	adaption of mitigation	G-2b	2021	2023	TBD	Farmers, Municipal Administration	MoA, MoPIC	NCARE, NGOs, Private Sector, University	TBD	TBD	TBD	TBD	TBD	
6.5	Hydroponics	Medium Priority	adaption of mitigation	G-2a	2026		TBD	CBO/NGO	MoA	NGOs, Private Sector, University	TBD	TBD	TBD	TBD	TBD	
7. URBAN DEVELOPMENT & MOBILITY																
7.1	Municipal Mitigation Strategy	Low Priority	mitigation	G-1	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 Greening: Roof-verticle Gardens and Permaculture	Medium Priority	mitigation	G-2a	2025		TBD	Municipal Administration, NGO / CBO	GBC	Engineering Assoc., Universities, GBC, MoLA, WAJ	TBD	TBD	TBD	TBD	TBD
8. HEALTH															
8.1	Rehabilitation of Lafarg Park	Medium Priority	adaptation	G-1	2023	2025		Municipal Administration	Municipal Administration	NGOs, Consultancy, Universities	TBD	TBD	TBD	TBD	TBD
8.2	Master Plan for Municipal Sanitation	High Priority	mitigation	G-1	2021	2021	TBD	WAJ	WAJ	WAJ, Consultancy, NGO	TBD	TBD	TBD	TBD	TBD
9. BIODIVERSITY, ECOSYSTEMS AND PROTECTED AREAS															
9.1	Constructed Wetland for Effluent Wastewater Treatment as an Ecotechnological Tool for Regenerative Reclamation of Wastewater and Ecological Restoration	Medium Priority	adaptation	G-1	2024	2027			WAJ, MoENV, MoA	Consultant, Donor, Local NGO, Universities	TBD	TBD	TBD	TBD	TBD
10. COMMUNICATION, PUBLIC AWARENESS															

10.1	Environmental Observatory	High Priority	adaption of mitigation	G-2b	2020	2021		Municipal Administration	City Council	RSCN, 'Local NGO, Youth Groups	TBD	TBD	TBD	TBD	TBD
10.2	Climate Action Website	High Priority		G-2b	2020	permanent	TBD	Municipal Administration	City Council	Local NGO, Youth Groups	TBD	TBD	TBD	TBD	TBD
10.3	Resource Mobilization to Improve Environmental Governance, focusing on building the Scientific, Technical and Advocative Capacities for Municipality, NGOs	Medium Priority	adaptation	G-2b	2024			NGO/CBO	N/A	NGO/CBO, University, Consultancy	TBD	TBD	TBD	TBD	TBD

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.1		mid-term	permanent

Action – Title:

Monitoring the energy consumption in the boundary of the municipality

Goals and strategy:

Energy Savings, reduced emissions

Planned and coordinated data collection advances the baseline of energy consumption to develop indicators to better inform decision-makers (and help scope) Actions related to the feasibility of renewable energy options

Initial situation:

There is currently no consistent (neither regularly collected nor documented) data available on energy consumption in the municipality. In order to identify fields of action it is necessary to know the annual energy consumption by sector. Municipality has installed 1,600 LED lamps for street lighting and is planning to install another 800 LED lamps. Municipality is a site for a wind farm, with two more new wind energy projects underway by the private sector.

Description:

Data collection is at the heart of this action. The availability of data (electricity consumption, improved understanding of behaviors and needs behind electricity consumption, surveying of electricity consumption by sector and demographic) will improve the indicators and development of targeted and well-informed Actions that will result in measurable outcomes.

Initiator:

City administration

Actors:

City administration, development department

Target group:

City administration, citizens

Action steps and timetable:

- 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.
- publish the data publicly on a website or social media account

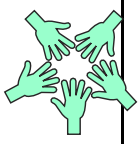
· Survey the community by SECTOR regarding behaviors and systems of electricity consumption (where/when do their biggest expenses/energy consumption occur), build awareness and survey individuals, companies, etcs' attitudes toward new technologies, energy-saving behaviors, interest in trainings, etc. 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

Gender Mainstreaming:

Engage women's organizations in data collection and analysis. This angle of work can incorporate "climate/environmental" justice focus. The women's organization can aid in ensuring that information is transparent and easily accessible (and regularly updated) to the public. The organizations as well as the Municipality's Social Expert (or RRCCG Gender Mainstreaming Focal Points) track the numbers of beneficiaries, participants and leaders/decision makers in initiatives, disaggregated by gender, age and geographical area of the municipality are sources of information as well as how they are impacted.



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

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)	**Savings of GHG emissions (t/a)**
None	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		mid-term	

Action – Title:

Solar Saturation & Energy Efficiency in Residential Sector (Solar PV)

Vision and Goals:

Working through various funding mechansims, awareness and market incentives available equip 10% of households in Busaria (approximately 342 houses) with solar PV electrification systems by 2030

Initial situation:

High cost of electricity, exaccerbated by the its high demand in the municipality to cool homes and buildings, support irrigation as well as other activities, reduces the resilience of vulnerable residents in particular.

The ongoing project subsidizing solar PV for families through a partial payment and repayment plan for solar PV installation on households

Details:

Working through various funding mechanisms **"Community-Shared Solar: Solar Utilization enabled through Innovative Financing Mechanisms**") , awareness and market incentives available to achieve market saturation to residential households
Continue to work toward energy efficiency in public buildings as well as households through awareness campaigns and engagement.
Building awareness and buy-in with the community, establishing jobs and economy around renewable energies. Immediate beneficiaries to be vulnerable communities, but accessible to all community groups.
Revisiting 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 association in the process of building the baseline data for the Action

Participation at the community level, 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.

Establish Technical Training for engineers (ensuring facilitation of female enrollment).

Women leadership associations' capacities are developed to specialize in climate change and related sectors
Initiator:
Municipal Administration's Development Unit
Actors:
Municipal Administration's Development Unit, Local Experts, Ministry of Energy and Mineral Resources
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** · Conduct environmental impact assessment on the area to determine the best location for the methane generation plants · Study the infrastructure and the reliability of solar energy for power generation · Study of solar cells that achieve the best efficiency based on brightness angle, duration and cost · Secure +/- 50 kW solar cells for houses 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:
Reduce electricity and energy bill The widespread dependence on solar energy as an energy source Increased job market, improved local economy Contribute to the dissemination of renewable energy efficiency
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		2021 - 2023	

Action – Title:

Climate-Responsive Building Techniques for Built-Environment (New Construction)

Vision and Goals:

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.

Reduce the effect of heat and reduce the demand on energy for cooling.

Initial situation:

Minimal to no consideration for green-building practices on municipal buildings nor public, commercial buildings.

The extent ends with the installation of solar panels onto the roofs of vulnerable residents under Canada's SEED program to subsidize the technology.

Details:

Mandate energy efficiency aspects into the planning, consulting of construction projects to meet GreenBuilding standards.

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.

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.

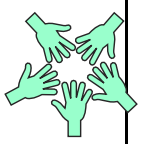
Modify sector policies and regulations, including building codes, to reflect the risks of climate change.

Combine zoning and development changes to reflect increased exposure to specific sites and resources.

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.

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 in their considerations. Incorporate capacity bulding at the local level for improved awareness and practical application of "greenbuilding" measures.



Women leadership associations' capacities are developed to specialize in climate change and related sectors
Initiator:
Municipal Administration
Actors:
Jordan Green Building Council (and/or Jordanian National Building Council) , Ministry of Local Administration
Action steps and timetable:
Encourage vertical construction
Awareness and guidance for the people of the region and government and private institutions
Creating new residential areas to exploit the old areas (instead of the large horizontal urban expansion); Organize areas before they are selected (Agriculture, housing, industry); Recommend special standards for buildings in the region
Study the wind direction of the area
Reducing fees on buildings that applied insulation technique
Provision of building insulation materials
Link building permits to the percentage of the building meeting the green building standards
Success indicators/milestones:
Interest in the application of standards; Warmer buildings in winter
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

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Energy	1.A.4			

Action – Title:

LED Streetlighting

Goals and strategy:

Mitigate Busaira's high cost of electricity.

Increasing the installed capacity of renewable within the border of the municipality, contribution to a decreasing emission factor for the electricity generation

Initial situation:

Electricity is a large expense for the municipality.

Description:

Instaling solar PV to power the municipality's streetlights (with energy saving LEDs) would aid in the municipality's finances, showcase renewable energy applications in the region and reduce emissions.

Initiator:

Municipal Administration

Actors:

Municipal Administration

Target group:

Action steps and timetable:

- Cooperation with donor
- Planning of the installation on municipal land/property
- Negioation with the energy distributor

Success indicators/milestones:

Reduce electricity and energy bill

The widespread dependence on solar energy as an energy source

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:

Household application and use of solar technologies are enhanced and incorporated to produce economic benefits

Increasing penetration of solar PV in water heaters, water pumping and water desalination.

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Community capacities and awareness are reinforced through activities and the establishment of an information center for energy, mobility and ecology at the site of the implementor's office/facilities

Municipality aims to confront the effects of climate change by developing scientific and practical plans and solutions Project.

Donor outreach activities succeeds in the municipality being able to implement & develop its sustainable plan.

Initial situation:

Description:

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. Community Solar advocates are driven by the recognition that the on-site solar market comprises only one part of the total market for solar energy.

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

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 putpose 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.

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:

- 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:

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.

Awareness of the importance of solar energy

Awareness of methods to reduce energy consumption, energy efficiency, and energy audit

Rely on insulation techniques to reduce energy consumption for cooling and heating

Making a memorandum of understanding with a sponsor

Checking on power consumption

Donor costing

Conducting a study on energy cost change before and after using solar energy

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
Target groups accept the use of solar energy; Awareness of the term energy efficien Empowering the Green Economycy audit; Reducing carbon emissions; Reduce energy costs;
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
Urban Development	1.A.6		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 efficinecy 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.

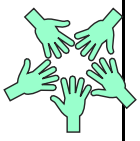
Cool Roofing

Painting buildings white to reflect the sun, make households cooler

Reduce the amount of solar radiation absorbed by roofs (expecially 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

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
Energy	1.B.1		Short term before 2020	2019 - 2020

Action – Title:

Elaborating energy audits for the municipal buildings

Goals and strategy:

Savings of energy in municipal buildings, savings costs for the municipal budget, municipality as model role

Initial situation:

Description:

Energy audits are used to determine and analyse the energy consumption of municipal buildings. Energy saving measures are developed and the results compiled in a report.

Initiator:

City administration

Actors:

City administration, facility department, external consultant

Target group:

City administration

Action steps and timetable:

- Depending on the capacities of the administration, the energy audit can be carried out by yourself or an external office can be commissioned.
- If the administration carries out the audit itself, the following steps must be carried out:
- Recording of building data: Building substance, technical installations, larger electricity consumers
- Energy consumption split according to electricity, heat, cooling
- Formation of indicators: kWh/m2, compare the figures with other municipalities
- Determination of energy saving measures
- Calculation of energy and CO2 savings
- If the municipality wishes to commission an external office, money must be placed in the budget for this purpose.

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:	
Accompanying measures:	
Further remarks:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Communal Buildungs	1.B.2	Energy management	**Short term before 2020**	permanent

Action – Title:

Establishing a monitoring of the energy consumption of the municipal buildings

Goals and strategy:

Savings of energy and costs, municipality adopt their model role function

Initial situation:

The monthly meter reading, the evaluation of consumption and comparison with bills are not carried out.

Description:

Energy controlling means the consistent collection and evaluation of energy consumption and the associated costs. Energy controlling 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.
The use of software for energy controlling is recommended.
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.

Initiator:

City administration

Actors:

City administration, building management

Target group:

City administration

Action steps and timetable:

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

Added value fort he local ecomnomy:

Accompanying measures:

Further remarks:

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Municipal buildings	1.B.3		mid term	

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 behavioural 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:

City administration

Actors:

City administration, facility department

Target group:

City administration

Action steps and timetable:

- 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:

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:

Energy savings in municipal buildings, savings costs for the municipal budget, municipality as a role model

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Energy consumption is divided according to electricity, heat and cooling

Formation of indicators: (kWh/m2), comparing figures with other municipalities

Identify energy-saving measures

Initial situation:

Details:

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.

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:

- 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:

Energy audit of municipal facilities

Identify the largest energy consumers and find solutions and alternatives

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

Using insulation for buildings

Raising environmental awareness and Interest in finding alternatives to energy-consuming devices

Success indicators/milestones:

Achieving energy efficiency in municipal facilities; Using technology that reduces energy consumption; The financial cost saved will be used for other things that contribute to improving the environment; Raise the economic level
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

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
Energy	1.B.5		mid-term	

Action – Title:

PV Power for Municipal Buildings

Goals and strategy:

Mitigate Busaira's high cost of electricity; enable the reallocation of some of the funds saved for the development of the commuinity and contnually invest in mantenance and/or expansion of the solar farm.

Increasing the installed capacity of renewable within the border of the municipality, contribution to a decreasing emission factor for the electricity generation

Initial situation:

Power generation is one of the Jordanian government's biggest expenditures.

Description:

Installation of a solar panels on municipal buildings. By installing solar panels and generating electricity, 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:

Municipal Administration

Actors:

Municipal Administration, Donor, EDCO, Ministry of Energy and Mineral Resources

Target group:

Municipal Administration

Action steps and timetable:

- Purchasing of +/- 60 kW solar cells for municipal buldings
- Cooperation with SEED

- Planning of the installation on City Hall and Events' Hall (next door)
- Negioation with the energy distributor

Success indicators/milestones:
Reduce electricity and energy bill The widespread dependence on solar energy as an energy source Increased job market, improved local economy Contribute to the dissemination of renewable energy efficiency
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
Internal Organisation	1.B.6			

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:

- Elaboration of a guideline, an example is provided by Dimetrix
- Discussion in the Climate/Energy team
- Completion of the Directive
- Signature by the Mayor
- Announcement in the administration
- implementation

Success indicators/milestones:

- 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			

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:

- 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:

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:
Reorganizing the tracks Regulation of waste collection and transport The cabs are evaluated. Redistribution of bins and containers
Preparations for the awareness campaign (- Identify the associations and institutions that will work on these campaigns (Busira Ladies Association and Adom Charitable Society). - The targeted places (such as Aisha School, which received health accreditation through the Royal Society for the Conservation of Nature - Dana), were selected and another school for males was selected. A new set of schools and neighborhood will be added every year. - Official Letters. - Busaira Map. - Identification of awareness material - Conventions. - Set reference terms for associations on how campaigns will be in the schools, how to collect and sort and how to determine the price for the wastes.) Awareness campaigns Continuous follow-up Study of solid waste collection Routes Distribution of containers depending on waste production Using GIS Achieve efficient solid waste management Reduce the budget for solid waste collection and transport Reduce citizens' complaints of waste
Success indicators/milestones:
the cost of collecting and transporting waste Raising the level of hygiene
All Community layers (men, women, youth, children and people with special needs) have been integrated into the campaign.
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:

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.

The municipality exhibits commitment and evaluates the benefits of electric-powered transport through the procurement of electric vehicle(s) for municipal use.

Initial situation:

Municipal fleet of vehicles are powered by gasoline or diesel.

Public transport is limited to private buses that operate on non-uniform standards of quality and efficiency, standardization and routing optimization to tailor to the needs of working and recreational people.

Public transportation are not equiped to accommodate persons with special needs (persons with disabilities).

Places for recreation and footpaths are not accessible. Sidewalks (if they are present) are, even in high-traffic areas, are open directly exposed to the elements and not necessarily ideal during the summer.

Details:

Municipal Vehicles

Electric vehicles are procured for municipal staff

Public Transport

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.

Feasibility study and procurment of electric internial public transportation within the Municipality area (and consider routes to destinations (Amman, etc.)); the buses being handicap accessible

Consolidate individual operators

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

Eventually, electric busses are introduced if feasible

See Action **6.3.5 "Recreation & 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.

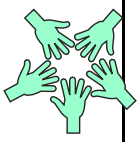
Pedestrian paths are cooled with green canopies where possible; other canopies can be constructed and coated to aid in reflecting the sunlight in an attempt to beautify and cool these areas.

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 theses paths.
Provide a timetable for the introduction of mitigation fees to finance alternative transport priorities and improvements in the transport sector.

Gender Mainstreaming:

Mobility for women and persons with disabilities open up additional employment and recreational activities. Consultaitons with local stakeholders will be sought out to achieve the Actions goals including imrpoving 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 Comission, 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 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:

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 residentail and commercial sectors), and enhances the feasibility of treatment options for solid waste.

Initial situation:

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.

The lack of a mechanism that motivates improved complience on the part of the pulic and private insitutions to dispose of waste appropriately to decrease the potential for negative environmental impacts.

Lack of re-evaluation of waste fees against advanced (or evaluation) of waste treatment options (such as recycling, sorting-at-source, biogas, composting, etc).

Details:

Change of the waste fees: the fees should deter the improper disposal of wastes

• 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 improtant 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 ambassadors to engage the commercial sector, residential areas and farmers to raise

awareness about complience as well as how individuals and the community can benefit.

Initiator:

Municipal Administration

Actors:

Municipal Administration

Action steps and timetable:

Estalish 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 benefis 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:

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
Internal Organisation	3.2		Short term	

Action – Title:

Avoidance of waste, especially plastic cups, in municipal administrations

Goals and strategy:

Saving ressources, 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:
· In a first step the administration no longer offers water in small plastic cups and drinks in aluminium 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 · 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 aluminium 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	3.3		mid-term	

Action – Title:
Extracting Energetic, Economic Value from Organic Wastes (Biogas)
Vision and Goals:
Diversification of renewable energy sources Increasing the municipality's resourcefullness in extracting econonmic and energetic value from wastes
Initial situation:
There is an abundance of animal manure and biowases from agricultural activities. Discarge from residentail 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)

Animal residues could be invested in the production of processed manure and bio-methane
The types of options very greatly (low-high investment, etc.); however, Digesters, such as floating drum digesters would be one technology to consider.
This and related options would require steps such as dewatering, desulpherization, and removal of CO2 before folliwng production and before utilization of the gas in household cooking, burners, biogas/diesel engine and/or for electricity generation.
Also, see Action on separation at source improving the quality of waste inputs
Post-treatment of biogas production (from human-animal wastes)
The production of biogas produces Digestate, a valuable byproduct of the anearobic biogas production process.
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:

Preparations for the awareness campaign (- Identification of associations interested in agriculture. Study a proposal through them under the supervision of the municipality or a proposal for supporting the livestock keepers.
- Identify the target places (the same places in the first project, in addition to the inclusion of parks and forests)
- Official Letters.
- Busaira Map.
- Identification of awareness material
- Conventions.
Set reference terms for associations on how campaigns will be in the schools, how to collect and sort and how to determine the price for the wastes.
)

Study the possibility of building a digester to produce methane gas

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 ; Provide financial support

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.

The construction of the stations is decentralized
Distribution of cylindrical digesters based on raw material quantities
Improve the municipal infrastructure

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)	**Savings of GHG emissions (t/a)**
none	

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

Picture 10: Floating-drum digester for market waste in India (photo: Sandec).

Picture 11: Above ground floating-drum digester for households in India, made of fibreglass reinforced plastic (photo: Sandec).

Advantages	Disadvantages
• Simple and easy operation • The volume of stored gas is directly visible • Constant gas pressure • Relatively easy construction • Construction errors do not lead to major problems in operation and gas yield	• High material costs for steel drum • Susceptibility of steel parts to corrosion (because of this, floating-drum plants have a shorter life span than fixed-dome plants) • Regular maintenance costs for the painting of the drum (if made of steel) • If fibrous substrates are used, the gasholder shows a tendency to get "stuck" in the

Elements of a DEWATS for treatment of AD effluent include the following:

- Sedimentation of sludge and primary treatment in sedimentation ponds, septic tanks, or Imhoff tanks.
- Sedimentation of sludge and anaerobic treatment in baffled reactors (baffled septic tanks) or fixed-bed anaerobic filters (Picture 34).
- Aerobic/anaerobic treatment of non-solids effluent in constructed wetlands (subsurface flow filters) (Picture 35).
- Aerobic/anaerobic treatment of non-solids effluent in ponds.

Picture 34: Anaerobic baffled reactor under

Picture 35: Newly constructed planted gravel

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Waste	3.6		middle term	

Action – Title:

Reduce, Reuse, Recycle: Commercial - Residential Sorting-At-Source Recyclables Collection

Goals and strategy:

Commercial sector is engaged in the mechanism to separate wastes at source (SAS) , facilitating consumer awareness, engagement in the recycling initiative.

A successful incentive mechanism is piloted and implemented which motivated participants to separate and submit their wastes.

--

The close-knit and supportive community steps up to create the necessary behavior shift in order to realize effective recyclables sorting at source and collection (municipality), exemplifying the knowledge and dedication to improving the environment and livelihoods of the municipality.

Initial situation:

Details:

The private households should be made to separate the waste into paper, plastic, glass and metal fractions and hand them over to the disposal company. This can be done through information campaigns as well as financial incentives.

Gender Mainstreaming:

Gender is integrated into local policy, linked to international and national vision. Building the capacity of municipal workers in gender and women's empowerment. 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)Varied integration of gender and women's-based organizations to lead and assist in organizing activities, cooperatives, integration of mechanisms to boost household and commercial separation at source.

Initiator: Municipal Admnistration

Actors: Municipal Admnistration, Solid Waste Department, NGOs/CBOs, private sector

Target group:

Action steps and timetable:

Train a group of people active in a community

- Implementation of a pilot project with 50 interested private households
- Information and motivation for waste separation into fractions
- Search for customers for the fractions
- Reduction of waste fees for successfully separating companies
- Evaluation of the pilot project
- Expansion of waste separation to other private households

Dissemination of results to the public, practical comparisons, practical application, and motivation of committed people

Contract with official authorities for the sale of recyclable waste

Success indicators/milestones:

Reduce the cost of waste collection and transportation

Economic upgrade

Raise awareness of the importance of waste sorting and recycling

Resilience Factor (Mitigative / Adaptive Impact)**:**	
Reduce collection and transportation times for waste	
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**
Energy	1.B.5		mid-term	

Action – Title:

Renewable Energies for Local Businesses

Goals and strategy:

Mitigate the high cost of electricity for local businesses.

Increasing the installed capacity of renewable within the border of the municipality, contribution to a decreasing emission factor for the electricity generation.

Initial situation:

Description:
Installation of a solar panels and/or small-scale wind turbines for establishments such as the textiles mill and shops to generate electricity.
Gender Mainstreaming:
Unbiased allocation of grants/funds for the Action. Encouraging female-led businesses to apply for the opportunity to have their business powered by renewable energy.
Initiator:
Municipal Administration
Actors:
Municipal Administration, Donor, Ministry of Energy and Mineral Resources
Target group:
Municipal Administration
Action steps and timetable:
Feasibility studies are conducted to scope the type of technologie(s) suitable for the urban environment, whether it be wind and/or solar, size and number of installations. Select/establish local NGO/CBO (following training and capacity building) for the installation, future maintenance and upkeep of technologies. Set a goal for saturation, based on emissions reduction goals and/or by the funds available. Open a call for submissions from businesses. Purchasing of +/- 60 kW solar cells for municipal buldings Cooperation with applicable donors Planning of the installation on selected commercial, NGO/CBO sites Negioation with the energy distributor
Success indicators/milestones:
Reduce electricity and energy bill The widespread dependence on renewable energy Increased job market, improved local economy Contribute to the dissemination of renewable energy efficiency
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: example - a 50 kWh wind turbine in picture at far-right

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Water	5.1		Mid-term 2020-2023	

Action – Title:

Greywater Reuse in Restricted Irrigation (Grazeland Rehabilitation)

Goals and strategy:

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

Increase recycled water and greywater use

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:

There are no underground water wells within the boundaries of the municipality, although the depth of the groundwater starts from 100 meters, because no licenses are given to dig wells in the area

Water scarcity and water quality is a core concern of the municipality.

Description:

Treated waste water used in restricted applications ; greywater treatment ssytems (external wastebins and reuse (installation at schools and community organizations and support them with equipment.

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.

Gender Mainstreaming:

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 applicatio). 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

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

Location: Municipality buildings and schools within the municipality boundaries

Establishing a water purification and storage system

Educate students on the importance of gray water treatment and reuse

between the users of gray water and non- Explain the differences between the cost of the water bill users

soil and plants Conducting a study on the impact of the use of gray water on

Provide funding to bring pumps if necessary

gray water in homes for irrigation and outdoor cleaning purposes Encourage the use of

about the importance of gray water Educating citizens reuse					

Training, awareness-raising and capacity-building courses and technical skills to enable communities to implement greywater projects

Success indicators/milestones:

Dependence on a new water source

Increase the green area

Create new jobs

Establishment of water collection and treatment centers

Reuse of gray water in agriculture

Save water bill costs

benefiting from gray water reuse Increased number of homes

Increasing awareness among citizens

Increase the number of people and technicians able to implement graywater projects

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	5.2			

Action – Title:

Decentralized WWT System(s) 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:

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 recovering wastewater for irrigation.

Integrated wastewater reuse at Feynan Ecolodge

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

Description:

Decentralized WWT has been successfully implemented in parts of Jordan. Busaira is to initiate knowledge-sharing with the operators of these other projects to scale an initiative that can best serve the municipality's needs in terms of improving water quality and scarcity, soil degradation and desertification (see **Actions 5.1 "Grazeland Rehabilitation" and 6.1 "Constructed Wetlands"**).

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 weekend 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:
· Cooperation with donor agencies to initiate feasibility study for the expansion of the wastwater 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	5.3			

Action – Title:
Rainwater Harvesting: Cisterns
Vision and Goals:
At-risk areas receive added protection because urban water run-off is diverted to tanks. Municipality copes better to urban flooding.

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.

Construct proper storm water netwrok to discharge storm water from built environment, diversifying water reserves while reducing soil erosion and water runnoff.

Initial situation:

Busaira suffers from chronic water (quality and quanity) shortage as well as scarcity of rainfall. Intense weather events cause flooding and damage to infrastructure

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. Encourage farmers to use pits to collect rain water for the purpose of irrigation and watering livestock

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:

Target group:

Action steps and timetable:

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.

Encourage the establishment of wells to collect rainwater in homes to reuse it

Comissioning of an engineering/Implementation Team

Determination of rainfall streams in the area and peak times for water harvesting; Storage tank construction can be constructed in the peri-urban and rural areas, following investigations that determine the advantagous and tailored to the unique geographic characteristics of Busaira and paired witih buffering technologies and strategies to collect rainwater and safeguared agricultural land from erosion and urban areas from damage.

Improve the municipal infrastructure

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

Encourage farmers to use pits to collect rain water for the purpose of irrigation and watering livestock

Training courses and building technical capabilities and skills to enable communities to implement water harvesting projects

Success indicators/milestones:	
Reducing dependence on drinking water	Reducing the effect of low rainfall and high temperatures
Capacity building and increasing the number of people able to implement water harvesting projects	Reducing the effect of low rainfall and high temperatures

Total expenditure/(start-up) costs:

Resilience Factor:

Reduce dependence on groundwater pumping, increase water availability year-round, lower expenditures for infrastructure restoration

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	5.5			
Action – Title:				
Greywater Reuse and Groundwater Buffer				

Goals and strategy:

Diversification of water supplies for cooling and household irrigation.
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.

Initial situation:

Groundwater quality is deteriorated, producing less options for acceptable water in the municipality.
Municipal water available for use is scarce

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

Description:

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.

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.
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:

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 applicatio). 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:

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
	5.6			

Action – Title:

Rainwater Harvesting & Urban Farming (Urban Gardens)

Vision and Goals:

Promoting a cheap and viable sustainable development-oriented technology of roof-top Rain Water Harvesting.

Provide added economic value to households by reducing water costs and diversifying water sources.

Intense weather events cause flooding and damage to infrastructure

Lack of adequate infrastructure and the sewage network, street collapses, need for retaining walls, water network needs rehabilitation

There is a need to build a public rainwater network and retaining wall

Groundwater is increasingly salinated and sparce.

Initial situation:

Three water harvesting projects have been implemented but only one has experienced success.

Busaira suffers from chronic water (quality and quanity) shortage as well as scarcity of rainfall.

Distribution of water consumption in households is a natural distribution so that there is no specific water discharge

There is a need to build a public rainwater network and retaining wall

Description:

Economic opportunities for groups interested in developing kits, installation and capacity building for cultivation of RVFs.

Municipal Rooftops

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.

Rainwater Harvesting Piloting in Communities and Urban Environment

Pilot areas and communities should be selected in order to test designs and applications of Rainwater Harvesting technologies on various surfaces.

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

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.

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).

Gender Mainstreaming:

Gender mainstreamed into results (ToTs on 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)

Initiator:

Local NGOs/CBOs

Actors:

Municipal Administration, Jordan Green Building Council

Target group:

Pilot Groups with in the residential and commercial communities

Action steps and timetable:

Building codes are investigated and, if applicable and serve the municipality's goals, are adopted and enforced enforcing the codes, with an emphasis on the building code monitoring and supervision functions to best serve the diversion of water through RWH technologies.
Enable assessments and screening studies into technical and engineering, materials, institutions, regulatory and law enforcement, and building codes monitoring to determine the most appropriate and viable modality of RWH technologies for different types of buildings (residential single homes, multi-story buildings, single houses, villas, etc.)
Select specific surfaces to start

Study the experiencef Adoom Society in the application of gray water technique on homes, involving the municipality.
Training on this technique through associations, involving the municipality.
Choose (Umm al-Sarab - Almaqam and Labon-), as a start places; because they are an agricultural areas.
Choose 20 houses from the area.
Encourage the establishment of wells to collect rainwater in homes to reuse it
Attention to placing water tanks in the urban/peri-urban environment.
Conduct technical assessment and screening study to identify the most approriate modality for RWH Technology by Building Type
Host consortium of local technical and engineering teams to explore RWH technolgies
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

Determination of rainfall streams in the area and peak times for water harvesting

Implement Installation in **Pilot areas** that demonstrate models by building type

Develop and implement relavent trainings for construction/assembly and maintenance
Use of natural water channels such as valleys and rain paths

Encourage farmers to use pits to collect rain water for the purpose of irrigation and watering livestock
Training courses and building technical capabilities and skills to enable communities to implement water harvesting projects

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.
Come up with an action plan.
Criteria for selecting houses in Umm Al Sarab.
Awareness of citizens and the establishment of wells to collect rain water
Improve rainwater drainage and reuse it for municipal uses
Collect water from valleys and reuse it
Reduce dependence on the drinking water for irrigation
Reduce the risk of the sudden flooding
Reducing dependence on drinking water
the number of people able to implement water harvesting projects Capacity building and increasing

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	6.1		Mid-term 2020-2025	

Action – Title:

Carbon Farming: Composting

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.

Improving Environmental Enforcement to Incentivize Treated Compost Applications

Composting contributes to the improvement of the solid waste sector and improves employment, and a financial return for the municipality.

Initial situation:

Composting is one of the municipality's financing and investment areas of interest.

There are approximately (reportedly 36,000 -54,000) sheep in the municipality, and these sheep leave behind a a significant amount of organic waste (manure and others). These wastes are dumped into the valleys because collecting it raises a concern over health issues and stench.

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

Details

Construction of an organic composting facility plant utilizing sheep manure. The resulting compost would then be used to support local agricultural activities and be marketed outside the municipality;

The establishment of a textile factory that accepts wool and employs women, providing additional employment opportunities to women within the municipality;

The establishment of a dairy plant, which brings together local efforts to produce various types of dairy, meets local needs and exports to other regions. This project also helps support the employment of women in the region.

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 (HH-based) and woody materials are utilized in the production of quality compost.

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

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** (refer to Action 3.1 for information on the 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:

Public-Private Partnership established with the municipality and local women's NGO to provide increased, technical and managerial employment to women. Can be modelled after the Composting facility in Mafraq in which women are staff and managers. The facility provides a daycare as well.

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.

Actors:

NGO / CBO,

Actors:

Ministry of Agriculture, Tafileh Technical University, Private Sector

Target group:

Agricultural and livelihoods

Action steps and timetable:

Use of forest waste (leaves and branches) in addition to animal waste

Raise awareness about the importance of optimal use of treated organic fertilizers

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 expreienced NGO/consultnacy 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 comparision with traditional applications of fertilizers Establish Pilot Areas; pilots lasting between 6mo-1 year
Success indicators/milestones:
Establishment of the compost facility Production of marketable compost Increased employment opportunities Start the compost station Production and marketing the organic fertilizer Jobs chances Raise the economic level
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:

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			

Action – Title:

Solar in Desalinization and Irrigation

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 sparce 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 Distillatin".

Designate pilot areas to test technolgoeis 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), Minisry of Agriculture, NGOs, Private Sector, Tafileh Technical University

Action steps and timetable:

Identify liaison officers
Contract an NGO or consulting firm to develop and recommend a standard for environ-mentally friendly desalination technologies aimed specifically at reducing energy consumption at desalination plants
Contract a consulting firm to study the benefits of supporting locally produced and assembled de-salination units in the con-text of promoting the green economy and sup-porting 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 pro-gram 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, dissminate 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
	6.3			

Action – Title:

Investing in Outcomes for Climate-Resilient Crops, Agricultural Best Practices

Vision and Goals:

Busaira is established as a site for Pilot farms for research on breeding, cultivating planting resilient crops that improve and retain groundwater.

Combined use of graywater technology and irrigation improves agricultural output.

Water quality and quantity is improved through irrigation technologies and the selection of soil- and water-enhancing flora varieties.

The trees/flora selected are placed and act as buffers against the dust generated by the neighboring windmills.

Resilience of the water table is improved water to neighboring trees, species that provide abundant shade, improve soil quality, can provide wood/foraging for herders

Initial situation:

Farmers rely on natural spring water for irrigation

Groundwater wells are reportedly polluted and the quality continues to deteriorate with no water remediation plan

Cesspits are a source of the pollution, but the full range of issues impacting water quality are not fully understood

Degraded rangelands, increasing desertification, scarce water supplies

Lack of qualification, training and development of scientific capacities

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.

Dust results from the windmills in the area, impacting agricultural production (plant growth).

Description:

combat intense evapotranspiration lead to aid in retaining water distributed to crops.

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

Practical application of studies related to those crops

Opening new markets for farmers

Irrigation with low-energy and graywater technologies for grazing crops

Rainwater harvesting and graywater technologies can provide an input for irrgation technology. Irrigation technologies improve efficiency and results of crops.

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

Designing finanical support mechanism

Piloting Innovation

Combining this Action and "Treatment Wetlands" could be a piloted research site for technological applications, crop/vegetative selection that serves the following purposes: 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 improvign job opportunities.

Gender Mainstreaming:

Women's participation in awareness-raising.

Equal opportunity for women.

Initiator:

Actors:

Target group:

Pilot Groups with in the residential and commercial communities

Action steps and timetable:

Study the nature of plants in the area to determine which plants need the least amount of water.
Awareness campaign on the types of
these plants.
Conduct a study on plants resistant to climate change, salinity and lack of water
Identify viable climate change plants
in the region
Expand the cultivation of climate-resistant plants
Awareness of the effectiveness of climate resistant plants
Study the climate-resistant plants, determine the effects of the cultivation of these plants, their economic benefit to the farmer, determine the most suitable areas for each plant, and the appropriate season for planting

Developing a drought early warning system based on remote sensing techniques

Success indicators/milestones:

Increase the green area

Raise the economic level of farmers

Expand the cultivation of climate-resistant plants

Combat Desertification

Publish the results

Alert farmers proactively on dry or wet rainy seasons to take appropriate measures

Adaptation to drought is one of the most important risks of climate change

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, Water	6.4			

Action – Title:

Hydroponics

Vision and Goals:

Innovating Agriculture

Initial situation:

Sharp declines and increasing risks to the agricultural sector.

Description:

Urban farming through hydroponics to diversify skill sets, improve food security and employment opportunities. Advancing the agricultural sector is also in line with the municipality's aim of building Busaira Municipality as a hub of technological innovation.

Permaculture and Aquaponics

Hydroponics in Busaira would require holistic, systems planning on the technical, scientific and social aspects in order to overcome the challenges (water scarcity, water quality, soil degradation, desertificaiton, lack of employment) that are currently experienced (and will be exacerbated in the future).

Both require capacity builidng (scientific, technical and social), as well as innovative mechanisms that enable successful and timely operations and production. There are ongoing projects in both permaculture and aquaponics as well as a new agreement to support aquaponics initiatives in Jordan (between the Food and Agriculture Organization of the United Nations (FAO) and the Ministry of Agriculture as of January 9, 2020.

Capacity Building

Partnernering with the Technical University of Tafileh, relevant ministries and community-based training to enhance awareness about agricultural techniques as well as how the general community can become involved in the initiative that may seem out-of-touch. Regardless, if agriculture is to remain, it is necessary to build knowledge, capacities and generate ideas to not only make the sector viable but to also be able to source the resources (natural and social) to make it sustainable.

Gender Mainstreaming:

NGOs and ministerial representatives engage and encourage the whole community to garner support as well as aid in defining the mechanisms to make the action trully successful. And, if not this action, then the means to aid the agricultural sector, in general, in Busaira by wherein community support sets the municipality apart from other fledgling permaculture/aquaponics projects into an initiative that is a scalable model for other municipalities.

Initiator:

A Farmers Coopertive supported by local NGO, municipal administration

Actors:

Local NGOs/CBOs, Ministry of Environment, Ministry of Agriculture, Tafileh Technical University, Food and Agriculture Organization of the United Nations (FAO)

Target group:

Farmers, community

Action steps and timetable:

Initiate feasibility and market studies to assess the basis on which the projects could be viable

Recruit support from the neighboring university to build programs and research around the topics (build the academic basis around urban gardening, permaculture and aquaponics).

Initiate knowledge-sharing program with existing initiatives in these fields

Plan for operational framework consider public-private partnership

Pitch project proposals to potential donors and implementing agencies

Align initiative with university programs and research; advance the field with existing programs in this field through knowledge sharing

Continue to monitor and adjust strategies so that production and skill sets are able to establish and then keep pace with the marketing of products in order to create a viable market

Success indicators/milestones:

Spreading the culture of surface cultivation to areas outside the project

Awareness of the importance of surface cultivation

Food security

Increasing green areas and creating new job opportunities

Increasing awareness and the number of people who are able to implement rooftop planting projects

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
Urban Development, Energy	7.1			

Action – Title:

Municipal Mitigation Strategy

Vision and Goals:

Solar PV Saturation: >10 % of households (1, 573 households (based on 2019 population and average houshold 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.

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.

Reducing cost of energy bills when households amid extreme summer heat and reducing the energy costs associated with water use and economic activities.

Mitigation of emissions the adoption of renewable and alternative energy sources to diversify local energy portfolio

Initial situation:

Municipality has plans to increase the number of waste bins in the area; the municipality conducts cleaning campaigns under the slogan "to make the municipality areas the most beatiful' to participate in official and popular events;

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.

Details:

Municipal Buildings - Energy Efficiency Regulatoins Review: Review of building approval and monitoring policies to increase energy efficiency of public buildings, as well as the construction and management of public buildings.

Municipal Buildings - LED Streetlighting: Integrate public lighting

Build Awareness: Building awareness and buy-in with the community and stakeholders, improving energy efficiency compliance.

Agriculture

Uses of PV in water withdrawal and irrigation. Capitalize on successful implementation and research of low-energy drip irrigation in Jordan and the region.

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 very 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 Adminisration

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

Purchase of 60 kW solar cells for municipal buildings

Create the station

50 kW solar cells for houses
Statistics of types and quantities of solid waste
Conducting a study on the possibility of installing fans to utilize wind energy in residential areas
Construction of a methane plant from organic waste
Study the infrastructure and the reliability of solar energy for power generation
Study of solar cells that achieve the best efficiency based on brightness angle, duration and cost
determine the best location for the Conduct environmental impact assessment on the area to methane generation plants
Success indicators/milestones:
Reduced energy spending of the municipality Reduced waste volumes of inorganic agricultural waste piled on street sides
Reduce electricity and energy bill
Reducing the amount of waste, especially organic waste
The widespread dependence on solar energy as an energy source
Jobs chances
Improve the economic situation of society
Spread the importance of waste sorting
Contribute to the dissemination of renewable energy efficiency
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 (energy, residential and agriculture).
Further remarks:

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Urban planning	7.2		Short-term	permanent

Action – Title:

Municipal Climate Concept

Goals and strategy:

Municipality announces the receipt of the Local Climate Action Plan publically as well as its agenda to move on Mitigation and Adaptation Actions.

Endorsement of the Local Climate Action Plan.

Formation of a Climate (Implementation) team.

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.

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.

Initial situation:

There is a climate strategy but it is not publically available. Awarness of climate impacts are observed and can be expressed by the public; however, the lack of a local agenda to act on climate impacts weakens governance and grassroots potential to make a difference and engage/commit stakeholders to a municipal strategy to improve the local situation.

Description:

This Action is about formalizing the municipality's intention to achieve improved local resilience by working towards the goals outlined by the RRCCG (i.e. the values determined of high importance). These include the following:

Safeguarding Community Health from Climate Change and Negative Environmental Impacts

Improving Environmental Conditions

Decreasing Impacts of Climate Risks that threaten Quality of Life

Enhancing mechanisms and Climate Actions that Provide Improved Employment Opportunities

Improving Stakeholder Engagement and Awareness on Climate Impacts

Raise the Standard of Living

Improve and Safeguard Air Quality

Enhance Community Development through Innovative Solutions and Improved Local Engagment

Improve and Safeguard Soil Quality

Improve Water Quality and Decrease Water Scarcity

Initiator:

City administration

Actors:

City administration, development department

Target group:

City administration, citizens

Action steps and timetable:

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.

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 compenents). Associations and stakeholders are engaged in the election of members and in the annoucement of the intention to respond to climate impacts.

A public announcement formalizes the accptance of the LCAP (and ammendments if made) as well as genderalized timeline for implementation.

Develop a 'Climate Primer', detailing the highlits of the LCAP and its List of Actions, as well as 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).

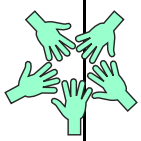
Will quantitatively outline goals and indicators to i**mprove energy efficiency and emissions reductions by sector.**

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
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
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 Media shows women as beneficiaries as decision makers in climate-change initiatives 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
Success indicators/milestones:
LCAP and LoA 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
Agriculture, Urban Development	7.3			

Action – Title:

Urban Greening: Roof-vertical Gardens and Permaculture

Vision and Goals:

Diversification of water resources and its localized use

Decreasing 'urban heat island' effect

Incease the green space and improve air quality

Initial situation:

Farmers rely on spring water for irrigation

Loss of pastures and crops due to drought and declining precipitation.

Description:

Urban farming through rooftop, verticle, permaculture gardens to diversify skill sets, improve food security and employment opportunities. Advancing the agricultural sector is also in line with the municipality's aim of building Busaira Municipality as a hub of technological innovation.

Urban (Rooftop) Farming

Small-scale rooftop and/or verticle 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.

Increased reliance on household production, localized and controlled water application in small-scale ag activities; can be beekeeping coupled with cultivation of native species of plants

Pair with the Action "Graywater" when applicable.

Capacity Building

Economic opportunities for groups interested in developing kits, installation and capacity building for cultivation of RVFs.

Job creation if action can serve as a case study for localized constructions of verticle agriculture techniques and use of greywater that can be adopted in other communities; training, construction and sales of materials / starter kits

Partnernering with the Technical University of Tafileh, relevant ministries and community-based training to enhance awareness about agricultural techniques as well as how the general community can become involved in the initiative that may seem out-of-touch. Regardless, if agriculture is to remain, it is necessary to build knowledge, capacities and generate ideas to not only make the sector viable but to also be able to source the resources (natural and social) to make it sustainable.

Gender Mainstreaming:

Small-scale Rooftop Farming: Gender mainstreamed into results (ToTs on practices, studies, feasibility of Action; monitoring of participating sites/homes; and developing framework for capitalizing of a marketing goods grown and construction of 'rooftop/verticle' kits as well as those that make use of greywater technologies and their practical application).

Initiator:

A Farmers Coopertive supported by local NGO, municipal administration

Actors:

Local NGOs/CBOs, Ministry of Environment, Ministry of Agriculture, Tafileh Technical University

Target group:

Farmers, community

Action steps and timetable:

Initiate feasibility and market studies to assess the basis on which the projects could be viable

Recruit support from the neighboring university to build programs and research around the topics (build the academic basis around urban gardening, permaculture and aquaponics).

encourage the cultivation of rooftops, and go towards the concept of green roofs

Planting rooftops with home crops

Cultivation of the edges of the streets (sidewalk)

Encourage surface cultivation

Cultivation of crops with household crops

Cultivation of the outskirts of the streets (sidewalk) and the area separating the streets

Training courses, capacity building and training of trainers on surface cultivation and its techniques

Success indicators/milestones:

Spreading the culture of surface cultivation to areas outside the project

Awareness of the importance of surface cultivation

Increase the green area

Food security

Increasing green areas and encouraging families to produce some of their vegetables and food needs

Increasing green areas and creating new job opportunities

Increasing awareness and the number of people who are able to implement rooftop planting projects

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
Health, Awareness, Urban Development	8.1			

Action – Title:

Rehabilitation of Lafarg Park

Vision and Goals:

Recreatinal areas are accessible and appealing to the public.

Recreational areas, while areas for community activities, are also able to reduce the risk of exposure to climate impacts and promote healthy outdoor engagement.

Integrate adaptive and mitigation technologies in the parks.

Initial situation:

The municipality have only one park with below satisfactory facilities

Details:

Rehabilitation of Lafarg Park and others located within tourist areas, equipping them with services that can provide recreational activities as well as opportunities for additional income for the municipality.

Combine with Graywater reuse Action (in Water & Ag section); the park itself can be **combined with Rainwater harvesting technology and or graywater technology**.

Build accessbile facilities to, from and within the park; municipality consults the respective community organizations

A kick-off to Awareness of environment concept for citizen engagement and founding of new relationship between community and municipality.

Use social media for share the park as green park

Recreational and Ren-Energy Ehibition of 'green'solutions **(solar,recycling,localized wastewater treatment for irrigation)**

Actors:

Municipal Administration, NGO, public, donors

Target group:

Action steps and timetable:	
Environmental impact assessment for the region	
Buy or select an area for the park	
Identify additional activities that increase citizen awareness to address climate change, such as waste sorting, gray water treatment	
Conducting a feasibility study and finding a supportive entity	
Success indicators/milestones:	
Visitors' awareness of environmental concepts and climate change	
Increase the green space	
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
Health, Water	8.2			Permanent

Action – Title:

Master Plan for Municipal Sanitation

Goals and strategy:

Request stakeholders' project documents for goals, strategies, steps and timetable.

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. 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.

Details :

Initiator:

Actors:

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
Biodiversity, Rehabilitation, Water	10.1			

Action – Title:

Constructed Wetland for Effluent Wastewater Treatment as an Ecotechnological Tool for Regenerative Reclamation of Wastewater and Ecological Restoration

Vision and Goals:

Busaira succeeds in increasing the ecological value of wastewater which improves the availability of water suitable for agricultural fields that grow animal feed as well as providing a water source to regenerate grazing fields as well as the lost and degraded wetland that used to host migrating birds in the area.

The economic and environmental gains of this option and its successful implementation becomes a stepping stone to advance wastewater treatment to meet the growing demands for potable water.

Recovering wastewater for wetland development and irrigation.

Improve the level of services provided to citizens and distribute them fully

Contributing to the balance between resources and population

Initial situation:

Lack of adequate infrastructure and sewage network.

Loss of pastures and loss of agricultural crops due to successive dry seasons and declining precipitation - desertification

Bird migration and their extinction from the region, as well as the drying of many water springs

The Municipality relies mainly on the Al-Hasa spring water to supply homes with drinking water

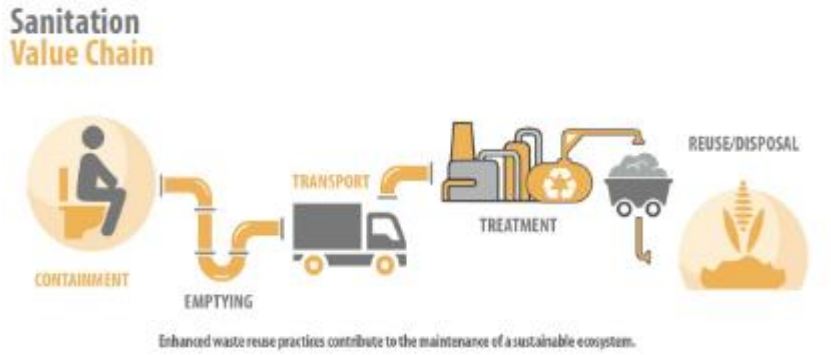
Municipal residents use traditional methods of irrigation and rely on natural spring water

the presence of the quarry resulted in th pollution of the groundwater which resulted from when the quarry was turned into a liquid waste landfill, which is alo polluted the air that was alos contributed to by the random burning of waste.

The municipality has about 36 thousand head of livestock (sheep and goats) depends on feed and not on grazing

There are no underground water wells within the boundaries of the municipality, although the depth of the groundwater starts from 100 meters, because no licenses are given to dig wells in the area

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

Azraq Wetland Reserve is artificially supplied water from groundwater resources. Since having completely disappeared in the year 1990-91, it has recently restored 10% of its former size.

Details:

Constructed wetlands are treatment systems that use natural processes involving wetland vegetation, soils, and their associated microbial assemblages to improve water quality. These wetlands may be able to serve the purposes of 1) reviving a local ecology, 2) improving water quality, 3) rehabilitating grazeland

If conventional wastewater treatment plants are not a viable option and there is land that can be allocated to a stabilization pond, then this (stabilization pond) could be an economically viable option. Additionally, the loss and deterioration of Busaira s wetlands could be aided/regenerated with the resulting treated wastewater from the stabilization pond.

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.

Identifying and selecting native plant species to occupy the area, aid in the filtration process and decrease erosion.

Higher investment, but should at least be planned for long-term - Decentralized WasteWater Treatment Plant and the construction of water chanels (tanks) from municipal owned greywater systems to utilize in the rehabilitation of natural ecosstems, revitalize the communal pastures for grazing.

Building technical capacity in this area can be a starting point for permaculture.

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:

Ministry of Agriculture, Water Authority, Municipal Administration

Action steps and timetable:

Seek consultation with the respecive ministries of relation to the project
Assess the level of integration (Busaira - 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
Improving the soil's ability to store rain water to maximize plant water availability by increasing precipitation infiltration; reducing unproductive water losses (evaporation, deep filtration and runoff); increasing soil water retention capacity; and maximizing root depth.
Apply conservation agriculture that involves minimal soil disturbance and includes land preparation techniques that reduce employment, improve soil fertility, crop residue management, tillage, and soil and water conservation
The use of supplemental irrigation from harvested rain water in critical stages of crop growth.
Adjusting planting and harvesting dates for some crops

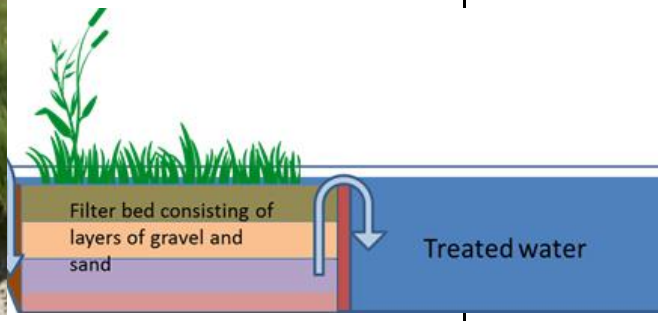
Success indicators/milestones:

Increase the amount of water available for cultivation and soil and reduce the loss of rain water	Relying on additional sources of water to make up for the shortfall in rainfall
Increasing agricultural land productivity	Mitigating the effects of climate change on the agricultural sector and mitigating the decline in agricultural land productivity
A new agricultural calendar that takes into account changes in the start and end of the rainy season	

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:	Number:	Type of action:	Starting the action:	Duration of the action
Data Generation; Technical, Scientific Capacity Building	10.1			

Action – Title:

Environmental Observatory

Vision and Goals:

An investigator-driven community(organization-NGO) that is highly successful in generating creative climate research that leads to the development of improved adaptation and mitigation actions.

Increased ability of the municipality to act on real data that pertains to their situation.

Awareness among the public is improved due to the regular public reporting and public engagement hosted by the Observatory and Eco-Training Center.

Initial situation:

Climate data is quantified at the national level and local-level applications (per municipality) are to be roughly estimated. However, Jordanian municipalities represent great differences between them (elevation, rainfall, etc). Busaira is in need of being able to collect and analyse local data (and, hopefully, regional data) in order to better measure impacts (current and future) to develop robust and proactive Actions.

Information on current projects and planned initiatives is not readily available to the public.

Description:

The establishment of an Environmental Observatory to provide a reliable database on water and air quality, emissions and to facilitate the initiation of studies, attracting investments, grants and projects.

The Observatory becomes a data hotspot in the region for climate-environmental research.

The observatory can aid in the development of strategies (water strategies, agricultural, etc) informed by data.

The Observatory conducts regular reporting on climate topics and issues. It measures the progress and impact of projects and aids in (scientific and technical) capacity-building initiatives.

Youth Citizen Scientists Group

A Youth Group, organized through the Observatory wiht the help of NGOs/local associations, receive training on climate change, monitoring and measuring devices. The Youth Group not only becomes more aware of climate change and environmental issues, but they can also assist in data collection and outreach such as surveying observations of contamination from cesspits, evidence of rangeland loss (desertification), the appearance (or sightings) of a particular flora/fauna of interest, etc.

Vocational Training & Green Lending Library

Establish regional green and sustainable building enginneering training center as a fully -fledged demonstratinon green building for the region encompassing RWH tech, and other green sustainable building codes/ practices in lucing water and energy efficiency, green buildings desin and construction practices training center for trainings

Institutional l training institute in renewable energy applications, partnered with the nearby university
Green-tech Library: facilitates engagment with ren-en tech; Examples: hone charger powered by the sun, a lantern with state-of-the-art solar panels, and a kinetic USB or laptop charger that powers up in your pocket; renting of commercial-residential heat sensing devices and other technology that help to identify heat loss (see related actions on energy and financial savings with insulation, greenbuilding).

Grounding the inquisitive energy of Busaira community with an active community-engagement program

investigate the sources/details of their concerns and develop targeted actions

improvement of their community and quality/quantity of natural resources.
Hosts awareness and training for youth rangers/'citizen scientists' to raise awareness and improve data collection.

Initiator:

Royal Society for the Conservation of Nature, Ministry of Environment, Municipal Administration

Actors:

Tafileh Technical University, Environmental NGOs and Community Groups

Target group:

Public, Students, Professionals

Action steps and timetable:

Identify qualified personell to surpervise and operate the center
Integrate with the Lending Library Action
Establish a working and collaborative relationship with Academia (Tafileh University)
Collaborate with government and private institutions to create job opportunities for the graduates of the training center; to encourage the community to study / training
Identify and plan the types of Activities the Observatory is to conduct and the resources needed
Purchase monitoring and measuring devices
Develop and conduct Training of Trainers
Dissemination of collected information to interested people
Attract university graduates to work / develop graduation projects
The Center is accredited as a reference for information on the environment and climate change
Attract interested people for training and education
Raising the cultural level of environmental concepts for the local community and the country
Identify the topics that will be covered by the Center for training
Find and identify knowledge sources
Establishment of a center
Buy machines
Turn on the machines

Training of trainers by specialists
Integrate it with the Library Project
Training of Trainers
Dissemination of collected information to interested people
Buy monitoring and measuring devices
Establish qualified staff to supervise and operate the center
Merging the Center with the Educational Sectors (Tafila University)
Collaborate with government and private institutions to create job opportunities for the graduates of the training center; to encourage the community to study / training
Attract university graduates to work / develop graduation projects

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
Communication, Awareness	10.2			

Action – Title:

Climate Action Website

Vision and Goals:

Improved awareness and public engagement on the topics of climate change.

Media (reports, pictures, documents, annoucements, etc) are regularly made available to the public, improving transparency and accountability.

Initial situation:

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.

There are few, if any, official reports nor documentation on local impacts of climate change.

Details:

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.

The online platform, in combination with social media, can also be a means for collecting information from the public.

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.

Gender Mainstreaming:

See steps below.

Initiator:

Municipal Administration,

Actors:

Municipal Administration, NGO, Youth Group

Action steps and timetable:

Website is established

Past and ongoing projects relating to climate change are documented (digitized) so that they can be read and searched for online.

Media (reports, pictures, annoucments, 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

• 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

Youth leaders are engaged to assist in the maintenance of material for the website (developing articles, videos, surveys and polls relevant to the stoy(ies) of counterin climate change in the municipality

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:	

Field of action:	Number:	Type of action:	Starting the action:	Duration of the action
Capacity Building and Social-Environmental Responsibility	10.3			

Action – Title:

Resource Mobilization to Improve Environmental Governance, focusing on building the Scientific, Technical and Advocative Capacities for Municipality, NGOs

Vision and Goals:

Institutionalize communication and reporting on environmental issues

Advance the technical and scientific capacities of key NGOs/CBOs

The tools to enable public participation and boost awareness are readily available (information) as well as increasing skills of local actors to promote greater accountability, leading to improved local resilience against current and future developmental- and climate-related impacts.

Initial situation:

Frustrations are abound in Busaira about the health of the springs and that they're a lost resource due to contamination.

There are numerous concerns and frustrations among the public over concerns of the negative impacts of development in the area, such as groundwater and air pollution. Additionally, there are few pathways to broadcast these concerns which would improve the possibility that these issues 1) could be made public and 2) there would be scientific and technical investigations to answer public concerns and 3) outline a framework for appropriate actions/solutions.

Description:

Busaira engages this Action in order to better investigate the climate and environmental issues concerning their community. The municipality and NGOs coordinate to mobilize resources in order to become more proactive, informed and impactful in the projects that they Identify and Implement.

Capacities for Engagement

Organizations as a result are able to engage in local dialogue processes related to climate change and environmental governance and management. This outcome should also contribute to strengthening the NGO's convening power. Indicators: the Number and type of platforms (e.g. seminars, consultations, dialogues, expert panels and roundtables) organized and successfully implemented to enable key stakeholders to participate in consultative and discussion processes related to environmental governance and management; Number of people or groups, disaggregated by gender, actively participating in consultative mechanisms

Capacities to Generate, Access and Use Information

Organizations contribute to generate, access and use information and knowledge to address environmental problems and find adequate solutions. Activities under this outcome should contribute to improve and strengthen the NGO's role in generating awareness and accessing and disseminating environmental information and knowledge. Indicators: Public awareness raised through workshops and other activities; the type of information and knowledge developed regarding national environmental problems and trends; and the strategy implemented to share environmental information and knowledge with civil society and government

Training in Data and Project Management

Conduct a training workshop series to train key actors in data handling and project management which targets the skill-deficit identified in the preliminary research.

the end of the workshop series, participants will have the capacity to:

- Create state of the environment reports
- Collect data and formulate indicators
- Build their own infrastructure for sharing information and communicating

Capacities for Strategy, Policy and Legislation

The capacities of organizations are enhanced so the organization can participate in the development of policy and legislative frameworks for environmental governance and management. Indicator: Local response and project scoping frameworks influenced (number and type); and the number of training workshops, media campaigns, etc., to influence policy and planning

Capacities for Management and Implementation

Activities under this outcome should contribute to improve the organizations capacity to influence the implementation of environmental projects and programs. Indicators: Number of people trained on necessary project management skills – to be specified according to type of training – including project development, resource mobilization, business planning and administrative capacity. Resulting projects should contribute to strengthen capacities to implement and manage climate and environmental Actions

Capacities to Monitor and Evaluate

Enhance capacities of organizations and municipality to monitor and evaluate environmental impacts and trends. Activities under this outcome should contribute to improve the organizations' capacity to monitor and evaluate environmental problems and trends and inform planning and decision making processes. Indicators: monitoring and evaluation systems established (number and type) and capacities for monitoring projects and programs established (number of people trained, disaggregated by gender).

Gender Mainstreaming:

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)
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

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)

Active participation of women's associations in implementation

Initiator:

Busaira Environmental Society, Municipal Administration

Actors:

Ministry of Environment, Ministry of Agriculture, Royal Society for the Conservation of Nature

Target group:

Capacity Building - NGOs/CBOs, public, students; Outputs of Capacity Building - Policy Makers, Local Industries, Ministries

Action steps and timetable:

Raising awareness of the importance of environmental impact assessment of projects
Conduct local groups to assess the environmental situation in the region and to take in the consideration of women participation
Adoption of environmental impact assessment to move forward with projects in the region
Raising awareness of the importance of environmental impact assessment of projects
Conduct local groups to assess the environmental situation in the region and to take in the consideration of women participation
Adoption of environmental impact assessment to move forward with projects in the region

Success indicators/milestones:

Adopting and applying the Environmental Impact Assessment Form in the Municipality
Community participation in decision-making on projects in the region
Women's participation in environmental decisions
Adopting and applying the Environmental Impact Assessment Form in the Municipality
Community participation in decision-making on projects in the region
Women's participation in environmental decisions

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:

9. ANNEX:

9.1 Emissions Ambitions Approval

اسم البلدية	بصيرا			
نماذج لسيناريوهات التي تطمح لخفض الانبعاثات الطاقة ضمن خطة العمل التكنولوجية وقطاع النفايات				
تركيب وحدات الطاقة الشمسية الكهروضوئية ووحدات سخانات المياه بالطاقة الشمسية لتلبية الطلب على الكهرباء من الأسر (التي تعتبر متبادلة في تقدير النموذج)	الهدف كنسبة مئوية	كمية CO2 المكافئة التي سيتم تخفيضها	% تخفيض الطلب على كهرباء للمنازل	% تخفيض المقدر لإجمالي الانبعاثات
2018	–	–	–	–
2025	10% خلال 2025	0.21	%20	%3
2030	15% خلال2030	0.32	%45	%4
تركيب وحدات الطاقة الشمسية الكهروضوئية لتلبية الطلب على الكهرباء من لمباني البلدية وإنارة الشوارع	الهدف كنسبة مئوية	كمية CO2 المكافئة التي سيتم تخفيضها	% تخفيض الطلب على الكهرباء لمباني البلدية وإضاءة الشوارع	% تخفيض المقدر لإجمالي الانبعاثات
2018	–	–	–	–
2025	100% خلال 2025	0.93	%100	%5
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	الهدف كنسبة مئوية	كمية CO2 المكافئة التي سيتم تخفيضها	% تخفيض النفايات الصلبة	% تخفيض المقدر لإجمالي الانبعاثات
2018	–	–	–	–
2025	5% خلال 2025	0.004	%5	0.463
2030	10% خلال 2030	0.0158	%20	0.185
استهداف كفاءة الطاقة والطاقة المتجددة في قطاع الصناعات الصغيرة/الخفيفة والتجارية	الهدف كنسبة مئوية	كمية CO2 المكافئة التي سيتم تخفيضها	% تخفيض الطلب على الكهرباء في القطاع	% تخفيض المقدر لإجمالي الانبعاثات
2018	–	–	–	–
2025	15% خلال 2025	0.137	%15	1.81
2030	20% خلال 2030	1.82	%20	2.41

تحويل شبكة محطات الضخ الحكومية إلى الطاقة الشمسية الكهروضوئية بحلول عام 2030 (TAP، 2017) اقتداء بالبيانات للكهرباء في القطاعات على اساس الطلب (EDCO، 2018)	الهدف كنسبة مئوية	كمية CO2 المكافئة التي سيتم تخفيضها	% تخفيض الطلب على ضخ المياه	% تخفيض المقدر لإجمالي الانبعاثات
2018	_	_	_	_
2025	%15 خلال 2025	0.087	%15	%1.15
2030	%20 خلال 2030	0.116	%20	%1.54

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

مقترحات التعديل

بعد قراءة الجدول ان وجد تعديل لاي هدف، الرجاء تحديد القطاع والسنة والهدف المراد تعديله بالنسبة المئوية، و سيتم مراجعة التعديل المقترح منكم على المستشارين للمشروع.

بعد الاجتماع مع فريق العمل للاطلاع على النموذج لخفض الانبعاثات الطاقة ضمن قطاع النفايات

حيث ان الجميع ابدأ اعجابهم في السيناريوهات وموافقتهم على النموذج ولا يوجد اي اقتراحات او تعديل من قبل الجميع

جدول الحضور

اليوم: الثلاثاء التاريخ: 2020/2/25

الرقم	الاسم	المسمى الوظيفي
1	صالح اسماعيل عيال سلمان	رئيس بلدية بصيرا
2	م.عبدالله لطفي الرفوع	رئيس وحدة التنمية/ بلدية بصيرا
3	م.منيرة احمد الخصبه	رئيس قسم الانتاج النباتي /مديرية زراعة بصيرا
4	م.ابراهيم الزيدانيين	مهندس / مديرية مياه بصيرا
5	وفاء خالد الزيدانيين	مجتمع محلي

■ 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 Minutes of Meetings of RRCCG Workshop on Potential Actions

Focus Group 1

of participants (31)

# of women (14)

# of men (17)

# of in the 1st session (14)

# of in the 2nd session (17)

Residents of the region have suffered from the effects of the climate change over the past five years, this has led to decreased the groundwater levels, and many springs have stopped flowing (producing water). This has affected the region's residents because of the resulting lack of water, whether it be drinking water or water for daily use. Municipal water delivery services houses once every two weeks. Moreover, one of the biggest causes of this water deficit is the absence of the water harvesting devices.

Despite the lack of awareness of water saving and conservation techniques, a group of attendees had some awareness of the term graywater. One of the participants dug a well next to his house to reuse washing and bathing water by laying pipes to carry water to the well, then it is naturally purified and used for irrigation and cleaning.

The area suffers from many forms of pollution such as water pollution, air and land pollution. The main reason for this is, reportedly, the cement factory (Lafarg), where the explosions carried out by the factory caused the decline in in the groundwater levels and stopped some water springs. The region was famous for its high number of water springs, but only 12 springs remain. In addition, these 12 springs are unsuitable for human and livestock consumption; it also cannot be used in irrigation because it is contaminated with heavy metals that comes out from the cement factory, such as mercury.

As for air pollution, the amount of harmful gases that comes out from the cement factory is very high, and has caused a lot of cases of skin cancers and cases of asthma and skin diseases, where these gases are caused by the plant's use of unclean flammable materials such as rubber, participants reported.

In addition to this, improper disposal of the livestock manure has also increased the air pollution.

As for the land, the heavy machinery used by the factory and the bombings/materials extraction have destroyed it. The factory has compensated just the landowners, but there is no compensation for the people who have been affected and get sick.

Despite the high education rate, both males and females, and the high culture of the population, the economy of Busaira is very bad and the unemployment rate is very high, only 1 in 10 people is employed. Work is limited to either working as teachers or working in factories. One of these factories the sewing factory, where the working hours are from 7 am to 4 pm and females are targeted for employment. Particularly, the factory workers receive a monthly salary in the between of 260 and 300 JD a month, but one of the biggest obstacles to work in this factory is the lack of children's nurseries; the women who work in the factory do not have time to work all this time away from their children, and this led to a lack of demand for working in the factory.

On the issue of women's empowerment, there are many associations run by women in the region, such as the Busaira Women's Association, which is considered as one of the best in the terms of initiatives. Women in the region are characterized by the higher education rate and their ability to give their opinion easily.

There is also a phosphate plant in the area and the Canadian waste collection and sorting project by SEED Organization.

Some methods and ideas have been suggested by the audience that may help to adapt and mitigate the effects of climate change in the region; which is the following:

1- Water saving, by first raising awareness, and the reuse of the gray-water.
2- Providing the area with water pumps, to facilitate the access of water to houses.
3- Construction of water purification plant, for water reuse in irrigation and cleaning.
4- Planting trees, Rooftop farming and Opening gardens and parks, to increase the vegetation in the area. Where the cement factory (lafarg) has opened a park, but it needs to be rehabilitated.
5- Build a manure processing facility.
6- Conducting joint projects between the municipality and the Busaira Environment Society, where it is the only association that deals with environmental issues in the region, in addition, it supports the role of women.

Attends sheet

Date:6/8/2019 **Time:10:30**

No	Name		Organization	
1	Mohamed Odah	محمد عوده	Employee at municipality	البلديه
2	Akef	عاكف	Member at association	جمعية خيرية
3	Tareq AL-Mazaidh	طارق المزايدة	Emar Busira employee	اعمار بصيرا
4	Ahmed Khalil AL-Rfoa'	احمد خليل الرفوع	Engineer	مهندس
5	Abed Rabah Ali	عبد ربه علي	Manger of environment association	رئيس جمعية البيئة
6	Mohmed Ra'ied	محمد رعد	Emar Busira employee	اعمار بصيرا
7	Faizeh AL-Khawldeh	فايزة احمد الخوالدة	Agriculture engineer \Busira agriculture	مهندس زراعي /زراعة بصيرا
8	Monerah Ahmed	م.منيرة احمد	Plant production manger	م.رش. الانتاج النباتي
9	Esra' Yasien Abo Hamam	اسراء ياسين ابو همام	Employee at municipality	**البلدية**
10	Lina Zaied Alian Slaman	لينا زيد عيال سلمان	Employee at municipality	البلدية

11	Hia Hlal AL-Rfou’	هيا هلال الرفوع	Employee at municipality	البلدية
12	Enas Ndal Al-Zaydanyen	ايناس نضال الزيدانين	Employee at municipality	البلدية
13	Rashed Mamdowh AL-Rfo’	راشد ممدوح الرفوع	engineer	مهندس
14	Emad Rja’	عماد رجاء	Retired	متقاعد
15	Khalid Za’l AL-Zaydanyen	خالد زعل الزيدانين	Employee at municipality	البلدية
16	Eaeshah Abd AL-salm AL-Mazaidah	عائشة عبد السلام المزايدة	Employee at municipality	
17	Wafa’ Khalid Zaydanyen	وفاء خالد الزيدانين	Employee at municipality	البلدية
18	Sras AL-Rfo’afa’	صفاء فارس الرفوع	USAID	USAID
19	Rawan Jamal AL-Marat	م.روان جمال المرايات	Employee at municipality	البلدية
20	Raniah AL-Rfo’	م.رانية الرفوع	Employee at municipality	البلدية
21	Ehlam Odeh AL-Zayaden	احلام عودة الزيدانين	Employee at municipality	البلدية
22	Janan Khalil AL-Rfo’a	جنان خليل الرفوع	Employee at municipality	البلدية
23	Hashem Ataf AL-Mazadeh	هشام عاطف المزايدة	Judo player	لاعب جودو
24	Araf Mazydeh	عارف مزايدة	Judo player	لاعب جودو
25	Ahmed Salam AL-Rfo’a	احمد سالم الرفوع	Tawjehi student	طالب توجيهي
26	Osama AL-Zayadain	اسامة الزيدانين	Tawjehi student	طالب توجيهي
27	Falah Thyeab	د. فلاح ذياب	Ministry of Education	وزارة التربية
28	Ahmed Khalid AL-Rfo’a	احمد خليل الرفوع	Member of Basira Environmental Society	عضو جمعية بصيرا البيئية
29	Darwish Khalil	درويش خليل		
30	Hoiam Al-Rfo’a	هيام الرفوع	Employee at municipality	البلدية
31	Naser Ibrahem	نصر ابراهيم	Employee at municipality	منطقة بصيرا

Second Focus Group

Date: 16 September 2019

Team: Colette Linton, Abdullah Al-Shamali, Jamila Al-Zoubi, Razan Al-Saaida

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).

Preparation of this summary ~ Eng. Abdullah Al-Shamli

Visit Overview:

Initially, the meeting was held with Mayor and the Director of the Development Unit. An overview of project developments, next steps and agenda of the day's visit was discussed.

The meeting with members of the community took place afterwards to discuss the range of impacts experienced within the municipality and perceived solutions of the participants in attendance was conducted. Afterwards, the Mayor introduced the concept of the RRCCG as a means to benefit the relationship between the municipality and the community in collecting inputs, designing and implementing projects to minimize climate change impacts.

The participant group, despite having invited the same number of participants as the other municipalities, was larger. Their ideas varied greatly but the predominant topic of focus was about the impacts of industrial activities in the area.

Summary of actions proposed by the group:

- **Composting**

Impact(s):

There are approximately 54,000 sheep in the municipality, and these sheep leave behind a a significant amount of organic waste (manure and others). These wastes are dumped into the valleys because collecting it raises a concern over health issues and stench.

Idea(s):

- Construction of an organic composting facility plant utilizing sheep manure. The resulting compost would then be used to support local agricultural activities and be marketed outside the municipality;
- The establishment of a textile factory that accepts wool and employs women, providing additional employment opportunities to women within the municipality;
- The establishment of a dairy plant, which brings together local efforts to produce various types of dairy, meets local needs and exports to other regions. This project also helps support the employment of women in the region.

- **Solar Energy Project**

Impact(s):
The share of household expenditure for electricity bills is too great, burdening households.

Idea(s):
Installation of solar power systems with enough capacity to cover the electricity consumption of municipal buildings, and the opening of a training center for the installation of renewable energy systems.

- **Improving Water Availability and Quality**

Impact(s):
Water quantities dwindle in the summer, except for some areas but even they have poor abilities to extract water due to overall scarcity of this resource in the municipality.

Additionally, the diminished quality of spring water due to pollution from cesspits and industrial activities.

Idea(s):

- The development of a water strategy for the municipality in order to improve water resources and meet the needs of the community;
- Utilization of greywater technologies at the household level for use in agricultural activities. A project was previously implemented in the municipality establish greywater applications which benefited nearly 20 houses. This project was admired by many, and there is interest in implementing similar projects at the household level;
- Water harvesting projects, such as constructing dams, which recurrently fill (such as the Qarqour Dam) in the winter months to be utilized in the summer. The water of Quarqour Dam is typically utilized in agriculture and livestock activities. Other suggestions reemphasized the construction of an earthen dam that can be reinforced with concrete;
- Construction of an artesian well to supports water resources in the municipality.

- **Increase Green Space and Reduce the Impact of Cesspits**

Impact(s):
There is no sewage infrastructure and therefore houses use cesspits, which exacerbate the problems of water contamination and health of the springs. Some observations noted negative impacts to vegetated areas.

Idea(s):
Planting Eucalyptus trees near cesspits to help reduce their negative impact on the environment. These trees are flowering, which means they can attract bees and provide shade for livestock which may enable more economic activities. It was stated that the municipality could utilize from 10,000 to 13,000 trees procured through the Ministry of Agriculture if funding is available.

- **Others**

- Rehabilitation of Lafarg Park and others located within tourist areas, equipping them with services that can provide recreational activities as well as opportunities for additional income for the municipality.
- The establishment of an Environmental Observatory to provide a reliable database on water and air quality, emissions and to facilitate the initiation of studies, attracting investments, grants and projects.

Attends sheet

No.	Name		Organization	Resposibility	note
1	Abd Rabh Ali	عبد ربه علي	Chairman of the Environment Society	Adaption	Confirm
2	Drwiesh AL-Zayadin	درويش الزيدانيين	Member of the Environment Society and member of Emaar Basira		Confirm
3	Faizh AL-Khawaldh	فايزة احمد الخوالدة	Agricultural Engineer / Agriculture Basira	Mitigation	Confirm

4	Eng.Munira	م.منيرة احمد	Chairman of Plant Production department	Gander	Confirm
5	Wafa' AL-Zayadin	وفاء خالد الزيدانين	Municipal		Confirm
6	Safa' AL-Rfw'a	صفاء فارس الرفوع	USAID	Gander	Confirm
7	Eng.Rania AL-Rfw'a	م.رانية الرفوع	Trainee in the Municipalaty		Confirm
8	Eng. Ibrahim	م.ابراهيم	Water Authority		
9	Eng. Amar AL-Rfw'a	م.عامر الرفوع	RSCN		
10	Eng Hashim	م.هشام	Environment Basira		Confirm
11					
12					

Third Focus Group

21 November 2019, a Focus group was held in Busira 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 three sessions accordingly. Also they added that the municipality's sanitation entitlement number is 8 because of the low population.

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. Where there is a landfill in the area called Al-Jaref Landfill, where the waste is collected from the Busira by one compactor and transported to the landfill, and the process of sorting and recycling in the landfill itself. In addition, one of the associations in the region (Adoom Association), oversees the process of reuse of gray water and the construction of wells beside houses that are surrounded by sufficient space for this. Moreover, the Busira Charitable Society, which installs solar heaters on rooftops with funding from the UNDP, and provides courses on how to use and apply this technology. The Busira Women Association also conducts workshops for women in the region on how to recycle some simple waste, but these courses need funding.

As mentioned earlier, the population depends on cutting trees for heating, especially oak and terebinth trees, despite the existence of donation campaigns for poor families.

It was also mentioned that they had a workshop on Friday, November 15, 2019 in Aqaba area with the Federation of the Canadian Municipalities (FCM), where the strategic planning process for waste collection and sorting was initiated and their project incorporates the concept of gender mainstreaming.

The gender expert clarified the "financial return for waste", she said that this process is taking place in India, where People collect the recyclable waste and get paid by some of the relevant associations or companies. This process may be a good way to motivate people to sort the waste at home or in schools - as they are the most important in the process of sorting waste - Regardless of the amount of money provided in return.

As for the identification (Steps, Timeline, Success Indicators, Mitigative/Adaptive and gender mainstreaming Impact) of projects, not all projects have been discussed and studied; this is because the expert has not read the projects in advance.

The following projects were discussed:

Waste Section:

All solid waste projects were discussed. The first step has been identified for all projects that one neighborhood and two schools will be selected for an initial project experiment in the first year and then they will cover more schools and neighborhoods each year.

Addressing emissions reductions and efficiency in the solid waste collection and transport					
NO.	Steps	Description	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Preparations for the awareness campaign	– Identify the associations and institutions that will work on these campaigns (Busira	4 Months	– Busaira Map. – List of criteria.	All Community layers (men, women, youth, children and people with special needs) have been

		Ladies Association and Adom Charitable Society). – The targeted places (such as Aisha School, which received health accreditation through the Royal Society for the Conservation of Nature - Dana), were selected and another school for males was selected. A new set of schools and neighborhood will be added every year. – Official Letters. – Busaira Map. – Identification of awareness material – Conventions. – Set reference terms for associations on how campaigns will be in the schools, how to collect and sort and how to determine the price for the wastes.		– List of associations and schools.	integrated into the campaign.
2.	Awareness campaigns		3 Months		
3.	Continuous follow-up				

Diversification of energy sources - Biogas, mitigation of emissions from Biowastes					
NO.	Steps	Description	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Preparations for the awareness campaign	– Identification of associations interested in agriculture. Study a proposal through them under the supervision of the municipality or a proposal for supporting the livestock keepers. – Identify the target places (the same places in the first project, in addition to the inclusion of parks and forests) – Official Letters. – Busaira Map. – Identification of awareness material – Conventions.	4 Months	– Busaira Map. – List of criteria. – List of associations and schools.	All Community layers (men, women, youth, children and people with special needs) have been integrated into the campaign.

		Set reference terms for associations on how campaigns will be in the schools, how to collect and sort and how to determine the price for the wastes.			
2.	Awareness campaigns		3 months		
3.	Continuous follow-up				

The same (Steps, Timeline, Success Indicators, Mitigative/Adaptive and gender mainstreaming Impact) were identified for the remaining waste-related projects.

Water and Agriculture section:

All water and agriculture projects were discussed quickly, and project No. 2 “Treatment Wetlands as Eco technological Tools for Regenerative Reclamation of Water” was excluded; because it is not applicable in the area after their experience and was rejected and it is outside the scope of the municipality work and need a high cost, and is one of the Responsibilities of the Ministry of Water.

Some same steps have been identified for some projects, as follows:

"Capturing the Rainwater, Averting Runoff and Downtown Risks through Water harvesting (RWH)" And "Greywater Reuse"				
NO.	Steps	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Study the experiencef Adoom Society in the application of gray water technique on homes, involving the municipality.	2 years	Come up with an action plan.	Training associations and women in technique.
2.	Training on this technique through associations, involving the municipality.		Criteria for selecting houses in Umm Al Sarab.	Awareness of houses (20 families) on the concept of water harvesting and gray water.
3.	Choose (Umm al-Sarab - Almaqam and Labon-), as a start places; because they are an agricultural areas.			
4.	Choose 20 houses from the area.			

Piloting Innovation for plant varieties that raise the water table, improve soil quality, economic opportunity				
NO.	Steps	Timeline	Success Indicators	Mitigative/Adaptive and gender mainstreaming Impact
1.	Study the nature of plants in the area to determine which plants	6 Months	Coordination with the Directorate of Agriculture	Women's participation in awareness-raising.

	need the least amount of water.		in the region and farmers (men and women).	
2.	Awareness campaign on the types of these plants.	6 months	The need for an agricultural expert.	
3.			Ensure that all Community layers (men, women, youth, children and people with special needs) are integrated	

And all of the other Projects have not been Discussed.

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

Attendees:

No.	Name		Organization
1	Wafa' AL-Zayadin	وفاء خالد الزيدانين	**Municipal**
2	Safa' AL-Rfw'a	صفاء فارس الرفوع	**USAID**
3	Eng.Munira	م.منيرة احمد	**Chairman of Plant Production department**
4	Malek AL-Naienh	مالك النعائعة	**Environment researcher \ Dana reserve**
5	Amer AL-Rfeo'a	عامر الرفوع	**Manger of Dana reserve(RSCN)**
6	Eng. Ibrahim	م.ابراهيم	**Water Authority**
7	Nasear Abo Hmam	نصر ابو همام	**Manager of Busira region**
8	Ammar AL-Rfeo'a	عمار الرفوع	**Mechanical engineer for thermal Lab in AL-Tafielh university**
9	Eng Hashim	م.هشام	**Environment Basira**

Focal Point for	Name
Mitigation	Eng.Munira
Adaption	Eng. Ibrahim
Gander	Wafa' AL-Zayadin

Municipality of Basra - Tafila

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.

It 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), the follower of international and national reports in this regard, does not find what is done He mentioned little 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, behaviors 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.

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,theNational 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 the country's progress in bridging the gender gap. 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 isolation 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 JNCCC 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, without a national strategy and reference that ensures effective coordination between sectors that are linked to change. climate, and follow up on 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.

Basra Municipality - Municipal Workers

The government's work on the issue of women's rights is being discussed in the national and local context. The forms were randomly distributed to employees, 13 forms were filled out by employees; 69.2% were female and 30.8% were male; 46.2% had diplomas, 38.5% bachelor's and 15.4% mentoring. The majority of those who participated in the survey have been working in the municipality for many years for more than 10 years. In 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 84.6% of respondents said that they did not participate in training opportunities if they were held inside or outside the municipality, and attributed this to various reasons, the most important of which is that the decision-maker did not approve, 38.5% of the sample, while 23.1% showed that there are no courses at all, and the female employees added other reasons that it is not possible to Take courses because of the difficulty of securing children, in addition to the husband's unwillingness to participate.

As for their knowledge of the concept of gender, 61.5% of workers said they had never heard of the term, and more than 90% of those who responded to the survey said that there were no women's programs in the municipality. However, 30.8% indicated that there might be special programs between the municipality and the community through the Development Unit. When asked about their knowledge of climate change, 76.9% indicated that they had some knowledge of the concept of climate change. However, there are no climate change programs in the municipality's work. Respondents also stated that the municipality faces many challenges, the most important of which are:

- Fiscal deficit

- Understaffed
- Lack of adequate mechanisms, especially with regard to waste disposal
- Discrimination against women and the lack of programs and services to empower them such as the provision of child custody
- Conflicts of interest, the municipality is considered as a private sector, and there is no change in decision-makers.
- Cultural fajo between municipal officials and council members
- Difficulty working outside the organization of the municipality
- Rising electricity bill
- And the lack of water sources

The analysis of gender in the municipality of Al-Basera revealed that workers take a middle ground between the proponents and opponents of women's potential and their ability to bring about change in society; The majority (84.6%) agreed. It is desirable that women have to make a double effort and intelligence to reach the same results as men, and 23.1% of the sample indicated that they do not believe that women are capable of being mayors, and 15.4% have questioned that women should be able to be mayors. But in contrast, the vast majority of 92% respect men who help their wives in housework, 71% of respondents and respondents consider that women are able to work in all areas just like men, while 23% questioned these abilities and indicated their disapproval of the ability of women. to work as a man in all areas.

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**
0	2 15.4	1 7.7	6 46.2	4 30.8	Women are able to work in all areas just like men.
1 7.7	0	0	9 69.2	3 23.1	I respect the man who helps his wife with the housework.
0	0	0	10 76.9	3 23.1	I believe in women's ability to plan and change in society.
2 15.4	6 46.2	2 15.4	3 23.1	0	I don't believe women can be mayors.
1 7.7	1 7.7	0	9 69.2	2 15.4	Women have to make a double effort and intelligence to reach the same results as men.

Basra Municipality - Community

To get to know Basra as a municipality and a society, it was necessary to hold a series of panel discussions and meetings with the local community in The Municipality of Basra, and 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 14 women's associations and leaders, and another session with 17 men's community associations and community leaders, and then held an additional discussion session in September 2019 with the committee that was created within the community and the municipality of Basra under the name of al-Samoud Group. National to cope with climate change.

The economic and social situation in Basra

According to Basra residents, Basra suffers from compelling economic conditions, with unemployment of young men and women, limited investment and development opportunities, and high poverty rates. "For an economy that has a very bad economy, the best people in economic vision are a doctor at a university, a general practitioner or a specialist... Most young men and women are unemployed, although they have enormous abilities, intellectuals and educated graduates with good experience, training courses, you feel that most of the population of Basir is educated, yet there is an economy that has very few jobs, most of them are mediums or very few jobs or For a limited time only."

Basra's population has a serious interest in educating girls and obtaining the highest university degrees without discrimination with their young counterparts. They even believe that the family in Basra is no longer limited to the education available in Tafila, but is willing to send their daughters out of the province and outside Jordan to teach and participate in training courses. "Basra is the first place in education in the Kingdom, through girls or young people, there is full promotion of education, and there is support for full and comprehensive education for all bassra girls," said The Director of the Basira Cultural Foundation.

Like other Jordanian societies, Basra, like other Jordanian societies, is facing rapid social changes and events that have strengthened the role of Jordanian women, where, in addition to high percentages of female education, they have increased their chances of participating in economic and social life, within the economic opportunities available in the region where they work in the job. The safest government for them and their families, education in schools within fixed working hours, working in the available sewing factory, and engaging in public work within development, charitable and cultural associations.

With these positive changes, however, there are social problems in the Basra Brigade, the group of women leaders and young women considered divorce to be the biggest problem suffered by the Basra brigade due to unemployment, low wages, inability to meet basic needs, and the educational and cultural gap between spouses.

It also appears that the problem of day care for children in the workplace and in the entire brigade of problems posed by the women of Basra, a group of them indicated that although the income of the available sewing factory is good from the point of view of women (260-300 dinars), most housewives did not go to work due to lack of care For their children, the working period is long from 7:00 a.m. to 4:00 p.m., and the employer does not respect labor rights. Despite these difficult circumstances, the brigade's women are forced to work and earn an income that will help meet the basic needs of the family. In addition, women working outside the home and making a real contribution to family income have not been reflected in men's participation in family tasks that are still entrusted to working women, such as family care for children, seniors and patients, and home work and special responsibilities. With medicine, cleaning and washing, and the accompanying exhaustion and physical and psychological fatigue, and the reprimand of conscience in failing to fulfill its role towards the family and children. "I wish to leave work, go back to my home, my family and my children and grow my garden," said one of the engineers.

Existing programs and activities between the municipality and the community

Participants and participants in the discussion sessions and meetings agreed that there is a good relationship and experience in cooperation between the municipality and community institutions, the municipality has participated with institutions and associations in awareness activities on several topics of the community, such as associations and public and private schools. The municipality and directorates in the brigade, such as the Directorate of Education and Agriculture, also provided facilities to work on projects funded by several entities specializing in antiquities, and competitions for school students in drawing and story. However, no projects directly related to climate change have been mentioned, although there is a registered association in the Brigade with a special competence in environmental issues.

Climate Change and The Vision Brigade: Identifying Problems

Discussion groups' knowledge of the concept of climate change and its related nature varied, with the level and nature of education, the accumulated experience of community members and leaders in this area, and the extent to which relevant projects are involved. The focus of the group's talk in the brigade was about the environmental, water and health problems caused by the factories, which are located near the brigade. One of the engineers stated: "We have a problem in the cement factory and the phosphate plant, but the problem that has been dealt with and concretely resulting from the cement factory..... As the explosions carried out by the factory to extract raw materials affected the eyes of the water, we have a decline in the water level in the ground wells and eyes, there was a high flow in the eyes: Ain Dana and Ain Amesra." Others added: "The problem of the eyes is cumulative, there was a great wealth of water, which people used to irrigate their crops in orchards: blue and olives..... It was drinkable water, for farmers, for livestock.... Now the eye is closed, written in undrinkable water!"

Participants and participants in community panel discussions also complained about the 9-12 days of water pumping cycles, affecting their water availability, cost and neglect of home farming. Even if there are water tanks and a well, continuous water outages may not enable them to fill even one tank, and may not be filled due to pressure on the grid and the use of water-to-water atarat. Residents of the brigade are obliged to buy liters of water tanks, and to trade food and drink ing needs on the watering of crops.

An agricultural engineer also raised the problem of persuading farmers to change the quality of their crops in accordance with the nature of the Basra Brigade. Despite intensive outreach and training programs to encourage farmers to change the quality of what they grow and to teach them the mechanisms to do so, farmers' emotional, community and traditional association with a particular type of agriculture, such as olives, fails. Finally, the groups expressed their sense of marginalization of the brigade, the lack of control and attention to their tourist places and historical and natural resources.

Climate Change and The Vision Brigade: Key Actions

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, especially young women, and that the

value of agriculture Gradually declining, the proportion of investments is limited. The problems and proposals mentioned by municipal workers, as well as in the discussions of groups focusing on the experiences of the participants, the nature of the partnership with the municipality, although there are previous projects in the targeted areas in the context of climate change. Some of the measures to be taken into account include:

1. Any action must take into account high unemployment rates, power relations and decision-making in the municipality and other local authorities, and a general sense of marginalization in areas deprived of public services and investments.
2. It may be necessary to attach any action or project to a package of intensive training and awareness on 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 topics Key to 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 to discuss unfriendly 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: organizing cleaning 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 Vision Brigade: Measures to Integrate Gender

The integration of gender is a strategy and a methodology of action and not a goal 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 part of the The design, implementation, monitoring, follow-up and evaluation of indicators and outputs of any policies, projects and procedures that will be adopted and implemented in the municipality of Basra as part of the municipal action plan to address climate change. To benefit both women and men, and to achieve justice and gender equality.

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:

Stage	Practical procedures	Strategic measures
Identify actions/initiatives/projects	Active participation of men, women, young people of both sexes and persons with disabilities in discussion sessions and identifying problems, proposals and priorities - 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	The presence of women leaders in the community andthe local council who are aware of the current status ofgender equality Men's participation in family care work
	The presence of a social type expert in all steps to determine procedures	The policy of gender integration in the municipality of Basra, linked to the international and national vision
	Availability of funding and motivation without gender discrimination	A reference point in the gender to which the municipality of Basra 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
Implementation of the procedure/initiative	Building the capacity of municipal workers, male and female in the municipality on climate change	A career more interested in achieving equality for women

	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 internal and external training	working in the municipality to lead projects and departments Report any violation of discrimination against women in the municipality
	Creating a nursery for the children of workers inside and outside the municipality, supervised by the municipality	Recognition of the welfare economy and the responsibilities it requires Men's participation in family care and domestic work
	Well-thought-out media and advertising campaigns for initiatives that include messages for women's empowerment. Combining the traditional role of women and girls in the family, and their economic, community and leadership roles.	Media shows women as beneficiaries and decision makers in climate change initiatives The media shows men, young men and children who are as interested in family matters as they are concerned with public affairs
	Creating suitable economic opportunities for women to improve their income - Training and qualification with non-traditional skills - Training in project-related technology skills - Creating the right place to work - Ensuring labour and professional rights - No extra unstudied burdens on women	Recognition of the welfare economy and the responsibilities it requires Men's participation in family care and domestic work More participation in family and community decisions
	Activeparticipationof women's associations in implementation Active participation of young people and young people	Leading women's associations attract young men and women.

	Active participation of female and male schools Active participation of people with disabilities 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)	Associations capable of writing projects and concluding agreements with national donors Leading women's associations specializing in climate change and related sectors
Follow-up and evaluation	Track the numbers of beneficiaries/participants in initiatives disaggregated by gender, age and geographical area of the municipality Tracking the numbers of leaders and decision makers classified by gender Participation of women researchers and women's associations in data collection	Study the impact of initiatives on the lives of both women and men family, community and health (knowledge, direction and behaviour) Study any outcomes associated with girls and boys within the family (no discrimination, equal educational opportunities, no violence) Study the impact of initiatives on municipal workers (knowledge, direction, behaviour and opportunities for gender justice) Documenting stories and experiences

9.4 Baselines

9.4.1 Mitigation

تطوير خطط العمل المناخية المحلية في بلدية بصيرا

المتطلبات البيانية الأساسية

التخفيف

البيانات الاساسية	
مساحة البلدية	(36) كم2
الهطول السنوي	200مم/سنة
مناخ البلدية	حارة صيفا وبارد شتاءاً
سنة التخطيط الأساسية والسنة المستهدفة	
سنة الأساس(سنة جرد الإنبعاثات في الاردن)	
السنة المستهدفة (اختر السنة التي توافق مع إستراتيجية المناخ في الاردن)	
سكان البلدية وسكان الغير مقيمين	
تعداد السكان المقيمين يومياً	17386نسمة
تعداد السكان الغير مقيمين يومياً	
بيانات جرد إنبعاثات الغازات الدفيئة في المجتمع (من الناحية المثالية)	
قاعدة جرد عوامل إنبعاثات الغازات الدفيئة في البلدية (بالتوافق مع البروتوكول العالمي لقوائم جرد إنبعاثات غازات الدفيئة على نطاق المجتمع (GPC	لا يوجد

بيانات طاقة المباني للقطاع الخاص					
درجة الحرارة	37درجة العظمى والصغرى -5 درجة	درجة الرطوبة		الارتفاع غن سطح البحر	غرندل 1400م قرقور 500م فوق سطح 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	5	فوق متوسط	20	تحت متوسط	30	منخفض	30	غير ثابت (عمل غير رسمي)	15
توزيع المنازل حسب نوع الدخل (بالنسبة المئوية)									
منازل مستقلة	100	منازل مستقلة	90	منازل مستقلة	90	منازل مستقلة	10	منازل مستقلة	10
شقق سكنية	0	شقق سكنية	10	شقق سكنية	10	شقق سكني ة	90	شقق سكنية	90
مساحة التجارية لكل فرد									
غرندل	مساحة المباني التجارية	1500	مساحة المباني الصحية	300	مساحة المكتب		مساحة التعليم		
بصيرا	مساحة المباني التجارية	3000	مساحة المباني الصحية	1600	مساحة المكتب		مساحة التعليم		
مساحة التجزئة		مساحة الفندق			مساحات اخرى				
تشبع خدمة الكهرباء				100%					
مبنى البلدية وبيانات الطاقة العامة للإضاءة (سنة الاساس)									
بيانات جرد البلدية									
الرقم	نوع المبنى	كمية استهلاك الطاقة(كيلو واط. ساعة)		المساحة م2	كمية استهلاك الغاز(اسطوانة)		كمية استهلاك المياه		
1	مبنى البلدية الرئيسي	3000 دينار							
	مبنى غرندل								
عدد المباني	1	المبنى الرئيسي	2	مبنى غرندل	3	قاعة	4	مخازن مؤجرة (8 مخازن)	5	مخازن مؤجرة (5)
نوع المبنى				المساحة					
كمية استهلاك البلدية من ديزل الى التدفئة المركزية				كمية استهلاك البلدية من ديزل الى صوبة البواري في منطقة غرندل				2000	
كمية استهلاك البلدية من جرة غاز التدفئة (20) أسطوانة									
كمية استهلاك الكهرباء للمبنى (كيلو واط)				كمية استهلاك الغاز الطبيعي للمبنى (متر مكعب)					
إجمالي استهلاك مصابيح إنارة الشوارع (تيرا .واط/ساعه)		177000دينار	تكلفة السنوية	100 ألف دينار	متوسط ساعات تشغيل إنارة الشوارع يوميا (ساعة/يوم)				
إجمالي استهلاك إشارات المرور في الشوارع (تيرا .واط/ساعه)									
بيانات توليد الطاقة الكهربائية للشبكة الوطنية الخاصة بالبلدية									
نسبة استهلاك الكهرباء للقطاعات		إنارة الشوارع		ضخ المياه		تجاري		صناعي		منزلي
مصدر/ نوع الطاقة			النسبة المئوية لها من الانتاج		مصدر/ نوع الطاقة				النسبة المئوية لها من الانتاج

طاقة المتجددة	الطاقة الشمسية (فواتية ضوئية)		غاز	غاز طبيعي		
	الطاقة الشمسية (المركزة)		النفايات الصلبة البلدية			
	الرياح	117 ميغا واط	الوقود	زيت الوقود المقطر		
	كهرومائية (كبيره,صغيرة)		الفحم			
	الكتلة الحيوية		مختلط (قطاع الطاقة الكهربائية)			

بيانات النفايات الصلبة

الانتاج اليومي/ الحمولة طن	16.9-17	معدل التوليد	0.9كغ/شخص.اليوم

مكونات النفايات الصلبة للبلدية

النوع	الرقم	نوع النفايات الصلبة	مجموع الكلي	النسبة المئوية %	الرقم	نوع النفايات الصلبة	مجموع الكلي	النسبة المئوية %
المنزلية	1	الورق/الكرتون	10	4.8356	6	البلاستيك	45.9	22.1951
	2	المنسوجات	19.3	9.3327	7	المعادن	13	6.2863
	3	النفايات العضوية	54.7	26.451	8	زجاج	3.9	1.8859
	4	خشب	_	_	9	اخرى	60	29.014
	5	المطاط والجلد	_	_		مجموع الكلي	كغم206.8	
النفايات الصلبة الأخرى	السكنية /الانشائية		40		التجارية		20	
	الزراعية		40		حيوانية		75	

إدارة النفايات الصلبة حسب نوع النفايات بالنسب المئوية %

إعادة التدوير	0	طمر العشوائي	100%	طمر صحي	0	سماد عضوي	0
حرق(حاراق)	0	حرق غير منظم		0	هضم لا هوائي		0

بيانات استهلاك الطاقة السنوية لمركبات تجميع النفايات لسنة الأساس

الوقود الاساسي	ديزل و بنزين	عدد شاحنات الديزل	35	رحلات شاحنات الديزل (كم/سنة)	
كفاءة شاحنات الديزل (كم/لتر)				نسبة سكان البلدية ضمن خدمة جمع النفايات	100%

طرق معالجة المياه العادة للبلدية

استهلاك مباني البلدية للمياه		**الاستهلاك الاجمالي لكل المباني**	
استهلاك مباني المنازل للمياه		**استهلاك مباني المنازل للكهرباء**	

معالجة المركزية			معالجة اللامركزية نسبة الستخدام			
هل تعالج مياه الصرف الصحي؟ لا	اسم المحطة	_	الحفر امتصاصية	100%	نظام صرف الصحي	0

مصادر المياه في البلدية

تحلية المياه (ذات ملوحة متوسطة)	0%	مياه جوفية	100%	تحلية المياه (مياه البحر)	0%

عمق المياه الجوفية	0%	مياه معاد تدويرها	قليلة جدا	مياه سطحية	0%
عمق مصدر المياه الجوفية (بالامتار)					100-200
متوسط عمق مصدر المياه الجوفية (بالامتار)					
كمية الطاقة لضخ المياه الجوفية / كثافةالطاقة المائية (كيلو واط.ساعة/ميغا لتر)			تكلفة الطاقة لضخ المياه الجوفية / كثافةالطاقة المائية (دينار)		95000
تشبع خدمة المياه (نسبة المئوية للسكان في البلدية الذين يحصلون على خدمة المياه المحسنة)					99.00%
كمية استهلاك الفرد في مناطق بلدية بصيرا من مياه(130 لتر في اليوم)					

بيانات النقل معدل الرحلات (رحلات/يوم/مواطن)			
مصدر الرحلة	النسبة المئوية		متوسط طول الرحلة (كم/ رحلة)
الرحلات المفترض للافراد	كالركاب من الاجمالي	99%	
	كشحن من الاجمالي	1%	
نسبة الرحلات المفترض للبلدية	كالركاب من الاجمالي	99%	
	كشحن من الاجمالي	1%	

نشاط المركبة	المسافة المقطوعة لكل مركبة (كم /سنة	للبلدية	الرقم	النوع	صفة الاستعمال	رقم المركبة	المسافة المقطوعة	كمية المحروقات باللليتر
			1	جيب	سوزوكي 4*4	21503/5		بنزين5543
			2	بكب	ميستوبيشي 4*4	6966/5		1503
					ميستوبيشي 4*4	25487/5		3212
			3		ميستوبيشي 4*4	14167/5		554
			4		ميستوبيشي 4*4	23971/5		1538
			5		ميستوبيشي 4*4	23973/5		1037
			6	قلاب	هنداي			جديد
			7		اسوزو	22132/5		1654
			8		مرسيدس	20281/5		3454

							9	صهريج محروقات		
					كابسة	16654/5	10	صهريج نيسان	1577	جديد
						22509/5	11	اسوزو	4612	
						16646/5	12	اسوزو	3089	
						22355/5	13	مرسيد س	2013	
						21598/5	14	مرسيد س	7846	
						14757/5	15	تويوتا	4458	
						22086/5	16	باص نقل موتى مارسيدس	300	
						20959	17	كتربلر	200	
					لودر	22706/5	18	كتربلر	2500	
						23625/5	19	باكو	600	
						24160/5	20	كاسحة ثلوج	200	
						24413/5	21	مدحلة بوماك	400	
						24127/5	22	جريدر كوماتسو	1400	
						24088/5	23	جك همر	1200	
						24372/5	24	تركتور	354	
						24234	25	رافعة كهرباء	1344	
				للافراد			1	سيارة		
							2	باص		
							3	أخرى		

نسبة الرحلات الركاب في كل من													
سيارات	25	دراجة النارية	0	سيارة اجرة	3	ميكروباص	7	حافلة صغيره	25	حافلة عادية	10
حافلات التردد السريع		0	دراجة هاوائية		0	على الاقدام	30	أخرى		0	

9.4.2 Adaptation

تطوير خطط العمل المناخية المحلية في بلدية بصيرا	
المتطلبات البيانية الأساسية	
التكيف	
الأساسيات (الظروف الحالية للبلدية)	
عدم وجود بنية التحتية المناسبة ويظهر جليابعدم وجود شبكة للصرف الصحي، انهيارات في الشوارع، الحاجة الى جدران استنادية، شبكة المياه بحاجة لاعادة تأهيل.	الظروف الاقتصادية
قله المخصصات المالية اللازمة التي تتطلبها تحسين البنية التحتية واقامة المشاريع الاستثمارية	
المخصصات المالية للبلدية غير كافية للقيام بتأهيل البنية التحتية للتكيف مع اثار التغير المناخي او حتى بناء مشاريع استثمارية لرفد خزينة البلدية.	
ضعف التحصيلات المالية المترتبة على المواطنين وذلك لارتفاع نسبة الفقر والبطالة التي تصل الى اكثر من 30%	
يوجد العديد من الدوائر الحكومية الموجودة ضمن مباني مستأجرة ومتباعدة وعليه فقد اقترحت البلدية استملاك قطعة ارض وبناء مجمع يضم جميع الدوائر الحكومية	
ضعف دور القطاع الخاص بشراكه مع البلديه حيث انه يوجد بعض المشاريع الاستثمارية الضخمة للقطاع الخاص ضمن حدود البلدية ولكن البلدية لا تستفيد من وجودها باي شكل من الاشكل بل وانا قد تتضرر من وجودها، فمثلاً: يوجد مشاريع للاستثمار بطاقة الرياح ولكنها لا تغذي البلدية بالكهرباء لا تشغل اي شخص من سكان المنطقة.	
انتشار واسع للتجمعات السكانية وتباعد المسافات	الظروف الاجتماعية
ارتفاع حجم الاسره	
لا يوجد في في البلدية حدائق او مرافق عامة سوى حديقة واحدة وغير مؤهلة بالمرافق المطلوبة.	الظروف البيئية
مصنع الالبسة استثمار لجهة اجنبية يشكل تهديد بيئي لعدم تقييده بالتخلص من النفايات الصناعية بطريقة صحيحة	
مشاريع الاستثمار بطاقة الرياح تسبب الغبار والاتربة التي تسببت بتقليص الانتاج الزراعي	
موت الماشية بسبب التهاب الرئوي من الأتربة والغبار المتناثر من انشاء وتشغيل مراوح الرياح ومصنع الأسمنت	
مزارع العنب,القمح,الشعير والزتون تأثرت بالغبار ناتج من مراوح انتاج الكهرباء	
انتشار واسع للتجمعات السكانية وتباعد المسافات	
الأنشطة	
الانشطة الجارية	
توزيع حاويات نفايات في مناطق البلديه	الأنشطة الخدمية

	شراء واستملاك ارض لمقبرة غرندل
	تأهيل شوارع في مناطق البلديه وتوسعتها
	مشاركة رئيس البلدية في جميع المناسبات والاحتفالات ونشاطات في مناطق البلديه
	تجهيز عبارات وقنوات تصريف مياه وجدران استناديه في مناطق البلدية
	عطاء خلطه الساخنه والتي تم تعبيد شوارع في مناطق البلديه لعام 2018 عطاء خلطه جديد لعام 2019 على موازنة البلديه
	1616وحدة اناره (LED) موفره للطاقه تم تركيبها في جميع مناطق البلديه وصيانة لوحدات الاناره المعطله
النشاط تنموية واستثمارية	المشاريع الاستثماريه لتوليد الطاقه الكهربائيه: شركة رياح الاردن وهو المشروع الاول ولاكبر من نوعه في المنطقه وشركة دايهان الكوريه الطاقه الانتاجيه
النشاط بيئية	القيام بحمله نظافه تحت شعار لتكن مناطق البلديه الاجمل بمشاركه الفعاليات الرسميه والشعبيه
	وحدة اناره (LED) موفره للطاقه تم تركيبها في جميع مناطق البلديه
	توزيع حاويات نفايات
النشاط السياحي	عمل مدخل لاثار بصيرا
النشاط الزراعي	_
النشاط التجاري	_
النشطة المخطط لها	
الأنشطة الخدمية	_
النشاط تنموية واستثمارية	الطاقه الشمسيه: كمية الاشعاع الشمسي في مناطق البلديه كاف لانتاج كميات من الطاقه تلبي جزءا كبيرا من حاجة البلديه ودوائر الحكومية المدارس والمراكز الصحيه لتوفير في فاتورة الكهرباء والتدفئه وأنارة شوارع البلدية .
النشاط بيئية	تركيب 800 وحدة LEEDفي المرحلة التالية لمشروع إضاءة الشوارع
	مشروع البيوجاز حيث تحول كافة انواع المخلفات سواء كانت نباتيه او حيوانيه او نفايات منزليه الى منتجات مفيده يتم استغلالها في مجالات عديده .
النشاط السياحي	بناءمركز زوار سياحي (بدعم من اللامركزية)
النشاط الزراعي	_
النشاط التجاري	_

الاستراتيجيات	
الرقم	الخطط والسياسات والبرامج ذات الصلة التي تعمل أو من المحتمل أن يكون لها تأثير على القطاعات المحددة
1	خفض مستويات الفقر والبطالة من خلال انشاء مشاريع استثمارية
2	تحسين مستوى الخدمات المقدمه للمواطنين وتوزيعها بشكل كامل
3	تطوير ورفع كفاءة البنيه التحتيه وعمل خطط للانذار المبكر من اي مخاطر طبيعية مثل الفيضانات الومضية
4	توفير المرافق العامه وتحسين جودتها
5	خلق بيئه استثماريه قادره على جذب رؤوس الاموال الخارجيه وتشجيع الاستثمارات المحلية في كافة المجالات وضمن الموارد المتاحه وتعزيز الشراكة مع القطاع الخاص وتحديدا في الاستثمار بقطاع الطاقة.
6	الاسهام يتعزيز التنميه الاقتصادية والشراكه مع القطاع الخاص
7	المساهمه في تحقيق التوازن بين الموارد والسكان
8	تعزيز مشاركة الشباب والمراه وذوي الاحتياجات الخاصه ومؤسسات المجتمع في المجالات الاجتماعيه والاقتصاديه والثقافيه والرياضيه
المشاريع	

مشاريع خدماتيه	انشاء طرق ، تعبيد شوارع اناره ، جسور، جدران استناديه ، حدائق
مشاريع استثماريه	مصنع اسمدة عضوية ومصنع خيوط الصوف ، مجمع الدوائر الحكوميه
مشاريع تنموية	بناء القدرات المؤسسية لموظفي البلدية ، معهد تدريب خاص في الطاقه المتجدده

تاثير المناخ	
من خلال المسوحات الميدانيه لتحديد مخاطر أثر التغير المناخي على مناطق البلديه كانت انتائج ما يلي :	
فقدان المراعي وخساره في المحاصيل الزراعية بسبب توالي مواسم الجفاف وتراجع نسبة الهطول المطري	1
زيادة نسبة التصحر وخصوصا في الاراضي الزراعية	2
هجرة الطيور وانقراضها من المنطقه وجفاف العديد من الينابيع المياه	3
تدهور في البنية التحتية للبلديه بسبب الهطول المطري المكثف	4

البيانات النوعية	
موارد البيانات والتقييم المستخدمة لتقييم التهديدات ونقاط الضعف والآثار المترتبة على البلديات:	
تعتمد البلدية بشكل اساسي على مياه بئر الحسا لتزويد المنازل بمياه الشرب	واقع المياه في البلدية
استهلاك الفرد اليومي من المياه بمعدل 188 لتر يوميا	
توزيع استهلاك المياه في المنازل يعد توزيع طبيعي بحيث لا يوجد مصرف معين للمياه	
يوجد وفرة في المياه في فصل الشتاء وشح في فصل الصيف	
تشكل الحفر الامتصاصية مصدر تلوث كبير للمياه الجوفية وخصوصا مياه الينابيع المستخدمة للزراعة كما تشكل خطرا صحيا على البدو الذين يعتمدزن عليها بشكل اساسي في جميع استخداماتهم	
يقوم اغلب سكان البلدية بزراعة الاشجار المثمرة مثل العنب والزيتون والتين و الرمان واللوزيات وتعتبر الزراعة مهنة ثانوية وليست اساسية	واقع الزراعة في البلدية
يستخدم سكان البلدية اساليب تقليدية في الزراعة والري ويستخدمون الاسمدة والمبيدات الكيماوية بشكل اساسي	
يعتمد المزارعون على مياه الينابيع الطبيعية في الري	
لا يوجد اي ابار مياه جوفية ضمن حدود البلدية رغم ان عمق المياه الجوفية يبدأ من 100 متر وذلك لعدم اعطاء اي رخص لحفر ابار في المنطقة	
يوجد في البلدية حوالى 36 الف رأس من المواشي (اغنام وماعز) تعتمد في غذائها على الاعلاف وليس على الرعي	
يقع مصنع اسمنت الرشادية خارج حدود البلدية انما يوجد لديه مقالع ومناجم داخل حدود البلدية	معلومات اخرى
تشكل هذه المقالع تهديدا بيئيا كبيرا في المنطقة حيث يوجد مقالع تم توقف العمل فيها وكن لم يعاد تأهيلها وتحولت الى مكان للتخلص من المخلفات الخطرة مثل الزيبار الذي ادى في احد المرات الى كارثة بيئية في المنطقة	
دى وجود المقلع الى تلوث المياه الجوفية الناتج من تحوله الى مكب للنفايات السائلة كمى ادى الى تلوث الهواء في المنطقة بسبب استخدام النفايات الصلبة الى مصدر للطاقة من خلال حرقها.	
توجد المصانع والمقالع في اراضي زراعية	

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	
مساحة الاراضي الزراعية	1
مساحة الاراضي المزروعة	2
كمية الانتاج الزراعي (النباتي والحيواني) من المناطق التابعة للبلدية	3
كمية استهلاك مرافق البلدية من المياه	4
فاتورة مياه البلدية	5

9.3.3 Gender Mainstreaming, Human Resources

تطوير خطط العمل المناخية المحلية في بلدية بصيرا

المتطلبات البيانية الأساسية

الموارد البشرية

جرد الموظفين

الرقم	الوظيفة	العدد الكلي	الذكور	الاناث
1	الموظفين في المركز	117	107	10
2	الموظفين في المناطق	83	79	4
3	مدراء/مديرات الوحدات	1	1	0
4	رؤساء الاقسام	7	4	3
5	المشرفين	3	3	0
6	الفئة الثالثة	92	90	2
7	الوظائف الميدانية	0	0	0
8	لجنة العطاءات الحالية	3	2	1
9	حمله الشهادات المتوسطة/ دبلوم	10	6	4
10	حمله الشهادات الجامعية الاولى	9	6	3
11	حمله شهادات الدراسات العليا	0	0	0
12	حملة شهادة التوجيهي	6	6	0
13	حملة شهادات اقل من التوجيهي	92	90	2
14	حملة شهادة الهندسة	3	1	2
15	أعضاء المجلس البلدي	10	5	5
16	المستفيد من المجتمع المحلي من دورات البلدية خلال ثلاث أشهر	0	0	0

الدورات التي تقدمها البلدية

الرقم	المكان	اسم المدرب ومكان العمل	اسم الدورة	الفئة المستهدفة

لا يوجد

البرامج التنموية في وحدة التنمية				
نوع البرنامج التمنوي	الرقم	الاسم	تاريخ المباشرة والنتهاء	الجهة الممولة او الداعمة
الدراسات	1	إتحاد بلديات كندي	1/8/2018-1/8/2023	الحكومة الكندية
	2			
المشاريع	1	منظمة اركس ارتشي الإيطالية	1/4/2019-10/10/2019	الوكالة الإيطالية
	2			

الجمعيات المسجلة ضمن البلدية					
الرقم	الاسم	نوعها	عنوان	اسم المدير	الرقم /الايميل
1	جمعية ادوم	خيرية	بصيرا		
2	جمعية بصيرا	خيرية	بصيرا		
3	جمعية الحارث	خيرية	بصيرا		
4	جمعية فاطمة الزهراء	خيرية	بصيرا		
5	جمعية سيدات بصيرا	خيرية	بصيرا		
6	جمعية الريادة	خيرية	بصيرا		
7	جمعية غرندل	خيرية	غرندل		
8	جمعية هبه الله	خيرية	غرندل		
9	جمعية نهر العطاء	خيرية	غرندل		
10	جمعية بصيرا البيئية	البيئية	بصيرا		
11	جمعية قرى السعوديين	التعاونية	غرندل		
12	جمعية المقام	التعاونية	بصيرا		
13	جمعية الضحل	التعاونية	غرندل		
14	جمعية الكرمة	التعاونية	بصيرا		
15	جمعية الانفال	التعاونية	بصيرا		
16	جمعية الهيشة	التعاونية	بصيرا		

الفاعلين في القطاع الخاص ضمن البلدية				
الرقم	الاسم المنشأة	نوعها	عنوان	الرقم /الايميل
1	مصنع الخياطة الهندية			
2	مصنع اسمنت لافارج			
3	جمعية الملكية لحماية الطبيعة			
4				

				5
				6