Sweden
Sverige

MINARET

The MENA Region Initiative as a model of NEXUS Approach and Renewable Energy Technologies

المبادرة الاقليمية للترابط بين المياه والطاقة والغذاء واستخدام الطاقة المتجددة

Achievements & Perspectives

Promoting Urban Nexus in the MENA Region Workshop
Cairo 20/10/2019

الجمعيّة العلميّة الملكيّة
Royal Scientific Society

NERC
National Energy Research Center

Horizons
For Green Development

IUCN

RSS/NERC

الجَمعيّة العِلميّة المَلكيّة
Royal Scientific Society

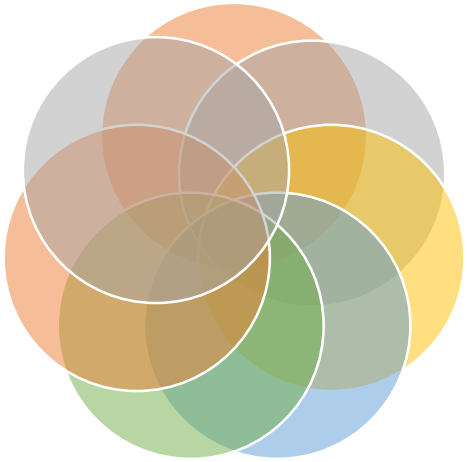
Areas of specialization

- Photovoltaic
- Wind Energy
- Energy Efficiency
- Solar thermal Energy
- Oil shale
- Geothermal
- Biogas

Research & Technical Studies

Pilot Project Implementation

Technical Services & Consultations.



Preparation of Solar/wind data base

Capacity Building

Know-how transfer

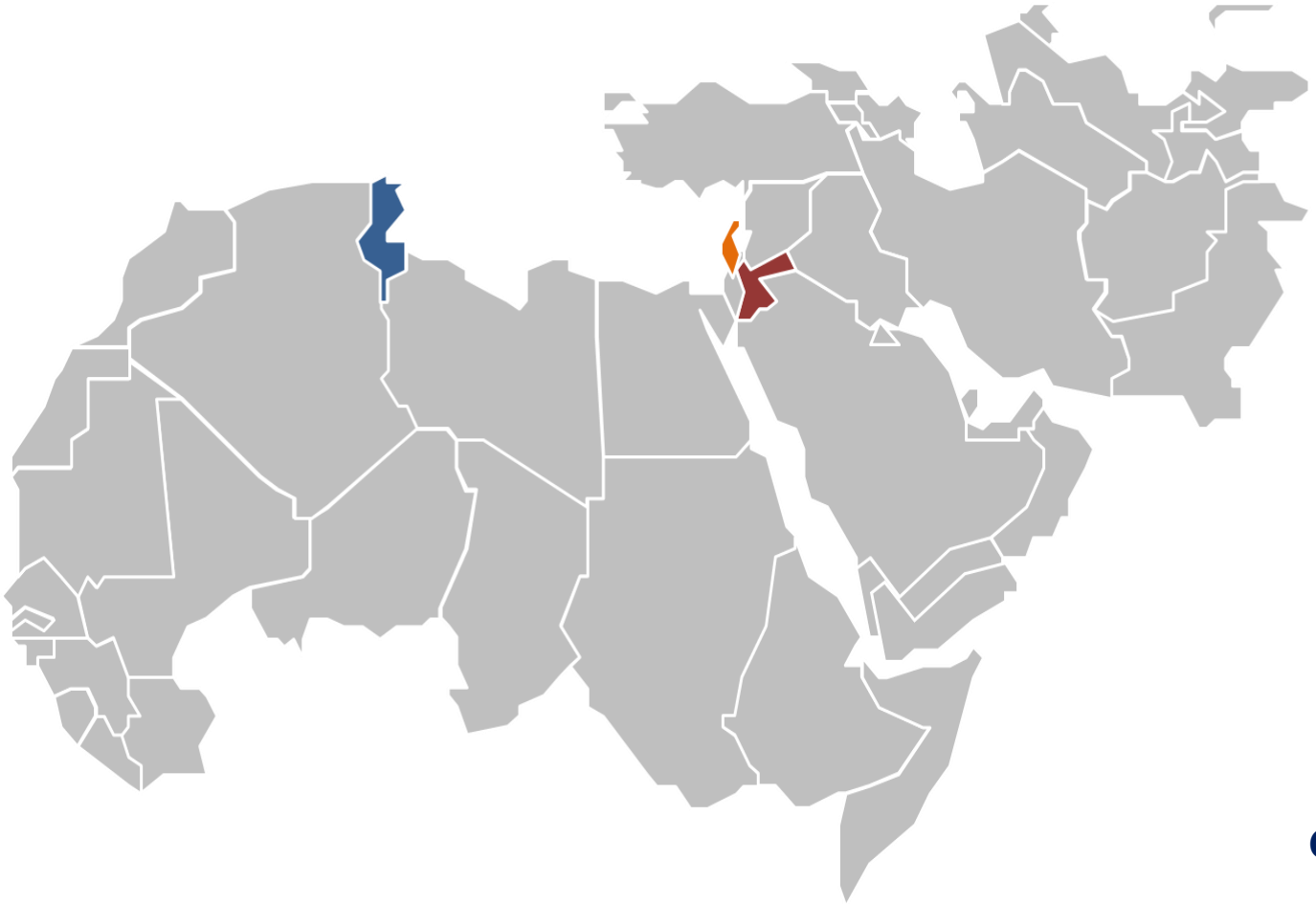
Laboratory Testing of Components

Introducing MINARET

Background

- A four year project, established in 2017
- Funded by by the Swedish International Development Cooperation Agency (SIDA) and is implemented in partnership at a municipal level in Jordan, Lebanon and Tunisia
- First project of its kind in the region at the Municipalities Level that utilizes a nexus approach to address the unique sustainability challenges and opportunities that face Municipalities with regards to water, energy and food security.
- The Project facilitates dialogue between experts and players from the public and private sector in renewable energy, sustainable development, water, climate change, and more
- Stakeholders from all around the region discuss and plan together how to overcome the increasing constraints through rethinking how we produce and consume energy in relation to the water and food sectors

Targeted Countries



Tunisia

Monastir Municipality

Lebanon

Jdaideh Municipality

Jordan

Greater Karak Municipality

Implementing Partners

الجمعيّة العلميّة الملكيّة Royal Scientific Society	The Royal Scientific Society (RSS) is the largest applied research institution, consultancy, and technical support service provider in Jordan and considered as a regional leader in the fields of applied science & technology. NERC is one of the main institutions offering their Energy expertise and access to synergies with a number of centers working various verticals such was water & environment, construction.
IUCN	International Union for Conservation of Nature • IUCN is the world's oldest and largest global environmental organization • Mission: valuing and conserving nature, ensuring effective and equitable governance of its use.
Horizons For Green Development	Horizons for Green Development (HFGD) is a Jordanian non-profit organization • committed to empowering communities through sustainable development. • Mission: contribute to alleviating water shortages, increased use of RE and EE and improved food securities.

MINARET Main Objective

The overall goal of the proposed project is to "Strengthen regional cooperation within the MENA region through implementing the NEXUS approach (energy/water/food) integrated with renewable energy technologies at the municipality level, to mitigate climate change impacts and combat poverty".

Specific Objectives

- To build the municipalities' resilience that are facing climate change by adopting renewable energy resources, energy efficiency practices, water management techniques and food security
- To strengthen the institutional capacities of relevant governmental authorities involved in the project by promoting policy dialogue, implementing capacity-building programs
- To promote inter-municipal regional cooperation to enhance good governance, and equitable dealing with the needs and human rights especially for refugees' surviving in and around municipalities
- To include women, youth and marginalized groups in the development and implementation of the NEXUS approach
- To develop a MENA dialogue platform focusing on sharing knowledge, education and lessons learned on national and regional policy levels in collaboration with similar regional initiatives.

Project Kick off - Jordan

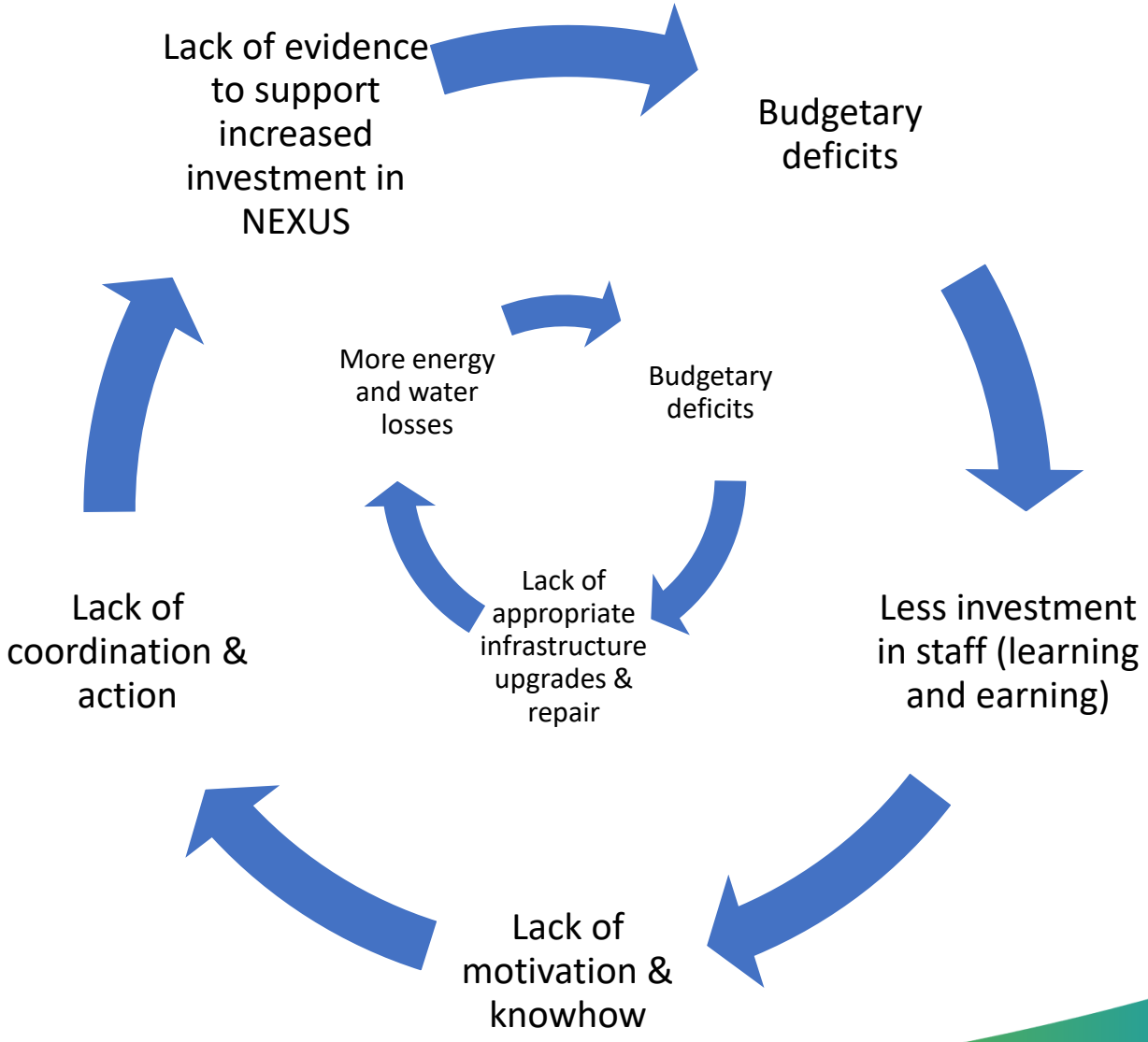
Project Kick off - Lebanon

Project Kick off - Tunis

Our Plan

	Year 1	Year 2	Year 3	Year 4
Situational & Baseline Assessments	1.Project Outlines 2.Prioritized Sida-funded projects 3.Measureable baseline			
Demonstration Projects		1.List of projects across input to market identified quantifying benefits and costs 2.Concepts developed for all projects emerging from studies 3.Detailed plans for the prioritized Sida funded co-developed with relevant stakeholders 4.Sida-funded projects implemented and documented effectively		
Learning & Growth		1.NEXUS Task Force mandate, governance structure, procedures developed. Team established & trained 2.Green procurement Manual produced 3.Capacity building opportunities delivered based on specific capacity needs identified by stakeholders 4.Detailed NEXUS Municipality manual prepared to be used to replicate Minaret NEXUS approach.		
Communication & Networking	1.Communication Action Plans developed in 3 Project municipalities 2.Content translated, curated and/or produced and then shared on website and platform. 3.4 annual learning workshops, 3 Conferences & 6 Presentations Conducted on MINARET NEXUS in Regional & International Forums & Events.			
Planning & Financing			1.Municipalities join the Covenant of Mayors 2.Sustainable Energy & Climate Action (SECAP) plans created 3.NEXUS fund established (if possible) 4.List of prioritized and bankable projects prepared 5.Investment attraction & closing	

Challenges Facing Municipalities



Opportunities To Applying Nexus In Municipalities:

Municipalities Have a Developmental Role

Municipality as Consumer

- Reduce municipal consumption of Energy & Water
- Provide municipalities with green water & energy solutions

Commitment of Municipality to NEXUS & Community

NEXUS in Municipalities' Core Services

- Improve delivery of Municipality Services Related to Energy, Water, Food & Agriculture
- Expand Municipality Services Related to Energy, Water, Food & Agriculture
- Improve Coordination on Energy, Water, Food & Agriculture Service Delivery

Developmental Role of Municipality

- Creation of NEXUS Fund to support Socio-economic Projects with & for community.
- Starting Public, Private & Community Partnerships to Implement NEXUS Projects.

Why is this Project Critical & Timely?

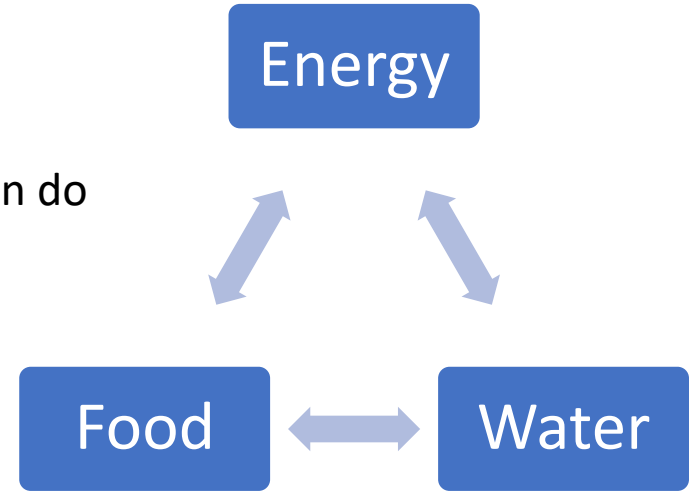
Water-Energy-Food NEXUS is central to sustainable development

NEXUS is:

1. Process-oriented

    a) It pinpoints us to where and how we can do more with less.

    b) It shows us un or underutilized opportunities.



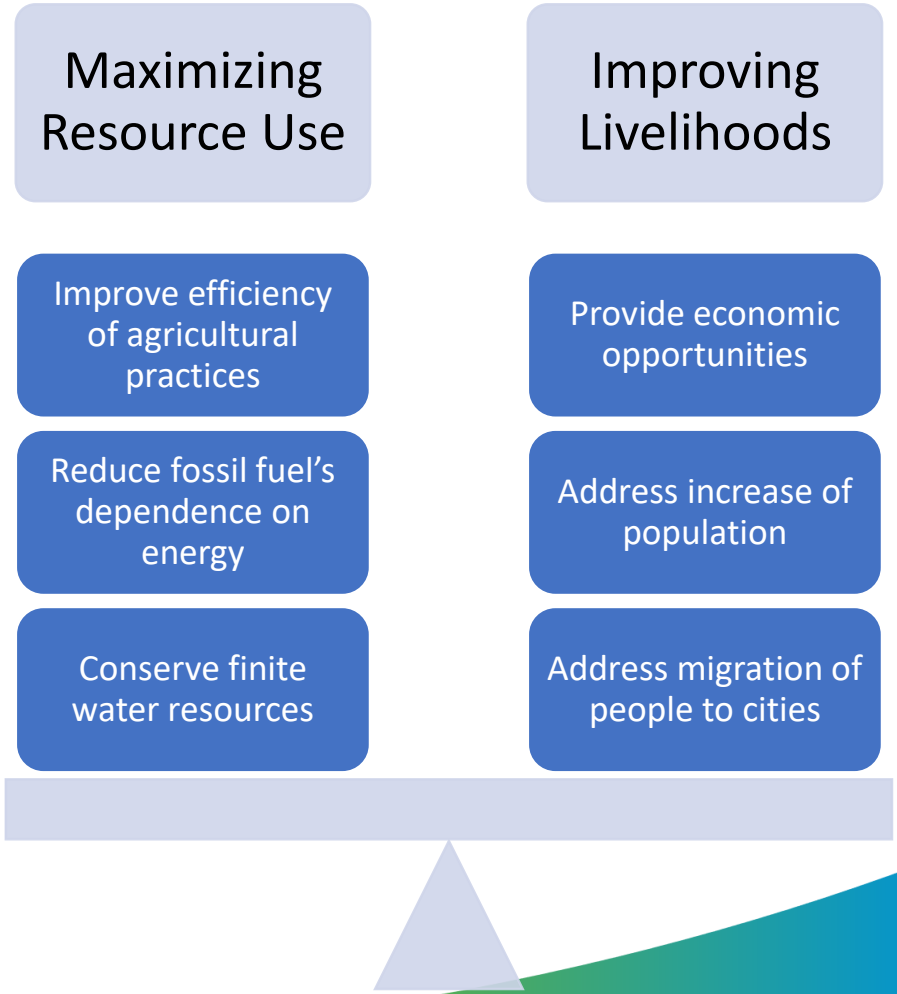
2. Solutions-oriented
   Balancing for win-win: finding Synergies & tradeoffs

Why is this Project Critical & Timely?

Water-Energy-Food NEXUS is central to sustainable development

NEXUS is:

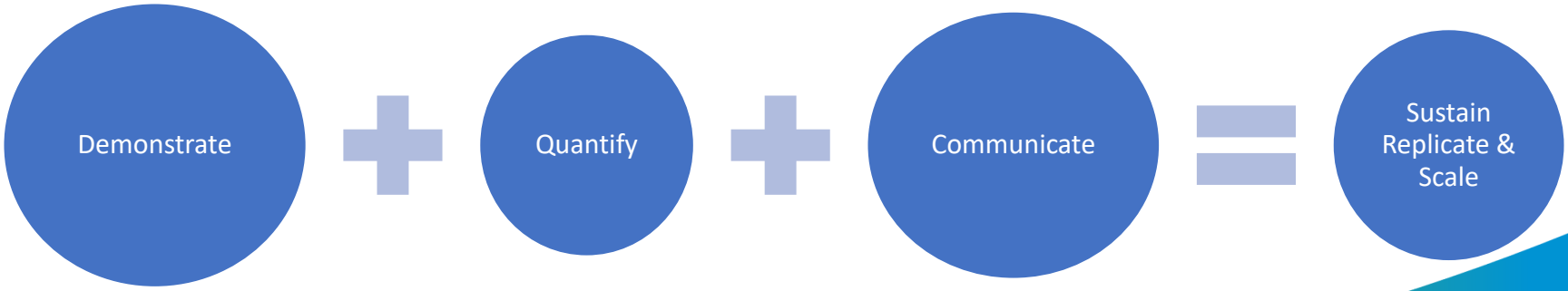
3. Goal-driven



What We Need To Do

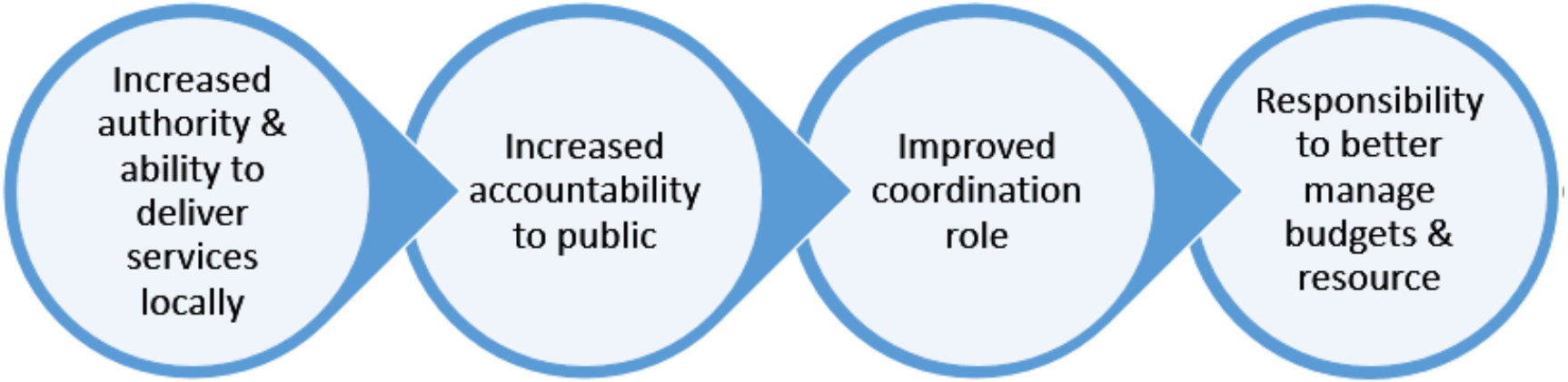
Sustain Interest of Municipalities

- Avail Financial Resources
- Support Municipalities Co-develop NEXUS Services with Other Players
- Support Municipalities Play a Larger Development Role



What We Need To Do

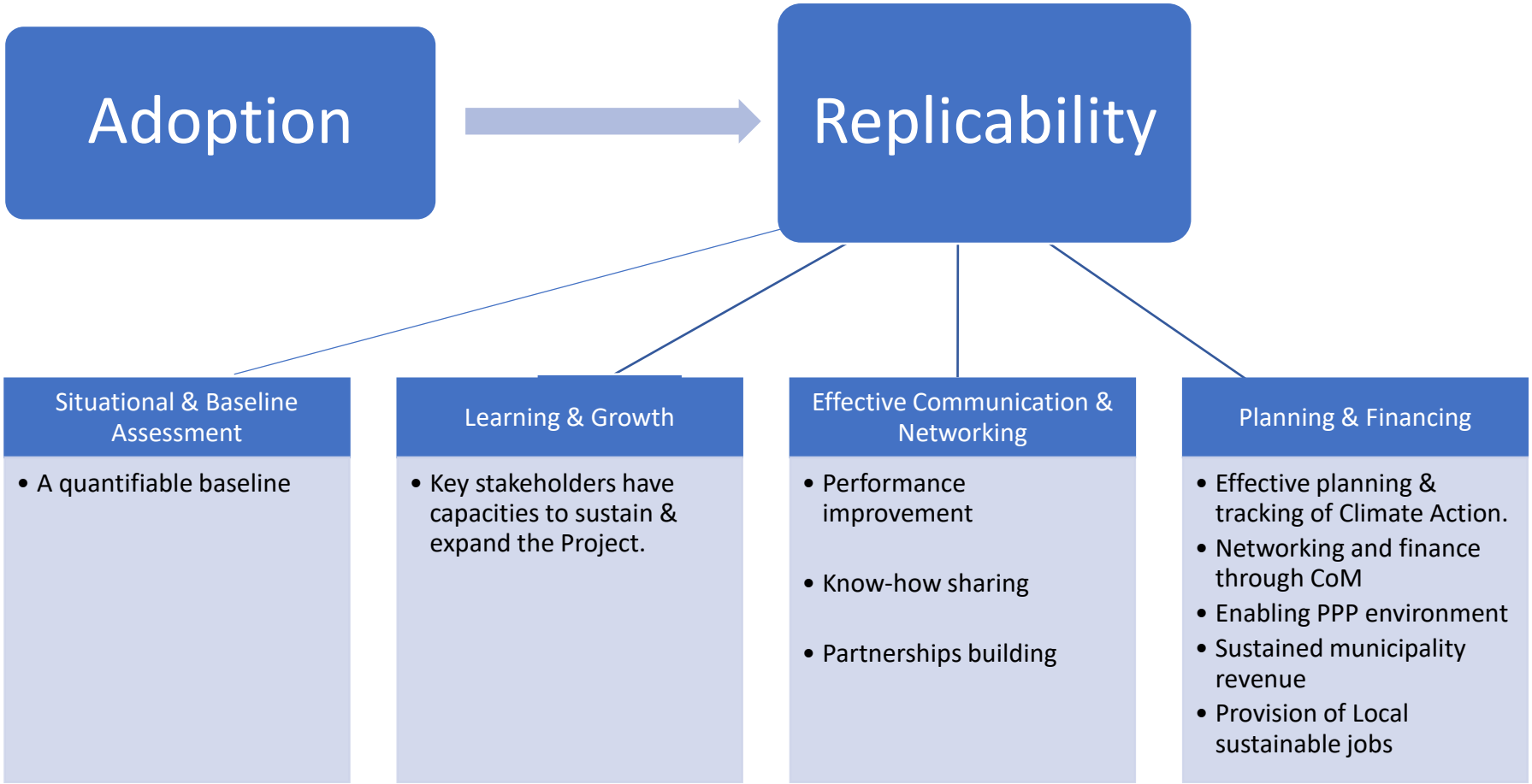
Decentralization as a regional trend returns municipalities to their original mandate



MINARET & SDGs

The road to Replicability

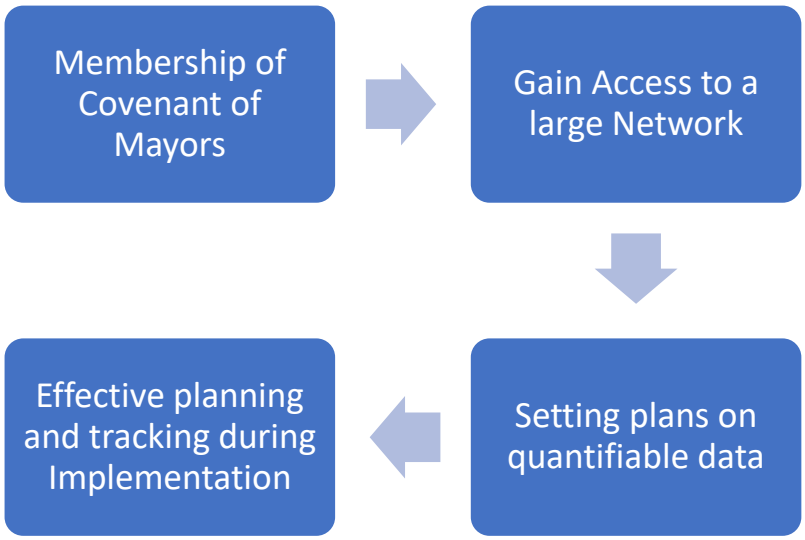
Access to Finance



Planning & Finance for Municipalities

What the Covenant of Mayors Can Do!

- The main aim is to help municipalities identify investment opportunities, and attract investors
- Also limited abilities to invest and borrow funds to support local investments



Covenant signatories commit to submitting, within two years following the date of the local council decision, a Sustainable Energy and Climate Action Plan (SECAP) outlining the key actions

Minaret utilizes Covenant of Mayors as a platform to enable longer term climate action planning and implementation of projects.

Achievements:

- Water, Energy, Agriculture, Socio-Economic and Gender Assessments for each Municipality
- Development of MINARET Regional NEXUS Model and Response Plan
- Establishment of NEXUS taskforce committees within each of the project municipalities with a clear mandate, governance structure and operating procedures.
- Training Course on Urban Nexus was held in Tunisia in Cooperation with GIZ
- Development of a Green Procurement Manual
- Mapping of regional actors to provide technical support in the area of WEF Nexus and assist the municipalities in fundraising
- Implementation of Pilot Projects on Water, Energy and Agriculture
- Initiate registration of Municipalities in the Covenant of Mayors
- Development of GHG Baseline Emission
- Development of Sustainable Energy and Climate Action Plan (SECAP) (in progress)
- Capacity Building and Training (in progress)

Pilot Projects

- Based on the first year's assessments MINARET will implement a range of interventions related to water, energy and food NEXUS using renewable energy and energy efficiency. The projects were established in each municipality in 2018 and were completed and properly functioning in 2019
- The launched pilot projects were related to water and renewable energy and energy efficiency
- MINARET will deploy resource efficiency practices at the Municipality level for reducing energy consumption by at least 10% in the targeted locations through using energy efficient equipment and application of renewable energy, and reducing accompanying CO2 emissions

Jdaideh Municipality:

Farmers' projects in the lower part of Barouk river and channel rehabilitation in the upper part of the river in Jdaidet el Chouf, Lebanon

- Installation of a solar powered water pump at the Barouk River in cooperation with another water/energy intervention
- Will provide access to water to 25 different farms using a 3 kilowatt PV system, by pumping around 12 cubic meters per hour of water from a stream multiple times a week to 25 tanks → 150 m3 in volume
- Will provide constant access to water for farmers in the area, which is vital for farming

Barouk Mountain in Jdaidet el Chouf

Renewable Energy and Energy Efficiency Pilot Projects

Jdaideh Municipality: *Reducing energy consumption through using energy efficient equipment and application of renewable energy while reducing CO2 emissions*

- Replacement of inefficient lighting system at the main building of Jdaideh Municipality with efficient LED lamps
- Replacing part of old inefficient street lighting units with efficient LED street lighting units
- Installation of PV system with batteries for drinking water tanks in Jdaideh Municipality
- Installation of PV system with Batteries at the main building of Jdaideh Municipality
- Installation of a PV farm in conjunction with a socio-economic element to reduce the need for diesel generators in providing power to homes in Jdaideh Municipality

Pilot Projects in Jdeideh

Water Pumping & Filtration Station

- **31,000** kWh of electricity
- Access to water increased from **12 to 24** hours
- **20** tons of CO2 reduced
- **22,000** people reached

Barouk River & Farms

- **6** km canal repaired through CfW
- **25** water tanks installed
- **4,000** kWh of electricity for solar pumping
- **25** farms & **80** farmers benefit

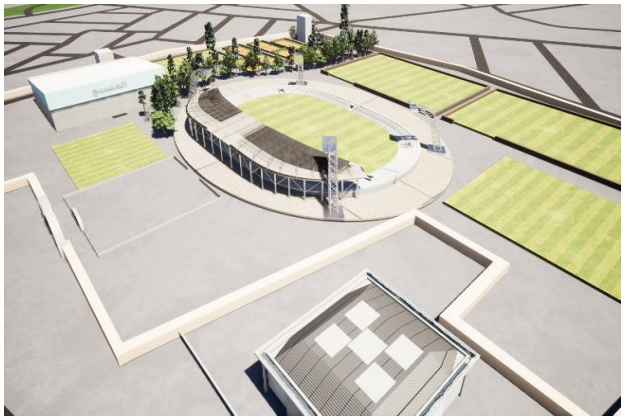
Municipality Building, & Street Lighting

- **10,000** kWh of electricity for the municipality
- **94,000** kWh in total energy savings
- LED street lights consume **65%** less energy
- **62** tons of CO2 reduced

Monastir Municipality:

Rainwater harvesting tanks for the use of municipal gardens and farmers in Monastir, Tunisia

- Collection of rainfall by excavating a well and installing a tank with the capacity of almost 750 m3
- A tank will be installed in a football stadium to collect rainwater at least twice a year
- In order to reduce costs and water resources a solar water pump will be installed in the tank to pump the collected rainwater for the watering of the stadium, this would save 24 000$ a year for the municipality
- With the saved costs, the municipality will begin applying the same project in other areas and facilities in Monastir



Stade Mustapha Ben Jannat in Monastir

Monastir Municipality:

Reducing energy consumption through using energy efficient equipment and application of renewable energy while reducing CO2 emissions

- Replacement of inefficient lighting system at the main building of Monastir Municipality with efficient LED lamps
- Replacement of inefficient lighting system at the Central Market in Monastir Municipality with efficient LED lamps
- Replacing part of old inefficient street lighting units with efficient LED street lighting units

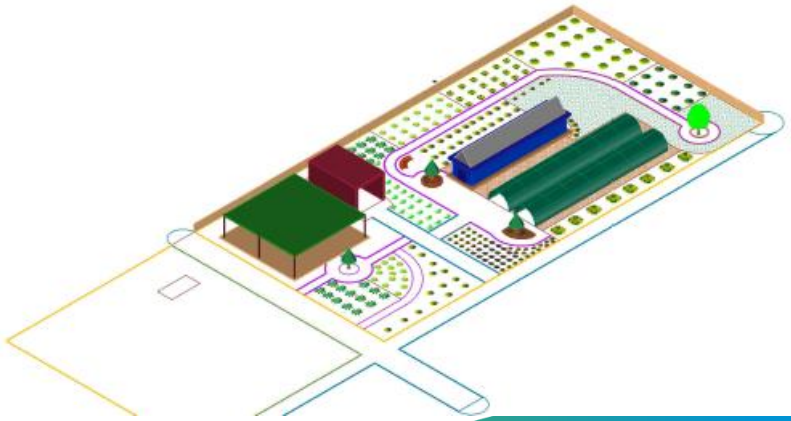
Pilot Projects in Tunisia

Karak Municipality:

Decorative plant nursery using treated water, composting and solar pumping in Lajoun in Karak, Jordan

- Aims to utilize a stream produced by a water treatment plant to irrigate decorative plants by pumping the water using solar power
- The intervention will create the plant nursery on municipality land and will install a solar water pump and a solar farm to power it
- The project will be profitable when the municipality starts producing its own plants, saving around 50% of the annual budget allocated for this purpose
- Savings will be used for the creation of jobs and to fund other NEXUS projects by the local development unit at the municipality
- Will assist the restoring of Al-Karak's ecosystem through the regrowth and spread of plant species native to the area

Lajjoun Dam in Karak



Pilot Projects in Karak

Decorative Plant Nursery

440 square meter plastic house

320 square meter polycarbonate house

1,000 mother seedlings

300 cubic meters of treated wastewater used daily

$85,000 annual savings

Events

MINARET 2nd Annual Meeting - Beirut, 29th-31st of October

- In cooperation with ESCWA and Participation from GIZ
- Wil include representatives from regional, national and local governments, the private sector, international organizations and donors, representatives of non-governmental and community-based organizations
- The 29th bilateral technical meetings will be held
- The 30th & 31st a workshop on access to finance will take place
- The annual meeting seeks to raise awareness on municipalities abilities to deliver key services, provide insight on community perceptions of municipal effectiveness and responsiveness, provide a comprehensive understanding of the position of Gender Equity and Social Inclusion within the community with regards to their engagement with the municipality and Improve regional and national coordination and service delivery.

Thank You

Muhieddin Tawalbeh,
Manager of Energy Efficiency & Solar Thermal Division
National Energy Research Center
Royal Scientific Society
P.O.Box 1945, Amman11941, Jordan
Mobile: 962-79- 9050753
Phone: 962-6-5338014
Fax: 962-6-5338043
m.tawalbeh@nerc.gov.jo
www.nerc.gov.jo, www.rss.jo