

The Nexus Dialogue Programme in the MENA Region

Water- Energy- Food Nexus



Training workshop: “Integration of Water- Agriculture Sectors:
Concepts and Applications”

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The Nexus Dialogue Programme

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The Nexus Dialogue Programme

Funding
Institutions

European
Union (EU)

German Ministry for Economic
Cooperation and Development (BMZ)

Global
Management

Global Nexus Secretariat (GNS)
(hosted by GIZ)

Regional
Implementation

Middle East & North
Africa- MENA



LAS

GIZ

Latin American &
the Caribbean-LAC



CEPAL

CEPAL

GIZ

Niger Basin



NBA

GIZ

Southern AFRICA



SADC

GWP

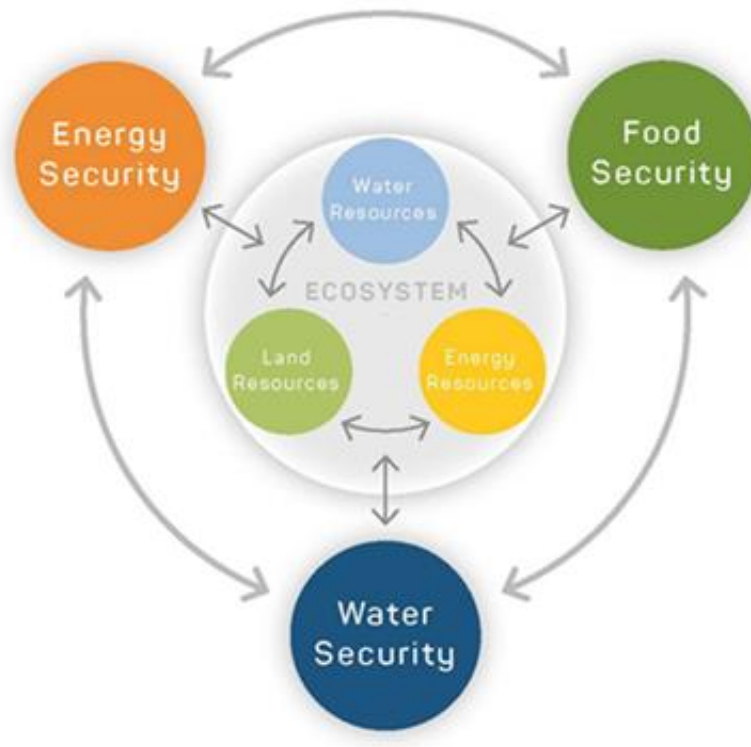
CENTRAL ASIA



IFAS

CAREC

The Nexus Dialogue Programme: Main Objective



Supporting the 5 regions in the realization of WEF Nexus; enhancing security for water, energy and food for individual human beings while ensuring sustainable resource use of the related resources.

The Nexus Dialogue Programme: 2 phases

Phase I: 2016- 2019

Theoretical base (dialogue- capacity building- policy advise).

Phase II: 2020- 2023

Application of Nexus infrastructure projects (tangible benefits of the WEF Nexus approach in form of pilot projects).

Nexus Regional Dialogues Programme- Four Pillars:

- Knowledge Exchange and Networking – Global Nexus Secretariat.
- Nexus Resource Platform (www.water-energy-food.org).
- Human Capacity Development.
- Nexus country assessments and profiles, Nexus Pilot applications.



Nexus Resource Platform

www.water-energy-food.org



Training Slides // Urban Nexus in the MENA Region

The Nexus Regional Dialogue Programme MENA and its partners conducted a training on the Urban Nexus in February. Now, the training material is available for download.

The [Urban Nexus workshop in Monastir, Tunisia](#) was held from 14-15 February 2018.

1. Introducing the Urban Nexus

The first chapter discussed the importance of taking an integrated approach to urban planning and resources management to cope with the rapid pace of urbanization. In light of changing consumption patterns leading to pressure on limited resources, dis-integrated silo planning is no longer feasible. In particular, the integrated management of critical (natural) resources, such as food, water, energy, solid waste and land is key to addressing the resources challenges of the 21st century.

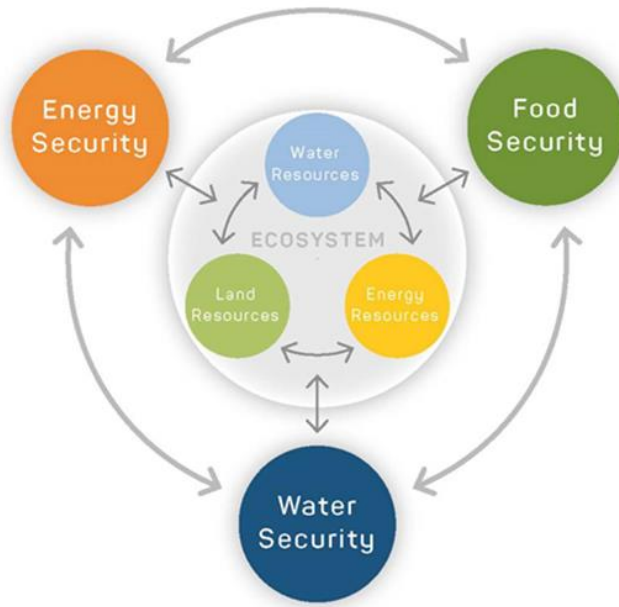
Download presentation in [English](#) or in [Arabic](#)

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The Nexus Approach

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The Water- Energy-Food Security Nexus Approach

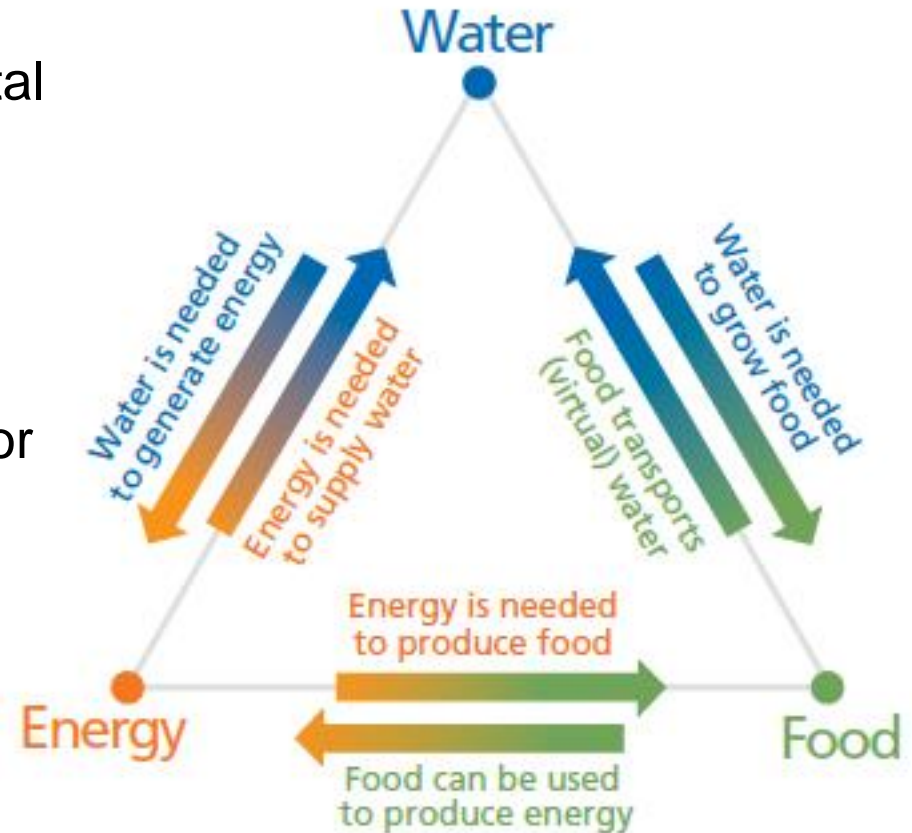


- Highlights the **complex interdependencies** of the water, energy and food sectors in light of **global challenges** (climate change, consumption patterns, economic growth, rapid urbanization, etc.)
- Framework to **determine trade-offs and synergies** between the sectors and to **reconcile their interests**
- Supports a **holistic and sustainable resources management** and promotes the **preservation of ecosystems**
- Pathways of sustainability: tool for **meeting the SDGs**
- **Resolving conflicts of use** around land and water resources is encouraged by developing suitable conflict management capacities – contributes to **peace keeping**

The WEF sectors are closely related

Examples of interconnections:

- Agriculture accounts for 70% of total global freshwater withdrawals
- 90% of energy produced today is water-intensive
- Agriculture & food chain account for 33% of global energy demand



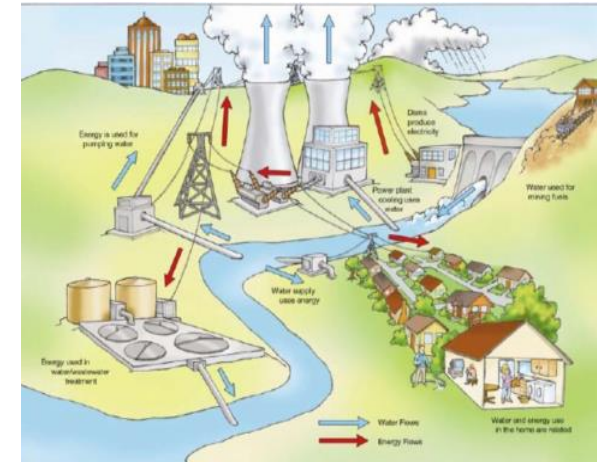
Adapted from: Water - A Global Innovation Outlook Report, IBM, 2009

UNU, 2013

Single-mindedly pursuing individual goals may interfere with other goals

Example: Increasing electricity production

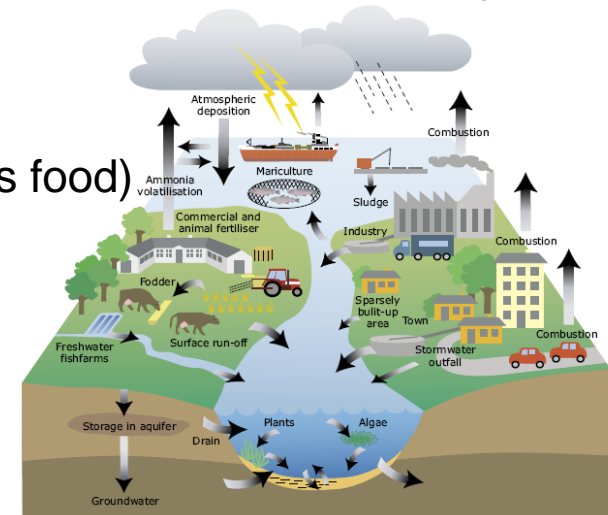
- Higher energy security
- More abstraction of water for cooling
- Less water for other sectors and the environment
- Less water security



U.S. Department of Energy, 2006

Example: Intensifying agricultural production

- Higher food security
- Competition for land resources (eg. biofuels vs. crops as food)
- More use of fertilisers
- Contamination of water resources
- Less water security downstream



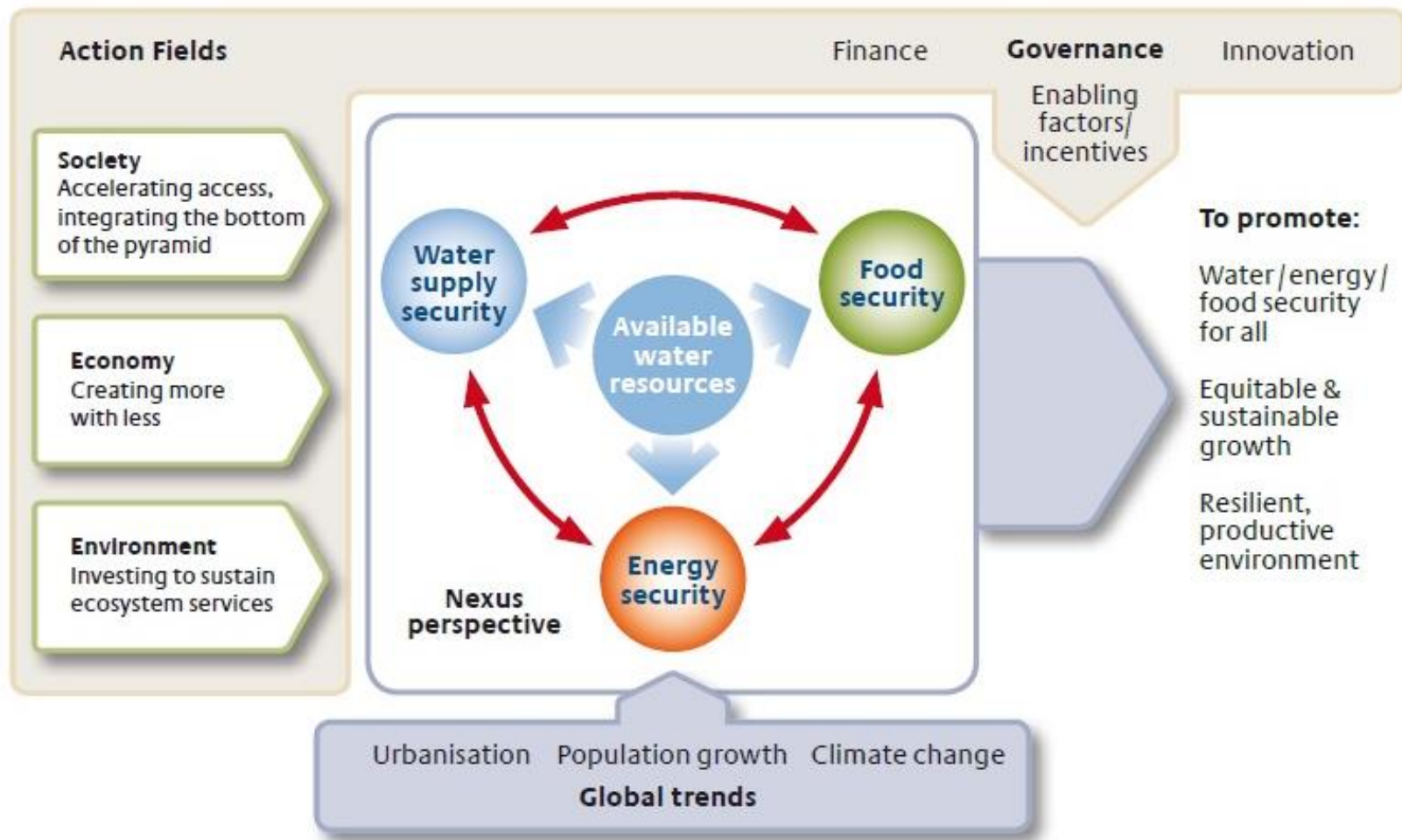
→ Need for a systematic WEF Nexus approach!

LaB, 2010

What is the WEF Nexus approach?

- Describes the complex and interrelated nature of our global resources systems.
- Supports holistic resources management.
- Pathways of sustainability through coordinated management and use of natural resources across sectors and scales.

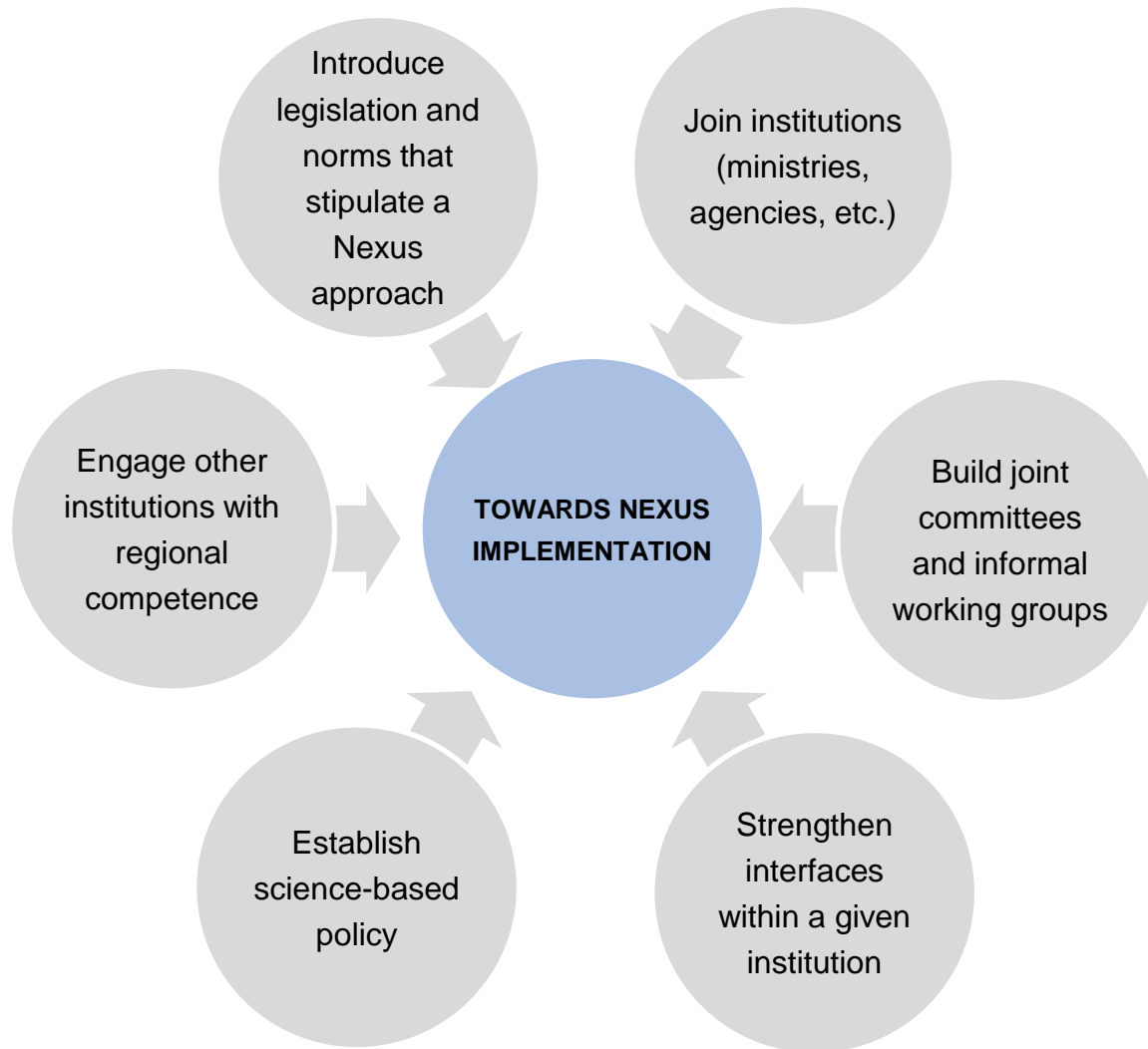
The WEF Nexus in environmental policy debate- Bonn 2011



Benefits of a Nexus approach

- Contributes to achieving **water, energy and food security** as pillars of development and well-being
- Identifies and addresses trade-offs and reaches synergies between different sectors, thus **improving decision making**
- Creates mutual benefits of **cooperation and improved resources governance**
- Facilitates the **alignment of development strategies**
- Allows **smart investments** to be made
- **Increase efficiency in resources use**

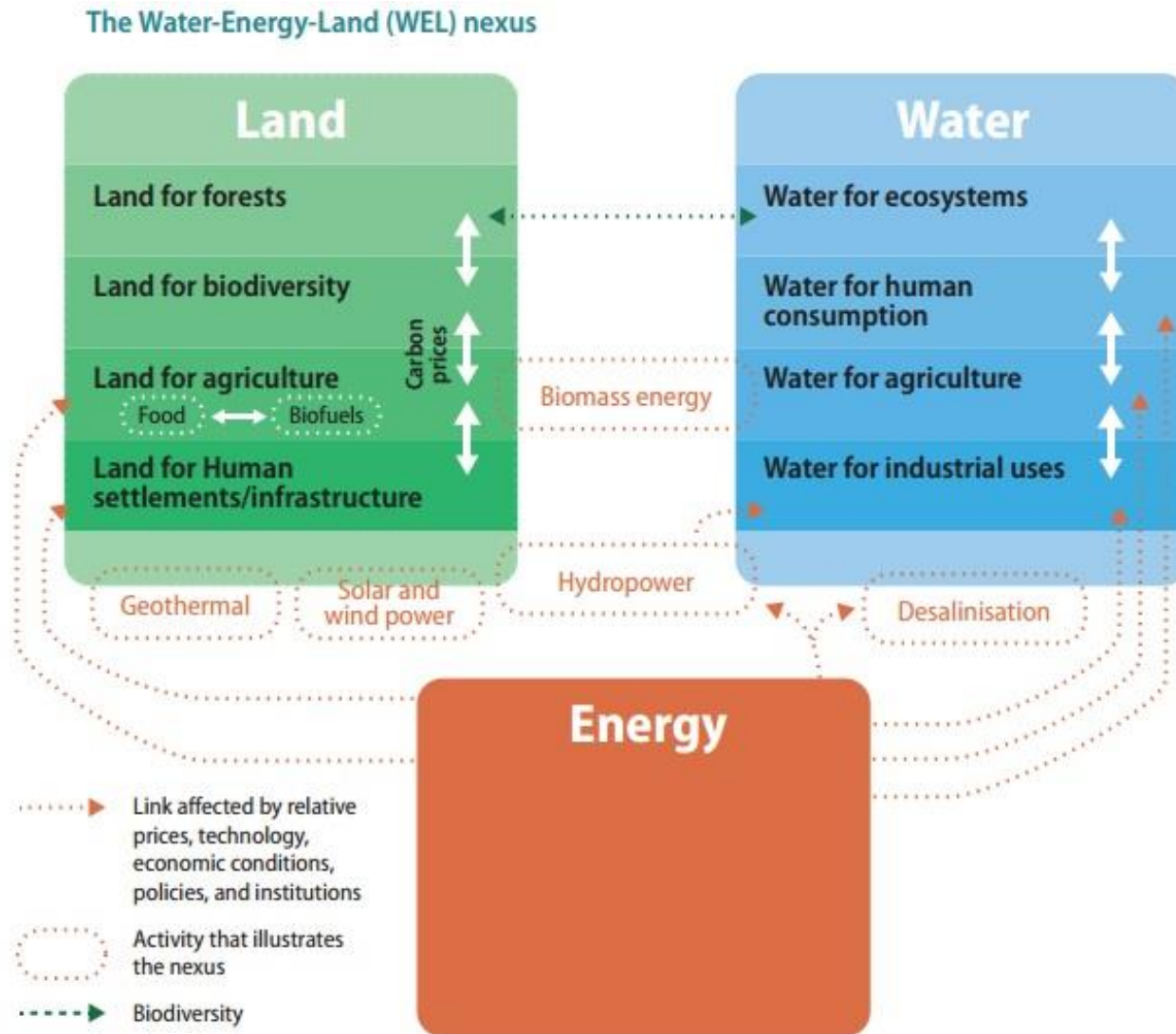
Possible measures for Nexus implementation



Variations of the concept

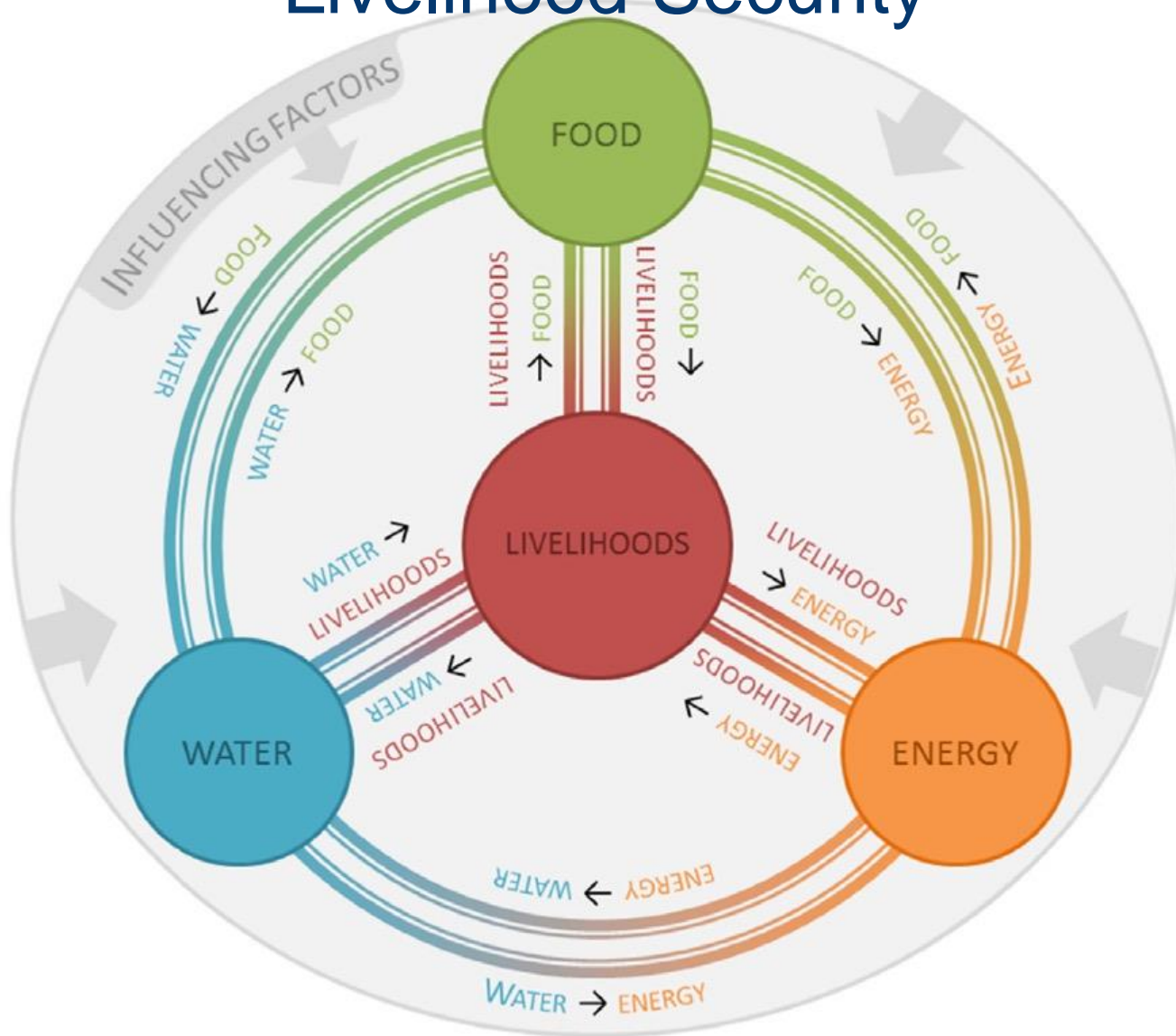
- The Nexus concept can be visualised in many ways
 - Several of these are presented in the following slides
- As every situation and region is unique, certain conceptual models may be more suitable to describe a particular situation
- All models identify water, energy and food security as the integral components

Variations of the concept



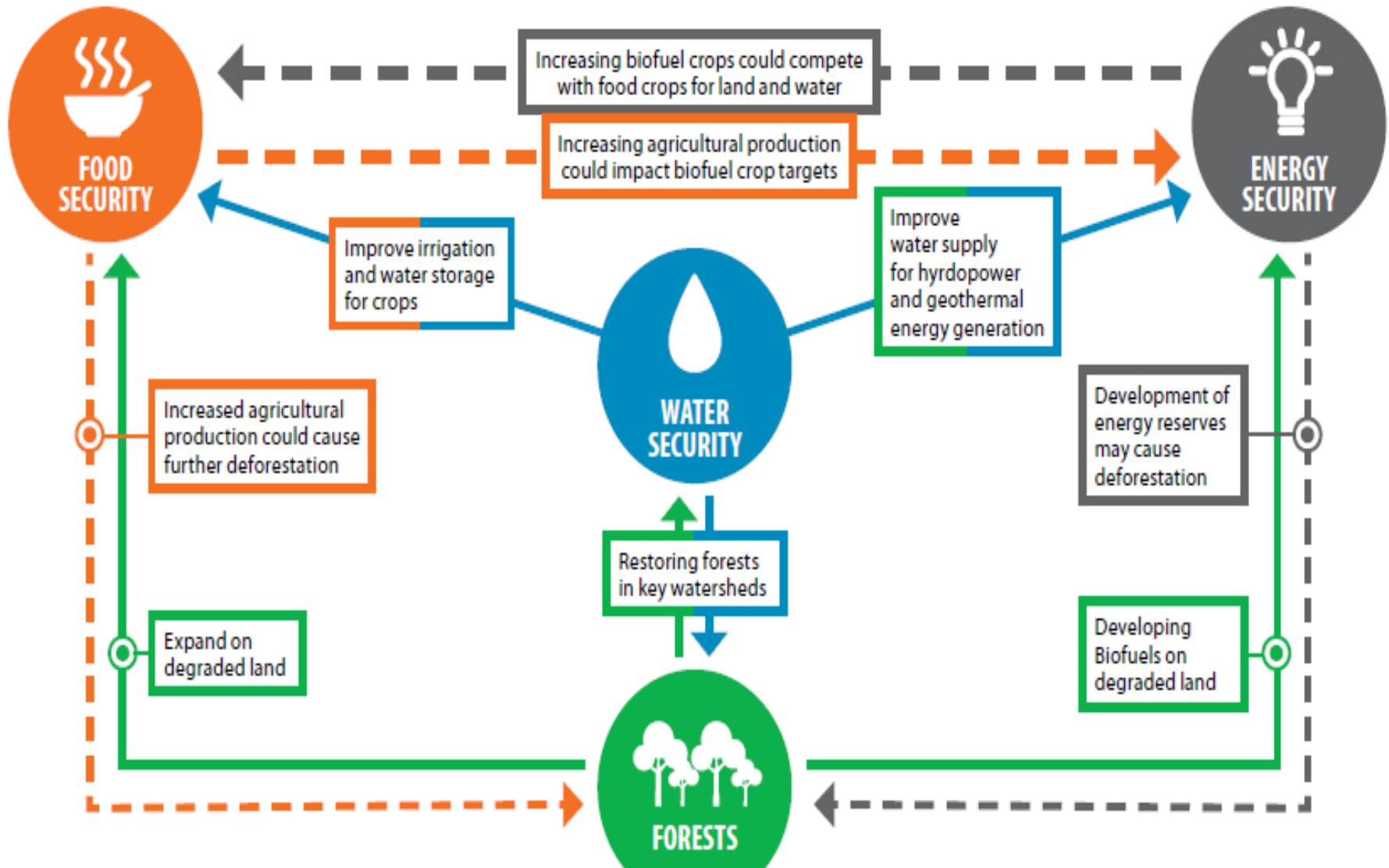
European Report on Development, 2012

Variations of the concept- Environmental Livelihood Security



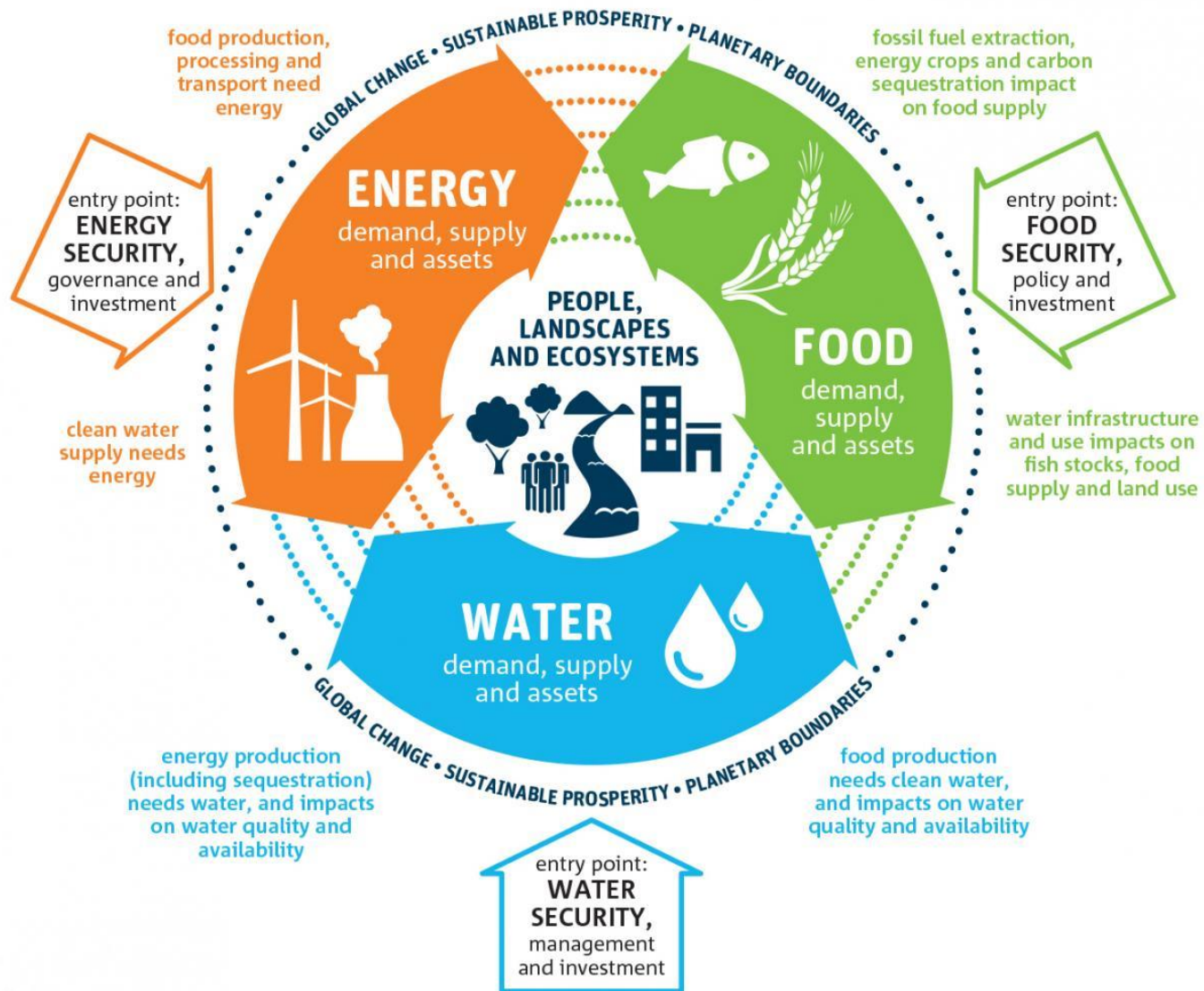
Biggs et al., 2015

Variations of the concept



Institute of Agriculture and Natural Resources (2017)

Variations of the concept



Institute of Agriculture and Natural Resources, 2017

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The Nexus Regional Dialogue in the MENA Region

Nexus Regional Dialogue in the MENA Region

Started in 2016

Partner: League of Arab States
22 countries



Arab Ministerial Water Council



Nexus is well known on policy level
regional/Int. organizations working on Nexus



Nexus water centric → Involved agric. Sector

Initiated collaboration

Nexus at policy level → promoted Nexus at municipality level.

Nexus missing in urban development → Initiating Urban Nexus dialogue.

Small range of Nexus projects → Proposed Nexus infrastructure projects

Activities of the NRD in the MENA Region

1. Support LAS as the main counterpart in the MENA Region: provide knowledge- 6 policy briefs.
2. Support compilation of Nexus experts: Nexus capacity Building (140 px)
3. Carry out 2 Nexus country assessments: to identify suitable Nexus opportunities at national and sub- national levels (Tunisia and Sudan).
4. Carry out small Nexus demonstration projects: SEF- SPIS.
5. Develop a regional Nexus Action plan: proposed Nexus projects .



This project is co-funded by
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Federal Ministry
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giz Deutsche Gesellschaft
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Support LAS as the main counterpart in the MENA Region: 6 Policy briefs on WEF Nexus



- Prepared 6 Nexus policy briefs with GIZ/ ACCWaM, LAS and pan-Arab experts.
- Policy briefs adopted by the Arab Water Ministerial Council.

Support compilation of WEF Nexus experts



ACCWaM Adaptation to Climate Change
in the Water Sector in the
MENA Region



Nexus mainstreaming in the MENA region on regional and national levels
Top- bottom approach



Building capacities on Urban Nexus on municipality level
A bottom-up approach



Development of Nexus Training Material

Nexus Training Material

General Toolkit

Small Handbook
on Interactive
Sessions

Urban
Nexus
Training

Solar Powered
Irrigation
Systems (SPIS)
Training

Module I

(Introduction to the
WEF Nexus)

Module II

(European/German Case
Studies)

Core slides + additional slides:
presentation can be adjusted to the
needs of participants and the regional
context (e.g. adding relevant regional
data and case studies)



Nexus Training Workshops in the MENA Region

- Nexus training on German/European experiences and best practices in **Lebanon** in collaboration with **UN-ESCWA** (December 2017): **41 high level representatives** from the water and energy sectors, from 14 countries (Jordan, Egypt, Iraq, Sudan, Yemen, Palestine, Tunisia, Lebanon, Oman, Syria, Libya, Mauritania, Qatar and United Arab Emirates)
- Urban Nexus Training in **Tunisia** in collaboration with **MINARET Project** (February 2018): **More than 40 representatives** from 4 municipalities from Tunisia, Jordan, Lebanon and Egypt.
- Nexus training workshop in **Sudan** in collaboration with **AOAD** (October/November 2018): **32 participants** from gov. organizations, academia, research centers and regional organizations.



Carry out two Nexus country assessments:

Objective: to identify suitable Nexus opportunities at national and sub- national levels through assessing Nexus trade-offs- national strategies and policies, institutional landscape, implementation gaps and potential Nexus response options.

- **Tunisia Nexus Assessment:** in collaboration with FAO.
- **Sudan Nexus Assessment:** in collaboration with the Arab Organization for Agricultural Development (AOAD).



Carry out two Small Nexus demonstration projects:

Objective: to assess water-energy- food applications from the Nexus perspective.

- **Solar Energy Farming (SEF) in Jordan**
Lessons learnt from SEF GIZ project in Jordan with insights from India.
- **Solar Pumping Irrigation Systems (SPIS) in Tunisia**
Impacts of solar pumping on water sustainability in Tunisia with emphasis on subsidies and business models.

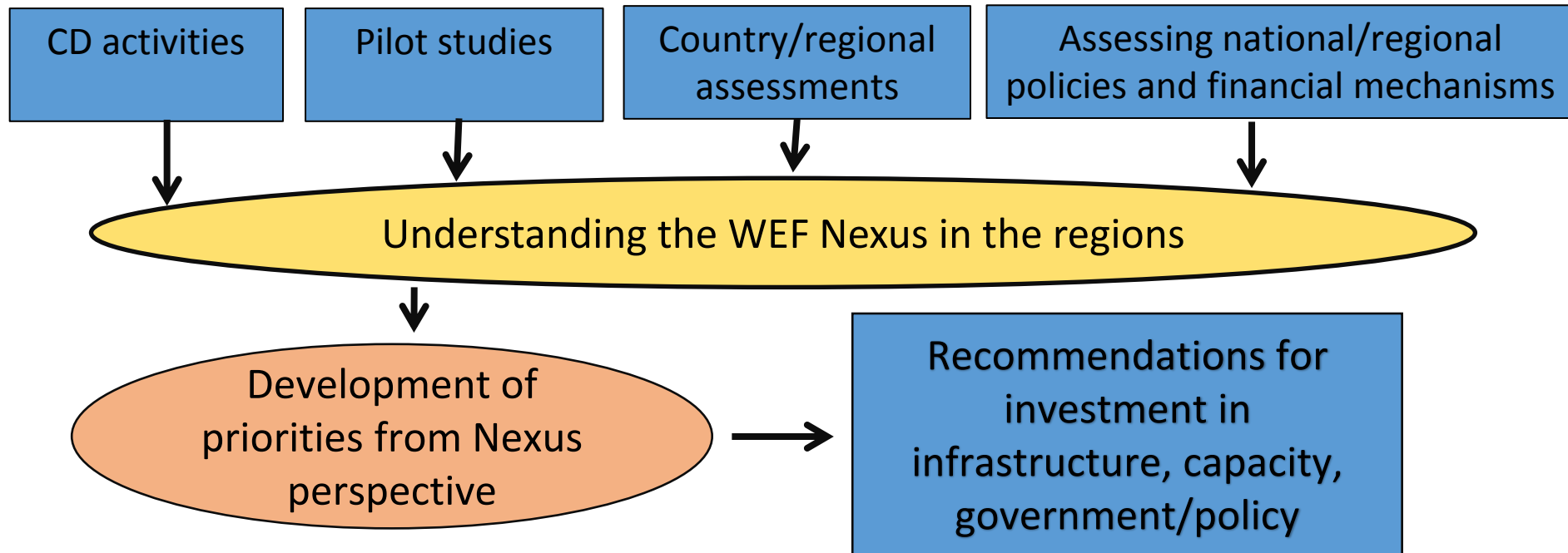


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NRD- MENA Nexus Action Plan

A Regional Nexus Action Plan

Objective: to suggest WEF Nexus investment projects in the MENA region



Nexus Hypothesis for the MENA region

A growing number of completed Nexus projects and derived successful Nexus business cases will enhance private sector participation and thus increase WEF securities.

Nexus Topics in MENA Nexus Action Plan

High rate of pop. growth+ rapid urbanization

- Introducing Urban Nexus in the urban planning/ housing sector

Very scarce water resources

- Wastewater treatment for irrigation
- Water harvesting

Renewables rapidly taking off/RE potentials

- Solar pumping irrigation systems
- Solar desalination
- Solar water heaters

Good Nexus practices

- Replicating in other countries
- constructed wetland
- WWTP – energy recovery

Private sector not involved in Nexus

- Nexus finance facility
- Strengthening SPIS market
- Training for PV start ups

Nexus not involved in env./ ecosystem

- Nexus to conserve ecosystems
- Nexus as part of SEIA

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Challenges Faced & Lessons Learnt

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Challenges Faced

1. “**Sector silos**”: different institutions are in charge of water, energy and agriculture policies.
2. Trade-offs: **diverging interests among actors**.
3. Limited **experience in Nexus implementation**: The Nexus perspective is a new concept
4. Insufficient **knowledge of Nexus dynamics** on the national and regional levels.
5. Lack of a comprehensive data **base on Nexus experts**.



Lessons Learnt

- Nexus mainstreaming can only be achieved through **participatory approaches**.
- Besides “horizontal” integration across sectors, “**vertical**” integration across levels and scales is equally important.
- **Water sector leading** the Nexus mainstreaming process, may make other sectors (energy and agriculture) less interested.
- The Nexus approach provides **excellent opportunities for cross-country sharing** of technical, economic and institutional innovations, providing opportunities for regional cooperation and economic integration.
- **Demonstration of success stories** and quantification of financial gains from Nexus approach is the best buy in for policy makers.



Lessons Learnt

- **Small size PPP** could be an entry point to make WEF Nexus a business case- **Awareness and incentives** should be created among private investors for WEF Nexus projects.
- Private sector in MENA is active in the **energy sector** and could be the entry point for implementing WEF Nexus projects.
- **Financial institutions lack knowledge** on Nexus yet ready to be involved in Nexus projects: capacity building and Nexus examples are needed
- **Policy-related activities; cross-ministerial Nexus processes** should be complemented with Nexus projects demonstrating benefits for all stakeholders to create acceptance for institutional changes.





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nexus



Thank you for your attention!

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