Lessons Learnt Report
Mainstreaming the Water-Energy-Food Security Nexus into Sectoral Policies and Institutions in the Arab Region
Acknowledgment

We, the study team, would like to express special gratitude towards the League of Arab States and partner organizations in Egypt and Jordan, the ACCWaM project team, especially Mr. Hammou Laamrani, for their kind co-operation and encouragement which helped us in completion of this study.

Imprint

Published by:
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Registered offices
Bonn and Eschborn

Adaptation to Climate Change in the Water Sector in the MENA Region (ACCWaM)
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
4D, Gezira St., 16th floor, no 161
11211 Zamalek, Cairo, Egypt
T +202 273 70 425/6
F +202 273 70 424
www.accwam.org www.giz.de

Author:
Holger Hoff, Lamia Mansour, Alexander Carius, Anne Ulrich

Text:
GFA Consulting Group GmbH, contracted by giz

Design/layout:
GFA Consulting Group GmbH
Eulenkrugstraße 82
22359 Hamburg, Germany
T +49 40 603 06 100
F +49 40 603 06 199
E info@gfa-group.de
I www.gfa-group.de

Photo credits/sources:
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Hamburg/Cairo, September 2017
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<td>Adaptation to Climate Change in the Water Sector in the MENA Region</td>
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<td>ACSAD</td>
<td>Arab Center for the Studies of Arid Zones and Dry Lands</td>
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<td>Arab Ministerial Council for Electricity</td>
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<td>Arab Ministerial Water Council</td>
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<td>AOAD</td>
<td>Arab Organization for Agricultural Development</td>
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<td>Arab Water Council</td>
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<td>CAMRE</td>
<td>Council of Arab Ministers Responsible for Environmental Affairs</td>
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<td>DRR</td>
<td>disaster risk reduction</td>
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<td>ECOSOC</td>
<td>Economic and Social Council of the Arab League</td>
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<td>intended nationally determined contribution</td>
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<td>Integrated Water Resources Management</td>
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<td>League of Arab States</td>
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<td>Monitoring and Evaluation</td>
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<td>United Nations Educational, Scientific and Cultural Organization</td>
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<td>WEF</td>
<td>Water, Energy and Food Security Nexus</td>
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1. Introduction

The Arab region is faced with growing pressures on the environment and natural resources, affecting human securities and eventually political stability. A Water-Energy-Food Security (WEF) Nexus approach can systematically support and add value to on-going efforts in addressing these challenges. By fostering coordination, cooperation and integration among the relevant sectors and eventually policy coherence, a nexus approach can increase overall resource efficiency and support decoupling of economic development from resource use and environmental pressure (“Green Economy”). Against this background, the study “Mainstreaming the Water-Energy-Food Security (WEF) Nexus into Policies and Institutions in the MENA Region” within the GIZ technical assistance project “Adaptation to Climate Change in the Water Sector in the MENA Region” (ACCWaM) aimed to identify entry points, processes and partners for nexus mainstreaming in order to better link existing sectoral strategies, policies and activities and to contribute to cross-sectoral goals such as the SDGs and integrated climate change adaptation and mitigation.

The aim of this report is to document the process which has been adopted by the study, to synthesize the main conclusions and recommendations, to promote continued nexus mainstreaming and replication of the project activities in additional countries, and to enable corporate learning by all the project partners including GIZ and the League of Arab States (LAS).

As such, this report will be build around the 3 main products of the study, which are:

i. The Evidence Base
ii. The Regional Policy Guidelines
iii. The National Policy Guidelines

Moreover, this report provides links to other on-going or planned activities related to the WEF nexus in the region, in order to identify complementarities, continuity and ways forward. The report consolidates the main conclusions and recommendations identified throughout the study’s implementation process, which constitute lessons learned and best practices, that can well serve future nexus initiatives in the region.

Figure 1: Interlinkages Among and Between Natural Resources and Human Securities
2. The Outline of the Study and Key Lessons Learned

The nexus approach provides new opportunities for overcoming increasing resource scarcities, improving human wellbeing and supporting political stability and regional cooperation, by addressing the interdependencies between the respective resources (water, energy, land), human securities (water, energy, food), policy sectors and countries. The ACCWaM nexus mainstreaming study aimed at identifying entry points, processes and partners for WEF nexus mainstreaming into and value adding to national and regional policies and institutions in the MENA region. With that it also provided a knowledge base for integrated implementation of the SDGs and the Paris Climate Agreement. The study was hereby guided by the following principles:

- A cross-sectoral (horizontally) integrated and dynamic perspective
- A multi-level (vertically integrated) perspective from regional policies to national and local implementation and vice versa
- Contextualizing this integrated approach in the 2030 Agenda
- Building upon, coordinating among and adding value to existing policies, institutions and networks
- Strictly participatory approaches for creating ownership, joint learning and co-generation of relevant knowledge by involving all relevant sectors and levels

The study followed the steps as shown in figure 2.

Figure 2: Steps and Processes of the Nexus-Mainstreaming Study

Lessons learned from the implementation of the ACCWaM nexus mainstreaming-study include:
Conceptual Approach:

- The nexus approach normally covers the water, energy and food/agricultural sectors. In the course of the ACCWaM nexus mainstreaming study it turned out to be important to also include more strongly the environment sector, which traditionally takes a more integrated approach and nowadays is involved with (integrated) SDG implementation and climate adaptation and mitigation.

- Besides “horizontal” integration across sectors, “vertical” integration across levels and scales is equally important for achieving sustainability transformations. This involves all levels from local implementation of integrated projects on the ground through national policy making all the way to regional coordination and cooperation.

- The nexus approach adds complexity and transaction costs, given that it requires stronger coordinating and cooperating across sectors; with that it disturbs established routines and institutional settings; sectoral experts may perceive the nexus approach as a threat and trespassing into their comfort zone.

Implementation of the Nexus Approach:

- While the potential benefits of a nexus approach have been widely recognized, its actual implementation is faced with a number of concerns, inertia and lack of political will.

- There is clear a lack of incentives for practical implementation of the nexus approach, be it in financial and economic terms (current subsidies often favor conventional sectoral resource management) or in terms of career opportunities (most institutions favor specialists over generalists).

- In particular the explicit elaboration and demonstration of success stories and best practices, and the quantification of economic and financial gains and benefits from a nexus approach relative to conventional sectoral approaches, will be key success factors for achieving broad buy in by policy-and decision makers.

- There is also a lack of awareness and a lack of integrated knowledge for a nexus approach and for the critical interlinkages among and between resources, human securities and sectors; integrated education and training curricula are yet to be developed.

- Nexus mainstreaming requires a change of mindsets, in order to overcome conventional sectoral (“silo”) thinking and action, and in order to shift to cross-sectoral (and eventually also cross-country) coordination and cooperation. Thus, time, continuity and persistence are required, allowing the seeds planted by the ACCWaM nexus mainstreaming study to flower and develop into truly integrated management and governance and mutual learning.

- Inter-sectoral and inter-agency collaboration needs strong leadership and support from the highest level (e.g. prime minister’s office).

- Nexus mainstreaming can only be achieved through participatory approaches. Continued stakeholder dialogues and validation of data and information fosters cross-sectoral exchange, mutual understanding, generally accepted conclusion and ownership of the results. In the case of Egypt, the national consultation process and workshop achieved good buy-in by the different sectors. A key success factor was the good balance of current policy- and decision-makers vs. former high level representatives of the different institutions. This enabled open, realistic and fruitful discussions, as the retired officials could address more openly critical (“politically non-correct”) issues.

Existing Institutions and Mechanisms:

- Some national institutions with a cross-sectoral mandate already exist (e.g. inter-ministerial committees, ministries of environment or planning), but line ministries and other sectoral institutions often have the stronger leverage and decision-making power.

- Strengthening and enabling these existing bridging institutions and mechanisms is more likely to promote nexus mainstreaming, than creating de-novo nexus institutions (like a cross-cutting ministry for mega projects as was established in Jordan some time ago).
LAS by definition is a bridging institution at regional level, cutting across the water, energy, agriculture and environment sectors. But unfortunately LAS has weak leverage on actual implementation in the member countries. ECOSOC is the most important mechanism within LAS for nexus conceptualization, institutionalization and implementation. The Regional Policy Guidelines (and vision document) developed in the ACCWaM nexus mainstreaming study can promote a nexus approach within LAS; for that they should be channeled through the technical secretariats to feed into ECOSOC.

Study Set-Up

- The set-up of the ACCWaM nexus mainstreaming study to work through focal points in the water ministries of the selected pilot countries, which were identified and appointed by LAS, unfortunately did not catalyze action, but in some cases and circumstances was a bottleneck for the activities conducted under the study. The selection of motivated focal points has turned out to be key for the success of a nexus project, as personal lack of interest (or lack of understanding) can block any progress.
- There is an immanent risk involved, when commissioning the water sector to lead the nexus mainstreaming process, given that other sectors (energy and agriculture in particular) are often less interested in integrated approaches (the water sector has begun to focus on integration – Integrated Water Resources Management (IWRM) – already quite some time ago). Hence future nexus projects may want to start with champions from other sectors and then step-by-step bring in water experts.

3. The Evidence Base for WEF-Nexus Mainstreaming in the MENA Region

3.1. Main Components of the Evidence Base

The evidence base\(^1\) which was developed as part of the ACCWaM nexus mainstreaming project provides evidence in terms of the current natural resources and human securities situation and trends as well as the challenges and opportunities associated with a nexus mainstreaming into regional and national policies and institutions in the MENA region. With that, it also provides evidence and arguments for integrated SDG implementation and the integration of climate adaptation and mitigation. This evidence base has been developed in a participatory and iterative process with partners from all relevant sectors. Underlying data and information have been synthesized from a wide range of sources including regional and national data bases, policies, strategies and action plans, interviews and meetings, and other forms of information exchange.

The Evidence Base addresses the “why?” (and “what?”) of the nexus approach, while the regional and national policy guidelines address the “how?” (e.g. through dialogues, focus groups, platforms, guidelines and roadmaps) and the “with whom?”.

This Evidence Base covers the Arab region\(^2\) as a whole, and it zooms in on selected Arab countries (Jordan, Egypt, Morocco) which have expressed specific interest in mainstreaming a nexus approach into their national policies and institutions for improving and adding value to these. Accordingly, the report addresses horizontal (cross-sectoral) and vertical (cross-scale) coordination, collaboration and integration. The evidence base starts from an overview on resource availability, access, quality, use efficiency, and other environmental, social, economic, institutional and policy aspects. Figure 3 shows the analytical steps and questions addressed.

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2 Arab countries are according to the League of Arab States: Algeria, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Palestine, Qatar, Syria, Oman, Saudi Arabia, Somalia, Sudan, Tunisia and Yemen
3.2. Main Findings and Conclusions of the Evidence Base

The Evidence Base demonstrates that the critical WEF interlinkages in the Arab region follow the patterns elsewhere in the world, whereby resource availability, use efficiency and access are closely interlinked with human securities, with critical cross-resource links e.g.: water for energy, energy for water, water and energy for agriculture and food security, land for food security, etc. Given the extreme scarcity in both water and arable land in the Arab region, some of these interlinkages have become particularly critical, such as:

- Agricultural water use, which currently accounts for more than 80% of the total water use, cannot be sustained under increasing scarcity (due to increasing demand from other sectors and and climate induced decreasing availability), and hence is projected to drop to drop to about 50% by 2050.
- New energy systems are often more water intensive than conventional systems (in particular renewables such as hydropower or concentrated solar power, but also fracking, oil shales etc.), accordingly, renewable energy targets, solutions and energy transitions may be constrained by water scarcity.
- Pumped water storage, which is used in some Arab countries (such as Morocco) for buffering fluctuations in energy supply and demand, may also be constrained by increasing water scarcity.
- In return, the additional water demands from the energy sector could pose risks to overall water security.
- New non-conventional and marginal water resources (in particular desalination, but also deeper groundwater, reuse of wastewater etc.) are often more energy intensive than conventional water resources, putting strain on the respective energy system.
- Desalination, which is a rapidly growing water source, initially in the Gulf Cooperation Council (GCC) region but increasingly also in other Arab countries, still almost completely depends on fossil fuels.
- Strictly sectoral water and wastewater system planning, which for example do not account for topography, may cause significant additional energy demand for pumping water and wastewater across altitudinal gradients.
- Agricultural development, expansion and intensification, often coupled with increased export production, as in the case of the Plan Maroc Vert, require additional energy, e.g. for machinery, fertilizer, irrigation, with potential risks to energy security. However the additional energy demand from the agricultural sector is not generally accounted for in energy planning.
- Low efficiencies in the use of one resource have knock on effects on other resources, e.g. low water use efficiency increases the demand for water and with that also for energy (e.g. for water pumping, for desalination etc.).
• Strictly sectoral land planning (or no land planning at all) may cause the loss of (rainfed) agricultural land and associated water resources due to urban sprawl onto such land.

• Land and water overexploitation and degradation reduce resource productivity (e.g. lower agricultural yields from degraded land) or usability (e.g. limitations to the use of polluted water), threaten biomass and food production and pose risks to food security.

• Climate adaptation (e.g. in the water and agricultural sectors) and mitigation (e.g. in the energy and land use sectors) need to be coordinated and integrated.

The main aspects which could be concluded from the Evidence Base are the following:

• Cross-resource use efficiency in the region are generally low, despite the extreme resource scarcity in large parts of the region, which would normally stimulate improvements in resource use efficiency. To a large extent, this situation is a result of very high (“perverse”) subsidies on resource use. Lowering these subsidies and directing them towards more sustainable practices is key to any successful nexus implementation and sustainability transition.

• In terms of (per-capita) resource use, the evidence base also confirms the strong division of the region (stronger than any other world region) between the richest and the poorest Arab countries. While the GCC countries are world leaders in wasting resources and thus exerting pressure on the environment, most of the non-GCC countries have (per-capita) resource use intensities below global average.

• Similarly, the evidence base confirms the strong division of the region in terms of human securities: in the case of food security: some Arab countries have record levels of stunting among children, others have equally high levels of obesity.

• There are a number of current trends that add pressures on water, land, energy and other resources. In particular the shift to non-conventional water resources is not always energy- and climate-smart, energy transitions (to renewables) are not always water-smart, and agricultural transitions are not always water- and energy-smart.

• The nexus approach provides excellent opportunities for cross-country sharing of technical, economic and institutional innovations, which may have been tested in selected locations or countries and now await upscaling (economic viability through economies of scale). With that the nexus approach also provides opportunities for regional cooperation. In particular, the GCC countries are successfully testing nexus innovations and solutions, which if upscaled, may become affordable also for other countries in the region, supporting their energy, agricultural and other sustainability transitions.

4. Regional Policy Guidelines for WEF-Nexus Mainstreaming in the MENA Region

4.1. Main Components of the Regional Policy Guidelines

The Regional Policy Guidelines developed under the ACCWaM nexus mainstreaming study focus on an important step in the process of nexus mainstreaming into Arab regional policies and intuitions and identify ways to improve coordination and collaboration across sectoral activities, initiatives, policies and strategies within the LAS in order to leverage cross-sectoral synergies and minimise trade-offs.

The Regional Policy Guidelines identify the different bodies within LAS which play important roles in setting regional policy goals and developing strategies that are relevant for achieving water, energy and food security, in particular, the Arab Ministerial Council for Electricity (AMCE), the Arab Ministerial Water Council (AMWC), and the Arab Organization for Agricultural Development (AOAD). The guidelines also identify specific departments within LAS as well as related organizations which could take supporting roles in the process of strengthening cross-sectoral coordination within the League of Arab States and beyond.

The guidelines further point out current gaps and entry-points for nexus mainstreaming at the regional level based on an assessment of relevant existing sectoral and cross-sectoral strategies as well as existing sectoral and cross-sectoral administrative bodies/mechanisms within LAS. They propose institutional set-ups and procedures in support of mainstreaming a WEF Nexus approach in LAS policies, strategies and activities.

In order to do so, the Regional Policy Guidelines focus on the most critical nexus issues and interlinkages in the region, which were identified in the Evidence Base. The proposed institutional set-ups and procedures
for WEF Nexus mainstreaming have been developed through consultation with a variety of stakeholders from LAS and beyond.

Existing strategies most relevant for the WEF nexus at the regional level were identified, and their potential to provide entry points for nexus mainstreaming was assessed, these include the following:

- Arab Sustainable Agricultural Development Strategy for the Next Two Decades (2007)
- Arab Framework of Action on Climate Change (2012)
- Arab Strategic Framework for Sustainable Development (2015)

The institutional mechanisms within LAS which could support nexus mainstreaming were assessed at various levels and potential options for improved coordination towards nexus mainstreaming were proposed (Figure 4).

**Figure 4:** Potential Options for Improved Coordination Towards Nexus Mainstreaming
4.2. Main Conclusions of the Regional Policy Guidelines

4.2.1. Establishing a WEF-Nexus Coordination Mechanism Within LAS

The Regional Policy Guidelines highlight the importance of establishing a nexus coordination mechanism within LAS; in order to do this, it is proposed that joint meetings of relevant ministerial councils or bureaux, which are still meeting separately, would be convened.

At best, coordination meetings are recommended among all four councils (AMWC, AMCE, AOAD, CAMRE) at ministerial level in order to place the WEF-Nexus as a permanent item on their agenda. Such meetings will mandate for closer cooperation and coordination among the respective technical units within LAS, to call for objectives, initiatives and measures for institutional improvements, to agree on a cross-sectoral framework for integrated activities and to establish a regular monitoring and reporting process on those activities and their results (refer to Figure 5).

As such, it is proposed to hold meetings and prepare relevant documents (mandate, resolution, vision, and work plan) to be prepared jointly by the four technical secretariats together with the Department for Sustainable Development and International Cooperation to support the ministerial councils for such meetings.

**Figure 5:** Proposed Process to Establish an Institutional Set-Up for WEF-Nexus Coordination Mechanism at the Level of LAS

![Diagram of Joint Meeting]

Technical support by various LAS specialised organisations (e.g. ACSAD) and others (e.g. UNESCWA).

4.2.2. Accompanying the WEF-Nexus Implementation Process at the Regional Level

During the development of the Regional Policy Guidelines, the need for further knowledge co-generation and knowledge management as well as further capacity development was identified. This will be required to follow up on the initial identification of institutional mechanism and opportunities for inter-sectoral coordination and cooperation and carry out implementation.

The following main aspects are highlighted in the Regional Policy Guidelines for this purpose:

- **Sharing of knowledge and best practices.** The WEF-Nexus concept has now been elevated to the highest political level. Policy briefs have been published and received widespread recognition within the Arab region’s governments and among concerned constituencies. Within the WEF nexus mainstreaming study, country profiles were developed, analysing country specific critical interlinkages between water, energy and food security, describing respective institutional and administrative frameworks for cross-sectoral policy making, and identifying room for improvement for the current institutional setting and administrative procedures. These case studies together with the
respective national policy guidelines that were also prepared by the study team should be widely circulated, be it as part of national consultations or at conferences and other occasions in the region. As a next step, further best-practice cases of integrated management and governance should be identified and promoted, particularly with regard to the economic benefits of WEF-Nexus approaches. Success cases at national or local level have to be identified and described for specific industrial or technology sectors also highlighting the role the private sector can and should play.

- **Human resources development and capacity building.** The LAS Secretary General has been approached with an initiative to review the existing staffing of the departments and to improve the managerial and thematic expertise of the departments’ staff with respect to the nexus approach. Based on this review and in combination with a capacity needs assessment, a capacity development program should be carried out for LAS staff across the different sectors. Human resources development should include regular training of the respective staff by attending combinations of the available training courses offered by multilateral and bilateral development partners in the Arab region. Furthermore, such a capacity development program should include online-training and webinars. A program to host interns, master students or PhD candidates would allow absorbing fresh ideas and additional human resource capacities. Such a program can be established in cooperation with development partners as well as foundations headquartered in Cairo. Seconding WEF-Nexus experts from national and regional centres of excellence to the technical secretariats would further improve their technical and policy expertise, and also advance the transfer of R&D into policy making.

- **Promoting cross-sectoral research.** The LAS and its ministerial councils and particular its executive bureaus are supported by a number of and technical committees composed by specialised research organisations with strong technical expertise on nexus relevant topics. In this context, the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), the Regional Center for Renewable Energy and Energy Efficiency (RCREEE) and the Arab Water Council (AWC) play a crucial role. These organizations have been instrumental in the conceptual development of the WEF nexus in the Arab region and the concrete formulation and implementation of technical programs. LAS may further build on their expertise by involving these institutions in its current institutional architecture, for example the suggested steering committee or the closer involvement in the further development of action plans and work programs building on the existing regional sectoral strategies e.g. for water, renewable energy or sustainable consumption and production.

5. **National Policy Guidelines for Nexus Mainstreaming in the MENA Region**

The national guidelines developed under the ACCWaM nexus mainstreaming study summarize the situation for Egypt and Jordan in terms of water, energy, and land resources as well as their related human securities, their critical interlinkages, trade-offs and synergies as identified in the Nexus Evidence Base. It maps key institutions and policies in each of these two countries onto those critical interlinkages. Based on that, the report identifies institutional entry points (processes and partners) for increased coordination and cooperation of national (sectoral) institutions in Egypt and Jordan, in order to achieve nexus synergies and minimize trade-offs.

The National Guidelines further provide recommendations for nexus mainstreaming, capacity building and data harmonization.

5.1. **WEF-Nexus Mainstreaming in Jordan**

5.1.1. **Most Critical Interlinkages for WEF-Nexus Mainstreaming in Jordan**

The National Guidelines highlight the following most critical interlinkages among and between natural resources and human securities as well as opportunities for addressing these critical interlinkages through appropriate policies and institutions in Jordan:

- Water and energy security in Jordan (12 % of Jordan’s total power production goes into pumping water; energy demand of the water sector is projected to increase by more than 50% from 2017 to 2025)

- Energy targets in the National Water Strategy 2016-2025: reducing the overall energy consumption in public water facilities by 15%; increasing the share of the water sector’s overall power supply from renewable energy to 10%
Increasing energy-efficiency in the water sector, including in water utilities; deploying photovoltaic technology for pumping and other uses in the water sector (including for desalination); using the energy potential of biogas and bio-solids in wastewater treatment plants; establishing hydropower plants at water dams and canals/main carriers pipeline

Water and food security (the agricultural sector is the largest user of water, responsible for about 51% of the total water needs; increasing water scarcity will reduce the food self-sufficiency level (currently standing at 5-10% for cereals) further

Opportunities to address the interlinkages between water scarcity and food production: Economic incentives and reducing subsidies to promote efficient use of water in irrigation; Using treated waste water in agricultural; Encouraging the shift of 30% of exposed irrigated agriculture area in the Jordan Valley and the highlands towards protected agriculture.

5.1.2. Mainstreaming WEF Nexus Within Policy Processes in Jordan

The National Guidelines highlight that the policy process for WEF nexus mainstreaming in Jordan can best be anchored within the Jordan’s Vision 2025, and more specifically its component related to “Resources Security”, as one of the important fields of Government’s intervention to ensure resources’ sustainability. This component explicitly addresses water, energy, and food security, highlighting the significant national challenges facing Jordan due to the extreme scarcity of water, fossil energy and arable land coupled with rapidly increasing demands. The Vision 2025 also indicates that the lack of diversification in these resources and their use contributes to the vulnerability of the economy to internal and external shocks; as such, this requires major efforts for the diversification and for launching strategic projects in these sectors to address such issues.

As such, the “Resource Security” component of Jordan’s Vision 2025 calls, among others, for initiatives addressing the critical WEF nexus interlinkages such as creating an innovation fund on agriculture, food, water and energy security to foster water-efficiency in agriculture, providing incentives for water-use efficiency in agriculture and reduce over-pumping of groundwater for agricultural irrigation, and improving energy efficiency in water utilities and introduce renewable energies in the water sector. All of these laudable goals deserve a nexus approach to avoid negative externalities related to other sectors.

Other opportunities also exist to mainstream the WEF nexus approach in sectoral planning and decision making process within the WEF sectors. An example is the recent effort in Jordan for cross-sectoral integration in the development of a National Drought Resilient Strategy. The governance of “Drought” was always an issue of cross-sectoral concern during the last ten years given the overlap in jurisdiction on some related aspects. In the process of developing the drought strategy the three concerned ministries (MWI, MOA & MOENV) agreed on the basic roles of each of them with respect to drought management and decided to establish a collaboration/coordination mechanism. The coordination mechanism established within the process of the National Drought Resilient Strategy will allow Jordan to institutionalize disaster risk reduction (DRR) through mainstreaming the strategy into all relevant sectors.

A similar approach can be adopted during the implementation of key national strategies and policies and plans for the related WEF sectors where a solid policy framework has been initiated and which can be used as an entry point for WEF Nexus mainstreaming in Jordan (the key existing policies are summarized in Table 1 below). Important will be a thorough assessment of possible externalities on other sectors and opportunities for generating synergies along the critical interlinkages that were identified jointly with stakeholders.

Table 1: Key Existing Policies and Plans Related to WEF-Nexus Mainstreaming

<table>
<thead>
<tr>
<th>Policy/plan</th>
<th>Lead institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The National Strategy for Agricultural Development 2016-2025</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>Pathways towards a Green Economy (2011) and the National Framework for Green Economy (in final stage of endorsement)</td>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>Intended Nationally Determined Contribution (INDC) of Jordan in 2016</td>
<td>Ministry of Environment</td>
</tr>
</tbody>
</table>
5.1.3. Mainstreaming WEF Nexus Within Institutional Mechanisms in Jordan

Several exiting and potential new institutional mechanisms for mainstreaming WEF nexus were identified in the National Guidelines reflecting the existing potential for coordination, cooperation and integration, and which could be a used as starting point for strengthening synergies and nexus mainstreaming at institutional level.

The institutional mapping conducted as part of the development of the National Guidelines clarified the institutional roles and responsibilities of the sectoral as well as cross-sectoral institutional mechanisms with regards to the WEF nexus (refer to Figure 6).
As a first entry point for nexus mainstreaming at the institutional level, the National Guidelines indicate that the Ministry of Planning and International Cooperation (MOPIC) can play an important role in coordinating among the line ministries and among sectoral policies and plans. Although a great opportunity has been provided through the Jordan vision 2025 by flagging “Resource Security” as a main pillar of Government action, the sectoral nature of the planning has led to its translation into the still strongly sectoral Executive Development Programme (2016-2018), without capturing critical interlinkages among these sectors. As such, it would be a timely opportunity to ensure that the preparation of the next EDP includes priority programmes and plans which address the key critical interlinkages identified in the National Guidelines.

Other opportunities for nexus mainstreaming lie in the existing Technical Committees, which oversee specific needs and advance the mandates of the sectors. These Committees could be mandated to explicitly address critical interlinkages and cross-sectoral functions, by working closely with all relevant ministries and institutions; such committees include: the National Committee for Water Scarcity; national committees for the Rio Conventions (Climate Change, Desertification and Biodiversity), and the Environmental Impact Assessment (EIA) committee.

Another option proposed in the National Guidelines at the institutional level is to utilize the existing inter-sectoral mechanisms and which are already tasked with nexus-related aspects at the highest political levels in Jordan. Such mechanisms could include among others:

- The Higher National Committee for Sustainable Development (HNCSD)
- The Higher Committee for Green Economy
- The Prime Minister’s Delivery Unit to Follow-up on Vision 2025

Finally, the National Guidelines propose the establishment of new Coordination Mechanisms for nexus implementation. These could include institutional mechanisms such as:
- a WEF Nexus Council at the Prime Ministry
- a WEF Nexus Committee at the MOPIC

However, any such new council or committee dedicated to specifically to the nexus should be a secondary option, once all options for strengthening coordination and cooperation among existing sectoral institutions and existing coordination mechanisms have been fully utilized.

No matter, which of these options for nexus mainstreaming is pursued, it should be emphasized, that sectoral expertise and action remains important and needs to be maintained and developed in parallel with any nexus approach.

5.2. WEF-Nexus Mainstreaming in Egypt

5.2.1. Most Critical Interlinkages for WEF-Nexus Mainstreaming in Egypt

The National Guidelines identify the most critical interlinkages among and between natural resources and human securities in Egypt, as well as opportunities for addressing these critical interlinkages through appropriate policies and institutions (as presented in Figure 7) which can be summarized as follows:

- Water and food security: the agricultural sector is the largest user of water (around 85% of the total water needs); due to a lack of water 50% to 60% of food cannot be produced domestically, but needs to be imported; this number is likely to grow further with increasing water scarcity; Egypt is already now one of the largest importers of wheat in the world; also the planned 20% expansion of agricultural land will be severely limited by water availability. Opportunities for the water and food interlinkages include:
  - Increase water-use efficiency in irrigation, adopt sustainable agricultural practices and promote cultivation of non-water intensive crop varieties. Vision 2030 specifically requires to reduce the production of water intensive crops such as rice, and switch from flood irrigation to modern irrigation systems.
  - Promoting reuse of treated wastewater for agriculture use and also the use of desalinated water initially for drinking purposes (if desalination is based on renewable energy). Vision 2030: increase the share of non conventional water sources from 20% today to 40% by 2030.

- Water and energy security: lifting water for irrigation (there are around 1,500 water lifting plants in Egypt) is energy (and cost) intensive; desalination and wastewater reuse require additional energy for production, pumping and distribution. Nexus opportunities for water and energy include:
  - Promoting energy efficiency and the use of renewable energy for irrigation systems, pumping and agriculture in general.
  - Using the energy potential of wastewater (biogas and bio-solids), making wastewater treatment plants net energy sources.
  - Agriculture and energy: besides the enormous (and often hidden) energy demand of agriculture, e.g. for water pumping, for machinery and for fertilizer production, there are also opportunities to reuse some of the energy embedded in agricultural by-products and waste-products.
  - Agricultural residues contain an energy potential of more than 400 PJ, that so far is largely untapped.
Mainstreaming WEF Nexus Within Policy Processes in Egypt

The National Guidelines identify a number of opportunities for coordination and cooperation among relevant sectors in Egypt to support, i.e. for mainstreaming of a nexus approach at policy level. Entry points in terms of existing or newly developed sectoral strategies, policies and plans, as well as needed action and potential benefits of nexus mainstreaming are presented in the National Guidelines as follows:

- Institutional and policy reforms for water resources management – Ministry of Water Resources and Irrigation (MWRI): as part of Egypt’s Vision 2030, institutional and legislative structures, roles and responsibilities in water resources management will be reorganized, including financial policy reform and the better use of economic instruments for sustainable management and use of water and other natural resources, with focus on water conservation and reviewing virtual water policies; this will also involve a number of other ministries such as agriculture, energy and environment. It will be important to also include the Ministry of Housing, Utilities and Urban Development (MHUUD) which has the responsibility of constructing new urban communities and ensuring the provision of water and sanitation networks. A coordination body such as the High Level Ministerial Committee (HLMC) on Water Resources or another national body (e.g. ministry) should be assigned the responsibility for comprehensively managing all water resources and uses, including water distribution for different uses, wastewater treatment, recycling and reuse. This cross sectoral coordination as part of the institutional and policy reform (and reform of the system of subsidies), including the development of Egypt’s new National Water Resources Strategy and Plan already involves several relevant ministries, including the Ministry of Electricity and Renewable Energy (MERE). Along the same lines, the Vision 2030 Economic Development Program includes initiatives related to rationalizing water use. The implementation of this vision from a water perspective should be led by the MWRI, but needs to draw on the strong support from all other relevant ministries in this
process. While water resources are severely and increasingly limited, or even overexploited, there is still room for maneuvering in terms of further improvement in water use efficiency and in generating new non-conventional water sources. These opportunities can only materialize in a sustainable way if such close coordination and cooperation across sectors is established and maintained and critical inter-linkages are addressed proactively.

- **Reforming the legislative framework and system of subsidies in the energy sector - MERE, Supreme Council of Energy**: Egypt's energy sector reform includes a new integrated strategy, policy and action plan (developed by MERE and the Supreme Council of Energy), including an increased share of renewables in the energy mix, improved energy efficiency and demand management, as well as management of the oil and gas sector in Egypt. There are ample opportunities for nexus mainstreaming, when reforming the energy sector and its system of subsidies. For the nexus approach to generate co-benefits and add value in this reform process, the water and agricultural sectors in particular need to carefully identify their energy needs, including for seawater desalination, as well as potential opportunities such as energy recovery from wastewater and from agricultural residues today and over the coming decades. Scenario planning, governance and management need to be aligned across sectors accordingly. In particular, the shift towards renewables which is rapidly taking off everywhere in the MENA region needs to be well coordinated among the energy, water, agriculture, land use planning and environment sectors, so that investments generate the maximum overall economic and societal benefits.

- **Egypt’s Sustainable Agricultural Development Strategy** emphasizes the following:
  i) Using natural resources more sustainably by enhancing their productivity, e.g. in irrigation
  ii) Increasing also land and water productivity3 (jointly).
These agricultural development goals are not yet completely in line with those from other sectors, in particular the energy sector. Enhancing the water use efficiency in irrigation as well as increasing land and water productivity may come at a significant cost in terms of additional energy demands (e.g. for water pumping, additional fertilizer or machinery use). As such, well-coordinated agricultural, water resources and energy planning processes can enhance overall benefits across sectors, e.g. by applying principles of agro-ecology, recycling of agricultural residues and wastewater, biological nitrogen fixation, and integrated land and water management.

- **Egypt’s initiatives to promote Green Economy – the Ministry of Planning and Administrative Reform (MPAR) and the Ministry of Environment (MOE)**: the Green Economy working group led by MPAR and MOE established in 2015 also includes representatives of different other ministries, academia and the private sector. The study on greening the economy and the action plan on sustainable consumption and production (SCP) both focus on the water, energy, agriculture, and waste sectors. Both have been guided by the WEF nexus in their development. The Blue Plan (MoE) integrates environmental consideration into five priority sectors – Water, Energy, Agriculture, Biodiversity, Human Settlements, and Solid Waste, accounting for the critical interlinkages between sectors. So the momentum and institutionalization of the Greening of the Economy or the Green Economy can be used for further operationalization and mainstreaming of the nexus approach. The results from this nexus study can provide a quantitative base for Egypt’s Green Economy, specifying how to reduce tradeoffs and promote synergies between sectors.

- **Egypt's Sustainable Development Strategy (SDS) for 2030**, explicitly recognizes the fact that scarcity of natural resources such as energy, land and water (in addition to environmental degradation) pose severe challenges to the process of development in Egypt. The SDS further acknowledges that food and water security are among the priority national security issues. The consultative process adopted in the development of the SDS is a clear realization that there is a need to follow a multi sectoral and integrated approach for policy formulation and implementation as opposed to the conventional sectoral approach (“mainstreaming the nexus”). The results from this nexus study can provide a quantitative base for meeting the ambitions of Egypt's Sustainable Development Strategy in terms of sound natural resources management and human securities simultaneously, by reducing tradeoffs and promoting synergies between sectors.

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3 Summary, Sustainable Agricultural Development Strategy 2030, Ministry of Agriculture and Land Reclamation, January 2009
5.2.3. Mainstreaming WEF Nexus Within Institutional Mechanisms in Egypt

Several institutional mechanisms for mainstreaming WEF nexus are identified in the National Guidelines and reflect the existing potential for coordination and integration, which can be a used as starting point for strengthening synergies and nexus mainstreaming at institutional level.

The institutional mapping conducted as part of the development of the National Guidelines has allowed a clarification of the institutional roles and responsibilities of the sectoral as well as cross-sectoral institutions with regards to the WEF nexus (refer to Figure 8).

**Figure 8: Mapping of Relevant Institutions onto Critical Interlinkages in Egypt**

The National Guidelines identify several opportunities for nexus mainstreaming within the existing institutional mechanisms in Egypt:

- **Entry point 1:** mainstreaming the WEF nexus within existing Committees, including the:
  - HLMC on Water
  - National Committee for Climate Change
  - National Committee to follow up on and coordinate implementation of the SDGs

- **Entry point 2:** mainstreaming the WEF nexus within on-going sustainable development processes, building upon the related existing or already planned mechanisms:
  - Egypt's Vision 2030, launched in 2016, the strategic development of which was coordinated by the MPAR
  - A Higher Council for Sustainable Development (HCSD) which will be attached to the Prime Minister’s office and which will be coordinated by MPAR and MOE

- **Entry point 3:** mainstreaming the WEF nexus within existing sectoral & cross-sectoral processes such as:
  - Institutional and policy reforms for water resources management
  - Reforming the current legislative framework & subsidization system in the energy sector
  - Promoting sustainable agricultural practices that reduce water & energy use & increase output
5.3. Opportunities for WEF-Nexus Mainstreaming in Morocco

The study team could only conduct an initial assessment towards identifying the most critical interlinkages among and between natural resources and human security, as a basis for later nexus mainstreaming into policies and institutions in Morocco (as presented in Table 2). The most critical interlinkages identified so far include:

- The national agricultural plan (Plan Maroc Vert) projects a strong increase in productivity, which is likely to increase water and energy demands.
- Morocco has a very ambitious renewable energy program. In particular, hydropower and concentrated solar power make this program also water intensive.
- Use of treated wastewater and desalination are major trends in Morocco and come with additional energy demand.
- Energy recovery from wastewater is increasingly used to improve the energy balance.

Table 2: Most Critical Interlinkages for WEF Nexus and Related Institutions in Morocco

<table>
<thead>
<tr>
<th>Interlinkages</th>
<th>Related institutions</th>
</tr>
</thead>
</table>
| Water and energy demands for meeting the Plan Maroc Vert | Ministry of Agriculture, Rural development fishing, water and forests  
  □ L'ADA, ORMVA, Rural Development, etc..  
  □ Secretariat of State in charge of water: responsible for water resources and sector (under Ministry of Equipment logistics and Water)  
  □ ONEW, National Office of Electricity (Power generation/transport)  
| Water demand for renewables                        | Ministry of Energy, Mining, and Sustainable Development  
  □ MASEN  
  □ Secretariat of State in charge of water: responsible for water resources and sector (under Ministry of Equipment logistics and Water)  
  □ ONEW (Water) |
| Energy recovery from wastewater                    | Secretariat of State in charge of water  
  □ ONEW DGCL: DEA & DRSC (Ministry of Interior) : National Sanitation Plan  
  □ Secretariat of State in charge of Sustainable development (under Ministry of Energy, Mining, and Sustainable Development)  
  □ Ministry Of agriculture |

Furthermore existing coordination mechanisms were identified which could provide entry points for nexus mainstreaming, which include the following:

- National Committee for Water
- National Environmental Council (Climate Change)
- Inter-ministerial Committee for Sustainable Development (ODD)
- Economic, Social and Environmental Council (CESE)
- High Commission for Planning (Haut Commissariat au Plan-HCP)
6. Capacity Development Needs for Mainstreaming WEF Nexus at Regional and National Levels

The development of the Regional and National Guidelines provided an overview of the main bottlenecks and challenges facing the mainstreaming of WEF nexus at the different capacity development levels, namely at systemic, institutional, and individual levels.

As such, common trends could be identified, which need to be further pursued and which can be summarized as follows:

i. **At the systemic and policy level**, the main challenges are found in the implementation of policies, strategies, legislation and programs which could be used for nexus mainstreaming, whereby the adoption of policies and tools (such as fiscal instruments) that could address critical interlinkages and in particular tradeoffs were found to be weakest. Whereas the pilot countries of this study have moved extensively in the development of strategic and policy frameworks for sustainable development as a whole and for enabling a WEF nexus in specific, the implementation of these frameworks and the setting of clear targets for promoting synergies, win-win situations and inter-sectoral efficiency gains still requires significant support.

ii. **At the institutional level**, several inter-sectoral coordination functions have been developed, that can be utilized for nexus mainstreaming. These can be further strengthened within the on-going national momentum of the respective frameworks and through the results of this study. The institutional setting needed for nexus mainstreaming can also benefit from on-going national and international efforts for the integrated implementation of the SDGs. These efforts provide an important entry point for nexus mainstreaming.

iii. **At the individual level**, several challenges were identified for nexus mainstreaming that require comprehensive capacity building. Capacity gaps in the individual level are mainly related to a lack of qualification for jobs that promote inter-sectoral coordination and cooperation, limited training of staff to overcome this lack of qualification, limited access to integrated and innovative data and information management tools by the concerned personnel, and lack of technical competencies to operate M&E systems related to the WEF nexus.

While the National Guidelines provide specific recommendations for selected countries on nexus mainstreaming at institutional and policy levels, some commonalities and trends can be extracted from these country-specific recommendations for generalization and up-scaling to other countries and the region. With that the National (and Regional) Guidelines provide a baseline for future sustainability assessments and policy and institutional reform, as well as for capacity building.

Capacity development needs and opportunities related to nexus mainstreaming include:

- Strengthening the technical capacities related to integrated approaches in the management and governance of natural resources.
- Strengthening capacities for designing and implementing coherent policies across sectors that promote a nexus approach.
- Development of integrated data bases and data/information management and analysis as a basis for any nexus approach.
- Strengthening M&E systems, also in support of integrated implementation of SDGs and the Paris Climate Agreement.
- Communication and outreach on the WEF Nexus approach.

In addition to these capacity development needs, the Regional Guidelines specify the following capacity development measures, which need to be pursued through LAS:

- improved awareness and readiness for a nexus approach that can provide added benefits in terms of poverty eradication and improved human securities, while enhancing resource use efficiency and environmental sustainability and and reducing vulnerability to climate change
- individual staff functions: including capacities to work in inter-disciplinary teams, and innovative management approaches to support inter-departmental communication/coordination
- technical understanding across all relevant sectors: sectoral staff involved in cross-sectoral coordination and collaboration mechanisms should acquire knowledge of critical interlinkages among and between resources and human securities, integrated data bases and monitoring and main policy and economic frameworks.
- sharpened policy instruments (regulatory, economic, and promotional instruments, such as for example, standards, tariffs, and indicators) in support of a nexus approach
• improved understanding between the WEF nexus and SDGs: given that the SDG process has been identified as one of the main entry points for nexus mainstreaming at the national as well as the regional level, staff should have a clear understanding of the relevant goals, target and indicators and how they can benefit from a nexus approach.

A separate report on Monitoring and Evaluation as well as Communication and Outreach has been prepared as part of this study, which highlights the various aspects captured in the course of the study.

7. Complementary Activities

Various nexus related programmes and initiatives are undertaken by the different implementation agencies with the support of different donors, which can benefit from the results of the ACCWaM nexus mainstreaming study and which can use the impetus and take its key elements and activities further.

Taking into account the different mandates of organizations which undertake such complementary activities, as well as different contexts (economic, political, environmental context as well as institutional capacities) in which they are implemented, it doesn’t come as a surprise that nexus approaches and processes vary across contexts and regions. However these differences should not be interpreted as inconsistencies or weaknesses of the nexus concept, but as opportunities to explore alternative implementation pathways.

An important initiative which is supporting the WEF nexus are GIZ’s “Nexus Dialogues”, with an initial phase from 2016-2019. These Nexus Dialogues are jointly funded by the European Union and the German Ministry of Development Cooperation (BMZ). They promote demand-driven nexus policy-dialogues in different regions: Africa, e.g. Niger and SADC, Latin America, Central Asia, Neighbourhood South/MENA. Phase II of the Nexus Dialogues will also support the Global Nexus Secratariat managed by GIZ, which will allow to further implement studies and building teams of nexus experts from the countries/regions in addition to implementing small-pilot projects. The Nexus Dialogues will build on and continue elaborating the findings of this study (WEF Nexus mainstreaming in policy and instutions in the MENA region) through the following activities:

• Capacity development through the training of national and regional experts, and supporting the development of a network of nexus experts in the region
• Development of country studies and pilot projects through nexus country assessments, in order to identify suitable nexus opportunities and eventually nexus implementation at the national/subnational level, such as management models for sustainable solar water pumping
• Development of a regional nexus action plan (involvement of 4 countries at least, basis for phase II); based on the Regional Guidelines developed in the ACCWaM nexus project, as well as integrated national investment planning, covering also institutional and legal development.
• Preparing an Arabic Version on the Nexus Resource Platform (refer to Figure 9)
Several other nexus-related activities are on-going and constitute opportunities for continuing and strengthening the initial nexus mainstreaming of the ACCWaM nexus project, including among others:

- ESCWA’s two initiatives related to the WEF Nexus; the first is the “Nexus in the WEF security in the Arab region”, funded by ESCWA and aiming at developing a regional policy toolkit covering the WEF priorities (including awareness and knowledge management, coordination of policies, assessment of the nexus between water security and energy security, capacity building, improving knowledge in technological options, promoting renewable energies, integrating climate change and disaster risk management in decision making). This ESCWA initiative will also prepare technical tools on renewable energy, resource efficiency, and technical transfer and will provide regional trainings for each technical tool.

- ESCWA’s second initiative on the “Water & Food Nexus” aims at supporting water and food security in the Arab region with funding from SIDA. It supports the establishment of an institutional coordination mechanism for the agriculture and water sectors through an assessment of institutional frameworks; identification of relevant institutional framework related to best agricultural practices in the Arab region (Arab-GAP); supporting the development of an M&E system for food security in the Arab countries; as well as capacity development, training and implementation of needed activities.

- RECREEE is supporting and monitoring the shift to renewable energy and conducting targeted projects in different MENA countries, including for example an assessment of solar pumping in Egypt, training on solar pumping and other activities in coordination with LAS such as the LAS/GIZ regional conference on renewable energy.

- The SIDA funded “MENA Region Initiative as a Model of Nexus Approach and Renewable Energy Technologies” (MINARET) project constitutes another opportunity to follow up on the ACCWaM nexus project in the three MINARET pilot countries (Jordan, Lebanon, Tunisia). This regional project is implemented by IUCN, RSS and FPEC and aims at strengthening local authorities in adopting nexus approach. An initial dialogue has been established with the MINARET project, on how to build on the ACCWaM results.

- FAO has recently started a WEF nexus initiative, which will identify nexus business cases at national level (in particular in Jordan and Morocco) to support change and provide added benefits from a nexus approach.
8. Challenges and Opportunities for Mainstreaming WEF Nexus in the MENA Region

The process of the ACCWaM project “WEF Nexus Mainstreaming in Policies and Institutions in the MENA Region” followed the various steps presented above and can be adapted to other countries for identifying and quantifying the most critical interlinkages and required policy and institutional reform for successfully addressing these interlinkages.

The process revealed that an extensive consultative and participatory process is imperative for the identification of interlinkages as well as for appropriate policy and institutional responses. This process not only requires continuous discussions and interactions, but also long-term follow up. The project highlighted the importance of policy and institutional support throughout the process. More specifically the consultations have revealed the following:

- At national level, there is a need to follow up with individual, institutional and systemic capacity development in order to enable a nexus approach.
- At regional level, LAS and its different bodies play a key role in explaining and advocating the WEF nexus to its member countries.
- Unless the nexus approach is integrated into the planning and implementation of new projects, including megaprojects, these projects may not appropriately address the enormous challenges of the region and may in fact obstruct the required sustainability transition.
- Water and water institutions provide a useful entry point for nexus mainstreaming in the MENA region, given the pressing scarcity and its essential role in providing food and generating energy. However it turned out to be counter-productive to make the water ministries exclusively responsible for the process, as it diminishes the motivation of other sectors to engage in the dialogue.
- Given the scepticism about the need for a nexus approach with many individuals and institutions, the way forward is to start from those national and regional institutions which are interested and which are willing to change practices accordingly. These “champions” can lead and take the process forward.
- Political will, political commitment and good governance, also closure of the huge implementation gap from which the region currently suffers, are necessary prerequisite for successful implementation of a nexus approach.

More specific aspects that emerged during the study are presented in the following sections.

8.1. Challenges and Opportunities from the Evidence Base

The main lessons coming out of the Evidence Base preparation process are the following:

- Data availability, complementarity and consistency across the different sectors is a critical issue for nexus planning and implementation. There are significant gaps either because data have not been collected or because collected data have not been released.
- Within the limits of this study it was not possible to address the economic and financial costs and benefits of nexus vs. sectoral approaches. It will be critically important to generate such additional information for bringing critical partners on board for nexus mainstreaming.
- The evidence base has been instrumental for developing the national and regional policy guidelines, without a comprehensive evidence base it would be very difficult to launch and gather partners for a successful nexus mainstreaming process.
- Discussions with the different sectors, institutions and individuals about the nexus evidence base and its content and the validity of the data it contains, serve as a good starting point for the nexus mainstreaming process.

8.2. Challenges and Opportunities from Regional Guidelines

The Regional Guidelines have raised several critical issues and the process led to important recommendations and lessons learned, in particular:
The nexus can serve as an entry point and motivation for cross-country regional cooperation. Many integrated solutions and examples of integrated governance exist in the different countries of the region. There are large opportunities for sharing of knowledge and information and best practices. Regional cooperation can help to bring nexus solutions up to scale so they become economically viable. Regional cooperation can also help to better use the comparative advantages that each MENA country has in terms of resource availability, resource use (efficiency) and human securities.

A good example for sharing of knowledge and best practices are the Nexus Policy Briefs which received widespread recognition within the Arab region’s governments and among concerned constituencies. Country profiles were developed, analysing country specific critical interlinkages among and between natural resources and human securities, describing the relevant institutional and policy frameworks for integrated cross-sectoral governance, and identifying opportunities for improving the current institutional and policy settings and procedures. These case studies together with the national and regional policy guidelines should be widely circulated, and serve as inputs for regional consultations, conferences and other fora. As a next step, further best-practice and best-policy cases should be identified and promoted, including the associated economic benefits. Nexus dialogues also need to encompass more strongly Success the private sector and the important role it can and should play.

Cross-sectoral and cross-country research and development programmes proved to be an untapped potential. In many of the LAS member states national research institutions exist on water, energy and agriculture with a strong sectoral focus. LAS can play a stronger role in facilitating cooperation across these institutions and across countries, starting from the knowledge generated in the ACCWaM nexus mainstreaming study. Nexus research can support more sustainable investments at all levels. In particular LAS can promote the regional nexus dimensions in research. For that, LAS can partner with international institutions such as UN ESCWA, FAO, UNESCO, Future Earth and others. LAS is particularly well suited to bridge from science to policy and strategy development at regional but also at national level. LAS can also initiate and oversee nexus reporting mechanism by its members states, e.g. establishing an annual nexus report.

8.3. Challenges and Opportunities from National Guidelines

Although nexus challenges and opportunities were elaborated specifically for the pilot countries (Jordan and Egypt), common elements and priorities were identified that are also applicable to other countries in the MENA region. These include the following:

i. There are many good entry points for nexus mainstreaming at the national level, e.g. existing integrative mechanisms and committees and opportunities for building links across the sectors. However there is also strong inertia to remain within the sectoral silos and continue business as usual management and governance

ii. The nexus requires new knowledge and changing mind sets. So it is very important to update and revise educational curricula at all level (e.g. at the level of schools, universities and professional training), complementing sector specific education and training with interdisciplinary knowledge and approaches; this should aim at curricula at the theoretical as well as at practical level. Nexus mainstreaming at the education and training level means to do both: developing dedicated courses with specific nexus curricula, but also building links between and broadening existing courses. Schools and educational and training programmes need to be evaluated from a nexus perspective, to ensure their continuous update and improvement according to the national situation and new nexus knowledge as it becomes available;

iii. Given the additional complexity of the nexus and the additional demands placed on the personnel in the different institutions for adopting, implementing and reporting on the WEF nexus, innovative integrated management approaches are required. Motivation, encouragement and promotion of staff, and the identification of “champions” need to be better institutionalized. This could include for example rewarding systems and career opportunities within and across institutions which can provide incentives for inter-sectoral collaboration;

iv. There is a need for in-depth analysis (and possibly revisions) of the national policies which may encourage or hinder a nexus approach. This includes fiscal instruments, which need to be sharpened to promote a nexus approach, including taxation and financial incentives. Examples for such instruments include water subsidies for irrigation and electricity subsidies in the
agricultural sector, which often do not account for critical interlinkages and which often promote non-sustainable resource use, since they were derived with other priorities in mind.

8.4. Challenges and Opportunities of Implementing WEF NEXUS in the MENA Region

Peace, security and regional cooperation is at the centre of LAS politics. A stronger focus on integrated management and governance of water, energy and land resources and improved water-, energy- and food-security can help to better achieve the LAS core objectives. The nexus approach, which addresses and operationalizes these goals, will mainly be implemented at the national level. There have been numerous drivers of change and challenges that require a stronger integrated approach, including the food crisis in 2008/2009, the accelerated implementation of renewable energy production, the need for cross-border cooperation on natural resources management, international trade in agricultural products and energy, increased foreign direct investment in land and more recently the ambitious Paris Climate Agreement and the need for integrated implementation of the Sustainable Development Goals. All of these begin to encourage LAS and its members states to invest into cross-sectoral policies and institutions.

In particular the 2030 Sustainable Development Agenda is now shaping the global development discourse and increasingly determining development finance. The commitment by LAS member countries (Morocco and Egypt as pilot countries for voluntary reviews) and the mandate given to LAS by the LAS Summit to develop the Arab regional report on SDGs to the High Level Political Forum (HLPF) in 2018, make it all the more important to draw upon the WEF-Nexus when developing comprehensive integrated policy responses to the wide scope of the SDGs.

However, LAS member states don't yet advocate explicitly the nexus. So there is a strong need mainstream the nexus into countries development planning and using it as framework to better link across sectoral policies and institutions. This requires more convincing demonstration of the economic and financial benefits and gains which integrated and – more importantly – regional approaches can create compared to strictly sectoral or national approaches. There is a particular need to demonstrate, share and promote successful nexus cases among members. All this can elevate the nexus from a scientific concept and analytical tool to a guiding policy program. Defining the role of private sector engagement is crucial in any such effort. In addition to emphasizing the opportunities of cross-sectoral coordination, cooperation and integration also the benefits of regional cooperation and harmonization of policies, strategies and action plans across countries, e.g. fostering regional food and energy trade, are prime tasks for LAS. The results of the ACCWaM nexus mainstreaming study provide a solid base for this important objective.