

Assessment of Current Policies, Regulatory and Legal Framework on Renewable Energy & Energy Efficiency, Water Management and Food Security NEXUS and Sustainable Development Considering the Climate Change in Close Eye on the Gender

Jordan, Lebanon and Tunisia



Prepared for IUCN – ROWA

International Union for Conservation of Nature and Natural Resources



By: Dr. Soud Quran

Introduction and Rational

- Over the last decades, pressures on water and energy systems have risen importantly as has the pressure to increase agricultural productivity and food supply in the countries in the Middle East and North Africa – MENA (including the targeted countries; Jordan Lebanon and Tunisia).
- This have largely been driven by overall macroeconomic trends such as population growth, urbanization, socio-economic development and also by environmental degradation and are making these countries of the region more vulnerable to climate change.
- As a result, the region is facing new challenges that require a higher level of coordination between the three key sectors of socio-economic development, energy, water and food (EWF) to ensure sustainable development.
- The nexus approach is part of the response to these challenges. Yet, how to implement the nexus EWF through pertinent policies and adapted national and pan-Arab regional development programs and what governance structure or changes are needed for this purpose, is the core question the current research is designed to contribute to

Introduction and Rational

- This study is aimed at assessing of current policies, regulatory and legal framework on renewable energy & energy efficiency, water management and food security nexus and sustainable development considering the climate change in the countries of Jordan, Lebanon and Tunisia in close eye on the gender issue.
- Also, trying to explain the gaps, the needed solutions and the recommendations for improvement, these were embedded within the context of the report and summarized in the last part to include policy framework for regulating (water-Energy-food) nexus, mapping regulations and evaluating governance and propose relevant alternatives in regulatory strategies and measures.

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WEF Nexus and Climate Change in the Arab Region

- Water security, energy security and food security are inextricably linked in the Arab region, perhaps more than in any other region in the world. Generally, the region is known to be energy intensive, water scarce, food deficient, and one of the world's most economically and environmentally vulnerable regions to climate change.
- This strong interdependency between water, energy, food and climate change in the Arab region calls for the nexus approach and thinking when addressing the management of these three vital sectors; an approach that integrates management and governance across sectors, and where conventional policy and decision-making in 'silos' gives way to an approach that reduces trade-offs and builds synergies across sectors especially in light of the global UN Sustainable Development Goals (SDGs) and the COP21 Paris climate change commitments in 2015.

WEF Nexus and Climate Change in the Arab Region

- Fortunately, this has been recently well recognized in the Arab Strategic Framework for Sustainable Development (ASFSD), adopted by the League of Arab States in 2013, aiming at addressing the key challenges faced by the Arab States in achieving sustainable development during the period 2015-2030.
- This new development has created unprecedented opportunities for fundamental policy changes in various economic, institutional, technological, and social systems, as well as boosting resource efficiency and productivity by addressing externalities across sectors.

The WEF - Nexus and Climate Change within the Context of the SDGs

- Though the 2030 Agenda did not adopt a nexus approach to achieving the SDGs, it did, however, strongly declare that the “SDGs and targets are integrated and indivisible”, and that the “interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new agenda is realized”.
- The integrated nature of the SDGs matches well a nexus approach that specifically considers the numerous links between sectors. A systems approach that aims to reduce trade-offs and build synergies by considering interactions and dependencies at all stages, it enhances the efficiency of the entire system rather than increasing productivity of a specific sector often at the expense of others.
- An example of this is the climate change goal, (**SDG-13**), which looks to combat climate change and its effects. Climate change is a cross-sectoral stressor and a key driver of water and food systems, with the energy system driving climate change and in return being affected by it.

The WEF - Nexus and Climate Change within the Context of the SDGs

- At the core of the water-energy-food security nexus, Goals 2, 6 and 7 are easily identified.

SDG-2 seeks to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture, and has five associated targets and three means of implementation.

SDG-6 aims to ensure availability and sustainable management of water and sanitation for all, and has six associated targets and two implementation means.

SDG-7 aims to ensure access to affordable, reliable, sustainable and modern energy for all, with five targets and two implementation means.

- A closer look at the SDGs and their targets reveals several connections. For example, target 6.4, increasing water use efficiency across all sectors, is linked to targets 2.3 and 2.4 that call for better agricultural productivity and resilient agricultural practices, which is connected to target 7.3 related to improvement in energy efficiency.

The WEF - Nexus and Climate Change within the Context of the SDGs

- Connections are not limited to these three core goals of the nexus, but spread into others, such as health target 3.9 that calls for the reduction in the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination, which is closely connected to target 6.1 to achieve universal access to safe drinking water for all.
- The integrated nature of the 2030 Agenda was echoed in the key messages from the Arab Forum for Sustainable Development to the follow-up high-level political forum on sustainable development. They signaled the links among goals relating to environment, natural resources, climate change and economic and social objectives, and called for increased cooperation across the region given the cross-border nature of water, energy, agriculture and food security challenges.
- The messages also stressed that human rights, including the right to development, and gender equality and women's empowerment (**SDG-5**), are the foundation of the agenda, and are in harmony with ESCWA's proposed water energy-food security nexus.

The WEF - Nexus and Climate Change within the Context of the SDGs

SDG-2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture



SDG-5. Achieve gender equality and empower all women and girls



SDG-6: Ensure Availability and Sustainable Management of Water and Sanitation for All



SDG-7: Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All



SDG-13: Take Urgent Action to Combat Climate Change and its Impacts



The WEF - Nexus and Climate Change Relate to the SDGs – Arab Region

- Despite that the Arab region was amongst the first regions to develop a regional strategy for Sustainable Consumption and Production (SCP), it is noticeable that implementation of such strategy at the national level is sub-optimal as the vast majority of SCP policies that exist in the Arab region are predominantly supply oriented.
- Examples of these are: improving efficiency of power generation and water networks, building of new desalination plants, and improving agriculture productivity.
- Demand-side policies curbing and influencing consumer demand, for example by using economic instruments or rationalizing subsidies are rarely used.
- In most of the Arab countries, energy, water, and food policies are developed within each sector with little horizontal coordination. Additionally, climate change is still being addressed as an add-on policy issue rather than a core for development challenges in the region



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

The Energy Efficiency and Renewable Energy Policy – 2016 puts into effect the mandate of the Ministry of Water and Irrigation (MWI) to improve the performance of the water sector through:

- Improving the energy efficiency in water facilities in order to decrease the specific power consumption for water supply.
- Introducing renewable energy technologies to protect the environment and reduce energy price volatilities in the water sector.

The energy targets of MWI for the year 2025 are specifically

- Reducing the overall energy consumption in public water facilities by 15%.
- Increasing the share of renewable energy to 10% of the overall power supply.

To achieve these targets, an action plan with priorities is to be devised through setting three main milestones within this policy for the years 2017, 2021 and 2025.



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

The Energy Efficiency and Renewable Energy Policy – 2016 targets until 2025:

- 15% reduction in the specific energy consumption of billed water corresponding to a 0.47kg reduction of CO² emissions for the production per each billed cubic meter of water.
- Raise the share of renewable energy resources in power consumption to 10% corresponding to a total saving of 0.31kg of CO² emissions per each billed cubic meter of water.



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

The National Water Strategy 2016 – 2025

- This National Water Strategy (2016-2025) included provisions for climate change, water-energy-food nexus, and focus on water economics and financing, sustainability of overexploited groundwater resources and the adoption of the new technologies and techniques available.
- it is in line with the new strategies adopted in other sectors including National Energy Strategy 2007-2020 adopted by the Royal Energy Commission, Agriculture Document of 2009 issued by the Ministry of Agriculture and environmental policy and plan of action developed by the Ministry of Environment, Strategy documents for health, education and municipal affairs also reflect synergies and partnership with the water sector and the new updates of water wastewater management master plans, solid waste management and the newly approved reform legislation including the decentralization law.



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

The National Water Strategy 2016 – 2025

- MWI has also elaborated a set of principles to guide future water sector planning; among other principles: Jordan needs to address the impact of climate change on its social, economic and environmental development. Adaptation measures must ensure institutional response capacity, community education and awareness of the risks.
- Jordan's vision for the water-related SDGs envisages a sustainable environment, universal access to sanitation, sound wastewater management and reuse, pollution prevention, safe drinking water delivery, water security and regional cooperation.



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

Water and sanitation are regulated by Ministry of Water and Irrigation By-Law No. 14 of 2014; Water Authority of Jordan Law No. 18 of 1988 and its amendments; and Jordan Valley Authority By-Law No. 30 of 2001. Other relevant laws include Public Health Law No. 47 of 2008, Environmental Protection Law No. 85 of 2006, and Groundwater By-law No. 85 of 2002 and its amendments.



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

*The Integrated Water Resources Management **IWRM** Strategic Framework Includes:*

- Economic Efficiency in Water Use.

Because of the increasing scarcity of water and financial resources, the finite and vulnerable nature of water as a resource and the increasing demands upon it, water will be used with maximum possible efficiency.

- Social Equity.

The basic right for all people to have access to water of adequate quantity and quality for sustaining human wellbeing will be recognized.

- Environmental and Ecological Sustainability.

The present use of the resource will be managed in a way that does not undermine the life-support system so as not to compromise its use by future generations



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

The Implementation of the 2030 Agenda of Sustainable Development was reviewed in the areas of:

- Food Security
- Water Availability and Sustainability
- Affordable and Reliable Energy
- Environment and Climate Change Action
- Gender Equality



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

Sector Level Strategies, Legislation and Action Plans Contributing to the Implementation of the Climate Change Policy (Mitigation), Source: The National Climate Change Policy of Jordan 2013-2020

Sector Level (Mitigation) Strategy, Legislation, Action Plan	Responsible Entity	Climate Change Relevance
EE and RE legislation	MEMR	Priority sectors for mitigation
EE Road map/The National EE Action Plan	MEMR	Priority sectors for mitigation
Transport Strategy	MoT	Energy efficiency and climate mitigation to be integrated.
Solid Waste Law	MoEnv	Mitigation aspect to be considered
Solid Waste Management Strategy	Ministry of Municipalities	Mitigation aspect to be considered
Updated Water for Life Strategy (2022)	MWI	Priority sector for mitigation



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

Sector Level Strategies, Legislation and Action Plans Contributing to the Implementation of the Climate Change Policy (Adaptation), Source: The National Climate Change Policy of Jordan 2013-2020

Sector Level (Adaptation) Strategy, Legislation, Action Plan	Responsible Entity	Climate Change Relevance
National Water Strategy “Water for Life”, revision 2012	MoWI	Includes chapter on climate change vulnerability adaption
Water Law	MoWI	Vulnerability and adaptation to be considered
Zarqa Basin Adaptation Plan	MoEnv	Adaptation aspects to be considered
Water Adaptation Strategy	MoWI	Adaptation aspects to be considered
Health Sector Adaptation Strategy	MoH	Adaptation aspects to be considered
Jordan Protected Areas Policy Framework	MoEnv	2010 Adaptation aspects to be considered
Agriculture Adaptation Strategy	MoA	Adaptation aspects to be considered
Disaster Management and Climate Change	Civil Defence Department	Adaptation aspects to be considered



Linking Water-Energy-Food to Climate Change, Environment and SDGs Current Strategies, Policies, Regulatory and Legal Framework

Sector Level Strategies, Legislation and Action Plans Contributing to the Implementation of the Climate Change Policy (Adaptation), Source: The National Climate Change Policy of Jordan 2013-2020

Sector Level (Adaptation) Strategy, Legislation, Action Plan	Responsible Entity	Climate Change Relevance
Programme for Mainstreaming Gender in Climate Change Efforts in Jordan	MoEnv	To be implemented Adaptation aspects to be considered
Regional development plans and local municipal development plans	GAM	National climate change policy and action plan should be reflected in regional development plans, (governorates development plans) and local authorities (municipalities) plans.
Research plan for climate change	MoMA	Increased focus of policy-supporting climate change science
Reducing Vulnerability to Climate Change in Agricultural Systems	MoMA	Adaptation response strategies to climate change in Jordan
National Strategy and Action Plan	MoA	Adaptation aspects to be considered
Combat Desertification	MoEnv	Adaptation considered

Summary and Conclusions, Gaps and Recommendations

Summary and Conclusions

- National and regional efforts to address climate change offer an unprecedented opportunity for a needed institutional reform in order to mainstream the nexus thinking in policy development and implementation.
- *Adopting the WEF nexus approach will provide great benefits for the Arab region in their pursuit to achieve the SDGs and the mandates of the 2015 Paris Climate Change Agreement.*
- Arab Region is one of the most vulnerable regions in the world to the potential adverse impacts of climate change. *The current water-energy-food-climate policy landscape in the region is complex and fragmented; they have been developed independently of each other.*
- The interdependency among Water, Food, and Energy in the Arab region is strongly and closely interlinked, probably more than any region in the world, *this can be linked easily to Climate Change, Sustainable Development and Gender.*
- Water, energy and food security are central to the sustainable future of the Arab world. *Arab countries' devised policies to tackle this security nexus challenge will set the tone for the sustainable development of the region for the years to come.*

Summary and Conclusions, Gaps and Recommendations

Summary and Conclusions

- In view of the recent global commitments of the SDGs 2030 and the new mandate to have a lower carbon economy of the Paris Climate Summit in December 2015, *the current institutional framework in many Arab countries will probably need to be reviewed.*
- The institutional framework governing *the elements of the WEF nexus in the region needs strengthening mechanisms for effective resource management.* Some countries succeeded in *presenting different models of “integrated institutions,”* but *their comprehensive and inclusive management of these interlinked priorities still need support,* especially that the various institutions governing these sectors are themselves fragmented because of the existence of multiple and overlapping jurisdictions.
- The *institutional framework governing the elements of the WEF nexus in Arab countries is mostly fragmented,* which has to delay the comprehensive and inclusive management of these interlinked three priorities. *This fragmented institutional framework has also led to a sectoral approach to policy planning, and consequently fragmented policies.*

Summary and Conclusions, Gaps and Recommendations

Summary and Conclusions

- This fragmentation is also found within the sector itself. For example, more than one authority governs the water sector, where one ministry controls water allocation for domestic and industrial use while another controls irrigation water use (such as the case of Water sector in Jordan). In Lebanon; one body is responsible for the policy, planning and/or management of two or more sectors/resources; for example, the Ministry of Energy and Water in Lebanon is the main public stakeholder responsible for the policy planning and management of both the water and energy sectors.
- Since the environment generates benefits, it has a value, which should be protected by all those involved, including public, private and civil society organizations. Appropriate and fair policies are necessary to support social equity and equality, and could be achieved through a greater inclusion of all stakeholders, regardless of status, gender, age or power. *Equality and equity, both within and between generations, improvements in efficiency, and the maximization of benefits will require a policy and legislative framework that puts emphasis on rights, inclusiveness and fairness, while also aiming to improve livelihoods and well-being.* Good environmental governance can be achieved if equity and equality are reflected in policy formulation, strategies and programmes at all levels.

Summary and Conclusions, Gaps and Recommendations

Summary and Conclusions

- Women, as other disadvantaged groups, are especially vulnerable to climate change. *Current socio-economic and cultural constraints affect women disproportionately.* Women in Arab countries, especially the poorest ones, already suffer high rates of illness and death related to pregnancy and other reproductive functions.
- It is obvious that *the power sector will only achieve sustainable development, if gender analysis is integrated into policy formulation.* It is crucial to involve at various levels those who stand to benefit most from the technologies - *women - as agents of change.* They should be trained in how to promote, set up and operate renewable energy and energy efficiency technologies (e.g. improved cook stoves), because RE and EE projects are *much more effective when women are involved.* Their input in the design phase makes energy appliances more user-friendly.
- *Little attention given to gender mainstreaming in the development of energy policies and programmes,* it will be of high value to mainstream gender in the energy sector, and enhance energy access for women and other vulnerable groups, especially in rural and peri-urban areas, through targeted programmes. Beyond this gender issue, *sustainable energy can also empower vulnerable groups, such as single parent homes, orphans, elderly and people with chronic illnesses or disabilities, and help them break the cycle of poverty.*

Summary and Conclusions, Gaps and Recommendations

Summary and Conclusions

- *The current low pricing policies of resources in the majority of Arab countries have been promoting unsustainable consumption and production patterns leading to more resources depletion. Low pricing and across the board non-targeting subsidies have resulted in domestic over-consumption of resources and the absence of incentives to achieve resources efficiency.* This calls for a paradigm shift in policies and policy development. *Reforming pricing schemes would improve resources efficiency, enhance economic and climate resilience, lessen burdens on governments' budgets, and help achieve the newly adopted SDGs and mandates of the Paris 2015 Climate Summit.*
- In order to achieve reliable water, energy and food supplies at a national and global scale, multi-stakeholder platforms are needed in order to develop and explore science-policy-society linkages and opportunities to share knowledge and employ it to meet the targets for both the Sustainable Development Goals and the Paris Climate Change obligations.
- Decision support tools are highly valuable in promoting cross sector communication and trade-offs, thus it is critical to create these competencies at an individual as well as institutional levels.

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- Governance and institutional structures in the Arab region can be enhanced and strengthened for more effective and integrated resources management through Analyze current national institutional arrangement for better understanding of the weaknesses and gaps that hinder implementing the WEF nexus approach in each Arab country.
- Empower and strengthen existing institutions already active in developing and implementing strategies/policies-related to WEF sectors to develop a comprehensive WEF nexus national strategy; a key element of which is data homogenization and sharing.
- Enhance coordinating and collaborating mechanisms amongst institutions as a key for mainstreaming the WEF nexus approach at local, national and Arab regional levels, and not necessarily establishing new institutions for the WEF nexus.
- Adopt a WEF nexus approach policy making to increase policy coherence among the three sectors and climate change policies to provide integrated solutions and to mitigate nexus-related risks (integrated policies, non-siloed thinking, linking up across sectors and ministries).

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- Apply appropriate policy, legislative and economic tools to ensure that basic human needs for the three resources are met at a low, subsidized price, while excessive use is priced at a tariff that reflects cost.
- Implement integrated planning and management that reduces trade-offs and builds synergies across the three sectors.
- Improve resources efficiency towards the transition to sustainable economy through reforming economic policy and market incentives.
- Promote sustainable consumption and production patterns to achieve SDGs and mitigate and adapt to climate change mandate and targets as agreed upon in Paris climate summit in 2015.
- Harness existing multi-stakeholder platforms to improve policy coherence, institutional and social learning and leadership (Multi-stakeholder platforms are needed in order to develop and explore science-policy-society linkages and opportunities to share knowledge, including public sector (legislators, politicians, utilities, among others), private sector (utilities, supply chain, agricultural and industrial sector, etc.), civil society and foreign aid agencies).

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- The establishment of a network of leading experts in the region is encouraged to create more synergy in the technical knowledge as well as in transboundary issues, international conventions and legal and institutional aspects.
- The involvement of civil society in the nexus governance can be an important asset in generating better dialogues and bringing legitimacy and accountability to governing institutions.
- Mainstream the nexus mental models, concepts, and tools in policy and development plans.
- Create training programs across the various sectors to build capacity on the analytics as well as the negotiation aspects of the implementation of nexus solutions at different levels (Develop specific institutional and individual capacity building programs across the three sectors).

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- **Scale up, replicate and fund on-going projects related to the nexus** including integrated seawater energy and agricultural system, renewable energy for wastewater treatment and reuse, and solar desalination.
- Support and provide **incentives for strategic partnerships and cooperation between research centres and the private sector.**
- Introducing inclusive and fair rules, institutions and practices governing social interactions to **improve outreach to the vulnerable, such as poor men and women, and the younger and older generations.**
- Gender equity and women's empowerment are declared goals for all Arab countries. **Women should play effective roles in identifying water governance options at all levels.** A first step can be training programmes on gender awareness and analysis for water professionals and the community.

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- Gender issues and participatory approaches must be integrated into local and regional businesses, especially in agricultural and poor communities.
- Ensuring that women are equal partners with men in decision-making over development, use, technology choice, financing and other aspects of water management.
- Ensuring that the environmental and social needs of future generations are reflected in current policies and practices.
- Focusing water development policies towards eradicating poverty and improving the livelihoods of women and men.
- Reforms are also needed at the local level to effectively integrate gender-aware and participatory approaches into local and regional businesses, especially to empower women.

Summary and Conclusions, Gaps and Recommendations

Recommendations for Improvements

- **Whatever the mechanism adopted, more and improved coordination between ministries related to WEF sectors needs to take place to meet future challenges. Arab countries need to assess key public entities that are already involved in all of the WEF sectors as the principal administrators of the development and mainstreaming of policies and strategies that tackle the WEF sectors in an integrated and comprehensive way.**
- **There are several options for mainstreaming the WEF nexus approach. One option (which more favorable than others as it does not aim to develop new entities with the specific mandate of managing the WEF nexus) is that, one body already active in elaborating and implementing strategies that are related to the WEF sectors can be the focal point for preparing a comprehensive WEF nexus strategy for the country. This is possible through policy dialogues and evaluation of policies for the WEF nexus in a periodic manner. Also, the nexus approach may be mainstreamed as part of sustainability reporting mechanism.**

Way Forward and Action Plan for Improvement

- This assessment is based on desk review of the published regulations, policies and frameworks of the WEF related to Climate Change and Sustainable Development in view of Gender Eye.
- Further assessment and more deep analysis need to be undertaken for the un-published materials and the personal perspectives of the officials and key stakeholders, this can be done through face to face discussions with the key persons in relevant institutions in each targeted country.
- No consultations (through interviews or workshops) was conducted with the concerned institutions or people during the assessment resulting on neither deep analysis while assessment nor validation of the results in the targeted countries' institutions; Jordan, Lebanon and Tunisia.
- *The most urgent topic that may affecting the development in the area is the disaster and crises risks management, this was not look into through this assessment.*

Way Forward and Action Plan for Improvement

- WEF security is very much related to the reduction (mitigation and prevention) measures that the country need to adopt in order to minimize the lives and properties losses and socio-economic impacts, which will ultimately contribute to the sustainable development. Therefore, its highly recommended to review this study taken the DRR dimension.
- Applying this to Arab countries (especially the targeted countries; Jordan, Lebanon and Tunisia) could be an added value for the efforts been made in the region for convincing different international organization and donors (which prefer to work with broader and more comprehensive approaches linking different inter-linked topics) to encourage them invest and contribute more in these topics in the region.
- *Detailed Work Plan can submit on approval the above Notes*

Thanks for you Attention

**Appreciate your Kind
Feedback**