

Policy Brief

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The Water – Energy – Food Nexus: Who Owns it?

By Rabi Mohtar

Summary

The water-energy-food (WEF) nexus has emerged over the last few years as an innovative and holistic platform for resource management and allocation. Unlike many other disciplines that make their way to the policy circle through academic debates, the nexus emerged from the global and policy business community as a platform to guide sustainability efforts. It is, with no doubt, that the nexus will find its way to the implementation of the sustainability development goals (SDGs), approved by the UN general assembly in September 2015. The nexus is also finding its way to the academic community, where a lot of scientific questions are awaiting answers: what are the data needs? What are appropriate modelling strategies? How will we scale (upscaling and downscaling)? And what is the appropriate scale for approaching the nexus? These are but a few of the technical challenges. With that in mind, critical questions need answers regarding the governance of the nexus, including ownership and appropriate governance structures. The global community is in urgent need of good, successful examples of how the nexus has helped reach water, energy and food security goals.

Focusing on a nexus hotspot in developing countries and the African continent in particular is timely. Many of these countries utilize the majority (over 85 percent in some cases) of their water resources in food production. Water access and farming technology are limited by energy access. This becomes a nexus where water and energy availability limits the food supply.

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Lessons in these conditions points to crucial factors for the success of the food management and access plan including the promotion of technology, of research & development and of an integrated policy that address the full food supply chain, from the producer to the

consumer, in an effort to decrease the use of energy and water. Another aspirational and internationally unique goal is the inception of policies that address the full supply chain, such as for the food management and access plan, collaboration with local food retailers to decrease food waste through improvements on farm production efficiencies and throughout the supply chain. Regionally, and instead of taking an isolationist focus, national food security plans can deliberately reach out to other countries affected by water and energy securities in an effort to share experiences and generate a global vision for the nexus. Examples of such policy choices were underlined by the establishment of the Global Alliance for Drylands, now chaired by the former Executive Secretary of the United Nations Economic and Social Commission for West Asia in Beirut¹. This article explores various issues related to the governance structure and financing of the water-energy-food nexus.

(1) Mohtar, R., 2015. Integrated Water, Energy and Food Governance: A Qatari Perspective. In press.

Policy Options

It is increasingly evident that development strategies and national policies can no longer be formulated for individual sectors alone, but must also cut across the different sectors to better manage trade-offs. Some argue that managing the nexus at the local or national level does not require a major institutional restructuring, but rather, appropriate changes to protocols, procedures and processes that improve interactions among the relevant governance entities. Others, on the contrary, affirm that lack of co-ordination among institutions (silo decision making) may be a key cause of the nexus pressures being experienced today².

"Given that the interlinkages between resources and sectors are complex, neither the state nor the markets have been uniformly successful in solving common pool resource problems."

When considering nexus policy options, three major components must be examined:

1. Governance of the nexus: Who 'owns' the nexus? What are the possible models for governing the nexus, -including financial responsibilities for implementation and incentives?
2. Capacity building: A nexus approach is a unique platform where science, engineering and policy are as deeply interlinked as the resources themselves. When competition for resources arises between local authorities, sectors and end users, there is a need for building capacity to enable the people involved to have a deep understanding of the local scenarios, as well as those at the regional and global levels, allowing movement from resource conflict to dialogue and from depletion to sustainability.
3. Analytics (the models or tools available to support decision makers): These analytics are extremely valuable to catalyze the debate among stakeholders, thus creating an inclusive dialogue between multiple disciplines and at multiple scales. Nexus tools are a great platform to identify and quantify interlinkages and hotspots, and to evaluate tradeoffs³.

GOVERNANCE OF THE NEXUS

Who owns the Nexus?

The WEF nexus concept as a tool for sustainable management of resources was first introduced less than one decade ago. Thus, data regarding large scale case studies is still very scarce. There is a wide diversity of sectors involved in the governance of the nexus. It is a shared space between agriculture, water, climate, energy, finance, municipalities, and other units at a local and global scale. The private sector and civil society have important roles to play. There is an inherent need to develop and implement systematic approaches in which all stakeholders share ownership and willingness to cooperate.

How to govern the Nexus?

There are several possible models for regulating the nexus:

- a. Shared governance coordinated among various units where all the parties involved have representatives to a single body empowered and entrusted with governing the nexus.
- b. High level governance unit with oversight to all units where an independent body with representation from all involved stakeholders will have resources and authority to implement decisions regarding the nexus governance.
- c. Private-Public Partnership (PPP). The implementation of the nexus approach is expected to save resources, which can be translated into financial savings. However, for such a partnership to start up, there is a need for initial financing (seed funding). This is also of great importance in states where resources have been privatized.

Financial resources for implementation.

The implementation of the nexus does require, in most cases, investment in structural changes, policy development and execution, and capacity building, among others. Shareholders must be identified, including from the public and private sectors as well as international and domestic aid.

There is a need to give investors and shareholders tools

(2) IRENA, 2014. Renewable Energy in the Water, Energy and Food Nexus. Accessed online on May 2015 at http://www.irena.org/DocumentDownloads/Publications/IRENA_Water_Energy_Food_Nexus_2015.pdf

(3) Granit, J et al (2013). Unpacking the Water-Energy-Food Nexus: Tools for Assessment and Cooperation Along a Continuum. The Stockholm International Water Institute (SIWI). Accessed online on May 2015 at <http://www.sei-international.org/mediamanager/documents/Publications/SEI-2013-WWW-Nexus-article.pdf>

that will provide them with a clear assessment of risk management and viability of business conditions.

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Budgeting and establishing financial responsibilities for stakeholders can, in some cases, be the most critical and challenging aspect of negotiations in implementing water-energy-food nexus solutions. The models and tools available are a valuable resource that can help the parties involved assess the risks and impacts of different scenarios and thus, facilitate the establishment of financial and managerial responsibilities for the resources.

There are huge opportunities for innovation and entrepreneurship, particularly at the local level and in the rural context. There is a role for public-private partnerships and emerging public-private-civil society partnerships. However, in order for these partnerships to be successful, national governments must establish appropriate mechanisms and take responsibility for regulation and oversight. Moreover, these partnerships should be developed in the absence of public funding⁴.

Incentives.

Dialogue and cooperation within and among sectors, and at different scales can be promoted if there are incentives to take action, for example:

- a. Gained efficiency and/or reduced costs.
- b. Good citizenship and working towards the betterment of society.
- c. Financial gains that will directly benefit the operations of a sector.
- d. Incentives for compliance to policies and laws play an enormous role in the sustainability of the nexus resources.

These incentives must be applicable to multiple implementing agencies or sectors of the nexus solutions, from high level ministries to the private sector and end users of resources.

The private sector is an essential partner in the water-energy-food nexus, but the lack of incentives or inadequate regulations may prevent or inhibit their proactive engagement. Taking the water-energy linkages as an example, water is subsidized in most developing

countries, and therefore very few individuals or municipalities pay the real cost of water and wastewater services. The energy sector, on the other hand, is a productive sector worth several orders of magnitude more than the water sector in terms of income capital per year. As a result, the energy sector has more leverage for investment and innovation. Making the right quantitative linkages between these two sectors can promote and incentivize private investment for nexus solutions (Schuster-Wallace et al, 2015).

It is important to highlight that the use of decision support systems (nexus tools) to create appropriate indicators can help send clear messages to donors and investors regarding specific, multi-objective investments and should lead them to question their own silos. It is through compromises within and between the sectors and silos that better outcomes across sectors can be achieved⁵.

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Final Remarks.

While most of our governance has focused on single resources issues, water or food, the nexus calls for governance of issues that cut across multiple of these resources: a platform to interconnect them must exist. This platform will allow shared decision making, an issue difficult to accomplish given the current mindset of governance.

Moreover, a reformed governance structure is required: one that moves away from the silo approach. Traditionally, water, energy, and food are governed by separate ministries, which often have little or no collaboration with one another. Addressing these three vital resources requires an integrated approach that identifies tradeoffs through technology implementation, is aided by research and development, and relies upon sound environmental policy governed in a coordinated fashion. A major requirement for the implementation of the nexus is an "inter-governance" unit that operates to bridge between the different ministries and that understands and implements the cross cutting and integrative nature of the nexus.

(4) Schuster-Wallace C.J., Qadir M., Adeel Z., Renaud F., Dickin S.K. (2015). Putting Water and Energy at the Heart of Sustainable Development. United Nations University (UNU). Available from: <http://inweh.unu.edu>

(5) Gyawali, D. (2015). Nexus Governance: Harnessing Contending Forces at Work, Nexus Dialogue Synthesis Papers. Gland, Switzerland: IUCN

This horizontal platform of decision-makers working across units and portfolios must be supported by the highest level of decision-making leadership. An integrated governance will, inevitably, affect wider sectors than water, energy, and food. It will necessarily include construction, conservation, trade, and even foreign affairs. It needs to be fully understood that this requires a bold approach by the decision-making elite. When translated into practice, it will mean a complete overhaul of long-established governance structures in which some parties would have to surrender privileges and influence for the greater well-being.

In many cases, the resolution of previously unresolved disputes across sectors leads to better results when approaching these horizontally (a community and shared governance model) rather than through a top-down approach (high government agencies).

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Governing the water – energy – food nexus in developing countries and the African continent in particular, is most critical and timely. Food, water and energy insecurities in most of these economies can benefit from more policy coherence in achieving more sustainable primary resources. Financing nexus solutions over the long term should better be local. This may be achieved through an integrated implementation of resource management and allocation plan financed by returns from higher efficiencies in the production and utilization of these resources.

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Mohtar's research addresses global resource challenges: developing the Water-Energy-Food Nexus framework linking science to policy, characterizing soil-water medium using thermodynamic modeling and non-traditional water applications for sustainable integrated water management.

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OCP Policy Center is a Moroccan policy-oriented Think Tank whose mission is to contribute to knowledge sharing and to enrich reflection on key economic and international relations issues, considered as essential to the economic and social development of Morocco, and more broadly to the African continent. For this purpose, the Think Tank relies on independent research, a network of partners and leading research associates, in the spirit of an open exchange and debate platform.

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