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Nexus comprehensive methodological framework

The MENA Region Initiative as a model of Nexus Approach and
Renewable Energy Technologies (MINARET)

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The benefits of conservation are also tremendous for the Arab Region. Reducing energy losses to only 10% , from the current 19.4% , would save the region US\$ 5.5 billion. Furthermore, transitioning to compact fluorescent lighting could reduce carbon emissions by 2.56% (Gelil et, Al-Ashry, & Saab, 2013). Expanding the water cycle could also bring immense benefits to the region.

Agriculture policies that reduce the production of water-intensive crops and consider virtual water trade should also be considered as a conservation tool for the water and energy sectors (Gelil et, Al-Ashry, & Saab, 2013). The Arab Region must also consider the effects of climate change as

At the core of the water-energy-food security Nexus, Goals 2, 6 and 7 are easily identified. Goal 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. Goal 6 aims to ensure availability and sustainable management of water and sanitation for all and has six associated targets and two implementation

2.2. The Model: WEF Nexus contributes to security, risk and resilience

Water, energy and food security are variously defined. This study uses definitions as provided by international organizations involved in the fields of water, energy and food. These definitions have been discussed and agreed upon by many stakeholders from the international development community.

The International Energy Agency defines energy security as: “the uninterrupted availability of energy sources at an affordable price.” While there is no single definition of the concept of energy security, it has evolved from a narrow link to the stable supply of oil products to integrate other energy sources, as well as the essential dimension of sustainability.

A working definition of water security by the United Nations is stated as: “the capacity

Government's role is to enable people to have a fair access now and in the future to the social, economic and environmental resources needed to achieve wellbeing. An understanding of the effect of policies on the way people experience their lives is important for designing and prioritizing them." (Defra, 2007).

Water, energy and food are essential for human well-being, poverty reduction and sustainable development. Global projections indicate that demand for freshwater, energy and food will increase significantly over the next decades under the pressure of population growth and mobility, economic development, international trade, urbanization, diversifying diets, cultural and technological changes, and climate change (Hof 2011).

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2.4. The Model: WEF Nexus Contributes to Better Resources Management

All Nexus conceptions share general perceptions of present and future crises and offer solutions for more efficient management of resources within a green economy, thereby specifically calling for integrated solutions with regard to water, energy and food. The Nexus Approach identifies water, energy and food as the central sectors and advocates

3. PROPOSED WEF NEXUS METHODOLOGICAL FRAMEWORK IMPACTS

3.1 Political Impact on WEF Nexus

Although the connections between water, energy and food security are obvious, there

Recommendations for Enhancement

To enhance the role of technological innovation in the sustainability and security of the water, energy, and food sectors, it is recommended to undertake the following measures and actions:

- Encourage collaborative and focused applied R&D on the Nexus by forming regional research teams and alliances to promote innovation and technology transfer;
- 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; and
- Build capacity for policy makers and institutionalize regional knowledge management systems to share best practices on the WEF Nexus.

3.3. Impact of Governance and the Role Institutions on WEF Nexus

The institutional framework governing the elements of the WEF Nexus in Arab countries is mostly fragmented, which has in the past and continues today 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.

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 countries will probably need to be reviewed. It is increasingly evident that development strategies and national policies can no longer be formulated for individual sectors alone. To assure proper adoption of the WEF Nexus, policies and plans must be developed using a multi-stakeholder approach that cuts across the different sectors to address the arising challenges and adequately identify synergies and manage trade-offs.

There is need for a clear determination of national priorities in light of the WEF Nexus that identifies and sets the roles of each ministry while abiding with its mandate (this might be the role of Ministry of Planning in some countries). These national priorities could be related through a national strategy for water, energy and food security.

Managing the Nexus at the local and national level does not require major institutional restructuring, but rather appropriate changes to protocols, procedures and processes that improve interactions among the relevant ruling entities. Another approach to ensure proper coordination is through periodic consultative planning meetings of the undersecretary generals of the key ministries. Enabling existing institutions could be more important and appropriate than establishing new institutions to achieve the targets for both the Sustainable Development Goals (SDGs 2016-2030) and the mandates of the Paris COP21 climate change Summit in 2015.

Coordination and collaboration mechanisms among and between institutions is a vital factor in adopting an “integrated Nexus Approach” to resource management in a new era of diminishing resource base and escalating risks and threats that relate to climate change risks. This situation could be the driver for institutional reform and policy integration of the Nexus in the region. The institutional framework governing the elements of the WEF Nexus in the region needs strengthening mechanisms for effective resource management. There is an inherent need to develop and implement systematic approaches where all stakeholders have a sense of ownership and willingness to cooperate.

There are several options for mainstreaming the WEF Nexus Approach. One option is, however, more favourable than others as it does not aim to develop new entities with the specific mandate of managing the WEF Nexus. Instead, one body already active

3.5. Impact of Environment - Climate Change on WEF Nexus

Climate change with its most severe impacts in the Arab region is acting as a threat multiplier across all the above resources and human security issues. Climate change adds pressure to ecosystems and natural resources and to human securities as well, e.g. by reducing water availability and/or the reliability of water systems (with knock-on effects for energy systems for example). This increases risks of droughts and floods (also risks related to water and energy infrastructure), land degradation and desertification, loss of agricultural productivity, loss of hydropower production potential, higher temperatures and more heat waves, increasing energy demand for cooling, reduced agricultural yields, etc. (World Bank Group 2014).

The Arab Plan of Action to deal with Climate Change (APACC, 2012) suggests that these climate change impacts “may have social consequences due to the flow and migration of people from the affected areas to others within the same country, neighbouring countries or other countries (environmental refugees), which would result in increased pressure on the environment and resources.” The Arab Strategy for Disaster Risk Reduction also highlights that the region is highly vulnerable to extreme events and natural disasters.

4. THE MODEL: CATALYSTS FOR IMPLEMENTATION

4.1. Cooperative Advantage of Resources

Having a regional outlook on water, energy and food resources in the MENA, with its wide inter-variability in richness and scarcity, represents an opportunity to make use of the comparative advantage of nations.

The potential for renewable energy in the region is high in most countries, especially

for enhancing cooperation on the WEF security Nexus, such opportunities could take account of the existing institutional and governance landscape and differences of interest in that landscape that hinder cooperation, the resulting policy on the regional level, the wide variability in economic prosperity versus scarcity of resources and the increased level of awareness among policy makers regarding the importance of WEF security.

New initiatives are needed to drive this process. These include confidence building measures, working towards a shared and improved knowledge base, technology transfer and innovation, mobilizing finance, information sharing, capacity and institutional building, encouraging private sector participation and a paradigm shift in donor funding and support.

At the regional level, institutional arrangements and initiatives, under the umbrella of the regional bodies of the League of Arab States, the United Nations Economic and Social Commission for Western Asia (UN ESCWA), and the Gulf Cooperation Council (GCC), are mandated to collaborate and coordinate among countries in the Arab region on

with its significant losses of food, water and energy, and information sharing within and between nations for improved management and planning, taking the comparative

6. CASE STUDY – GUIDELINES FOR GREEN PROCUREMENT AT MUNICIPALITIES: A REGIONAL EXPERIENCE

6.1. Introduction

Green Procurement may initially appear to compete with developmental priorities and financial prudence (e.g. the least-cost approach set out by the Municipal Financial Management Act). Fortunately, development, financial prudence and green procurement complement each other more often than not. A municipality can meet its “green” goals, while still addressing developmental concerns and savings costs. The concept of looking at the entire lifecycle of a product or service is particularly important. In the case of goods, this will normally involve the production process and well as the use period and end-of-life disposal. For services, it will involve the systems and materials used to provide the services - for example cleaning or catering. While the range of environmental impacts addressed by GPP is very wide, some examples are shown below (Table-1).

Table-1. Environmental Impacts of Certain Public Contracts

Type of Public Contract	Environmental Impacts Addressed by GPP
IT equipment (computers, printers, servers)	Energy consumption, use of hazardous substances, recyclability of parts, ability to upgrade components, take-back schemes.
Vehicles and Transport	Emissions of greenhouse gases and particulate matter (PM), fuel consumption, noise and use of raw materials.
Construction	Energy and water consumption, materials used, waste from the construction process, air quality, noise and traffic.
Food and catering services	Sustainable use of land and water, use of pesticides and fertilizers, food waste, packaging.

GPP does not necessarily mean spending more on procurement. In some cases, green goods and services will cost less overall, particularly if they save energy or are more durable. One way of determining whether this is true is by applying life cycle costing (LCC) - a technique which is discussed in Guidelines published by the Project in 2016. In some cases, the savings from GPP can be large. For example, the City of Vienna saved !

6.2. Why Green Procurement?

There are many compelling reasons to make the shift to green procurement. Here are a few that can be used in any document that seeks to motivate the adoption of a green (or resource-efficient) procurement programme:

- 1.1. The resource-efficient purchasing option (energy, water and resource-efficient products and services) is often the financially efficient (money-saving) option, especially if the “life-cycle cost” of the product or service is considered, i.e. the total purchase and running costs. The procurement of environmentally preferable products can reduce waste management fees and reduce spending on pollution prevention.
- 1.2. Even when the cost of a green product or service is not the best for the municipality, it is often the best for the community. This can be measured by taking into account all the ‘external costs,’ which include the human and monetary cost of sourcing raw materials, manufacturing, packaging, distribution and disposal. In the case of local government, this can be a very compelling reason for “buying green.”
- 1.3. Green procurement seeks to reduce resource usage. In a world with diminishing resources per capita, this is an important consideration.
- 1.4. International or national action to mitigate climate change may impose regulatory penalties for inefficient resource use, e.g. carbon tax. The foresight of switching to green procurement now will be a financial boon to municipalities in future. Staying ahead of legislation is likely to be more resourceful than having to quickly respond once it is in place.
- 1.5. Resource-efficient procurement often supports local and smaller suppliers,

Thorough implementation of green procurement principles is dependent on all personnel within an organization understanding and practicing the principles of green procurement. There will be opposition, change always generates that, so be on the look-out for it and try to be pro-active to limit its impact.

STEP 1: Form a green procurement team

STEP 4: Market the Project

A project launch will raise the project profile and increase awareness, understanding and support of the municipality's efforts. Internal and external communication campaigns will increase buy-in and action, internally and externally. If documents have a logo on them that categorize them as part of the pilot, this will help both suppliers and local authority employees to understand what is happening. Slogans such as "Avoid, Reduce, and Recycle" can be displayed around the organization.

STEP 5: Market Analysis

Since the procurement department may not be very familiar with the sourcing of green products, market analysis will be useful. Various useful websites are available evaluating products in terms of their environmental impact.

STEP 6: Engage Suppliers

Once the market has been better understood, responses can be requested from suppliers after a choice has been made on the products and services required. This is best done as an interactive process, where suppliers are able to communicate with procurement to establish realistic standards, discuss possible development projects to produce better products, and suggest alternative solutions. Meanwhile, the team would be researching solutions and technical standards that can be used in product and service evaluation.

STEP 7: Decide on Monitoring Approach – what is to be measured and how

It is very important to demonstrate project success or lessons learnt through monitoring. Establish the indicators that determine whether the pilot has been a success and make sure they can be measured, and that the necessary measurement plans are in place

STEP 8: Formalize Procurement

Ensure the tender/bid specifications or contract reflects the new product or service criteria. These should include specific and easily understandable criteria in addition to general criteria. The legal department can assist in drawing up a sound contract that meets the municipality's standards.

STEP 9: Pilot Wrap-Up

It is important that the pilot has an end-date and is evaluated. Often these projects fail due to lack of a pre-determined end date and set of measurements to be evaluated. An objective, neutral group of people (preferably from senior management) should receive the results. Once the pilots have been implemented, it should be possible to build on

Challenge: Price.

There is a perception that resource-efficient products and services are more expensive.

Solution:

Challenge these perceptions and find products for the pilot where this is not the case.

- Full life costing needs to be considered over short-term thinking. 'Value for money' principle of procurement takes into account the full cost of the product over its entire life, not its cost over only one year. Budgetary mechanisms need to be put in place by Municipal Finance Departments to encourage whole life costing.
- Resources need to be dedicated to developing the business case for environmentally preferable goods and services.
- Find and demonstrate examples of where this is already happening in your city, e.g. the City of Cape Town's Electricity Department uses transformer stations that are expensive, but last much longer than cheaper ones.

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Many local authorities are unfamiliar with the concept of resource-efficient procurement or with the options available to them.

Solution:

- Train the driving team – particularly the Supply Chain Management (SCM) staff and line managers. This should be integrated with existing training, e.g. when Accounting Officers SCM system is undergoing its annual review.
- Provide support: environmental departments would need to provide support to develop criteria for relevant (department-specific) products and services.
- Broad awareness raising sessions will be required for common understanding among all officials involved in procurement activities of what green procurement is

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Solution:

- It is important that suppliers be asked to provide the environmental specifications of the products they are offering. Choose a pilot where specifications are reasonably available, either from existing suppliers or as standards provided by an independent local or international organization.
- National, provincial and municipal supplier database could be extended to include environmental information.

Challenge: Purchasing habits.

Solution:

-

the Baseline Emission Inventory to identify the best fields of action and opportunities for reaching the local authority's CO2 reduction target. It defines concrete reduction measures, together with time frames and assigned responsibilities, which translate the long-term strategy into action. In the main target sectors of a SEAP – buildings, equipment/facilities and urban transport – green procurement plays a central role. Signatories commit to submitting their SEAPs within the year following adhesion. The Covenant signatories could follow the structure of the SEAP template when preparing

A SEAP can help disseminate the benefits of GPP as it can:

- Lead to savings in energy, water, and materials as well as in the associated operation.
- Reduce polluting substances and greenhouse gas emissions.
- Improve services to the public and thus enhance quality of life, meet higher quality standards and deliver better performance for public authorities and ultimately citizens.
- Create incentives for industry to develop 'green' technologies and products and promote them in the marketplace (influence the marketplace and encourage new entrants in the field of environmental technologies and products).
- Often lead to savings – for public authorities making the purchases and for society in general when the life cycle costs of the product are considered.
- Help new products and services that have been developed to meet the requirements of GPP to also become popular with private consumers.

GPP should form part of the municipality's long-term strategy. Green purchasing practices can contribute significantly to the strategic objectives of public authorities.

Both the long-term vision and the detailed measures are integral parts of the SEAP. For example, as a long-term strategy, the local authority could decide that all cars purchased for the municipal fleet should be electric. Of course, the municipality cannot vote on the budget for all cars that will be purchased up until 2020, but they can include this measure in the plan and evaluate its impact up until 2020 by reviewing the estimated future purchases of cars by the municipality.

When considering a GPP policy, it is important to define what the main objectives of the policy should be. For example, the contracting authority may already have other policies or decrees in place (political decisions already reached regarding the avoidance of certain products, local procurement handbooks, Environmental Impact Assessments, etc.) which cover some of the aspects of the proposed new GPP policy. By identifying any such policies and analysing their content, you will be able to ensure that your proposed policy does not conflict with the contracting authority's other objectives. Once you have identified synergies with any other policies, your main objectives can be defined more accurately.

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