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Central Asia Nexus Dialogue Project: Fostering Water, Energy and Food Security Nexus Dialogue and Multi-Sector Investment

Understanding the Water-Energy-Food Security Nexus Approach

Policy Brief

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Author: Rustam Issakhojayev, Project Specialist

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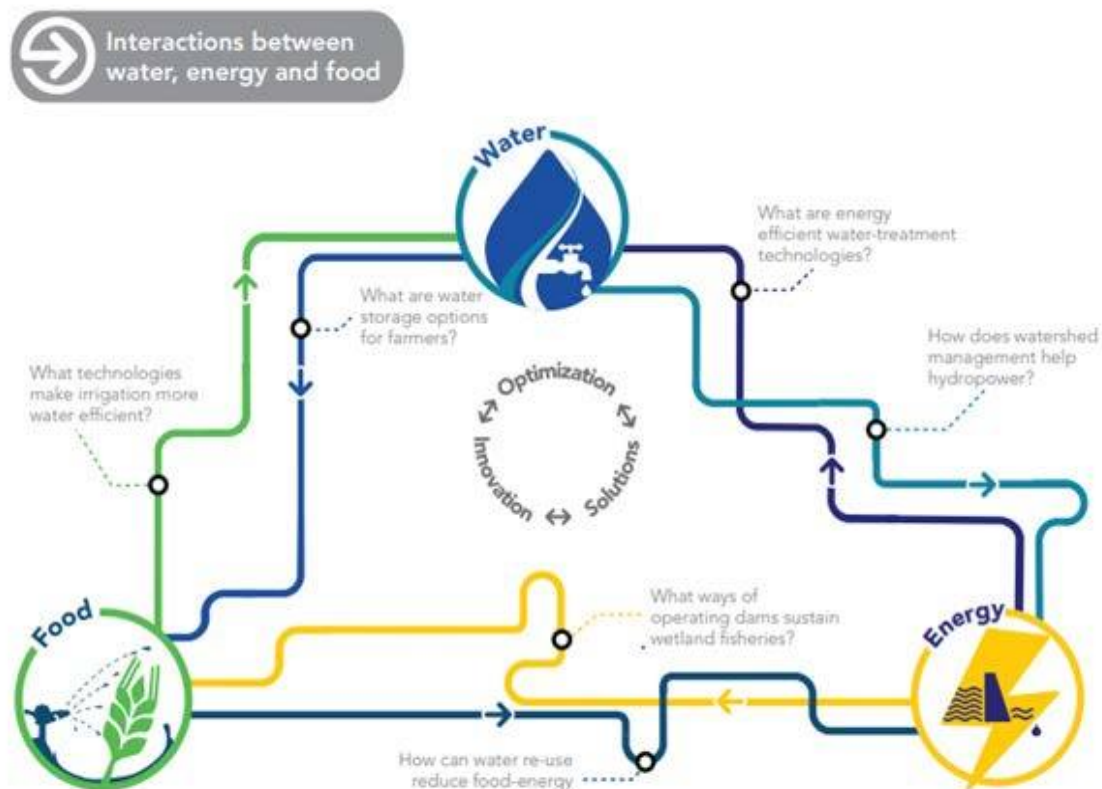
Available from: CAREC (Regional Environmental Centre for Central Asia)
40, Orbita-1 microdistrict
05000 Almaty, Kazakhstan
+7 (727) 265 4333
+7 (727) 265 4334
info@carececo.org
<https://carececo.org/>

Understanding the Water-Energy-Food Security Nexus Approach

Key messages:

- The Nexus approach integrates policy-making, planning and management across sectors and scales.
- Understanding the interlinkages between sectors is crucial to improve investment planning, optimize resource use and reduce trade-offs.
- The Nexus approach enables more effective implementation of the SDGs.
- The Nexus and the Integrated Water Resources Management (IWRM) are complementary concepts.
- Central Asia can benefit substantially from the integration of the Nexus approach in decision-making and planning.

The Water, Energy and Food Security Nexus approach is a fundamental shift from a purely sectoral approach to a cross-sectoral, coherent, and integrated approach to socio-economic development which can be applied at all levels of governance and at any scale. It provides a base for informed decision-making and negotiations of fair trade-offs and synergies between competing uses of water, land and energy-related resources. While ensuring the ecologically sustainable use of essential resources, reducing potential negative impacts, and possible conflicts, it also allows maximizing the benefits when implemented properly. This framework is especially important to the Central Asian Region, which shares a number of transboundary river basins and is predisposed to tensions about its shared natural resources.



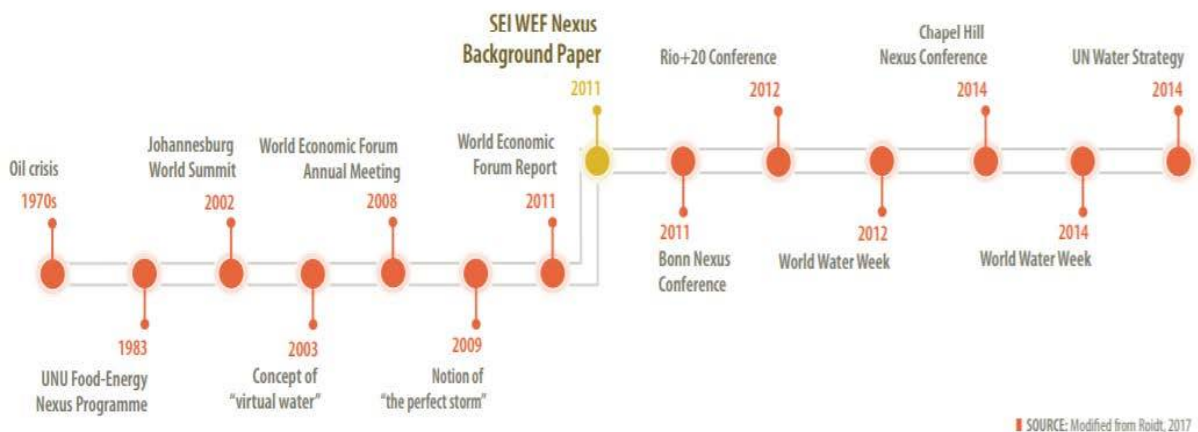
Source: www.water-energy-food.org

The pressure on and demand for water, energy and food are mounting due to a rapidly growing population, human migration, urbanization, socio-economic growth, globalization, intensification of food production, and climate change. Globally, agriculture alone is responsible for 70% of total freshwater withdrawal, while food production and supply chain utilize approximately 30% of the total energy used (FAO). Substantial water use for agriculture is putting pressure on water resources in the Central Asian Region reaching as high as 90% of the total freshwater withdrawal, while hydroelectricity generation is averaging at about 40% of all energy production (<http://www.europarl.europa.eu>). The Nexus approach can lay the pathway toward a “Green Economy” and the effective implementation of the Sustainable Development Goals (SDGs). By maximizing resource use efficiency and minimizing cross-sectoral negative environmental externalities it can help to build a sustainable future for all.

Nexus nowadays

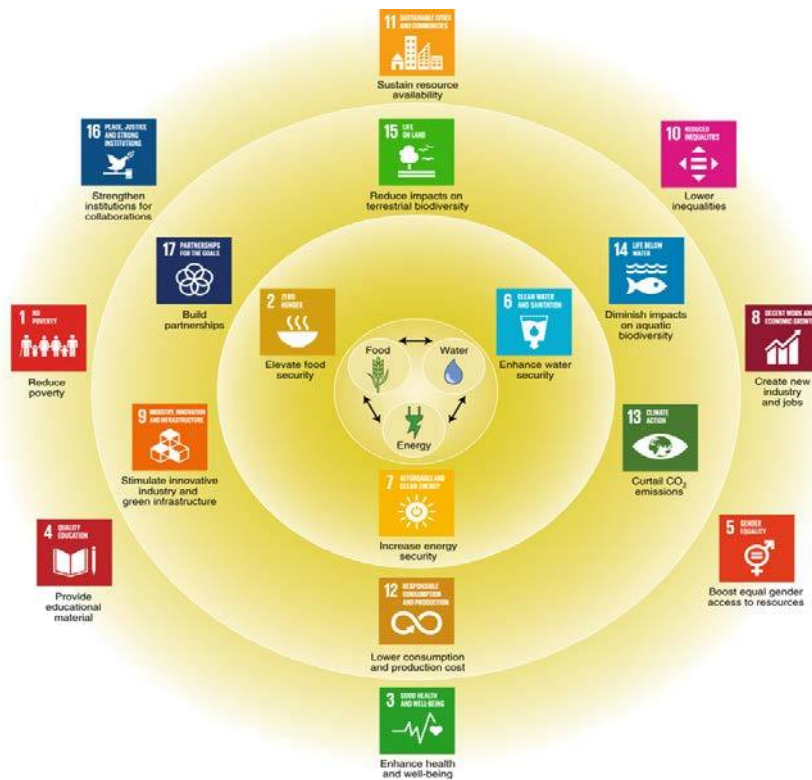
The concept of cross-sectoral interlinkages has been around for quite some time. The use of the term “Nexus” has originated from the United Nations University (UNU) Food-Energy Nexus Programme in the early 1980s. In 2002, the World Summit on Sustainable Development in Johannesburg implicitly recognized the “Nexus” by listing water, sanitation, agricultural productivity, and energy among its priority areas. The 2008 launch of the World Economic Forum's report "Water Security: The Water-Energy-Food-Climate Nexus" and the 2011 Bonn Nexus conference, where Holger Hoff coined the concept that water-energy-food Nexus could potentially reduce trade-offs and boost synergies between sectors, resulting in greater policy coherence and better resource-use efficiency, marked the emergence of the Nexus concept as we know it today (United Nations).

Since 2012, the “Water-food-energy-ecosystems Nexus in transboundary basins” is an area of work under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) with a strong focus on transboundary aspects. Waters that flow across national borders are often the connecting resource for food and energy, and contributes to international food and energy trade.



Nexus and SDGs

Similarly, to the Nexus, Sustainable Development Goals (SDGs) are closely interlinked. In particular, SDGs 6 (water), 7 (energy) and 2 (food security) are not only connected to each other but also are key to the WES Security Nexus approach, which in itself describes interlinkages of the water, food and energy sectors. Looking forward, the 2030 UN Agenda for Sustainable Development highlights the need to adopt a common approach for the implementation of those Nexus-linked SDGs,



allowing for the access-inequalities and the supply risks for water, energy and food to be reduced (Global Nexus Secretariat). With this, the overarching goal of the SDGs and the WEF Security Nexus approach are common – to maximize poverty reduction and achieve economically and environmentally sustainable outcomes. Indeed, a Nexus perspective allows reducing the risks of sector specific SDG actions undermining each by analyzing trade-offs and synergies between goals to reduce the former and strengthen the latter. This gives way for creating cascading effects to achieving the SDGs, above and beyond the food, energy and water sectors (United Nations).

The Issue Brief 5 of the United Nations High-level Political Forum on Sustainable Development, “*From silos to integrated policy making*” highlights the interlinkages between different areas of policy at the formulation stage for effective policy integration¹:

“Achieving effective integration of the three dimensions of sustainable development, ... will help ensure that policy is mutually coherent across the full range of dimensions, and that the effects of policy in one area do not contradict or undermine desired outcomes in others.”

WEF Security Nexus vs. Integrated Water Resources Management

The objective of the Integrated Water Resources Management (IWRM) and the Nexus approaches is ultimately to promote optimal resource use in support of sustainable socio-

¹ <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1322&menu=35>

economic development and is set within a wider context of sustainable development. Nevertheless, there are key differences between these approaches:

- IWRM is mainly concerned with the allocation of water between competing uses, while Nexus looks to find optimal solution and trade-offs among all three sectors;
- IWRM does not address broader issues such as security;
- IWRM is limited to the watershed and as such has tighter boundaries, the scope of Nexus is not bound by location or scale;
- IWRM often induces financial pressure on Ministries and agencies directly related with water use and allocation, while Nexus allows reducing the pressure on any single sector line ministry budget because investment costs are shared with other involved stakeholders;
- Nexus helps to increase the economic returns on a given investment because of the multidimensional benefits possible to achieve.

In summary, the Nexus could therefore be seen as a novel approach which mark a divergence from the IWRM paradigm, particularly in terms of holistically integrating different policy sectors, encouraging business involvement, promoting economically rational decision making and privileging water securitization in the pursuit of sustainable development.

NEXUS approach in Central Asia

Central Asia is a region where water security is inextricably linked with energy, food, and the environment. Its geophysical diversity, encompassing great mountain ranges and abundant freshwater sources but also steppes and arid landscapes, fosters diverse notions of water security in the region.

Tajikistan and Kyrgyzstan host some of the largest glaciers in the world outside of the polar regions and high mountains or the ‘water towers’ of Central Asia which together form a vast river network which crosses the entire region before flowing into the Aral Sea. The downstream countries of Turkmenistan, Uzbekistan, and Kazakhstan are situated on large plains along these rivers, which have been mainly converted to extensive irrigated lands.

During the Soviet times, water security in the Central Asian states was understood as a multidimensional factor dependent on energy, agricultural, and environmental aspects where the water-rich upstream countries provided water for irrigation to downstream countries in spring and summer. In exchange, they were supplied with staple crops and other agricultural and industrial products, coal, oil, and gas for heating and electricity in the winter months.

However, national aspirations and the struggle for state-building following independence in the 1990s shifted the concept of water security from a regional approach to national policies. Today, the upstream countries understand water security as energy independence, reduction of disasters stemming from water, and sufficient agricultural water for irrigation and pastoralism. For downstream countries, water security mostly means intensified agriculture, fisheries, and pastoralism, and reduction of water scarcity incidents. Therefore, the transboundary water

resources in Central Asia are of paramount significance for the development of sustainable water, energy and food availability of the entire region. National water security for each CA country will be difficult to achieve without consent and compromises between upstream and downstream neighbors.

Since 2000 until recently, states in the region have sought new arrangements. Kazakhstan took a leading role in integrating IWRM into its national priorities, followed by other Central Asian states. By 2008 Kazakhstan established eight basin inspections based on the hydrographical principles and introduced basin planning. While the top-down approach has been widely supported across the region, it is yet far from a fully functional IWRM system. In the last decade, a river basin management approach was gradually introduced in each of the region's countries in an attempt to improve national water use and allocation plans on the principles of the EU Water Framework Directive. The Central Asian states have considerably advanced in the matter of rational use of natural resources and sustainable development. Many of them adopted the IWRM principles as a water management practice, thus joining the global trend of MDGs and SDGs, created research institutions to help manage natural resources, and most importantly are supporting a bottom-up approach to resource use.

Understanding the need for rational use of natural resources is a prerequisite for the WEF Security Nexus approach which can provide optimal solutions to the development challenges of the region. However, there are still gaps which are slowing down the shift to this approach, including:

- Sector based budgeting may lead to inefficient use of resources;
- Ministries of Finance are not involved in thematic planning activities;
- The current sector-based planning practice does not allow for complex, cross-sectoral planning and resource efficiencies;
- Different sectors continue to consider themselves as competing agents;
- Bottom-up approach is still at the initial stage formation.

It is worth noting that the Amu Darya and Syr Darya rivers alone provide about 90% of the region's surface water, covering approximately 37% of the land area, and being home to nearly 80% of the population. They are the major source of the region's agricultural and hydropower production, that affect lives and well-beings of not only the population living along these rivers, but the economies of the Central Asian countries as a whole (<http://www.europarl.europa.eu>).

Food for Thought

Ideas for state actors and decision-makers:

- The WEF Security Nexus approach allows decision-makers to develop appropriate policies, strategies and investments, to explore and exploit synergies, and to identify and mitigate trade-offs among the development goals related to water, energy and food security.
- Accelerating the involvement of the private sector through establishing and promoting the business case for both sustainability and the Nexus is essential to driving change and getting to scale.
- The WEF Security Nexus perspective can be useful when planning for adaptation and mitigation measures related to climate change.
- The WEF Security Nexus approach allows maximizing benefits, while minimizing trade-offs and financial pressures on any single ministry.
- Some of the prerequisites for Nexus have been laid by integrating IWRM into national strategies, it is now essential to foster and strengthen it by improving the planning and budgeting, developing the multisectoral regional dialogue platforms, and enabling the social inclusiveness to decision-making.
- National level benefits will provide incentives for Central Asian states to implement activities at the regional level.

Ideas for the donor community:

- Support implementation of pilot projects proposed by the Central Asian states.
- Establish favorable environment for Central Asian states to work at the regional level (bilaterally or multilaterally).
- More work is needed with Central Asian states to provide capacity building trainings to assess the risks, gaps, and way forward scenarios for the sustainable planning.
- Improved water services and planning is considered by many donors and agencies a major element of regional stability in CA. But more vigilance is needed with respect to engagement of local communities, as well as endorsement by the central government in each country.