

Water-Energy-Food-Ecosystem (WEFE) nexus approach

International experiences and potential for the Hindu Kush Himalaya

Key messages

On 11 August 2021, we organized a webinar on the [Water-Energy-Food-Ecosystems \(WEFE\) nexus approach: International experiences and potential for the Hindu Kush Himalaya](#) that brought together practitioners, researchers, and representatives of governmental and non-governmental organizations to discuss the WEFE nexus framework, its implementations, and challenges.

We present below some of the key messages from the discussions:

What is the WEFE nexus approach?

The Water-Energy-Food-Ecosystems nexus approach focuses on the interactions and synergies across the sectors of food, energy, water, and ecosystem across scales. It ensures sustainable use of resources by focusing on the synergies across the sectors, improves efficiency in the way resources are used, and increases the access of resources to all, including the poor and marginalized groups. It also helps address the trade-offs across different sectors. The nexus can be defined at different scales – national scale, river basin scale, transboundary scale, and regional scale, as in the case of the Hindu Kush Himalaya (HKH).

Why the WEFE nexus approach for the HKH?

The HKH region is known for its rich biodiversity and varied ecosystems. It is a global asset not only for food, energy, carbon, and culture but also for its rich freshwater ecosystem. However, the region is highly vulnerable to climate change and its impacts, and has become a hotspot for multi-hazard risks, disasters, and loss of biodiversity. There is an increasing demand for water, food, energy resources in the region placing immense pressures on its ecosystems and biodiversity. Along with this, the region has emerging issues of energy, water, and food security, which calls for an integrated nexus approach to address the current challenges and pave the way forward for sustainable development outcomes for a sustainable future.

The nexus approach reveals the important role of ecosystems, and its intricate links and interactions with the food, energy, and water sectors. However, the importance and role of ecosystems have not been fully explored and recognized. This shows the need to highlight ecosystems as a major component/sector in the water, energy, and food (WEF) nexus for the region. Nexus approaches can also inform policy solutions to minimize trade-offs and maximize synergies across the sectors.

Key principles of the WEFE nexus

- Understand and recognize the interdependencies, interlinkages, and synergies between sectors across time and scale
- Recognize and value the importance and role of ecosystems in the WEF nexus and use it to secure better and sustainable outcomes
- Define a structure for managing and monitoring information, and provide evidence for informed decision-making process
- Acknowledge the complexity of the nexus approach, which focuses on multi-dimensional issues and involves the integration of different sectors and stakeholders
- Be inclusive and ensure equal representation and meaningful participation of all stakeholders to identify issues, priorities, opportunities and needs, and solutions

Challenges in the region for implementing the WEF nexus approach

The WEF nexus approach is relatively new for the HKH region, and existing conditions could pose a major challenge for its implementation.

Climate change impacts in HKH

There is a variability in the water of the HKH region. The region has either too much water during the monsoon or too little to no water during the dry season. The skewed distribution of water and its timing in different geographical regions such as high mountains, hills and the plains further add to the problem.

For the HKH region, there are two peculiarities to consider when looking at the nexus on a transboundary scale – 1. Climate change and its impacts, which are transboundary, and 2. Interdependency in terms of harnessing potential of water. To harness the full potential of water, there needs to be transboundary cooperation.

Silo deafness

Organizations in the region operate in silos with little or no information sharing culture, making one silo deaf to others, especially when the parties involved are not able to agree on defining the problems. Implementing a nexus approach such as a transboundary dialogue can help translate perspectives of different sectors and bring to light the ways in which systems are interlinked in a complex storyline. For example, the issues of energy production, agriculture and food production, and water supply are all interlinked in a storyline with the forest, rangeland, and wetland ecosystems at the centre. Identifying and understanding the complex interlinkages is only possible when all stakeholders come together to listen, share, and agree on the solutions.

Limited evidence of success

There is limited evidence on the success of the nexus approach, as it is still under discussion and/or in the implementation phases. Similarly, there are no tools to support the nexus-based

solutions and there is limited access to investigate decision-making processes at the government level.

Lessons from international experiences

WEFE experts from around the world shared their experiences, which we present below:

Be flexible

With the presence of diverse actors and issues, the plans or framework of nexus implementation need to be flexible enough to build on existing knowledge and past lessons, which can help amplify the impacts of the nexus approach at different scales.

Ensure continuation, allow for the evolution of dialogue

A project that starts and ends within a year has less possibility to deliver the expected impact. Working on a project over several years allows the dialogue to evolve from technical discussions on intersectoral issues to policy actions and commitment actions on the nexus issues. The water convention's nexus activities in the following basins – [the Alazani/Ganykh in the Caucasus, the Sava in southeastern Europe, and the Syr Darya in Central Asia](#) – provide some examples of how the nexus has evolved over several years.

Identify and quantify the benefits of cooperation

In this context, benefits refer to the benefits of cooperation across countries and sectors. However, these benefits can be hidden and unclear, which hinders people from working on the issues. For example, UNECE's framework of reference for benefits of cooperation, brings to light the impact of energy efficiency and the dependency of hydropower in a shared basin, while also providing a benefit assessment exercise and guidance to governments and other actors in [realizing the potential benefits of transboundary water cooperation](#). Such information also helps support policy dialogue.

Define the right scope

It is important to define the right scope by understanding what is important in ten to twenty years' time, in terms of food security and clean energy for the growing population. This helps to see the real potential and opportunities to cooperate.

Do not underestimate the environment and the value of the natural capital ecosystem

Although difficult to quantify and monetize, the ecosystem, its diverse values (economic, social, cultural, and ecological) and their contribution to people should not be underestimated.

For example, Tanzania is building the biggest hydropower dams in Africa, threatening downstream habitats, their biodiversity, and the delta ecosystem. The downstream ecosystem, which has not been explored yet has a huge tourism potential. Analysing the trade-offs

between potential energy production, agriculture development upstream and downstream, and tourism can show a path to the synergies, particularly when considering the value of ecosystems.

Consider boundaries

It is crucial to consider the boundaries for nexus activities and understand whether the activities consider spatial coverage – Will it be just one region, a country, or should it consider broader boundaries and include international linkages?

For example, Saudi Arabia imports most of its rice from South Asia, a region facing huge issues with groundwater source depletion. Although Saudi Arabia reduced their domestic nexus by importing food products from other countries, it exposes South Asia and other countries to the on-going nexus problems, placing the countries at risk. Adopting a wider perspective for the nexus activities can inform policy dialogue.

Way forward

- Update the WEF E nexus framework for the HKH based on the learnings from the webinar and the workshop, which is in the process of being organized
- Develop a concept note on the WEF E nexus for its implementation in the HKH region
- Develop and update a methodological approach with detailed steps