STEP 1

Identify Basin Conditions and Context

Carry out a desk study to identify the socioeconomic context and general conditions of the basin.

Include information on:

1. The current state of energy, food, water and environmental security, and the availability of natural resources
2. The relationships that exist within the region, the basin and its riparian countries
3. The main strategic goals, development policies and challenges

Suggested sources of information:

National statistics and global databases on socioeconomics and natural resource management at country and basin level (e.g.: World Bank Open Data, FAO Aquastat)

National policy documents and strategic documents

Relevant basin-level literature (e.g. transboundary diagnostic analyses)

STEP 2

Identify Key Sectors and Stakeholders to Engage in the Assessment

Identify which key sectors will be analysed in the assessment (for example: power production, agriculture, tourism etc.) along with corresponding key actors (for example: competent authorities, utilities etc). Carry out a Stakeholder Mapping and Analysis to decide which stakeholders should be active in the assessment process.

Suggested Tools:

Factual Questionnaire (diagnostic of issues)

Interest / Influence Grid (mapping of relevant stakeholders)

STEP 3

Analyse the Key Sectors

Analyse the relationship between key sectors and natural resources, both from a technical and governance point of view.

To complete the technical analysis, analyse the previously identified key sectors and identify resource flows, supporting these with quantitative indicators to clarify their relative importance wherever possible. This material will inform participants and act as preparatory material for the workshops conducted in Steps 4, 5 and 6.

On governance, analyse the strategies, policies, rules and regulations, mandates, responsibilities and administration concerning the management of basin resources.

Suggested Tools:

Analytical tools (for e.g.: Integrated Assessment Modelling, water management/allocation, energy resource planning, land use)

National and transboundary governance assessment tools

STEP 4

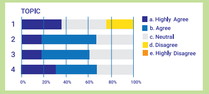
Identify and Analyse Intersectoral Issues

The first workshop kicks off the intersectoral and transboundary dialogue.

Split participants into groups to examine key sectors in greater detail based on the technical analysis and governance analysis from Step 3. Ask the groups to identify interlinkages with other sectors (impacts, dependencies, trade-offs) and discuss them from relevant sectors' perspectives. Develop lists of basin specific interlinkages and pressing issues, for example: reconciling water needs of hydropower and irrigation, energy-access constraints for agriculture, or severe threats to a key ecosystem service.

Suggested Tools:

Opinion-based questionnaire (agree / disagree with statements)



Simplified diagrams for sectoral groups to facilitate brainstorming exercises

STEP 5

Nexus Dialogue (Jointly Prioritise Issues and Elaborate Scenarios)

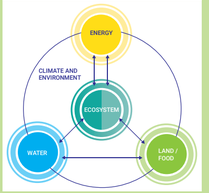
Once the lists of basin specific interlinkages and pressing issues have been drawn up, open the nexus dialogue.

Invite stakeholders to share their sectoral perspectives, prioritise the issues, and discuss how they expect to change in the future. Use an opinion-based questionnaire from Step 4 to highlight different perspectives on resource management issues from different sectors and countries.

Uncover 'nexus storylines' that explain and connect different interlinkages.

Suggested Tools:

Simplified diagrams to support the nexus dialogue



STEP 6

Identify and Analyse Solutions and Benefits

Investigate and quantify possible ways for addressing trade-offs and synergies in resource management using a range of technical solutions and policy interventions.

Proposed solutions can be explicitly tied to the benefits for key sectors. Translate solutions into feasible actions ideally linked to existing policies or projects on the agendas of national Governments or basin organizations.

These can be grouped into 5 types of 'nexus solutions': institutions, information, instruments, infrastructure (and investments), international coordination and cooperation .

Unpack solutions into actions to be implemented in coordination across sectors.

Suggested Tools:

Brainstorming sessions to identify possible solutions

Experience sharing from other projects

Cost and benefit analysis

N.B. The identification of solutions often starts in the first workshop as a natural evolution of the nexus dialogue.

Next Steps:

Use the nexus assessment report to plan and initiate follow-up activities based on the nexus solutions identified in Step 6.

As the main goal of nexus solutions is to encourage decision-makers to create an environment where solutions can be implemented, these could take shape as:

- Elaborations of "nexus proofed" policies, programs, and projects
- Mobilisation of financing for nexus investments
- Further policy dialogues to address specific issues
- The use of results for awareness raising and campaigning

Remember

The added value of the nexus approach is not in the identification of individual solutions, but in their combination and coordination for a higher impact.

Additional Support and Resources:

This leaflet is a summary guide aimed at assisting interested countries, basins and organisations in replicating the TBNA methodology – which has been applied multiple times to carry out nexus assessments under the Water Convention and has inspired several similar efforts.

For additional information, resources and to access tools / templates scan the QR code to visit the nexus webpage on UNECE's website.

www.unece.org/environment-policy/water/areas-work-convention/water-food-energy-ecosystem-nexus

The TBNA Methodology Approach

Information exchange process

Steps and Key Stages, Inputs and Results

DESK STUDY

Fact-Based Questionnaire / Relevant Documentation on the basin

FIRST WORKSHOP

Opinion-Based Questionnaire

Jointly Identified Issues + Solutions

In-Depth Analysis of Issues + Solutions

SECOND WORKSHOP

Key Policies + Strategic Documents / Requests for Specific Information

Actions to Implement Solutions

Nexus Report

The TBNA methodology responds to six principles:

A. Participatory process
B. Local knowledge mobilisation
C. Sound scientific analysis
D. Capacity building
E. Benefit sharing
F. Transparent exchange of information

And is comprised of six steps:

For detailed instructions see the TBNA Methodology Approach diagram on the next page. **Note:** the tools suggested are indicative and should be chosen based on availability and familiarity to stakeholders, adapting them as needed.

TIP - before you start

Make sure your team includes governance and technical analysts. Use a stakeholder mapping of key sectors and actors to identify which authorities, institutions and stakeholders should be part of the assessment.

Engage with the **Task Force on the water-food-energy-ecosystems nexus** to learn from similar activities. This global platform gathers interested policy makers, practitioners and experts to exchange knowledge and experience on transboundary nexus issues and solutions - particularly when it comes to public policy and regional cooperation.

Example of a TBNA output

The "package of solutions" below is the result of the TBNA methodology applied in the North-Western Sahara Aquifer System. The jointly identified solutions were prioritised, categorised and unpacked into coordinated actions across sectors.

	Water	Energy	Agriculture	Environment
Governance and International Cooperation*	Enhance local water management through stronger participation and enforcement. Reinforce transboundary cooperation for sustainable management of groundwater.	Enhance coordination of energy development with other sectoral plans.	Set up policies for reasonable, sustainable and productive agriculture. Increase the value of local products, support a more balanced diet, and involve women and youth in the economic and social development of oases.	Increase awareness in public institutions of trade-offs and synergies between different sectors.
Economic and Policy Instruments*	Set up dedicated policies and incentives for wastewater reuse in agriculture and urban areas. Strengthen water demand management, including through water saving.	Develop a multi-purpose renewable energy programme and sustainably scale up small-scale solar irrigation.	Promote a circular economy, such as agroecological practices, through economic and social measures.	Consider environmental needs in the water balance of the aquifer.
Infrastructure and Innovation*	Scale up the use of non-conventional water resources from desalination and wastewater.	Improve the reliability of the electricity grid in rural areas and integrate renewables.	Enhance and scale up innovation for sustainable soil and crop management.	Systematize environmental and social impact assessments for all new infrastructure.

*Categories of solutions adapted from the "5I's" proposed in the TBNA Step 6

⊕ Example of synergy: renewable energy boosts the use of non conventional water

Decisions in different sectors of development are often taken without considering the impact they may have on water quantity and quality, and on other sectors. These interlinkages are referred to as the water-energy-food ecosystems "nexus". In transboundary settings, nexus related issues can result in painful trade-offs and friction between countries.

Acknowledging that the water, food, and energy sectors are inextricably linked is a necessary step towards sustainable, equitable and reasonable water management. Actions in one policy area will impact not only the other sectors, but the ecosystems that support all human activities as well. By engaging in multi-sectoral dialogues and joint analytical efforts, policy makers and stakeholders from different sectors can improve their mutual understanding, achieve tangible benefits in resource management, and strengthen transboundary cooperation.

The Transboundary Nexus Assessment (TBNA) methodology can assist countries seeking to initiate, broaden or revisit transboundary cooperation across sectors.

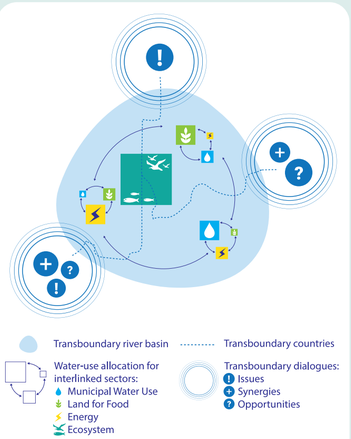
It is a **flexible framework** that can be adapted to enhance existing processes of cooperation. It was developed through an iterative process of consultations and learning by doing involving 300 country officials, experts and key stakeholders.

It enables policy makers and other stakeholders to identify positive and negative links, benefits, trade-offs, and solutions between relevant sectors.

The resulting insights can help reinforce national efforts to optimise resource use, improve policy coherence towards crosscutting objectives like climate action, and share benefits from coordinated projects.

Who can participate in the TBNA process?

1. Country authorities from relevant sectoral and cross-sectoral ministries (e.g. water, energy, agriculture, environment as well as finance, development, tourism, etc.)
2. Basin authorities (e.g. River Basin Organizations)
3. Regional organisations (e.g. sectoral, economic cooperation) and cooperation organisations
4. International organisations (e.g. inter-governmental, financing institutions)
5. Technical experts and analysts
6. Community representatives



By applying the TBNA methodology countries can:

- Enhance water, energy and food security in riparian countries
- Boost regional and basin level climate adaptation and mitigation efforts
- Foster transboundary cooperation across sectors
- Reduce negative intersectoral or environmental impacts
- Make policies more coherent to achieve the Sustainable Development Goals
- Capitalise on regional complementarities of natural resource endowment
- Improve natural resource use and governance across sectors

The Water Convention promotes transboundary cooperation

Contact:

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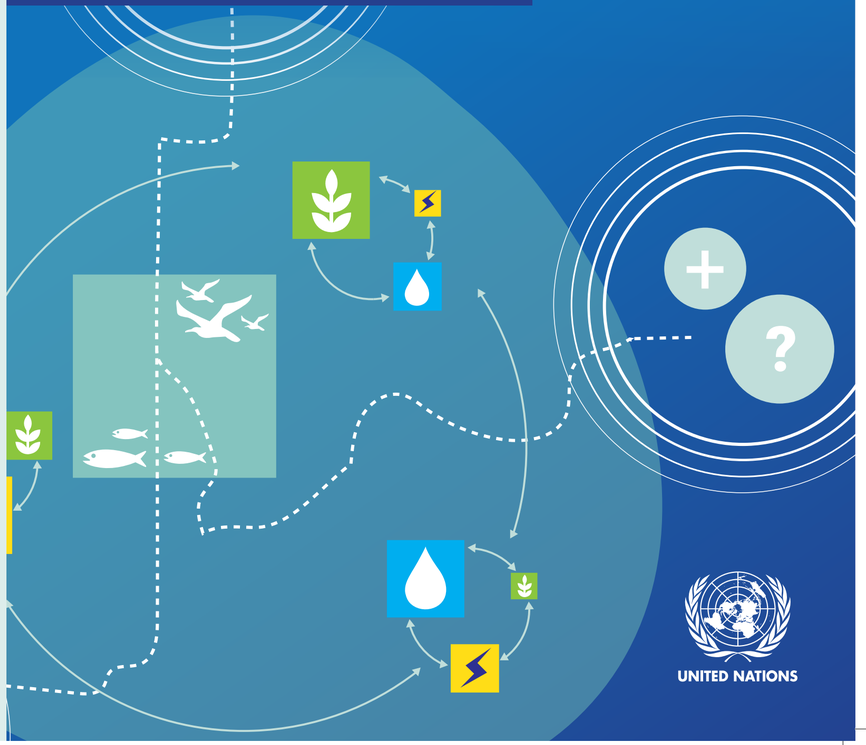
WATER CONVENTION

Transboundary Nexus Assessment (TBNA) Methodology

A participatory approach to facilitate cross-sectoral cooperation in transboundary basins



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