Transboundary Nexus Assessment (TBNA) Methodology

**Factual Questionnaire**

(template with instructions)

This questionnaire was developed under the Water Convention for use within the TBNA methodology process.

It is meant to be adapted to the needs of the specific basin assessment. If you have any feedback on how the general template can be improved, or any other comments / considerations, please write to us at water.convention@un.org.

Understanding existing and future interconnections among natural resources and human activities at basin level first needs a series of interactions between the analysts developing the nexus assessment and the local stakeholders.

The Factual Questionnaire is a key way to input into the Transboundary Nexus Assessment (TBNA) process. It is used in Step 2 of the 6-step methodology

Responses to this questionnaire will help orient the analytical work (Step 3) and prepare for the facilitation of participatory inter-sectoral workshops held at basin-level (Steps 4-5-6).

To include all relevant knowledge, the questionnaire should ideally be filled by respondents from all sectors *and* from all riparian countries, and at a minimum by those that emerge as “key sectors” (also Step 2).

The questions included in the template are broadly relevant to any transboundary basin. They can be adapted or complemented with more questions that may emerge during the desk study (Step 1).

**Instructions**

The Factual Questionnaire is divided into 5 sections, with each section containing up to 10 questions:

1. Water Quantity and Quality
2. Food Production and Land Use
3. Energy
4. Environment and Ecosystems
5. General Basin Context

Fill in all sections with brief and comprehensive answers to stimulate discussions and encourage cross-sectoral thinking. If it is not possible to answer a question, please indicate the reason – for e.g.: the issues or factor is insignificant in the basin, or there is simply not enough information available at present.

Seek and include inputs from responsible sector authorities or local authorities as much as possible, and as appropriate. Do not rely solely on the recipient / coordinating ministry who may have views on all topics covered.

Provide references wherever possible, especially if the answers given are quantitative. Use supplementary sheets to accommodate answers as necessary.

Only provide information regarding your own country’s part of the basin.

If further / more detailed questions are relevant to your specific context, please include them in addition to the existing questions.

Please provide contact information for the expert who filled in this datasheet:

|  |  |
| --- | --- |
| Name(s) |  |
| Institution(s) |  |
| Position(s) and field of expertise |  |
| Telephone and fax numbers |  |
| E-mail address |  |

Date:

Other officials/experts who contributed, if any (name, institution):

|  |  |
| --- | --- |
| Name(s) |  |
| Institution(s) |  |
| E-mail address |  |

|  |  |
| --- | --- |
| Name(s) |  |
| Institution(s) |  |
| E-mail address |  |

|  |  |
| --- | --- |
| Name(s) |  |
| Institution(s) |  |
| E-mail address |  |

**PART A – WATER QUANTITY AND QUALITY**

*Please populate the sections below with your answers. Include additional question / answer sections as required.*

|  |
| --- |
| **Q1:** What are the main activities requiring water withdrawals in the basin? List in order of importance. |
|  |

|  |
| --- |
| **Q2:** Has the basin experienced any water supply shortages in the last two decades? If yes, when did this occur and which sectors were affected? |
|  |

|  |
| --- |
| **Q3:** Have water levels in the basin’s water bodies historically changed noticeably? Which ones have changed and by how much? |
|  |

|  |
| --- |
| **Q4:** Does groundwater use play a specifically important role in certain sectors? If this is true only in certain areas, where? |
|  |

|  |
| --- |
| **Q5:** How is household wastewater treated and how does it affect water quality in the basin? |
|  |

|  |
| --- |
| **Q6:** If water quality has been affected by human activities, please specify and list any existing or future measures (e.g.: policies or action plans) taken to address these. |
|  |

|  |
| --- |
| **Q7:** Which economic activities are directly associated with the basin’s water bodies (e.g.: agriculture, industry (please specify), fisher-aquaculture, navigation, tourism, energy production)? |
|  |

|  |
| --- |
| **Q8:** How is water allocated among sectors? What are the main rules and prices for different users? |
|  |

|  |
| --- |
| **Q9:** Are agricultural discharges affecting water quality? What are the current measure put in place to address this type of pollution? |
|  |

*Replicate the additional questions section below as required*

|  |
| --- |
| **Q[Number]:** *Insert additional question here* |
|  |

**PART B – FOOD PRODUCTION AND LAND USE**

*Please populate the sections below with your answers. Include additional question / answer sections as required.*

|  |
| --- |
| **Q1:** How significant is the agricultural sector in the basin (e.g.: surface area share, production volume, water use) and where? Has the role of agriculture been increasing or decreasing in recent years? What agricultural activities take place in the region (including major crops)? |
|  |

|  |
| --- |
| **Q2:** Is the basin a net importer or exporter of food to other regions? How much of locally produced food (e.g.: crops, fish) is exported beyond the basin? |
|  |

|  |
| --- |
| **Q3:** To what extent does the agricultural sector rely on irrigation? What percentage is the irrigated area of the total cultivated land area? What are the main sources of irrigation (surface water, groundwater, recycled water) and how large is the annual water volume used for irrigation? At which point(s) of the year is irrigation most needed? |
|  |

|  |
| --- |
| **Q4:** Does irrigation heavily rely on dams and reservoirs? To what extent and where? |
|  |

|  |
| --- |
| **Q5:** Is nutrient enrichment necessary in the agricultural sector (e.g.: chemical fertilizers, manure)? Please provide an indication of the extent of this. How widespread is the use of chemical fertilizers? And is pesticide use necessary? To what extent? |
|  |

|  |
| --- |
| **Q6:** How is land allocated? Is it mainly used by small farmers cultivating land or industrialised agriculture with big plantations? Are there major investments put in place to change current land use? |
|  |

|  |
| --- |
| **Q7:** Does the local diet include fish bred or harvested within the basin? If yes, please approximate the extent of fishing activities. |
|  |

|  |
| --- |
| **Q8:** Is pastoralism important in the region? To what extent and where? |
|  |

|  |
| --- |
| **Q9:** Is salinisation of soil a problem in the basin? If yes, where exactly? What current measures are in place to address this problem? |
|  |

|  |
| --- |
| **Q10:** Have major shifts in crop production been observed recently (in the last 5 years)? Why did these occur and what important consequences arose (if any)? |
|  |

*Replicate the additional questions section below as required*

|  |
| --- |
| **Q[Number]:** *Insert additional question here* |
|  |

**PART C - ENERGY**

*Please populate the sections below with your answers. Include additional question / answer sections as required.*

|  |
| --- |
| **Q1:** What are the types of energy demand and production in the basin? Is energy production an important activity in the basin? |
|  |

|  |
| --- |
| **Q2:** Are any fossil fuel resources available in the basin? |
|  |

|  |
| --- |
| **Q3:** What is the electrification rate of the basin? Which are the biggest consumers of electricity? Are these uses efficient? |
|  |

|  |
| --- |
| **Q4:** Do any major energy-production industries exist within the basin? If so, please specify which of them require large water withdrawals. |
|  |

|  |
| --- |
| **Q5:** In connection to the previous question, do such industries affect water flow, quality and / or ecosystems in any way? |
|  |

|  |
| --- |
| **Q6:** What are the most energy-intensive activities whin the basin (including electricity, natural gas and oil)? Please indicate quantitatively if possible. In case data does not exist, please provide qualitative ranking indicatin the level of energy efficiency of such activities. |
|  |

|  |
| --- |
| **Q7:** Is there any biofuel production occurring in the basin? If so, please provide a short description of the source (e.g.: agricultural waste, crops, animal waste) and the extend of this. |
|  |

|  |
| --- |
| **Q8:** In case hydropower is a source of electricity in the basin, what is the current extent of hydropower infrastructure and is there any new infrastructure planned? |
|  |

|  |
| --- |
| **Q9:** If hydropower facilities exist, have they ever been affected by climatic events (e.g.: prolonged periods of drought, flood events with associated dam security problems)? If yes, in which years? |
|  |

|  |
| --- |
| **Q10:** Is fuelwood used for heating and cooking in households? Does this result in uncontrolled deforestation? |
|  |

*Replicate the additional questions section below as required*

|  |
| --- |
| **Q[Number]:** *Insert additional question here* |
|  |

**PART D – ENVIRONMENT AND ECOSYSTEMS**

*Please populate the sections below with your answers. Include additional question / answer sections as required.*

|  |
| --- |
| **Q1:** What are the main ecosystems in the basin from a cultural perspective\* (e.g.: for tourism, cultural heritage and recreation)? *\*For example, the Millennium Ecosystem Assessment used the following ecosystem categories: marine, coastal, inland water, forest, dryland, island, mountain, polar, cultivated and urban ecosystems.* |
|  |

|  |
| --- |
| **Q2:** What are the main ecosystems in the basin from a biodiversity perspective? |
|  |

|  |
| --- |
| **Q3:** Have any changes to forest ecosystems (for e.g.: deforestation) been noticed? What is the current and past use of forest ecosystems (for e.g.: timber, pulp, bioenergy, grazing (in the case of sparse forests))? |
|  |

|  |
| --- |
| **Q4:** Have any changes to natural grasslands been noticed? What is the current and past use of natural grasslands (for e.g.: grazing, making hay)? |
|  |

|  |
| --- |
| **Q5:** Have any changes to wetland ecosystems been noticed? What is the current and past use of wetlands (for e.g.: aqua-culture, making hay)? |
|  |

|  |
| --- |
| **Q6:** Has the basin experienced any loss in biodiversity? Are there any endangered endemic species in the region? |
|  |

|  |
| --- |
| **Q7:** Has the basin experienced any loss in productivity? For instance, is there any nutrient loss in the soil, or has fish production been reduced? |
|  |

|  |
| --- |
| **Q8:** How has the landscape of the basin changed over the past few decades? Have any significant alterations been the result of human activities, or natural geomorphologic phenomena? |
|  |

|  |
| --- |
| **Q9:** What is the role of ecosystems in terms of providing ‘natural infrastructure’\* in the basin (for e.g.: regulating water flow and providing clean water)? Is this type of infrastructure at risk?*\*’Natural infrastructure’ refers to nature’s capacity to complement, augment or replace the services provided by traditional engineered infrastructure. For example, aquifers, lakes and wetlands provide water storage, wetlands filter water, rivers provide conveyance and transportation.* |
|  |

*Replicate the additional questions section below as required*

|  |
| --- |
| **Q[Number]:** *Insert additional question here* |
|  |

**PART E – GENERAL BASIN CONTEXT**

*Please populate the sections below with your answers. Include additional question / answer sections as required.*

|  |
| --- |
| **Q1:** Are any transboundary agreements or national policies that target resource management in place currently? If yes, please list these. |
|  |

|  |
| --- |
| **Q2:** Are any development plans focussing on natural resources or economic activities at basin level in place currently? If yes, please list these. |
|  |

|  |
| --- |
| **Q3:** Are any major municipal and / or industrial waste disposal sites located in the basin? |
|  |

|  |
| --- |
| **Q4:** Please describe the socioeconomic state of the basin. What are the main economic activities? |
|  |

|  |
| --- |
| **Q5:** Have there been any political conflicts in the past within the basin? |
|  |

|  |
| --- |
| **Q6:** Is climate change an important topic in your national policy agenda? Have any studies been conducted regarding this at national or basin level? |
|  |

|  |
| --- |
| **Q7:** What are the basin’s major health concerns? Are any of these related to issues with food availability, water quality or environmental pollution? |
|  |

*Replicate the additional questions section below as required*

|  |
| --- |
| **Q[Number]:** *Insert additional question here* |
|  |