Indicator 6.5.2

Indicator Name, Target and Goal

**Indicator 6.5.2:** Proportion of transboundary basin area with an operational arrangement for water cooperation

**Target 6.5:** By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

**Goal 6:** Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

**Definition:**
This indicator is defined as the percentage of transboundary basin area within a country with an operational arrangement for water cooperation with other countries.

**Concepts:**
Transboundary basins include river and lake basins and aquifers shared between two or more sovereign states. For the purposes of this indicator, the extent of the basin is the catchment area for river and lake basins, and the surface area of transboundary aquifer systems.

An **arrangement for water cooperation** is a bilateral or multilateral treaty, convention, agreement or any other formal arrangement between riparian countries that provides a framework for cooperation on transboundary water management.

For any arrangement for water cooperation to be considered operational, all the following criteria need to be met:

1. There is a joint body, mechanism or commission for transboundary cooperation;
2. There are regular (at least once per year) formal communications between riparian countries in the form of meetings;
3. There is a joint or coordinated water management plan(s), or established joint objectives have been set; and
4. There is a regular (at least once per year) exchange of data and information between riparian countries.

**Rationale and Interpretation:**
Most of the world’s water resources are shared. A large portion of the global population reside in -- and are directly reliant upon water supplied -- by shared river and lake basins or aquifers. Developments, such as flow regulation or pollution, of these shared water resources may have impacts across sovereign borders. Specific agreements or other arrangements between co-riparian countries are a precondition to ensuring long-term, equitable and sustainable cooperation of these waters.

International customary water law - as reflected in the Convention on the Law of the Non-navigational Uses of International Watercourses (New York, 1997), the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 1992), and the draft Articles on The Law of Transboundary Aquifers (2008; UN General Assembly resolutions 63/124, 66/104, and 68/118) - and the contemporary practice of watercourse States, points to the need for certain minimum requirements in order to foster transboundary water cooperation. These minimum requirements are captured by the four criteria for operationality that are incorporated into this indicator.

Data Sources and Collection Method

Ministries and agencies responsible for surface water and groundwater resources (most commonly ministry of the environment, water, natural resources, energy or agriculture; foreign affairs, institutes of water resources, hydrology or geology, or geological surveys) typically maintain spatial information about the location and extent of the surface water basin boundaries and aquifer delineations as GIS shapefiles. Information on existing arrangement and their operationality is maintained by the same institutions.
Method of Computation and Other Methodological Considerations

Methodological approach:

A reporting template related to SDG indicator 6.5.2 is communicated to the country by the custodian agencies. The template provides step-wise approach by which countries can calculate the value of the indicator. In order to substantiate the calculation and provide a fuller picture of transboundary water cooperation, countries are invited to complete the full reporting template, which contains a series of questions related to *inter alia* transboundary water cooperation at the national level, basin level agreements and arrangements, joint bodies, data and information exchange, joint monitoring and assessment, and public participation. Countries are also encouraged to consult widely at the national level, and where appropriate other countries sharing transboundary basins, in order to complete the reporting template.

Computation Method:

The calculation of the value of the indicator involves a number of steps:

Step 1: The identification of transboundary river and lake basins and aquifers that are located within a country. If there are no transboundary river or lake basins, or aquifers, reporting is not required.

Step 2: A calculation of the surface area (in km$^2$) *within the territory of the country* of all identified transboundary river and lake basins. If there is more than one transboundary river and lake basin, the surface area with the territory of the country of each basin should be added together to get the total surface area of transboundary river and lake basins within the territory of the country. Then, using the same approach the surface area (in km$^2$) within the territory of the country of any transboundary aquifers should be calculated. The total surface area within the country of transboundary river and lake basins, and transboundary aquifers, should be added together to calculate the total transboundary basin surface area for the country. This can be done conveniently using Geographical Information Systems (GIS) techniques and available national or international databases.

Step 3: Review existing arrangements for transboundary cooperation in water management and verify which transboundary basin areas (transboundary river and lake basins and/or transboundary aquifers or parts thereof) are covered by those arrangements.

Step 4: Check which of the existing arrangements are operational, using the four criteria of operationality.

Step 5: Calculate the percentage of transboundary basin area within a country with an operational arrangement for water cooperation ($P_{TAOCA}$) using the formula:

$$P_{TAOCA} = \frac{A_{OCA}}{A_{Total}} \times 100$$

where,

$A_{OCA}$ is the surface area of transboundary river and lake basins and aquifers in a country that are covered by an operational arrangement for water cooperation (results from Step 3 and 4); and

$A_{Total}$ is the total area of transboundary river and lake basins and aquifers in a country (results from step 1 and 2).

Comments and limitations:

The spatial information of transboundary river and lake basins and their catchment areas is readily available. However, information on the number and the areal extent of transboundary aquifers is often based on limited knowledge that may evolve over time and updating of the value may be required in each reporting cycle.

The legal basis for cooperation develops slowly and takes several years, as opposed to some of the four criteria that assess the operationality of arrangements, which are more dynamic and can evolve over shorter time frames.

The situation of each river, lake and aquifer is assessed for the calculation of the national indicator but the focus of the indicator is at the transboundary scale. Harmonisation of data between countries sharing the same transboundary rivers, lakes and aquifers should therefore be covered.

Data Disaggregation

While it is important to calculate the indicator value for all transboundary waters within a country, the indicator value can be presented separately for river and lake basins, and aquifers.

References
Official SDG Metadata URL

Internationally agreed methodology and guideline URL

Other references


GEF. Transboundary Waters Assessment Programme. Internet site: http://www.gefwap.org/


ISARM. Regional Inventories of Transboundary Groundwaters. Internet site: http://www.isarm.org/

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Hydrological Programme of United Nations Educational, Scientific and Cultural Organization (UNESCO-IHP) and United Nations Economic Commission for Europe (UNECE).

For focal point information for this indicator, please visit https://unstats.un.org/sdgs/dataContacts/