Reporting on global SDG indicator 6.5.2

TEMPLATE of the second cycle for reporting

Content of the template

The template is divided into four parts:
- Section I - Calculation of SDG indicator 6.5.2
- Section II - Information on each transboundary basin or group of basins
- Section III - General information on transboundary water management at the national level
- Section IV - Final questions

Country name: [KINGDOM OF ESWATINI]
I. Calculation of Sustainable Development Goal indicator 6.5.2

Methodology

1. Using the information gathered in section II, the information gathered in this section allows for the calculation of Sustainable Development Goal global indicator 6.5.2, which is defined as the proportion of transboundary basin area with an operational arrangement for water cooperation.

2. The step-by-step monitoring methodology for indicator 6.5.2, developed by UNECE and UNESCO in the framework of UN-Water, should be referred to for details on the necessary data, the definitions and the calculation.¹

3. The value of the indicator at the national level is derived by adding up the surface area in a country of those transboundary basins (river and lake basins and aquifers) that are covered by an operational arrangement and dividing the area obtained by the aggregate total area in a country of all transboundary basins (both river and lake basins, and aquifers).

4. Transboundary basins are basins of transboundary waters, that is, of any surface waters (notably rivers, lakes) or groundwaters which mark, cross or are located on boundaries between by two or more States. For the purpose of the calculation of this indicator, for a transboundary river or lake, the basin area is determined by the extent of its catchment. For groundwater, the area to be considered is the extent of the aquifer.

5. An “arrangement for water cooperation” is a bilateral or multilateral treaty, convention, agreement or other formal arrangement among riparian countries that provides a framework for cooperation on transboundary water management.

6. For an arrangement to be considered “operational” all the following criteria need to be in place in practice:

   (a) There is a joint body, joint mechanism or commission (e.g., a river basin organization) for transboundary cooperation (criterion 1);

   (b) There are regular (at least once per year) formal communications between riparian countries in form of meetings (either at the political or technical level) (criterion 2);

   (c) Joint objectives, a common strategy, a joint or coordinated management plan, or an action plan have been agreed upon by the riparian countries (criterion 3);

   (d) There is a regular (at least once per year) exchange of data and information (criterion 4).

Calculation of indicator 6.5.2

7. Please list in the tables below the transboundary basins (rivers and lakes and aquifers) in your country’s territory and provide the following information for each of them:

   (a) The country(ies) with which the basin is shared;

   (b) The surface area of the basin (the catchment of rivers or lakes and the aquifer in the case of groundwater) within the territory of your country (in square kilometres (km²));

   (c) Whether a map and/or a geographical information system (GIS) shapefile of the basin has been provided;

   (d) Whether there is an arrangement in force for the basin;

   (e) The verification of each of the four criteria to assess operationality;

¹ Available from the UN-Water website: https://www.sdg6monitoring.org/indicators/target-65/indicators652/ (updated version "2020").
(f) The surface area of the basin within the territory of your country which is covered by a cooperation arrangement that is operational according to the above criteria.

8. In case an operational arrangement is in place only for a sub-basin or a portion of a basin, please list this sub-basin just after the transboundary basin it is part of. In case there is an operational arrangement for the whole basin, do not list sub-basins in the table below.
<table>
<thead>
<tr>
<th>Name of transboundary river or lake basin/sub-basin</th>
<th>It is a basin or a sub-basin?</th>
<th>Countries shared with</th>
<th>Surface area of the basin/sub-basin (in km²) within the territory of the country</th>
<th>Map and/or GIS shapefile provided (yes/no)</th>
<th>Covered by an arrangement (entirely, partly, no) (Ref. to questions in sect. II)</th>
<th>Criterion 1 applied (yes/no) (Ref. to questions in sect. II)</th>
<th>Criterion 2 applied (yes/no) (Ref. to questions in sect. II)</th>
<th>Criterion 3 applied (yes/no) (Ref. to questions in sect. II)</th>
<th>Criterion 4 applied (yes/no) (Ref. to questions in sect. II)</th>
<th>Surface area of the basin/sub-basin (in km²) covered by an operational arrangement within the territory of the country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usutu (inclusive of Ngwaguma)</td>
<td>Basin</td>
<td>Republics of South Africa and Mozambique</td>
<td>11,083 km² (source Joint Maputo Study 2006)</td>
<td>Map</td>
<td>Arrangement in place at government level</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>11,083 km²</td>
</tr>
<tr>
<td>Sub basin/area – Siphofaneni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sub basin/area – Makels</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Name of transboundary river or lake basin/sub-basin</td>
<td>It is a basin or a sub-basin?</td>
<td>Countries shared with</td>
<td>Surface area of the basin/sub-basin (in km²)</td>
<td>Map and/or GIS shapefile provided (yes/no)</td>
<td>Covered by an arrangement (yes/no)</td>
<td>Criterion 1 applied (yes/no)</td>
<td>Criterion 2 applied (yes/no)</td>
<td>Criterion 3 applied (yes/no)</td>
<td>Criterion 4 applied (yes/no)</td>
<td>Surface area of the basin/sub-basin (in km²) covered by an operational arrangement within the territory of the country</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
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<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Komati (inclusive of Lomati)</td>
<td>Basin</td>
<td>Republics of South Africa and Mozambique</td>
<td>2,820 km²</td>
<td>Map</td>
<td>Arrangement in place (yes)</td>
<td>Joint Water Commission (JWC)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>2,820 km²</td>
</tr>
<tr>
<td>Sub basin/area – Malkerns</td>
<td></td>
<td>Malkerns Irrigation district</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Emandla Ekuphila Water User District 350 km² of 2,820 km²</td>
</tr>
<tr>
<td>Name of transboundary river or lake basin/sub-basin</td>
<td>Is it a basin or a sub-basin?</td>
<td>Countries shared with</td>
<td>Surface area of the basin/sub-basin (in km²) within the territory of the country</td>
<td>Map and/or GIS shapefile provided (yes/no)</td>
<td>Covered by an arrangement (entirely, partly, no) (Ref. to questions in sect. II)</td>
<td>Criterion 1 applied (yes/no) (Ref. to questions in sect. II)</td>
<td>Criterion 2 applied (yes/no) (Ref. to questions in sect. II)</td>
<td>Criterion 3 applied (yes/no) (Ref. to questions in sect. II)</td>
<td>Criterion 4 applied (yes/no) (Ref. to questions in sect. II)</td>
<td>Surface area of the basin/sub-basin (in km²) covered by an operational arrangement within the territory of the country</td>
</tr>
<tr>
<td>------------------------------------------------</td>
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<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mbuluzi</td>
<td>Basin</td>
<td>Republic of Mozambique</td>
<td>3,132 km²</td>
<td>Map</td>
<td>Arrangement in place</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>3,132 km²</td>
</tr>
</tbody>
</table>

(A) Total surface area of transboundary basins/sub-basins of rivers and lakes covered by operational arrangements within the territory of the country (in km²)

(do not double count sub-basins)

(B) Total surface area of transboundary basins of rivers and lakes within the territory of the country (in km²)

(do not double count sub-basins)

17,035

17,035
<table>
<thead>
<tr>
<th>Name of the transboundary aquifer</th>
<th>Countries shared with</th>
<th>Surface area of the aquifer (in km²) within the territory of the country</th>
<th>Map and/or GIS shapefile provided (yes/no)</th>
<th>Covered by an aquifer specific to the arrangement entirely (yes/no)</th>
<th>Covered within an arrangement not specific to the aquifer (entirely, partly, no)</th>
<th>Criterion 1 applied (yes/no)</th>
<th>Criterion 2 applied (yes/no)</th>
<th>Criterion 3 applied (yes/no)</th>
<th>Criterion 4 applied (yes/no)</th>
<th>Surface area of the aquifer (in km²) covered by an operational arrangement within the territory of the country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubombo (Rhyolite breccia system)</td>
<td>Eswatini, Mozambique and South Africa</td>
<td>1500Km²</td>
<td>Recommended is a scientific study to unearth full extent of this mentioned aquifer.</td>
<td>There is a hydrogeological map recently digitised to enable add on features. (SADC GMI website)</td>
<td>No professionaly established arrangement in existence though there are operational arrangements on surface water.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0 km² since groundwater is still to be looked at this basin.</td>
</tr>
</tbody>
</table>

**NB:** It would be interesting to map the extent of this inferred aquifer since there is no substantive evidence of work done on the ground possibly due to limiting factors on the ground such as access, funds and ability to engage riparian states on a joint study.

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* For a transboundary aquifer, the extent is derived from the aquifer system delineation which is commonly done relying on information of the subsurface (notably the extent of geological formations). As a general rule, the delineation of aquifer systems is based on the delineation of the extent of the hydraulically connected water-bearing geological formations. Aquifer systems are three-dimensional objects and the aquifer area taken into account is the projection on the land surface of the system. Ideally, when different aquifer systems not hydraulically connected are vertically superposed, the different relevant projected areas are to be considered separately, unless the different aquifer systems are managed conjunctively.

* In the text of the agreement or arrangement or in the practice.
<table>
<thead>
<tr>
<th>Name of the transboundary aquifer</th>
<th>Countries shared with</th>
<th>Surface area of the aquifer (in km²) within the territory of the country</th>
<th>Criterion 1 (applied)</th>
<th>Criterion 2 (applied)</th>
<th>Criterion 3 (applied)</th>
<th>Sub-total: surface area of transboundary aquifers covered by operational arrangements (in km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sub-total: surface area of transboundary aquifers (in km²)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total surface area of transboundary aquifers (in km²)</td>
</tr>
</tbody>
</table>

Involve groundwater resources in the business of the Institution.
Indicator value for the country

**Surface waters:**

Percentage of surface area of transboundary basins of rivers and lakes covered by an operational arrangement:

\[
\frac{A}{B} \times 100 = \frac{17035}{17035} \times 100\% = 100\%
\]

**Aquifers:**

Percentage of surface area of transboundary aquifers covered by an operational arrangement:

\[
\frac{C}{D} \times 100 = \frac{0}{1500} \times 100\% = 0\%
\]

**Sustainable Development Goal indicator 6.5.2:**

Percentage of surface area of transboundary basins covered by an operational arrangement:

\[
\left(\frac{A + C}{B + D}\right) \times 100 = \frac{(17035 + 0)}{(17035 + 1500)} \times 100 = 91.9\%
\]

**Spatial information**

If a map (or maps) of the transboundary surface water catchments and transboundary aquifers (i.e., "transboundary basins") is available, please consider attaching them. Ideally, shapefiles of the basin and aquifer delineations that can be viewed in GIS should be sent.

**Additional information**

If the respondent has comments that clarify assumptions or interpretations made for the calculation, or the level of certainty of the spatial information, please write them here:

1. The 5 river basins of the country (Komati, Lomati, Usuthu, Ngwavuma and Mbuluzi) are covered by operational arrangements. There are challenges that include monitoring of the holistic basins. This results in a small component of on the ground coverage which is then taken care of by irrigation districts.

2. River Basin Authorities are currently being strengthened to enhance the monitoring of each basin activities in terms of operations through human resources, tools and equipment availability.

3. MAPS – the maps provided are historic maps and are in the process of being updated to provide more geographical features and information.
Does your country have transboundary agreements or arrangements for the protection and/or management of transboundary waters (i.e., rivers, lakes or groundwater), whether bilateral or multilateral?

Yes ☑/No ☐

If yes, list the bilateral and multilateral agreements or arrangements (listing for each of the countries concerned):

1. Interim IncoMaputo Agreement (IIMA) of 2002 – The agreement is for the management of the Inkomati and Maputo River Basins that shared between the Kingdom of Eswatini, the Republics of South Africa and Mozambique.

2. Umbeluzi Water Agreement of 1976 – The agreement is for the management of the Mbuluzi river that is shared by the Kingdom of Eswatini and the Republic of Mozambique.

3. The Lavumisa Water Sharing Agreement (2003) – this agreement is for the supply of water from the Pongolapoort dam of South Africa into the Kingdom of Eswatini.

II. Questions for each transboundary basin, sub-basin, part of a basin, or group of basins (river, lake or aquifer)

Please complete this second section for each transboundary basin (river or lake basin, or aquifer), sub-basin, part of a basin or a group of basins covered by the same agreement or arrangement where conditions are similar.\(^1\) In some instances, you may provide information on both a basin and one or more of its sub-basins or parts thereof, for example, where you have agreements\(^2\) or arrangements on both the basin and its sub-basin. You may coordinate your responses with other States with which your country shares transboundary waters, or even prepare a joint report. General information on transboundary water management at the national level should be provided in section III and not repeated here.

**INCOMAPUTO**

The Usuthu river basin is inclusive of the Ngwaguma river basin at a transboundary level together with the Inkomati and Lomati River basin. These basins combined form part of the IncoMaputo at the transboundary level and flow into the Republics of South Africa and Mozambique upon exit from the country.

**MBULUZI**

The Mbuluzi river originates in Eswatini and flows into Mozambique. This river basin is shared with Mozambique with an adopted water sharing agreement.

Please reproduce this whole section with its questions for each transboundary basin, sub-basin, part of a basin or group of basins for which you will provide a reply.

**Name of the transboundary basin, sub-basin, part of a basin or group of basins: [fill in]**

List of the riparian States: [Mozambique, RSA, Eswatini]

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\(^1\) In principle, section II should be submitted for every transboundary basin, river, lake or aquifer, in the country, but States may decide to group basins in which their share is small or leave out basins in which their share is very minor, e.g., below 1 per cent.

\(^2\) In section II, “agreement” covers all kinds of treaties, conventions and agreements ensuring cooperation in the field of transboundary waters. Section II can also be completed for other types of arrangements, such as memorandums of understanding.
In the case of an aquifer, what is the nature of the aquifer and its relation with the river or lake basin:

- Unconfined aquifer connected to a river or lake
- Unconfined aquifer with no or limited relation with surface water
- Confined aquifer connected to surface water
- Confined aquifer with no or limited relation with surface water
- Other

Please describe: [Granular with limited fractures aquifer type. There is a need to undertake further investigation on this mentioned aquifer to ascertain its full capacity even though the host area is known for very poor rainfall and many drilled wells in this region are poorly yielding.

Unknown

NB: (Need for extensive research projects on the cited aquifer territory to unearth the details of the inferred aquifer system)

Percentage of your country's territory within the basin, sub-basin, part of a basin or group of basins: [fill in]

1. Is there one or more transboundary (bilateral or multilateral) agreement(s) or arrangement(s) on this basin, sub-basin, part of a basin or group of basins?
   - One or more agreements or arrangements exist and are in force
   - Agreement or arrangement developed but not in force
   - Agreement or arrangement developed, but not in force for all riparians
   - Please insert the name of the agreement(s) or arrangement(s) [fill in]

1. Interim IncoMaputo Agreement (IIMA) of 2002 – The agreement is for the management of the Inkomati and Maputo River Basins that shared between the Kingdom of Eswatini, the Republics of South Africa and Mozambique.

2. Umbeluzi Water Agreement of 1976 – The agreement is for the management of the Mbuluzi river that is shared by the Kingdom of Eswatini and the Republic of Mozambique.

3. The Lavumisa Water Sharing Agreement (2003) – this agreement is for the supply of water from the Pongolapoort dam of South Africa into the Kingdom of Eswatini.
   - Agreement or arrangement is under development
   - No agreement or arrangement
   - If there is no agreement or arrangement or it is not in force, please explain briefly why not and provide information on any plans to address the situation: [fill in]

The Umbeluzi Water Agreement of 1976 may need to be reviewed as this is an older arrangement of water sharing between the Kingdom of Eswatini and the Republic of Mozambique. The hydrology has changed and there have been developmental projects and planned projects in both states over the past 30 to 40 years.

The same review may apply to the Lavumisa Water Sharing agreement. This is an on-going process which has just commenced between the Kingdom of Eswatini and the Republic of South Africa.

If there is no agreement or arrangement and no joint body or mechanism for the transboundary basin, sub-basin, part of a basin or group of basins then jump to
question 4; if there is no agreement or arrangement, but a joint body or mechanism then go to question 3.

Questions 2 and 3 to be completed for each bilateral or multilateral agreement or arrangement in force in the transboundary basin, sub-basin, part of a basin or group of basins.

2. (a) Does this agreement or arrangement specify the area subject to cooperation?

Yes □/No □

If yes, does it cover the entire basin or group of basins and all riparian States?

Yes □/No □

Additional explanations? [fill in]

Both the Interim IncoMaputo (2002) and the Umbeluzi Water Agreements (1976) cover the specific areas as mentioned in the individual agreements.

Or, if the agreement or arrangement relates to a sub-basin, does it cover the entire sub-basin?

Yes □/No □

Additional explanations? [fill in]

Where the irrigation districts are found in the sub basins of the country, these institutions have clearly marked areas of operation. These water entities are established by the Water Act (2003), membership is gazetted and reporting platforms are in place. For example, the Siphofini and Malkerns Irrigation districts report to the Usuthu river basin authority, whilst the Emandla Ekuphila Water User District reports to the Komati river basin authority.

Which States (including your own) are bound by the agreement or arrangement? (Please list): [fill in]

1. Interim IncoMaputo Agreement 2002 – Republic of South Africa, Kingdom of Eswatini and the Republic of Mozambique are all bound.
2. Umbeluzi Water Agreement 1976 – the Kingdom of Eswatini is bound to the Republic of Mozambique.

(b) If the agreement or arrangement relates to a river or lake basin or sub-basin does it also cover aquifers? □/MVELASE

Yes □/No □

If yes, please list the aquifers covered by the agreement or arrangement; [fill in] □/N/A

(c) What is the sectoral scope of the agreement or arrangement?

□ All water uses
□ A single water use or sector
□ Several water uses or sectors

If one or several water uses or sectors, please list (check as appropriate):

Water uses or sectors

□ Industry
□ Agriculture
Transport (e.g., navigation)
Households
Energy: hydropower and other energy types
Fisheries
Tourism
Nature protection
Other (please list): [fill in]

(d) What topics or subjects of cooperation are included in the agreement or arrangement?

**Procedural and institutional issues**
Dispute and conflict prevention and resolution
Institutional cooperation (joint bodies)
Consultation on planned measures
Mutual assistance

**Topics of cooperation**
Joint vision and management objectives
Joint significant water management issues
Navigation
Human health
Environmental protection (ecosystem)
Water quality
Water quantity or allocation
Cooperation in addressing floods
Cooperation in addressing droughts
Climate change adaptation

**Monitoring and exchange**
Joint assessments
Data collection and exchange
Joint monitoring
Maintenance of joint pollution inventories
Elaboration of joint water quality objectives
Common early warning and alarm procedures
Exchange of experience between riparian States
Exchange of information on planned measures

**Joint planning and management**
Development of joint regulations on specific topics
Development of international or joint river, lake or aquifer basin management or action plans
Management of shared infrastructure
Development of shared infrastructure
Other (please list): [fill in]

(c) What are the main difficulties and challenges that your country faces with the agreement or arrangement and its implementation, if any?

- Aligning implementation of agreement or arrangement with national laws, policies and programmes
- Aligning implementation of agreement or arrangement with regional laws, policies and programmes
- Lack of financial resources
- Insufficient human capacity
- Insufficient technical capacity
- Tense diplomatic relations
- Non-participation of certain riparian countries in the agreement
- No significant difficulties
- Other (please describe): [fill in]

(f) What are the main achievements in implementing the agreement or arrangement and what were the keys to achieving such success? [fill in]

The main achievements of any water agreement is the continuous provision of water, whether it is into the country or by transboundary. An agreement specifies the amount of water that must be transferred and adherence to. The sharing of data and the periodic meetings on water cooperation present platforms where challenges can be highlighted/addressed and recommendations adopted.

These platforms allow for knowledge exchange on interventions for development within specific river basins and the holistic countries that are affected.

(g) Please attach a copy of the agreement or arrangement or provide the web address of the document (please attach document or insert web address, if applicable): [fill in] ATTACHMENTS

1. Interim IncoMaputo Agreement (IMA) of 2002 – The agreement is for the management of the Inkomati and Maputo River Basins that shared between the Kingdom of Eswatini, the Republics of South Africa and Mozambique.

2. Umbeluzi Water Agreement of 1976 – The agreement is for the management of the Mbuluzi river that is shared by the Kingdom of Eswatini and the Republic of Mozambique.

3. The Lavumisa Water Sharing Agreement (2003) – this agreement is for the supply of water from the Pongolapoort dam of South Africa into the Kingdom of Eswatini.

3. Is your country a member of any joint body or mechanism for this agreement or arrangement?

Yes ☑ No ☐
If no, why not? (please explain): [fill in]

Where there is a joint body or mechanism

(a) If there is a joint body or mechanism, which kind of joint body or mechanism (please tick one)?

- Plenipotentiaries
- Bilateral commission
- Basin or similar commission
- Expert group meeting or meeting of national focal points
- Other (please describe): [fill in]

(b) Does the joint body or mechanism cover the entire transboundary basin, sub-basin, part of a basin or group of basins?

Yes ☑/No ☐

(c) Which States (including your own) are members of the joint body or mechanism? (Please list): [fill in]

For the Komati and Lomati river basins – representation is Eswatini and South Africa

For the Mbuluzi river basin – representation is Eswatini and Mozambique

(d) Are there any riparian States that are not members of the joint body or mechanism? (please list): [fill in]

Eswatini is membership to the joint body with either state (South Africa and Mozambique) and this is dependent on which interests are for the joint body.

(e) If not all riparian States are members of the joint body or mechanism how does the joint body or mechanism cooperate with them?

- No cooperation
- They have observer status
- Other (please describe): [fill in]

(f) Does the joint body or mechanism have any of the following features (please tick the ones applicable)?

- A secretariat
- A subsidiary body or bodies

If the secretariat is a permanent one, is it a joint secretariat or does each country host its own secretariat? (Please describe): [Fill in]

Please list (e.g., working groups on specific topics): [fill in]

Other features (please list): [fill in]

(g) What are the tasks and activities of this joint body or mechanism?

- Identification of pollution sources

3 This may include tasks according to the agreement or tasks added by the joint body, or its subsidiaries. Both tasks which joint bodies coordinate and tasks which they implement should be included.
Data collection and exchange
Joint monitoring
Maintenance of joint pollution inventories
Setting emission limits
Elaboration of joint water quality objectives
Management and prevention of flood or drought risks
Preparedness for extreme events, e.g., common early warning and alarm procedures
Surveillance and early warning of water related disease
Water allocation and/or flow regulation
Policy development
Control of implementation
Exchange of experience between riparian States
Exchange of information on existing and planned uses of water and related installations
Settling of differences and conflicts
Consultations on planned measures
Exchange of information on best available technology
Participation in transboundary EIA
Development of river, lake or aquifer basin management or action plans
Management of shared infrastructure
Addressing hydromorphological alterations
Climate change adaptation
Joint communication strategy
Basin-wide or joint public participation and consultation of, for example, basin management plans
Joint resources to support transboundary cooperation
Capacity-building
Any other tasks (please list): [fill in]

(h) What are the main difficulties and challenges that your country faces with the operation of the joint body or mechanism, if any?

Governance issues

Please describe, if any: [fill in]

Unexpected planning delays

Please describe, if any: [securing suitable dates for meetings]

Lack of resources
Please describe, if true: [This is related to financial issues related to hosting of meetings and travel to such]

Lack of mechanism for implementing measures

Please describe, if true: [fill in]

Lack of effective measures

Please describe, if true: [financial resources maybe restrictive to ensure these measures are approved or adopted]

Unexpected extreme events

Please describe, if any: [droughts in particular are risky for downstream users and if not planned for in the region, all parties are affected with one state having to share more water resources for good cooperation]

Lack of information and reliable forecasts

Please describe, if any: [the synchronization of two states forecast poses challenges in that adopting most effective responses to the forecasts may take longer than anticipated]

Others (please list and describe, as appropriate): [fill in]

(i) Does the joint body or mechanism, or its subsidiary bodies meet regularly?
Yes ✓/No ☐

If yes, how frequently does it meet?

More than once per year ✓

Once per year ☐

Less than once per year ☐

(j) What are the main achievements with regards to the joint body or mechanism?
[There is a coordinated approach to water management having noting the specific needs of individuals, an entity or a state as a whole]

(k) Did the joint body or mechanism ever invite a non-riparian coastal State to cooperate?
Yes ☐/No ✓

If yes, please give details. If no, why not, e.g. are the relevant coastal States also riparian States and therefore already members of the joint body or mechanism? [fill in]

4. Have joint objectives, a common strategy, a joint or coordinated management plan or action plan been agreed for the basin, sub-basin, part of a basin or group of basins?
Yes ✓/No ☐

If yes, please provide further details: [At the basin level, some plans have been agreed upon. The national river basins (5) in total have a strategy to have one body performing operations and representing the interests of all parties involved until full staff and mechanisms are in place. This proposal has been conceptualized and is awaiting full adaption]

5. How is the transboundary basin, sub-basin, part of a basins or group of basins protected, including the protection of ecosystems, in the context of sustainable and rational water use?
Regulation of urbanization, deforestation, and sand and gravel extraction.

Environmental flow norms, including consideration of levels and seasonality

Water quality protection, e.g. nitrates, pesticides, faecal coliforms, heavy metals

Water-related species and habitats protection

Other measures (please describe): [fill in]

6. (a) Does your country regularly exchange information and data with other riparian States in the basin, sub-basin, part of a basin or group of basins?

Yes ☑ No ☐

(b) If yes, how often:
   More than once per year ☑
   Once per year ☐
   Less than once per year ☐

(c) Please describe how information is exchanged (e.g. in connection with meetings of joint bodies): [Information is exchanged by electronic mail, as presentations or hardcopies that are either sent to the receiving party or provided for at meetings]

(d) If yes, on what subjects are information and data exchanged?
   Environmental conditions ☑
   Research activities and application of best available techniques ☐
   Emission monitoring data ☐
   Planned measures taken to prevent, control or reduce transboundary impacts ☑
   Point source pollution sources ☐
   Diffuse pollution sources ☐
   Existing hydromorphological alterations (dams, etc.) ☑
   Flows or water levels (including groundwater levels) ☑
   Water abstractions ☑
   Climatological information ☐
   Future planned measures with transboundary impacts, such as infrastructure development ☑
   Other subjects (please list): [fill in]
   Other comments, e.g. spatial coverage of data and information exchange: [fill in]

(e) Is there a shared database or information platform?

Yes ☐ No ☑

(f) Is the database publicly available?
If yes, please provide the web address: [fill in]

(g) What are the main difficulties and challenges to data exchange, if applicable?
  - Frequency of exchanges  ✔
  - Timing of exchanges  ✔
  - Comparability of data and information  ✔
  - Limited spatial coverage  ✔
  - Inadequate resources (technical and/or financial)  ✔
  Other (please describe): [fill in]
  Additional comments: [fill in]

(h) What are the main benefits of data exchange on the basin, sub-basin, part of a basin or group of basins? (please describe): [Any data is important because it reflects occurrences on the ground. Water data is informative in that it will highlight whether there is over or under abstraction of water, high or low river flows inform flood or drought trends. With this information, decisions can be made swiftly to address any challenges on the ground.]

7. Do the riparian States carry out joint monitoring in the transboundary basin, sub-basin, part of a basin or group of basins?

   No ☐ Yes ☑
   [The Department of Water Affairs is currently installing groundwater Monitoring loggers which would trigger sharing of data with riparian states, this is currently at a pilot stage.]

(a) If yes, what does the joint monitoring cover? [No A]

<table>
<thead>
<tr>
<th>Border surface waters</th>
<th>Hydrological</th>
<th>Ecological</th>
<th>Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Surface waters in the entire basin</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Surface waters on the main watercourse</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Surface waters in part of the basin</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>please describe [fill in]</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Transboundary aquifer(s) (connected or unconnected)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Aquifer(s) in the territory of one riparian hydraulically connected to a transboundary river or lake</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

(b) If joint monitoring is carried out, how is this done?
   National monitoring stations connected through a network or common stations
   Please describe: [fill in]
   Joint and agreed methodologies
Joint climate change adaptation strategy

11. What are the measures implemented to prevent or limit the transboundary impact of extreme weather events and climate change? Notification and communication

12. Are there any difficulties in joint climate change adaptation strategies? Coordination or joint alarm system for floods

13. If yes, why not? What difficulties does your country face in putting in place such measures? Coordination or joint alarm system for accidental water pollution

14. Are there any difficulties in joint climate change adaptation strategies? Coordination or joint early warning or alarm system for accidental water pollution

15. What are the measures implemented to prevent or limit the transboundary impact of accidental pollution? Notification and communication

16. If yes, what standards have been applied? Coordination or joint early warning or alarm system for accidental water pollution

17. Have the riparian States agreed to use joint water quality standards? Coordination or joint alarm system for floods

18. Do the riparian States carry out joint assessment of the transboundary basin, sub-basin, part of a basin, or group of basins? Coordination or joint alarm system for floods

19. Please provide the date of the last joint assessment. The frequency and scope of such assessments are recommended. Coordination or joint alarm system for floods

20. Please describe the main achievements regarding joint monitoring, if any: (Please describe the main achievements regarding joint monitoring).

Common agreed parameters

Please describe: Please describe: The use of common units for water measurement or settings that would allow for easy understanding, storage, and retrieval of data.

Please describe: The use of common units for water measurement or settings that would allow for easy understanding, storage, and retrieval of data. If yes, what standards have been applied? Coordination or joint alarm system for floods

Please describe: The use of common units for water measurement or settings that would allow for easy understanding, storage, and retrieval of data.

Please describe: The use of common units for water measurement or settings that would allow for easy understanding, storage, and retrieval of data. Coordination or joint alarm system for floods

Please describe: The use of common units for water measurement or settings that would allow for easy understanding, storage, and retrieval of data.
Joint disaster risk reduction strategy

Other (please list): [fill in]

No measures

*If not, why not? What difficulties does your country face in putting in place such measures?* [Proposals have been made and are still being discussed to enhance data collection from rivers and the synchronization of weather forecasts between states for a coordinated early warning system/s that is considerate of all water users and states.]

12. Are procedures in place for mutual assistance in case of a critical situation?

Yes ☑/No ☐

*If yes, please provide a brief summary:* [fill in]

13. Are the public or relevant stakeholders involved in transboundary water management in the basin, sub-basin, part of a basin or group of basins?

Yes ☑/No ☐

*If yes, how? (The stakeholders are encouraged to comply with their water abstractions to accommodate water use and entitlement by any neighbouring state downstream. If there are any challenges, one may rely on these stakeholders to provide any evidence or concern that may result in non-compliance to international water agreements.)*

- Stakeholders have observer status in a joint body or mechanism
- Stakeholders have an advisory role in the joint body
- Stakeholders have a decision-making role in the joint body

*If yes, please specify the stakeholders for the joint body or mechanism:* [fill in]

- Intergovernmental organizations
- Private sectors organizations or associations
- Water user groups or associations
- Academic or research institutions
- Other non-governmental organizations
- General public
- Other (please specify): [fill in]

Availability of information to the public

Consultation on planned measures or river basin management plans

Public involvement

Other (please specify): [fill in]

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4 Or, where applicable, aquifer management plans.
III. Water management at the national level

In this section, you are requested to provide general information on water management at the national level as it relates to transboundary waters. Information on specific transboundary basins, sub-basins, part of basins and groups of basins, should be presented in section II and not repeated here.

1. (a) Does your country’s national legislation, policies, action plans and strategies refer to measures to prevent, control and reduce any transboundary impact?
   
   Yes✓ □ No □

   If yes, please briefly describe the main national laws, policies, action plans and strategies.

   1. **Water Act (2003)**—establishes the department of Water Affairs as the responsible institution for water resources management in the country. This includes dams, hydrology, water quality, water permitting, ground water and rural water scheme development. Activities of data collection, infrastructure development, water quantification, water testing and adherence to transboundary water releases are incorporated.


   3. **National Water Policy (2018)**—this guiding policy highlights the importance of water for the country, its different uses and how the use of water can enhance the country’s economy. All aspects are covered including the need for transboundary cooperation to prevent water conflicts and improve national development programmes.

   (b) Does your country’s legislation provide for the following principles?

   Precautionary principle   Yes✓ □ No □

   Polluter pays principle   Yes □/No □✓

   Sustainable development   Yes✓ □/No □

   User pays principle       Yes □/No □✓

   If yes, please briefly describe how these principles are implemented at the national level: [The Department of Water Affairs as a secretariat to the National Water Authority, provides quarterly reports to the board highlighting status of water use, quantification and other. All water development strategies are presented as and when they occur. The National Water Authority recommends to the secretariat and river basin authorities of which projects must be developed or supervised as per the National Masterplan. Precautions are also recommended on water use/permitting and exploration as some issues may be sensitive at a regional, national or international level.)

   (c) Does your country have a national licensing or permitting system for wastewater discharges and other point source pollution? (e.g., in industry, mining, energy, municipal, wastewater management or other sectors)?

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Yes □ No □

If yes, for which sectors?

- Industry
- Energy
- Municipal
- Livestock raising
- Aquaculture

Other (please list): [fill in]

Please briefly describe the licensing or permitting system, indicating whether the system provides for setting emission limits based on best available technology?

If yes, for which sectors? (please list): [fill in]

If not, please explain why not (giving the most important reasons) or provide information if there are plans to introduce a licensing or permitting system: [fill in]

(d) Are the authorized discharges monitored and controlled?

Yes □ No □

If yes, how? (Please tick the ones applicable):

- Monitoring of discharges
- Monitoring of physical and chemical impacts on water
- Monitoring of ecological impacts on water
- Conditions on permits
- Inspectorate

Other means (please list): [fill in]

If your country does not have a discharge monitoring system, please explain why not or provide information if there are plans to introduce a discharge monitoring system: [fill in]

(e) What are the main measures which your country takes to reduce diffuse sources of water pollution on transboundary waters (e.g., from agriculture, transport, forestry or aquaculture)? The measures listed below relate to agriculture, but other sectors may be more significant. Please be sure to include these under “others”:

1. Legislative measures
   - Norms for uses of fertilizers
   - Norms for uses of manure
   - Permitting system
   - Bans on or norms for use of pesticides
   - Others (please list): [fill in]

2. Economic and financial measures
   - Monetary incentives
   - Environmental taxes (such as fertilizer taxes)
Others (please list): [fill in]

Agricultural extension services

Technical measures

Source control measures
Crop rotation
Tillage control
Winter cover crops
Others (please list): [fill in]

Other measures
Buffer/filter strips
Wetland reconstruction
Sedimentation traps
Chemical measures
Others (please list): [fill in]

Other types of measures
If yes, please list: [fill in]

(f) What are the main measures which your country takes to enhance water resources allocation and use efficiency?

Please tick as appropriate (not all might be relevant)

A regulatory system regarding water abstraction

Monitoring and control of abstractions
Water rights are defined
Water allocation priorities are listed
Water-saving technologies
Advanced irrigation techniques
Demand management activities
Other means (please list)

Encouragement of water user forums to speak on issues of water supply and management and also performing spot checks at water abstraction points.

(g) Does your country apply the ecosystems approach?

Yes √ / No □

If yes, please describe how: [ All water management is in recognition of balancing the ecosystem. During drought, water users are restricted depending on the prevailing situation. Water is also released from major dams for all users, with the ecosystem having a high priority.]

(h) Does your country take specific measures to prevent the pollution of groundwaters?

Yes √ / No □
If yes, please briefly describe the most important measures: [Groundwater pollution is a concern to all. The department has annual exploration of these water sources and the water quality perform random testing. The draft groundwater regulations have been drafted and these are guides to ensure equitable use of this water source whilst also aiming to minimize the contamination of groundwater.]

2. Do your national laws require transboundary environmental impact assessment (EIA)?
   Yes ☑/ No ☐

   If yes, please briefly describe the legislative basis, and any related implementing procedures.

   [The Southern African Development Community (SADC) has the shared watercourse protocols which guide on water sharing between states. As transboundary states, Eswatini, South Africa and Mozambique developed projects for development within each member states. Following feasibility studies, there has to be a consensus of approval for any project.

   That is where the Environmental Impact Assessment takes precedence. If any project is detrimental to the user downstream, then it would not be approved for no objection. Therefore it is necessary to engage all affected parties for project development and adoption which do not pose harm to the next user.]

   If not, do other measures provide for transboundary EIA? [fill in]

IV. Final questions

1. What are the main challenges your country faces in cooperating on transboundary waters?
   - Differences between national administrative and legal frameworks ☑
   - Lack of relevant data and information ☑
   - Difficulties in data and information exchange ☐
   - Sectoral fragmentation at the national level ☑
   - Language barrier ☐
   - Resource constraints ☐
   - Environmental pressures, e.g. extreme events ☐
   - Sovereignty concerns ☐

   Please list other challenges and/or provide further details: [fill in]

2. What have been the main achievements in cooperating on transboundary waters?
   - Improved water management ☑
   - Enhanced regional integration, i.e. beyond water ☑
   - Adoption of cooperative arrangements ☑
   - Adoption of joint plans and programmes ☑
   - Long-lasting and sustained cooperation ☑
   - Financial support for joint activities ☑
   - Stronger political will for transboundary water cooperation ☑
Better knowledge and understanding
Dispute avoidance
Stakeholder engagement

Please list other achievements, keys to achieving success, and/or provide concrete examples: [fill in]

3. Please indicate which institutions were consulted during the completion of the questionnaire
   - Joint body or mechanism
   - Other riparian or aquifer countries
   - National water management authority
   - Environment agency/ authority
   - Basin authority (national)
   - Local or provincial government
   - Geological survey (national)
   - Non-water specific ministries, e.g. foreign affairs, finance, forestry and energy
   - Civil society organizations
   - Water user associations
   - Private sector
   - Other (please list): [fill in]

   Please briefly describe the process by which the questionnaire was completed: [fill in]

4. If you have any other comments please add them here (insert comments): [fill in]

5. Name and contact details of the person(s) who filled out the questionnaire (please insert):
   1. SPENCER GREEN-THOMPSON, HYDROLOGIST
   2. MUSAWENKOSI MWELASE, SENIOR WATER ENGINEER - GROUNDWATER

Date: [fill in] Signature: [fill in]

Thank you very much for taking the time to complete this report.