Republic of BOTSWANA

INDICATOR 6.5.1: Degree of integrated water resources management implementation (0 – 100)

Introduction

UN Environment is supporting countries in monitoring and reporting on Sustainable Development Goal (SDG) 6, including target 6.5: "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate" [1]. The target supports the equitable and efficient use of water resources, which is essential for social and economic development, as well as environmental sustainability.

Key component of IWRM:

1. **Enabling Environment:** Creating the conditions that help to support the implementation of IWRM, which includes the most typical policy, legal and strategic planning tools for IWRM.
2. **Institutions and Participation:** The range and roles of political, social, economic and administrative institutions and other stakeholder groups that help to support the implementation of IWRM.
3. **Management Instruments:** The tools and activities that enable decision-makers and users to make rational and informed choices between alternative actions.
4. **Financing:** Budgeting and financing made available and used for water resources development and management from various sources.

Glossary

- **Authorities / organizations /institutions / departments:** administrative units.
- **Basins:** Includes rivers, lakes and aquifers, unless otherwise stipulated. For surface water, the term is interchangeable with 'catchments' and 'watersheds'.
- **Federal countries:** Refers to countries made up of federated states, provinces, territories or similar terms.

[1] This is being done as part of the GEMI initiative, coordinated by UN-Water, for monitoring and reporting of SDG targets 6.3 - 6.6, 6a and 6b. Support is provided in close collaboration with a number of UN-Water members and partners.

- **IWRM:** Integrated Water Resources Management (IWRM) is a process that promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. IWRM is not an end in itself but a means of achieving three key strategic objectives:
    - efficiency to use water resources in the best way possible;
    - equity in the allocation of water across social and economic groups;
    - environmental sustainability, to protect the water resource base, as well as associated ecosystems.
- **'Most significant' interstate basins:** For federal countries only. Basins that cross state/provincial borders and are of reasonably high significance to those states and/or the country.
- **National (level):** Refers to the highest level of administration in a country.
- **Sub-national / state (level):** refers to levels of administration other than national. For federated countries, these are likely to be provinces or states. Non-federated countries may still have sub-national jurisdictions with some responsibility for water resources management, e.g. regions, counties, departments.
- **Programs:** Nation-wide plans of action with long-term objectives, for example to strengthen monitoring, knowledge sharing and capacity development, with details on what work is to be done, by whom, when, and what means or resources will be used**.**
- **Stakeholders:** In this questionnaire, stakeholders are the main groups important for water resources management, development and use. Examples of stakeholders in each group are given in footnotes as they appear in the survey.
- **Water Resources Management** is the activity of planning, developing, distributing and managing the optimum use of water resources. Ideally, water resource management planning has regard to all the competing demands for water and seeks to allocate water on an equitable basis to satisfy all uses and demands. An integrated approach (see IWRM) is needed to ensure water resources management is not isolated within sector silos resulting to inefficiencies, conflicts and unsustainable resource use. Generally in this questionnaire, WRM activities (e.g. policies, laws, capacity development), must be based on IWRM approaches to score 40 and above.

Transboundary River Basins

The most important transboundary basins or aquifers that are regarded as significant, in terms of economic, social or environmental value to Botswana

Transboundary Basin/Aquifer	Countries	Total Area Coverage (Km^2)	Total Surface Area within the territory of the Country (Km^2)
Okavango/Cubango River Basin	Angola, Botswana, Namibia	530,000	62,000
Orange-Senqu River Basin	Botswana, Lesotho, Namibia, South Africa	1,000,000	79,000
Limpopo River Basin	Botswana, Mozambique, South Africa, Zimbabwe	408,250	81,400
Zambezi River Basin	Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	1,370,000	38,000

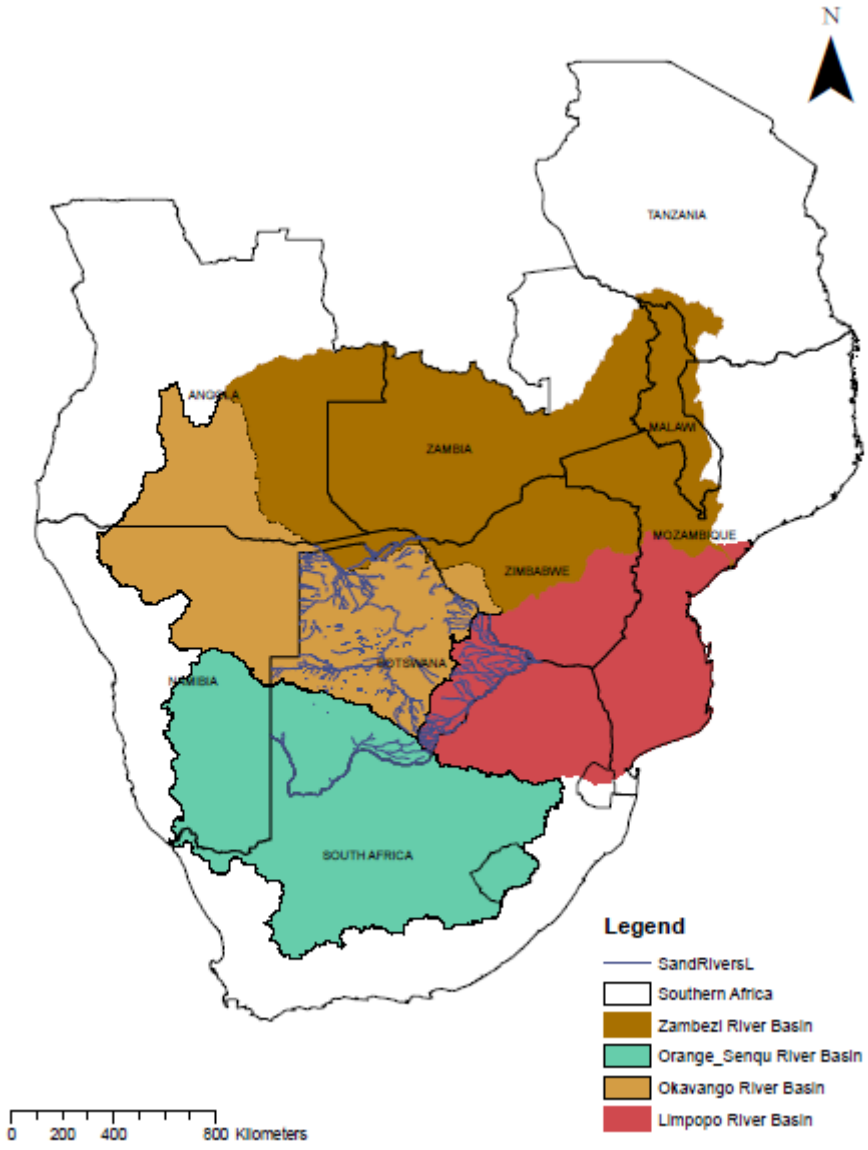

Figure 1: Four main Rivers Botswana shares with neighbouring countries

Transboundary Aquifers

Transboundary Basin/Aquifer	Countries	Total Area Coverage (km2)	Total Surface Area within the territory of the Country (km2)
Ramotswa Dolomite	Botswana, South Africa	260	75
Ncojane Basin	Botswana, Namibia	6200	5400
Eastern Kalahari Karoo Basin	Botswana, Zimbabwe	37,000	16,000
Khakhea/Bray Dolomite	Botswana, South Africa	27,000	20,000
Tuli Karoo Sub-Basin	Botswana, South Africa, Zimbabwe	15,000	5,000
Nata Karoo Sub-basin / Caprivi deep-seated Aquifer	Angola, Botswana, Namibia, Zambia, Zimbabwe	84,000	22,000
Stampriet Aquifer System	Botswana, Namibia, South Africa	86,000	18,000
Northern Kalahari / Karoo Basin / Eiseb Graben Aquifer	Botswana, Namibia	11,000	4,000

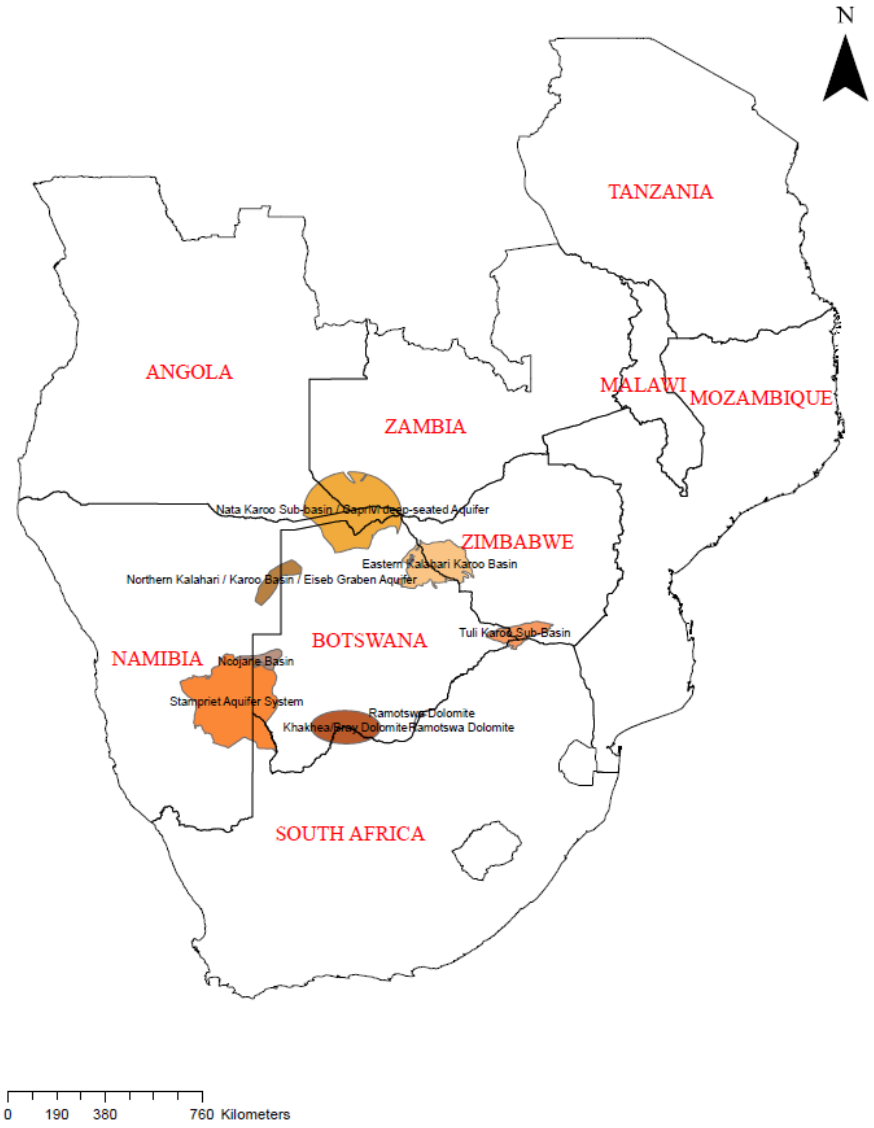

Figure 2: Transboundary Aquifers shared between Botswana and Neighbouring Countries

1. Enabling Environment

This section covers the enabling environment, which is about creating the conditions that help to support the implementation of IWRM. It includes the most typical policy, legal and planning tools for IWRM[2].

1. Enabling Environment								
			Degree of implementation (0 – 100)					
			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
1.1 What is the status of policies, laws and plans to support Integrated Water Resources Management (IWRM) at the national level?								
a	National water resources **policy,** or similar		Development **not started** or not progressing.	Exists, but **not based on IWRM**.	**Based on IWRM, approved** by government and **starting to be used** by authorities to guide work.	**Being used by the majority** of relevant authorities to guide work.	Policy **objectives consistently achieved.**	Objectives consistently achieved, and **periodically reviewed and revised**.
	Score or n/a:	**[50]**	Justification/ evidence	**Botswana developed an IWRM/WE plan in 2013. The National Water Policy was developed in 2012 and approved by Parliament in 2016. The development of the water policy was based on the IWRM principles.**				
b	National **water resources law(s)**		Development **not started** or not progressing**.**	Exists, but **not based on IWRM**.	**Based on IWRM, approved by government** and **starting to be applied** by authorities.	**Being applied by the majority** of relevant authorities**.**	**All laws are being applied** across the country.	**All** laws are **enforced** across the country, and **all people and organizations** are **held accountable.**
	Score or n/a:	**[30]**	Justification/ evidence	**Water Resources Management is currently based on the old legislation. These are the Water Act of 1968, Borehole Act of 1956 and the Aquatic Weeds Control Act of 1986.**				

[2] For examples of good practices of policies, laws and plans, please see: GWP (Editor) (2004): Catalyzing Change: A handbook for developing IWRM and water efficiency strategies. Stockholm: Global Water Partnership (GWP).

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
c	National **integrated water resources management** (IWRM) **plans**, or similar		Development **not started** or not progressing**.**	**Being prepared**, but not approved by government.	**Approved** by government and **starting to be implemented** by authorities.	**Being implemented by the majority** of relevant authorities.	Plan **objectives consistently achieved**.	Objectives consistently achieved, and **periodically reviewed and revised.**
	Score or n/a:	**[50]**	Justification/ evidence	**The IWRM/WE plan were developed in 2013. The plan is currently being implemented largely in the water sector and in the mining industry. More work needs to be done ensure the implementation of the plan at all levels.**				
1.2 What is the status of policies, laws and plans to support IWRM at other levels?								
a	**Sub-national**[3] water resources **policies** or similar		**Development not started or delayed in most sub-national jurisdictions**.	Exist in **most jurisdictions**, but **not necessarily based on IWRM**.	**Based on IWRM, approved by the majority of** authorities and starting to be used to guide work.	**Being used** by **the majority of relevant** authorities to guide work.	Policy objectives **consistently achieved by a majority of authorities**.	Objectives **consistently achieved by all** authorities, and **periodically reviewed and revised**.
	Score or n/a:	**[40]**	Justification/ evidence	**The National Water policy is relatively new. It was approved by parliament in September 2016 and the policy has to be disseminated to all levels for effective implementation and slightly starting to guide water related works**				
b	**Basin/aquifer management plans**[4] or similar, based on IWRM		**Development not started or delayed in most** basins/aquifers of national importance.	**Being prepared for most** basins/aquifers of national importance.	**Approved in the majority** of basins/aquifers and starting to be used by authorities.	Being **implemented in the majority of** basins/aquifers.	Plan **objectives consistently achieved in majority** of basins/aquifers.	**Objectives consistently achieved in all basins**/aquifers, and **periodically reviewed and revised**.
	Score or n/a:	**[40]**	Justification/ evidence	**Botswana is a member of the four (4) river basins which are the Limpopo, Okavango, Orange- Senqu and Zambezi river basins. IWRM approach is being used in the river basins, but still at a slow rate.**				

[3] Sub-national includes jurisdictions not at national level, such as: states, provinces, counties, regions, or departments.

[4] At the basin/aquifer level, please include only the most important river basins, lake basins and aquifers for water supply or other reasons. This question only refers to these basins/aquifers. These basins/aquifers are likely to cross administrative borders, including state/provincial borders for federal countries. The basins may also cross national borders, but this question refers to management of the portions of basins within each country. Question 1.2c refers specifically to transboundary arrangements for basins/aquifers shared by countries.

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
c	**Arrangements for transboundary water management in most important basins / aquifers**[5]		Development not started or not progressing.	**Being prepared or negotiated.**	**Arrangements are adopted**.	Arrangements' provisions are **partly implemented.**	**Most** of the arrangements' **provisions are implemented.**	The arrangements' provisions are **fully implemented.**
	Score or n/a:	**[80]**	Justification/ evidence	**Botswana has signed agreements in the four (4) River basins that she shares with other Southern Africa Development Community (SADC) to enable her cooperation in the management of the shared watercourses and also to ensure the equitable distribution of the resource as per the SADC protocol on Shared Water Courses.**				
d	FEDERAL COUNTRIES ONLY: **Provincial/state water resources laws**.		**Development not started or delayed in most** states.	Exist in most jurisdictions, but not necessarily based on IWRM**.**	**Based on IWRM, approved in most states and starting to be applied by authorities** in the **minority** of states.	**Some laws** being applied in the **majority** of states.	**All laws** being applied in the **majority** of states.	**All laws** being applied in **all** states, and **all people and organizations** are **held accountable**.
	Score or n/a:	**[NA]**	Justification/ evidence	**NA**				
Average 'Enabling Environment' score				**[48]**				

[5] An arrangement can be a bilateral or multilateral treaty, convention, agreement or other arrangement (e.g. memorandum of understanding) between riparian countries on the management of a transboundary basin/aquifer. Refers to international basins/aquifers only. Arrangements may be interstate, intergovernmental, inter-ministerial, interagency or between regional authorities.

2. Institutions and Participation

This section is about the range and roles of political, social, economic and administrative institutions that help to support the implementation of IWRM. It includes some of the most typical institutions at different levels of society for IWRM. It includes institutional capacity and effectiveness, cross-sector coordination, stakeholder participation and gender equality. The 2030 Agenda stresses the importance of partnerships that will require public participation and creating synergies with the business sector.

Terminology used in the questions:

- **Government authorities:** could be a ministry or ministries, or other organizations/institutions/agencies/bodies with a mandate and funding from government.
- **Capacity for leading implementation**: in this context is that the responsible authorities should be adapted to the complexity of water challenges to be met and have the required knowledge, technical facilities and skills, including planning, rule-making, project management, finance, budgeting, data collection and monitoring, risk management and evaluation. It should include the ability to manage potential conflicts of interest between different sectors and/or stakeholder groups, particularly at the basin/aquifer level.
- **Sectors** relates to coordination between the government authorities responsible for water management and those responsible for other sectors (such as agriculture, energy, climate, environment etc.) that are dependent on water, or impact on water. Coordination between groundwater and surface water development/management should also be optimised. The relevant sectors should be considered according to their importance for the country.
- **Stakeholder** includes all interested parties who are, or may be, affected by any water resources issue or intervention. It includes organizations, institutions, academia, civil society and individuals. While definitions of stakeholders typically include the private (or business) sector, this particular stakeholder group is deal with separately in this questionnaire (see below).
- **Business** includes private for-profit groups. It does not include government or civil society.
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2. Institutions and Participation							
		Degree of implementation (0 – 100)					
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
2.1 What is the status of institutions for IWRM implementation at the national level?							
a	National **government authorities'**[6] **capacity**[7] for leading implementation of national IWRM plans or similar	**No dedicated government authorities** for water resources management.	Authorities exist, with **clear mandate to lead water resources management**.	Authorities have clear mandate to lead IWRM implementation, and the **capacity to effectively lead IWRM plan formulation**.	Authorities have the **capacity to effectively lead IWRM plan implementation**.	Authorities have the capacity to effectively lead **periodic monitoring and evaluation of the IWRM plan**.	Authorities have the capacity to effectively lead **periodic IWRM plan revision**.
	Score or n/a: **[40]**	Justification/ evidence	**The water sector in Botswana is under the Ministry of Land Management Water and Sanitation Services. The Department of Water Affairs (DWA) is the water resources manager while the Water Utilities Corporation (WUC) is responsible for water supply service delivery. The Project Management Office (PMO) is responsible for infrastructure development. DWA takes the lead role in implementation of the IWRM/WE plan 2013. The main challenge towards IWRM implementation is limited or lack of financing and limited capacity.**					

[6] 'Government authorities' could be a ministry or ministries, or other organizations/institutions/agencies/bodies with a mandate and funding from government.

[7] 'Capacity for leading implementation' in this context is that the responsible authorities should be adapted to the complexity of water challenges to be met and have the required knowledge and technical skills, including planning, rule-making, project management, finance, budgeting, data collection and monitoring, risk management and evaluation. Beyond having the capacity to lead implementation of the activities listed in the thresholds, authorities must also actually be leading the implementation of these activities.

b	**Coordination between** national **government authorities representing different sectors**[8] on water resources, policy, planning and management	**No communication** between different government sectors on policy, planning and management.	**Communication: Information** on water resources, policy, planning and management **is made available between different sectors.**	**Consultation: Information, experiences and opinions are shared between different sectors.**	**Participation: Opportunities** for different sectors **to take part in** policy, planning and management **processes.**	**Representation: Formal consultation** between different government sectors **with the objective of agreeing on collective decisions on important issues and activities.**	**Co-decisions and co-production: Shared power between different sectors** on joint policy, planning and management activities.
	Score or n/a: **[60]**	Justification/ evidence	**National forum such as the water symposium(Annual Water Pitso) is used to encourage participatory planning on water by the various sectors. The country also celebrates the World Water Day(WWD) annually as a way of celebrating water by discussing the challenges on fresh water resources guided by the annual theme provided by the UN. DWA as the coordinating in implementation agency for the IWRM/WE plan, promotes different sector representation on water resources , policy, planning and management through joint studies with academic and research institutions and joint programmes with relevant stakeholders;** - **A joint study with University of Botswana (UB) on socio-economic impact assessment on water availability on Gaborone Dam** - **A joint programme with Department of Meteorological Services (DMS) on early warning and flood forecasting** - **A joint research with Botswana International University of Science and Technology (BIUST) on impacts of flooding on Notwane catchment.**				

[8] Relates to coordination between the government authorities responsible for water management and those responsible for other sectors (such as agriculture, energy, climate, environment etc.) that are dependent on water, or impact on water. Coordination between groundwater and surface water development/management should also be optimised. The relevant sectors should be considered according to their importance for the country.

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
c	**Public participation** in water resources, policy, planning and management[9] at national level.		**No communication** between government and stakeholders on policy, planning and management.	**Communication: Information** on water resources, policy, planning and management **is made available to stakeholders.**	**Consultation:** Government authorities **occasionally request** information, experiences and opinions of stakeholders**.**	**Consultation:** Government authorities **regularly request** information, experiences and opinions of stakeholders.	**Participation:** Regular opportunities for stakeholders **to take part in relevant** policy, planning and management **processes.**	**Representation: Formal representation of** stakeholders in government processes **contributing to decision making on important issues and activities, as appropriate.**
	Score or n/a:	**[70]**	Justification/ evidence	**The public is involved through forums such as the Water Symposium and the annual WWD. When new policies and strategies are developed, a wide public consultation is conducted through the available local structures in the country. To encourage public participation on water resources policy, planning and management, DWA is conducting a study to establish and demarcate Catchment Management in order to put in place catchment management committees to enhance water resources policy implementation, planning and management at community level.**					

[9] Stakeholder includes all interested parties who are, or may be, affected by any water resources issue or intervention. It includes organizations, institutions, academia, civil society and individuals.

d	**Business**[10] **participation** in water resources development, management and use at national level.	**No communication** between government and business about water resources development, management and use.	**Limited communication** between government and business about water resources development, management and use.	**Regular consultation** between government and business about water resources development, management and use.	**Limited opportunities for** private sector involvement established for water resources development, management and use activities.	**Regular opportunities for private sector involvement** established for water resources development, management and use activities.	**Effective private sector involvement established** for water resources development, management and use activities.
	Score or n/a: **[40]**	Justification/ evidence	**Even though there a regular consultation between government and business environment on water resources development, management and use, there is still a limitation in attracting the business environment in investing in water resources. The government is at an initial stage of trying to attract business participation in water resources through Public Private Partnership (PPP).**				
e	**Gender-specific objectives** for water resources management at national level.[11]	**Gender not explicitly addressed** throughout national laws, policy or plans.	**Gender partially addressed** throughout national laws, policies or plans.	**Gender addressed** in national plans but with **limited budget** and **implementation**.	Gender addressed in national plans, **partially funded** and **objectives partly achieved**.	Activities **adequately funded** and **objectives mostly achieved**.	Objectives **fully achieved** and **adequately address gender issues**.
	Score or n/a: **[40]**	Justification/ evidence	**Gender mainstreaming is highlighted in Trans boundary River basin plans but Gender mainstreaming in Water Resources Management is still low as it is not addressed in national laws, policy and plans related to water resources management.**				

[10] Business includes private for-profit groups. It does not include government or civil society.

[11] Gender-specific objectives at national level can include: 1) Presence of designated ministerial responsibility for gender in relation to water policies. Presence of designated ministerial responsibility for water in the gender-equality ministry or related designated agency for gender; 2) Gender Parity of male and female participants in meetings of national decision-making authorities (counting the number of women and men participating in meetings); and 3) The presence of gender-specific objectives and commitments (or gender strategies) in national strategies, national plans and national laws regarding national water policy.
Source: adapted from WWAP 2015 "Questionnaire for collecting sex-disaggregated water data" http://unesdoc.unesco.org/images/0023/002345/234514E.pdf

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
f	**Developing IWRM capacity**[12] at the national level		**No capacity development specific to water resources management**.	**Occasional** capacity development, generally limited to **short-term / ad-hoc activities**.	**Some long-term** capacity development initiatives are being implemented, but geographic and stakeholder **coverage is limited**.	**Long-term** capacity development initiatives are being implemented, and geographic and stakeholder **coverage is adequate**.	**Long-term** capacity development initiatives are being implemented, with **effective outcomes**, and geographic and stakeholder **coverage is very good**.	**Long-term** capacity development initiatives are being implemented with **highly effective outcomes**, and geographic and stakeholder **coverage is excellent.**
	Score or n/a:	**[40]**	Justification/ evidence	**Capacity development in IWRM is mostly at ad- hoc basis. IWRM capacity is strongly developed in Transboundary water resources arrangements but limited at National level.**				
2.2 What is the status of institutions for IWRM implementation at other levels?								
a	**Basin/aquifer level**[13] **organizations**[14] **for leading implementation** of IWRM plans or similar.		**No dedicated basin authorities for water resources management.**	Authorities exist, with **clear mandate to lead water resources management**.	Authorities have clear mandate to lead IWRM implementation, and the **capacity to effectively lead** IWRM plan **formulation**.	Authorities have the **capacity to effectively lead** IWRM plan **implementation**.	Authorities have the **capacity to effectively lead periodic monitoring and evaluation** of the IWRM plan.	Authorities have the **capacity to effectively lead periodic IWRM plan revision**.
	Score or n/a:	**[40]**	Justification/ evidence	**Transboundary River Basin Organisations (RBOs) exist with clear structures on Water Resources Management. RBO structures utilises capacities from different countries and from different institutions i.e, academic, research, private and international organisations to implement IWRM plans. The main challenge is**				

[12] IWRM capacity development: refers to the enhancement of skills, instruments, resources and incentives for people and institutions at all levels, to improve IWRM implementation. Capacity needs assessments are essential for effective and cost-effective capacity development. Capacity development programs should consider gender balance and disadvantaged/minority groups in terms of participation and awareness. Capacity development is relevant for many groups, including: local and central government, water professionals in all areas - both public and private water organisations, civil society, and in regulatory organisations. In this instance, capacity development may also include primary, secondary and tertiary education, and academic research concerning IWRM.

[13] At the basin/aquifer level, please include only the most important river basins, lake basins and aquifers for water supply or for other reasons. This question only refers to these basins/aquifers. These basins/aquifers likely cross-administrative borders, including state/provincial borders for federal countries. The basins may also cross national borders, but this question refers to management of the portions of basins within each country. Question 2.2e refers specifically to transboundary management of basins/aquifers shared by countries.

[14] Could be organization, committee, inter-ministerial mechanism or other means of collaboration for managing water resources at the basin level.

				funding for implementation.				
			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
b	**Public participation**[15] in water resources, policy, planning and management at the **local level**[16]		**No communication** between local government and stakeholders on policy, planning and management.	**Communication:** **Local level information** on water resources, policy, planning and management **is made available to stakeholders.**	**Consultation:** Government authorities **occasionally request** local level information, experiences and opinions of stakeholders**.**	**Consultation:** Government authorities **regularly request** local level information, experiences and opinions of stakeholders.	**Participation:** Regular opportunities for stakeholders **to take part in relevant local level** policy, planning and management **processes.**	**Representation:** Formal representation of stakeholders on local authority processes contributing to decision-making on important local issues and activities, as appropriate.
	Score or n/a:	**[80]**	Justification/ evidence	**Public participation is achieved through the governance structures that are existing within the country. These are Kgotla meetings, Councils, Water Symposiums and stakeholder consultations and workshops**				
c	**Gender**-specific objectives at **sub-national levels**[17]		**Gender not explicitly addressed** throughout sub-national laws, policy or plans.	**Gender partially addressed** in sub-national laws, policies or plans.	**Gender addressed** in sub-national plans but with **limited budget** and **implementation**.	Gender addressed in sub-national plans, **partially funded** and **objectives partly achieved**.	Activities **adequately funded** and **objectives mostly achieved**.	Objectives **fully achieved** and **adequately address sub-national gender issues**.
	Score or n/a:	**[20]**	Justification/ evidence	**Gender Mainstreaming is still a challenge in water planning and management.**				

[15] Stakeholder includes all interested parties who are, or may be, affected by any water resources issue or intervention. It includes organizations, institutions, academia, civil society and individuals.

[16] Examples of 'local level' include municipal level (e.g. cities, towns and villages), community level, basin/tributary/aquifer/delta level, and water user associations.

[17] Gender-specific objectives at sub-national level can include: 1) Proportion of seats held by male and female in local water authorities' executive boards; 2) Gender Parity of M/F participation in meetings of sub-national decision-making authorities (counting the number of women and men participating in meetings); 3) The presence of gender strategy in local plans and local implementation policies. Source: adapted from WWAP 2015 "Questionnaire for collecting sex-disaggregated water data" http://unesdoc.unesco.org/images/0023/002345/234514E.pdf

d	**Gender**-specific objectives and plans **at transboundary** level[18]	**Gender not explicitly addressed** in transboundary policies or plans.	**Gender partially addressed** in transboundary policies or plans.	**Gender addressed** in transboundary plans but with **limited budget** and **implementation**.	Gender addressed in transboundary plans, **partially funded** and **objectives partly achieved**.	Activities **adequately funded** and **objectives mostly achieved**.	Objectives **fully achieved** and **adequately address transboundary gender issues**.
	Score or n/a: **[30]**	Justification/ evidence	**The SADC region has signed the gender protocol in 2017, which is the basis for addressing gender issues also in water resources management planning and management. Gender mainstreaming is highlighted in Trans boundary River basin plans**				
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
e	**Organizational framework for transboundary water management** for most important basins / aquifers [19]	No organizational framework(s).	Organizational framework(s) **being developed**.	Organizational framework(s) **established**.	Organizational framework(s)' **mandate is partly fulfilled**.	Organizational framework(s)' **mandate is fulfilled for the most part.**	Organizational framework(s)' **mandate is fully fulfilled.**
	Score or n/a: **[60]**	Justification/ evidence	**Organisational frameworks for the management of trans boundary waters are established. There is need to capacitate such organisations for effective delivery and also ensure clear linkages between the River Basin Organisations (RBOs) and the national governments in the SADC.**				
f	FEDERAL COUNTRIES ONLY: **Provincial / State authorities** responsible for water resources management	**No dedicated provincial/state authorities for water resources management.**	Authorities exist, with **clear mandate to lead water resources management**.	Authorities have clear mandate to lead IWRM implementation, and the **capacity** to effectively lead IWRM **plan formulation**.	Authorities have the **capacity** to effectively lead IWRM **plan implementation**.	Authorities have the capacity to effectively lead **periodic monitoring and evaluation** of the IWRM plan.	Authorities have the capacity to effectively lead **periodic** IWRM plan **revision**.

[18] Gender-specific objectives at the transboundary level: 1) Presence of a specific gender strategy in transboundary agreements, in other transboundary arrangements, in their implementation plans and in all transboundary water impact assessments; 2) Gender Parity of male and female participants in meetings of transboundary decision-making authorities (counting the number of women and men participating in meetings. Source: adapted from WWAP 2015 "Questionnaire for collecting sex-disaggregated water data" http://unesdoc.unesco.org/images/0023/002345/234514E.pdf

[19] An organizational framework can include the existence of a joint body, joint mechanism or commission for transboundary cooperation. Refers to international basins/aquifers only.

	Score or n/a:	**[NA]**	Justification/ evidence	**NA**
Average 'Institutions and Participation' score			**[47]**	

3. Management Instruments

This section includes the tools that enable decision-makers and users to make rational and informed choices between alternative actions. It includes management programs, monitoring water resources and the pressures on them, knowledge sharing and capacity development.

Terminology used in the questions:

- **Limited, Adequate, Very good, Excellent:** Are terms used describe the status, coverage and effectiveness of the management instruments assessed in this section. Respondents should apply their own judgement based on the 'best-practice' descriptions of management instruments in the glossary, the section introduction, and through footnotes. For example, 'adequate' may imply that the basic minimum criteria for that particular management instrument are met. Respondents are encouraged to provide qualifying information to the question score in the 'Justification' cell immediately below each question.
- **Management instruments:** Can also be referred to as management tools and techniques, which include regulations, financial incentives, monitoring, plans/programs (e.g. for development, use and protection of water resources), as well as those specified in footnotes on questions and thresholds below.
- **Monitoring:** collecting, updating, and sharing timely, consistent and comparable water-related data and information, relevant for science and policy. Effective monitoring requires ongoing commitment and financing from government. Resources required include appropriate technical capacity such as laboratories, portable devices, online water use control and data acquisition systems. May include a combination of physical data collection, remote sensing, and modelling for filling data gaps.
- **Short-term / Long-term:** In the context of management instruments, short-term includes ad-hoc activities and projects, generally not implemented as part of an overarching program with long-term goals. Long-term refers to activities that are undertaken as part of an ongoing program that has more long-term goals/aims and implementation strategy.

3. Management Instruments							
		Degree of implementation (0 – 100)					
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
3.1 What is the status of management instruments to support IWRM implementation at the national level?							
a	**National monitoring of water availability**[20] (includes surface and/or groundwater, as relevant to the country).	**No national monitoring systems in place.**	Monitoring systems established for a limited number of **short-term / ad-hoc projects** or similar.	**Long-term** national monitoring is carried out but with **limited coverage and limited use** by stakeholders.	**Long-term** national monitoring is carried out with **adequate coverage but limited use** by stakeholders.	**Long-term** national monitoring is carried out with **very good coverage and adequate use** by stakeholders.	**Long-term** national monitoring is carried out with **excellent coverage and excellent use** by stakeholders.
	Score or n/a: **[40]**	Justification /evidence	**The government has long established both surface and groundwater resources monitoring systems. The country remains with a challenge of limited coverage and regular maintained of monitoring instruments to keep up with the latest technologies. The information from the monitoring network is used on ad-hoc basis during the implementation of a particular project. The country still lack programmes or decision support systems developed based on data to support water resources decision making**					

[20] See definition of monitoring in Terminology.

b	**Sustainable and efficient water use management**[21] from the national level, (includes surface and/or groundwater, as relevant to the country).	**No management instruments being implemented.**	Use of management instruments is **limited** and only through **short-term / ad-hoc projects** or similar.	**Some** management instruments implemented on a more **long-term** basis, but with **limited coverage** across different water users and the country.	Management instruments are implemented on a long-term basis, with **adequate coverage** across different water users and the country.	Management instruments are implemented on a long-term basis, with **very good coverage** across different water users and the country, and are **effective**.	Management instruments are implemented on a long-term basis, with **excellent coverage** across different water users and the country, and are **highly effective**.
	Score or n/a: **[40]**	Justification /evidence	**Botswana developed an Integrated Water Resources Management/ Water Efficiency (IWRM/WE) plan in 2013. The plan is available in www.water.gov.bw. The national water policy was developed and approved by parliament in 2016 and through this policy a national water conservation strategy is being developed to ensure efficiency of water use and the effective management of the water resources. The government has establish a National Water Accounting exercise to assess the efficiency of water use by different sectors of economy. The water accounts gives picture of GDP returns per economic sector in relation to the water use.**					
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
c	**Pollution control**[22] from the national level	**No management instruments being implemented.**	Use of management instruments is **limited** and only through **short-term / ad-hoc projects** or similar.	**Some** management instruments implemented on a more **long-term** basis, but with **limited coverage** across sectors and the country.	Management instruments are implemented on a long-term basis, with **adequate coverage** across sectors and the country.	Management instruments are implemented on a long-term basis, with **very good coverage** across sectors and the country, and are **effective**.	Management instruments are implemented on a long-term basis, with **excellent coverage** across sectors and the country, and are **highly effective**.
	Score or n/a: **[60]**	Justification /evidence	**The Ministry of Environment, Natural Resources Conservation and Tourism has the sole mandate of preventing pollution of the environment in the country through the Waste**				

[21] Management instruments include demand management measures (e.g. technical measures, financial incentives, education and awareness raising to reduce water use and/or improve water-use efficiency, conservation, recycling and re-use), monitoring water use (including the ability to disaggregate by sector), mechanisms for allocating water between sectors (including environmental considerations).

[22] Includes regulations, water quality guidelines, economic tools (e.g. taxes and fees), water quality trading programs, water quality monitoring, education, consideration of point and non-point (e.g. agricultural) pollution sources, construction and operation of wastewater treatment plants, watershed management.

				Management Act. The Department of Water Affairs in the Ministry of Land Management, Water and Sanitation Services is also monitoring pollution to protect the water resources through the Water Act. Ministry of Health and Wellness is also monitoring pollution to prevent water borne diseases through the Public Health Act. However there is need for proper coordination to ensure effectiveness in the implementation of these various pieces of legislation.				
d	**Management of water-related ecosystems**[23] from the national level	**No management instruments being implemented.**	Use of management instruments is **limited** and only through **short-term / ad-hoc projects** or similar.	**Some** management instruments implemented on a more **long-term** basis, but with **limited coverage** across different ecosystem types and the country.	Management instruments are implemented on a long-term basis, with **adequate coverage** across different ecosystem types and the country. Environmental Water Requirements (EWR) analysed in some cases.	Management instruments are implemented on a long-term basis, with **very good coverage** across different ecosystem types and the country, and are **effective**. EWR analysed for most of country.	Management instruments are implemented on a long-term basis, with **excellent coverage** across different ecosystem types and the country, and are **highly effective**. EWR analysed for whole country.
	Score or n/a:	**[60]**	Justification /evidence	**Systematic water quality monitoring is conducted in the surface water bodies and the aquatic weeds are controlled through Aquatic Weeds Control Act. Botswana is a signatory to the RAMASAR convention of wetlands protection and the Okavango Delta is a ramsar site. To protect the Okavango Delta ecosystem, it has been listed as a UNESCO heritage site. Botswana has also formulated the Okavango Delta Management Plan and the Makagadikgadi Management Plan to properly protect the ecosystem. Through the Transboundary river basin commission initiatives, Transboundary Diagnostic Assessments (TDA) has been conducted through the environmental flow assessment principle.**				

[23] Water-related ecosystems include rivers, lakes and aquifers, as well as wetlands, forests and mountains. Management of these systems includes tools such as management plans, the assessment of Environmental Water Requirements (EWR), and protection of areas and species. Monitoring includes measuring the extent and quality of the ecosystems over time.

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
e	**Management instruments to reduce impacts of water-related disasters**[24] from the national level		**No management instruments being implemented.**	Use of management instruments is **limited** and only through **short-term / ad-hoc projects** or similar.	**Some** management instruments implemented on a more **long-term** basis, but with **limited coverage** of at-risk areas.	Management instruments are implemented on a long-term basis, with **adequate coverage** of at-risk areas.	Management instruments are implemented on a long-term basis, with **very good coverage** of at-risk areas, and are **effective**.	Management instruments are implemented on a long-term basis, with **excellent coverage** of at-risk areas, and are **highly effective**.
	Score or n/a:	**[40]**	Justification /evidence	**Weather forecasts and flood forecasts are done by the Department of Meteorological Services and the Department of Water Affairs respectively. The country also has put in place an office that is responsible for disaster management nationwide.**				
3.2 What is the status of management instruments to support IWRM implementation at other levels?								
a	**Basin management instruments**.[25]		**No basin level management instruments being implemented.**	Use of basin level management instruments is **limited** and only through **short-term / ad-hoc projects**.	**Some** basin level management instruments implemented on a more **long-term** basis, but with **limited geographic and stakeholder coverage**.	Basin level management instruments implemented on a more **long-term** basis, with **adequate geographic and stakeholder coverage**.	Basin level management instruments implemented on a more **long-term** basis, with **effective outcomes** and **very good geographic and stakeholder coverage**.	Basin level management instruments implemented on a more **long-term** basis, with **highly effective outcomes** and **excellent geographic and stakeholder coverage**.
	Score or n/a:	**[60]**	Justification /evidence	**Countries in SADC region are guided by the regional water protocol for shared river basins management. Transboundary river basins in the SADC region are mostly management under established River Basin Commissions, which forms secretariats which coordinates river basins initiatives and activities.**				

[24] **Management instruments** can cover: understanding disaster risk; strengthening disaster risk governance; investing in disaster risk reduction; and enhancing disaster preparedness. **Impacts** include social impacts (such as deaths, missing persons, and number of people affected) and economic impacts (such as economic losses in relation to GDP). **Water-related disasters** include disasters that can be classified under the following: Hydrological (flood, landslide, wave action); Meteorological (convective storm, extratropical storm, extreme temperature, fog, tropical cyclone); and Climatological (drought, glacial lake outburst, wildfire).

[25] Basin and aquifer management: involves managing water at the appropriate hydrological scale, using the surface water basin or aquifer as the unit of management. This may involve basin and aquifer development, use and protection plans. It should also promote multi-level cooperation, and address potential conflict, among users, stakeholders and levels of government for the management of water resources. To achieve 'Very high (100)' basin and aquifer management scores, surface and groundwater management must be integrated.

			Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
b	**Aquifer management instruments.**[26]		**No aquifer level management instruments being implemented.**	Use of aquifer level management instruments is **limited** and only through **short-term / ad-hoc projects**.	**Some** aquifer level management instruments implemented on a more **long-term** basis, but with **limited geographic and stakeholder coverage**.	Aquifer level management instruments implemented on a more **long-term** basis, with **adequate geographic and stakeholder coverage**.	Aquifer level management instruments implemented on a more **long-term** basis, with **effective outcomes** and **very good geographic and stakeholder coverage**.	Aquifer level management instruments implemented on a more **long-term** basis, with **highly effective outcomes** and **excellent geographic and stakeholder coverage**.
	Score or n/a:	**[20]**	Justification /evidence	**Groundwater management is still a challenge and more work has to be done in this area. Continuous groundwater level and abstraction rates monitoring is conducted in 40 wellfields country wide. Management of Transboundary aquifer is still a challenge, monitoring is done on ad-hoc basis, e.g a Ramotswa Information Management System has been established for data and information sharing for the Ramotswa transboundary aquifer.**				
c	**Data and information sharing <u>within</u> countries** at all levels[27]		**No data and information sharing.**	**Limited** data and information sharing **on an ad-hoc basis.**	Data and information sharing **arrangements exist** on a more **long-term basis between major data providers and users.**	Data and information sharing **arrangements implemented** on a more **long-term basis,** with **adequate coverage** across sectors and the country.	Data and information sharing **arrangements implemented** on a more **long-term basis,** with **very good coverage** across sectors and the country.	**All relevant data and information are online and freely accessible to all**.
	Score or n/a:	**[60]**	Justification /evidence	**Data and Information sharing across sectors is far enough, although easy access through proper information management systems still needs to be established**				

[26] See previous footnote on basin management instruments, which also applies to aquifers.
[27] Includes more formal data and information sharing arrangements between users, as well as accessibility for the general public, where appropriate.

d	**Transboundary data and information sharing <u>between</u> countries**	**No data and information sharing.**	**Limited** data and information sharing **on an ad-hoc or informal basis.**	Data and information sharing **arrangements exist, but sharing is limited.**	Data and information sharing **arrangements implemented adequately.**	Data and information sharing **arrangements implemented effectively.**[28]	All relevant data and information are **online** and **accessible between countries**.
	Score or n/a: **[60]**	Justification /evidence	**Transboundary river basins information systems e.g Okavango Information System (ODIS) and the Zambezi Watershed Information System (ZAMWIS) has been established through river basin commissions for easy sharing and access to data and information. Some river basin commission such the Okavango River Basin Commission (OKACOM) has gone further to sign data sharing protocol.**				
Average 'Management Instruments' score			**[53]**				

[28] E.g. institutional and technical mechanisms in place that allow for exchanging data as agreed upon in agreements between riparians (e.g. regional database or information exchange platform with a river basin organization including technical requirements for data submission, institutionalized mechanisms for QA and for analysing the data, etc.).

4. Financing

This section concerns the adequacy of the finance available for water resources development and management from various sources.

Finance for investment and recurrent costs can come from many sources, the most common being central government budget allocations to relevant ministries and other authorities. Finance from Overseas Development Assistance (ODA) specifically for water resources should be considered part of the government budget. Note that the level of coordination between ODA and national budgets is tracked by the 'means of implementation' indicator 6.a.1: "Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan", as part of reporting on Target 6.a: "By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies".

"Other sources" include fees and tariffs levied on water users, polluter fees or grants from philanthropic or similar organisations. In kind support should not be included as it is not easily measurable but can be mentioned in the 'Justification/evidence' section.

Investments should cover all aspects of water resources development and management but exclude any related to drinking water supply and sanitation services as they are covered in other monitoring processes.

4. Financing							
		Degree of implementation (0 – 100)					
		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
4.1 What is the status of financing for water resources development and management at the national level?							
a	**National budget**[29] for i**nvestment** including water resources **infrastructure**[30].	**No budget** allocated in national investment plans.	**Budget allocated** but only partly covers planned investments.	**Sufficient budget allocated** for planned investments but insufficient funds disbursed or made **available.**	**Sufficient budget allocated and funds disbursed** for all planned programmes or projects.	**Funding available and all planned projects under implementation**.	Planned programs **completed,** post-evaluation carried out and new funding cycle for programs underway.
	Score or n/a: **[40]**	Justification/evidence	**The National Water Master plan review gives a direction towards infrastructure development needs for a period of 10 years. Some of the developments fail to be included in the National Development plan due to insufficient funds.**				
b	**National budget** for the **recurrent costs of** the **IWRM** elements[31]	**No budget** allocations made for recurrent costs of the IWRM elements.	**Allocations** made for **only a few** of the elements and implementation at an early stage.	Allocations made for **at least half** of the elements but insufficient for others.	Allocations for **most of the elements** and some implementation under way.	Allocations include **all elements** and implementation regularly carried out.	Planned budget allocations for all elements of the IWRM approach **fully utilised**.
	Score or n/a: **[40]**	Justification/evidence	**An annual recurrent budget is allocation is given to DWA to carry out its mandate of implementing IWRM initiatives. The budget is usually not sufficient to cover all elements**				

[29] Allocations of funding for water resources may be included in several budget categories or in different investment documents. Respondents are thus encouraged to examine different sources for this information. When assessing the allocations respondents should take account of funds from government budgets and any co-funding (loans or grants) from other sources such as banks or donors.

[30] Infrastructure includes 'hard' structures such as dams, canals, pumping stations, flood control, treatment works etc as well as soft infrastructure and environmental measures such as catchment management, sustainable drainage systems etc. For this survey do not include infrastructure for drinking water supply or sanitation services.

[31] 'IWRM elements' refers to all the activities described in sections 1, 2 and 3 of this survey that require funding, e.g. policy, law making and planning, institutional strengthening, coordination, stakeholder participation, capacity building, and management instruments such as research and studies, gender and environmental assessments, data collection, monitoring etc.

		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
4.2 What is the status of financing for water resources development and management at other levels?							
a	**Sub-national or basin budgets** for investment including water resources **infrastructure**.	**No** budget allocated In sub-national or basin investment plans.	**Budget allocated** but only partly covers planned investments.	**Sufficient budget allocated** for planned investments but insufficient funds disbursed or made **available**.	Sufficient budget allocated and funds disbursed for all planned programmes or projects.	Funding available and all **planned projects under implementation.**	**Budget fully utilised**, programmes completed as planned and post evaluation carried out.
	Score or n/a: **[0]**	Justification /evidence					
b	**Revenues** raised from dedicated levies on water users at basin, aquifer or sub-national levels.[32]	**No revenues** raised at the **sub-national** level.	**Processes in place** to raise local revenue but **not yet implemented**.	Limited revenues raised from **charges, but are not** used for IWRM activities.	Limited revenues raised from **charges** cover some IWRM activities.	Revenues raised from **charges** cover most IWRM activities.	Local authorities raise funds **from multiple sources and fully cover costs** of IWRM activities.
	Score or n/a: **[0]**	Justification /evidence					

[32] For example, abstraction & bulk water charges, environmental fees such as pollution charges, Payment for Ecosystem Services (PES) schemes, and the sale of secondary products and services, significant contributors.

c	**Financing for transboundary[33] cooperation[34]**	No specific funding allocated from the MS budgets nor from other regular sources.	MS agreement on country share of contributions in place and in-kind support for the cooperation organisation / arrangement.	Funding less than 50% of that expected as contributions and by regulation.	Funding less than 75% of that expected as contributions and by regulation.	Funding more than 75% of that expected as contributions and by regulation.	Full funding of that expected as contributions and by regulation.
	Score or n/a: **[20]**	Justification /evidence	**MS make annual contributions towards running and operations of the river basin commissions secretariat.**				
Average 'Financing' score			**[20]**				

[33] Transboundary includes surface and groundwater basins that cross one or more national borders.

[34] In this question "Member States (MS)" refers to riparian countries that are parties to the arrangement. "Contributions" refers to the annual share of funds agreed from MS national budgets to support the agreed TB cooperation arrangement. Regular funds obtained from for example, water user fees (e.g. hydropower charges) and polluter-pays fees on the basis of existing regulation are also taken into account as sustainable funding. As variable and unsustainable, donor support is not considered. .

5. Indicator 6.5.1 score

The indicator 6.5.1 score is the average of each of the section scores.

Section	Average Score
Section 1 Enabling Environment	48
Section 2 Institutions and	47
Section 3 Management Instruments	49
Section 4 Financing	20
Indicator 6.5.1 score = Degree of IWRM	**41**

Interpretation of the score

The score indicates the 'degree of implementation of Integrated Water Resources Management', on a scale of 0 to 100, with 0 signifying no implementation, and 100 signifying complete implementation. However, the true value of the questionnaire to countries lies within the scores and justification provided for the individual questions, as this helps to identify which actions need to be taken to move towards a greater degree of implementation of IWRM.