Transboundary River Basins

Sustaining Mechanisms: Framework for integrating transboundary water concerns in water assessment initiatives at multiple scales

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1. Introduction: Use of assessment methodology, results and conclusions

The assessment of transboundary river basins undertaken as part of the TWAP FSP River Basins component represents the first truly global and comprehensive assessment of the world's 286 transboundary river basins covering a broad spectrum of issues (natural sciences and social sciences) and scales with the aims:

i. To undertake a baseline comparative assessment of all of the world's transboundary river basins, and a selection of deltas, which will enable the identification of priority issues and hotspots 'at risk' from a variety of stressors.
ii. To establish a sustainable institutional framework to undertake the baseline assessment as well as periodic assessments to track changes over time.

The work that has been undertaken, have resulted in a number of outputs of potential use to a wide range of actors:

- A selection of 15 baseline indicators representing five thematic groups of 'issues' creating risks to humans and ecosystems (water quantity, water quality, ecosystems, governance and socio-economics) in river basins, as well as supplementary indicators to assess water system linkages with lakes and deltas
- A delineation of the world's 286 river basins, their basin country units (BCUs - the portions of each basin belonging to respective country) and delta country units, with associated human populations and area (in km^2)
- Assessment of these indicators (and their respective sub-indicators) for the world's 286 river basins and 796 BCUs
- Projected risk assessment for 5 indicators (projected stresses for 2030 and 2050)
- A publicly available online TWAP River Basins Data Portal containing all assessment results
- Technical Report of the TWAP FSP River Basins Component, including a description of the assessment approach and methods as well as assessment results for the individual indicators and integrated analysis of findings. The full technical report is accompanied by Technical summary and a Summary for Policy Makers

The potential use of these outputs to inform investment, science and governance has been summarized below. This report also includes a (preliminary) identification of the potential users of the TWAP RB assessment outputs, and outlines opportunities for future collaboration with other organizations to further develop the assessment.

1.1 To inform investment

The results of this assessment provide opportunities for analysis at a number of scales and perspectives. For both individual indicators and for combinations of indicators (multiple stresses) this assessment provides:

1) A global perspective of the magnitude of risk;
2) A framework for comparative analysis among basins; and
3) Identification of basins most and least at risk.

The results of the assessment show that there is no single issue, which is the most important, and there are no basins with either 'very low' or 'very high' risk for the full range of issues. Overall, however, it provides a context for response options at global/regional scales, as well as at the basin

and country scale, and facilitates inter-basin learning opportunities. It can also be used in combination with detailed studies on individual basins.

As such, this assessment can be used to support identification of basins and areas in need of increased investments, thus supporting priority setting and better targeting of future interventions. The results of the projected indicators and global hotspots can also help to identify basins and regions where the risks are expected to be particularly exacerbated in the coming decades as a result of socioeconomic development and climate change. Any future repeat assessments could also contribute to measuring the impacts of interventions from the baseline provided by the first assessment.

While initially the TWAP assessment was requested by the Global Environment Facility (GEF) in support of planning of future financing cycles, the results of the assessment would likely be of benefit to other multilateral and bilateral financing institutions, particularly those with an interest in transboundary waters.

1.2 To inform science

The guiding principle of the TWAP RB has been to engage the leading research institutions in their respective fields, which has resulted in a strong consortium of academic partners, providing some of the best available water-related data to date. As a result, this assessment provides data on the status of the current state of the world's 286 transboundary rivers and their risk profiles, as well as a snapshot of projected risk hotspots for the decades to some. It also provides an updated delineation (most accurate and comprehensive to date) of the global transboundary river basins and basin country units, which is accompanied by geographical and population statistics, all of which can serve as useful baseline information in support of further research efforts at national, regional or global scales.

During the selection and formulation of indicator calculation methodologies, a number of improvements were made and further opportunities for improvements/additional analyses are identified in the main report, particularly under the sub-heading 'Limitations and potential for future development' under each indicator description. These could potentially guide further research and data collection efforts globally and on basin level.

The access to baseline data is facilitated by the TWAP River Basins Data Portal, where researchers can make their own data searches online to learn more about a particular country, transboundary river basin or issue such as water scarcity. The portal offers full account and global maps of the assessment results, indicator calculation methodologies and the possibility for users to create custom indices depending on their needs.

For the TWAP assessment results to reach the broader research constituency, it would most likely be of benefit if methods and results were summarized and published in peer-reviewed journals.

The Transboundary River Basins assessment has been used as a resource for an undergraduate textbook entitled "Big Rivers of the World: Geomorphology, Ecology and Management" (Best, forthcoming) to be published by John Wiley and Sons, and is due for publication in 2016/early 2017. The textbook is aimed at an undergraduate, but interdisciplinary, audience and seeks to introduce students to the background to the world's great rivers, the controls on their location, water and sediment fluxes, and the main characteristics of their geomorphology, ecology, political landscape

and future management. The book will comprise six introductory chapters (Introduction, Tectonics and Sea-level change, Climatic Controls and Hydrology, Ecology, Engineering and Politics), followed by individual chapters that focus on twelve of the world's big rivers (Amazon, Parana, Congo, Nile, Mississippi, Jamuna, Ganges, Mekong, Yellow, Yangtze, Lena and Danube). As such, an interdisciplinary analysis and review of the threats facing the world's big river basins, their relationship to human population and anthropogenic change, as well as analysis of the past, present and future stresses that these rivers face is paramount to the book. It is in this sphere that the TWAP report, and several of its illustrations, will be of great importance. In the process of writing this textbook, the TWAP report was found by the author to be the most up-to-date, and easily accessible, source of much of this material relating to river basin stresses and impacts.

In addition, the book will also form the core of an undergraduate course, of the same name as the textbook, taught at the University of Illinois. As part of this course, which has been taken by geographers, geologists, biologists, archaeologists, economists, and ecologists, the students are required to conduct research on several aspects of big rivers, and the TWAP report, and its excellent website, will form an outstanding resource for the students to use. The resource will enable them to gain an overview of many of the issues facing the world's great river basins, and use this to guide their independent study.

1.3 To inform governance

This assessment provides a framework that enables comparative analysis among basins. Although its use for the interpretation in "absolute terms" with regard to specific BCUs or smaller basins may have limitations, governance processes at regional and perhaps even national levels, can draw significant benefit from knowledge on how the risk profile of certain basins compare to other basins worldwide. The assessment can also be used for the identification of other basins with similar risk profiles that could be suitable for the setting in place of mechanisms for knowledge exchange (see Chapter 4.2 of Transboundary River Basins (UNEP and UNEP-DHI 2015). In addition, the BCU level results of the assessment can inform of basins where basin level agreements and cooperation frameworks may be particularly relevant (e.g. basins with high disparity of risks in BCUs).

1.4 To support monitoring and assessment mechanisms

The indicators and methodology developed by the TWAP can also be used to strengthen transboundary water aspects in other global and regional environmental assessment mechanisms. The potential use of certain methods and indicators will depend on the objectives, scope and mandate of each assessment mechanisms and needs exploring on a case by case basis.

There could also be benefits to River Basins Organizations (RBOs) that are in the process of setting up monitoring frameworks to consider the indicators and methodology used by the TWAP as input to the design of such frameworks. Again, such benefits will need to be considered on a case-by-case basis by the RBO in question.

For other basin level assessments it has proven that, apart from the direct results of the assessment, it is also the conceptual and indicator framework that can be particularly helpful. A number of RBOs and organizations have already expressed their interest in application of the TWAP RB framework,

which offers a balanced approach to indicator selection by covering not only the environmental, but also the governance and socioeconomic aspects of water management.

2. Opportunities for the TWAP methodology and indicators to strengthen existing mechanisms

2.1 The "three UN Water Conventions"

There is considerable opportunity for the TWAP to support the three Water Conventions, namely the UNECE Water Convention, the UN Watercourses convention and the Ramsar Convention, taking into consideration:

- The current lack of monitoring mechanisms that make indicator-based comparison between basins and over time possible; and
- The timing of the TWAP final product coinciding with the entry into force of the UN Watercourses Convention, thus providing a solid baseline for this Convention.
- The timing of the assessment results also coincides with the development of Ramsar's State of the World's Wetlands Report 2015, particularly in reference to use of the data produced under the TWAP RB Wetland Disconnectivity indicator to supplement the data collected for the report, and help monitor change over time.

The TWAP RB Component has discussed the opportunities for TWAP methods and indicators supporting the three UN water conventions. Annex 1 summarizes the effort made by the TWAP RB component to identify such opportunities and makes reference to concrete suggestions and recommended follow-up activities. Annex 2 includes the Letters of Support received by some of the organizations.

2.2 Support monitoring of the Sustainable Development Goals (SDGs)

While reporting under the SDGs will primarily be done at the country level, and indeed be the responsibility of countries, the indicators and datasets developed under the Transboundary River Basins assessment may support the national reporting, and in some cases fill data gaps. Most of the indicators are based on gridded data, and can therefore be aggregated to the preferred unit of measurement, whether at national, regional or basin level.

In the current proposal of the Sustainable Development Goals, one of the targets under Goal 6. "Ensure availability and sustainable management of water and sanitation for all" refers specifically to transboundary cooperation:

> 6.5: by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

The process to develop indicators for the new agenda is advanced. The indicators proposed for target 6.5 are:

- Indicator 6.5.1: Status of IWRM implementation
- Indicator 6.5.2: Availability of operational arrangements for transboundary basin management

However, several of the indicators from the TWAP RB assessment may be relevant to other targets under Goal 6, notably:

> 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
>
> - Indicator 6.3.1: Percentage of waste water safely treated
> - Indicator 6.3.2: Percentage of receiving water bodies with ambient water quality not presenting risk to the environment or human health
>
> 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
>
> - Indicator 6.4.1: Water stress
> - Indicator 6.4.2: Water productivity
>
> 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
>
> - Indicator 6.6.1: Change in wetlands extent over time (% change over time)

2.3 Opportunities identified in relation to other existing assessment mechanisms

There are also a number of other relevant assessment mechanisms including the World Water Assessment Programme's World Water Development Reports (WWDR), UNEP's Global Environment Outlook (GEO) and UNEP-Live, that may benefit from the use of TWAP methods and indicators. Annex 1 summarizes the effort made by the TWAP RB component to identify such opportunities and makes reference to concrete suggestions and recommended follow-up activities. Annex 2 includes the Letters of Support received from some of the organizations.

2.4 Basin-level use

To facilitate basin-level use of TWAP methods and indicators, continuous outreach may be required to inform potential users of the TWAP, its outcomes and the potential "pragmatic use" to regional and national agencies.

Regional organizations with a mandate in the monitoring and assessment of transboundary (and/or national) waters will in most cases aim to collaborate with their member countries, or member basins, to collect data and information. For those entities and organizations which are at an early stage in setting up an assessment framework, the TWAP methodology and indicators can provide valuable input and guidance. The use of TWAP RB could have multiple benefits: for basin level initiatives, it can provide a framework on which to base an adapted basin-level assessment methodology balancing ecosystem-based indicators with those of governance and socioeconomics. Such systematic approach could facilitate indicator-based tracking of progress over time and comparison with other basins. For the TWAP RB, it could allow for verification of TWAP results and could also be used for more detailed "level 2" assessments of these basins. The TWAP RB group is in discussions with the Zambezi River Commission (ZAMCOM) to explore such possibilities.

The TWAP RB Component is also committed to the further development of TWAP Basin Fact Sheets on transboundary river basins. The first assessment provides 286 basin factsheets compiling water related data and assessment results overview for all 286 river basins. It is the intention that this activity can be further developed in collaboration with RBOs (adding more information from the basin) as well as organizations such as WWF and Conservation International, who are in the process of developing similar products, looking at basin level data and indicator-based progress tracking.

The possibility of making use of the TWAP methods and indicators to adapt the Transboundary Diagnostic Analysis (TDA) process for the benefit of new GEF International Water transboundary river projects will also be explored. This may take the form of a GEF funded Medium Size Project (MSP) to pilot the methodology in 3-5 basins.

Annex 1 summarizes the effort made by the TWAP RB component to engage in dialogue with relevant international and regional organizations to ensure coordinated efforts and identify opportunities for basin-level use of TWAP methods and indicators.

2.5 Communities of research and practice

The TWAP RB assessment was produced by nine partner organizations all contributing significant expertise, data and assessment tools:

- UNEP-DHI Partnership: Centre on Water and Environment
- Stockholm International Water Institute (SIWI)
- International Union for the Conservation of Nature (IUCN)
- City University of New York Environmental CrossRoads Initiative
- Centre for Environmental Systems Research (CESR) at the University of Kassel
- Oregon State University (OSU)
- International Geosphere-Biosphere Programme (IGBP)
- Center for International Earth Science Information Network (CIESIN) at Columbia University
- Delta Alliance

As outlined in their letters of support (Annex 3), these organizations have identified various ways where TWAP RB methodology, indicators and assessment results can feed into their ongoing work and how their work can contribute to maintain and further strengthen TWAP data sets.

In addition, opportunities will be explored to continue research and keep the partnership alive through UNEP-LIVE and IW:LEARN.

IW:LEARN is the Global Environment Facility's (GEF) International Waters Learning Exchange and Resource Network. With its significant global network of country officials, agencies, institutions and researchers, IW:LEARN is expected to play a key role in the dissemination of the TWAP assessment and results. The project document for IW:LEARN phase IV includes several reference to TWAP, including dissemination of TWAP results through an improved IW:LEARN visualization tool. Once phase IV is approved, UNEP-DHI will coordinate the TWAP River Basin discussions with the IW:LEARN Secretariat to disseminate the TWAP RB assessment to the broader International Waters community. This will be done through a number of face-to-face events (including the International Waters Conference, regional workshops, and twinning activities), as well as online through website and email communication.

More specifically, the proposed IW:LEARN activity - Activity 4.2.2: Produce a guidance on Good Practices with SAP implementation – is expected to draw on the TWAP assessment, and in particular the governance aspects. Furthermore, the GEF Secretariat requested that opportunities for the GEF Transboundary Diagnostic Analyses (TDAs) to be further developed and standardized, based on experience gained in the TWAP baseline assessment. IW:LEARN is likely to be an important partner in this process.

2.6 Other potential users

In addition to the potential user organizations listed in Annexes 1 and 2 and with whom the TWAP RB team has engaged in a series of consultations to identify concrete collaboration opportunities, a number of other potential user organizations and initiatives have been identified. For these organizations specific projects and ways to make use of TWAP data are yet to be identified, and direct institutional dialogue and commitment established. These organizations are listed in Annex 4.

3. UNEP-DHI Programme of Works on Transboundary Waters Assessment

UNEP-DHI has played an active role in promoting transboundary water resources management, and global assessments of water resources and management, for 20 years. The Transboundary Waters Assessment Programme (TWAP) has been a core part of UNEP-DHI's work programme for the last 6 years. UNEP-DHI is committed to continuing activities in transboundary water management in its ongoing work programme. UNEP-DHI has four Focus Areas in its current phase (4):

1. **IWRM and -system-based Management:** Enhanced capacity of countries and regions to utilize integrated approaches to sustainable management of water resources and aquatic ecosystems.
2. **Climate Variability and Change:** Improved tools available for countries and regions to cope with adverse impacts on the water resources from climatic variability and change.
3. **Assessment and Indicators:** Improved information and knowledge basis for sustainable management of water resources and aquatic ecosystems.
4. **Development of the Centre:** Increased recognition and utilization of the Centre as a global centre of excellence for water and environment.

While the work undertaken under the auspices of TWAP has primarily been done within Focus Area 3, it supports all four Focus Areas. UNEP-DHI will draw on the results and experience gained through the Transboundary River Basins Assessment in the implementation of its work. In particular, it will aim to consolidate the partnership formed under TWAP, and seek to establish new collaboration opportunities, to continuing leveraging and developing TWAP into the future.

4. Sustaining TWAP RB online

The TWAP River Basins Component has agreed to continue to host the TWAP River Basins Website and Data Portal at UNEP-DHI (see Letter of Commitment from UNEP-DHI, Annex 3). UNEP-DHI is committed to fund this from its core programme funding for the foreseeable future. UNEP-DHI is best placed to do this, having coordinated the River Basins component, and developed the website and internal data sharing and public data portals.

A number of partners have expressed intentions to update datasets where funding can be identified, and UNEP-DHI will endeavor to make these updated datasets available where feasible. Ongoing discussion with Oregon State University (OSU) will occur to ensure that overlap and potential discrepancies between the TWAP website and the Transboundary Freshwater Disputes Database (TFDD) and associated products are managed.

5. TWAP Repeat Assessment

The undertaking of a repeat assessment of transboundary rivers, in continuation of TWAP RB baseline assessment, would serve multiple purposes. These include:

- Providing a means to track progress in transboundary rivers management when compared to baseline assessment results;
- Providing an opportunity to further refine the methodology of the indicator based assessment, particularly in the areas that have already been identified as having potential for further development (under the indicator 'limitations and potential for further development' sections as part of the current assessment);
- Supporting continuous update of the global of data sets, and in this way also facilitating the various uses of TWAP assessment results as outlined above; and
- Depending on the timing for such a repeat assessment, providing a baseline for the tracking of SDG implementation in transboundary river basins and beyond.

A number of potential partners to support the development of a TWAP RB Repeat Assessment have been identified, as part of the TWAP RB Sustainability strategy. These include:

- Technical partners involved in the first TWAP RB assessment, who have submitted commitment letters confirming the desire to continue to be a part of future TWAP assessments, these include: UNEP-DHI, IUCN, SIWI, CESR, CUNY, IGBP, CIESIN, OSU, Delta Alliance (see Letters of Commitment in Annex 3)
- Potential "user" organizations that have expressed interest in the use of the TWAP RB methodology and indicator results (see annexes 1, 2, and 4): e.g. UNECE, UN WWAP, World Large Rivers Initiative.

At the time of completion, the TWAP RB Component has not been able to secure any financial commitment to the undertaking of a repeat assessment. Given the significance of the results of TWAP assessment to the work in transboundary rivers, however, the consortium of partners sees the GEF as one of the potential financiers of a repeat assessment, possibly in alliance with other donors, particularly those with a proven interest in the UN Watercourses Convention. The modalities of such financial arrangements remain to be further investigated. Some information on potential co-financing can be found in the letters of commitment submitted by TWAP RB Component Technical Partners (Annex 3), but would have to be further assessed during project preparation phase of the repeat assessment.

The TWAP RB Component would recommend that a second TWAP assessment is undertaken when data for 2015 is available. This way, a repeat assessment would also be able to provide a baseline for tracking the progress of implementation of the SDGs, providing additional data to support a number of SDG indicators.

The TWAP RB Component would estimate the cost of a repeat assessment to be comparable to that of the baseline assessment, or lower, depending on the scope.

Annex 1. Overview of outcomes from consultations regarding potential uses of TWAP methods and results

Organization/ Initiative	Relevance	Contact person(s)	Status and recommended follow-up actions
	A. Global and regional assessments		
UNECE Water Convention (The Convention on the Protection and Use of Transboundary Watercourses and International Lakes)	The UNECE Water Convention undertakes periodic assessments of the status of transboundary waters in the region, as part of its current mandate. It has recently opened the convention for ratification by all countries. While the UNECE assessments tend to be more descriptive in nature, the TWAP RB assessment focusses on an indicator-based comparison between basins. A third assessment is planned to be undertaken by UNECE in the period 2017-2019. TWAP methods and indicator assessment results could add value to the assessments currently undertaken by the UNECE Water Convention through: a) adding a global view to the assessments that have until now focused solely on the UNECE region, consistent with the expanded mandate of the UNECE Convention; and b) allowing for indicator-based comparison between basins and tracking of progress over time	Sonja Koeppel and Annukka Lipponen, UNECE Water Convention Secretariat	The TWAP RB component (along with TWAP Groundwater component) has had continuous communication and collaboration with the secretariat on the UNECE Water Convention during the development of the governance indicators (notably the Legal Framework indicator), regarding opportunities for using the results in future assessments or developing the assessment further to support UNECE's work. In June 2015, TWAP was represented at the UNECE Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes - Working Group on Integrated Water Resources Management. UNEP asked the working group to consider leveraging the tremendous body of work undertaken through the Transboundary Waters Assessment Programme in the development of the programme of work for 2016-2018, particularly in elaborating the scope of the third comprehensive assessment.
UN Watercourses Convention (the United	The UN Watercourses Convention entered into force in 2014. With this in mind, the TWAP RB assessment is well placed to provide data for "baseline" of any potential future assessments under the convention.	N/A	As there is no secretariat for this convention and its first Meeting is not yet convened, it has not been possible to secure and commitment towards the usability of TWAP RB methods and indicators for the benefit of the UN Watercourses Convention. The recommendation of TWAP RB would be to ensure some

Organization/ Initiative	Relevance	Contact person(s)	Status and recommended follow-up actions
Nations Convention on the Law of the Non-Navigational Uses of International Watercourses)	However, establishment of a mechanism to track the implementation of the UN Watercourses Convention, and the possible nature of any resulting assessments, would be dependent on the decision of the Parties to the Convention. Should such a decision be taken, the activities of such assessment would be relevant to all three freshwater components of the TWAP. In addition, the results (indicator framework, assessment results and basin profiles) from the three freshwater components could also serve as a valuable knowledge platform to the Convention.		form of TWAP representation at the first informal meeting of the UN Watercourses Convention. Since all three TWAP freshwater components are relevant to the UN Watercourses Convention (River basins, Groundwater, Lakes and reservoirs), it may be appropriate for TWAP to be represented at the project level rather than component level.
Ramsar Convention (The Convention on Wetlands of International Importance)	The ecosystems indicators (and particularly the Extinction risk and Wetland disconnectivity) indicators bear relevance to the work of Ramsar, as the data offer opportunities to supplement the existing wetlands data being collected under Ramsar.	Ania Grobicki, Deputy Secretary General, Ramsar Convention	The timing of the baseline assessment coincides with the development of Ramsar's State of the World's Wetlands Report 2015, particularly in reference to use of the data produced under the TWAP RB Wetland Disconnectivity indicator to supplement the data collected for the report, and help monitor change over time. It has been agreed that the specific use of this data will be further explored after the final approval and publishing of the results of the TWAP RB assessment.
UN WWAP, UNESCO (World Water Assessment Programme)	The World Water Assessment Programme (WWAP) coordinates the work of 28 UN-Water members and partners in the production of the World Water Development Reports (WWDR), thematic in nature and linked to the themes for the World Water Day (Water and sustainability, 2015; Water and jobs, 2016 etc.). This key UN Water report is an annual review providing an authoritative picture of the	Michela Miletto WWAP Coordinator a.i., UNESCO	The opportunities for the WWAP to make use of the information generated by the TWAP freshwater components (not only river basins) for the benefit of a (5 years)-periodic report at global scale through an integrated analysis of the information provided by different sources has been discussed. WWAP has expressed support to TWAP assessments and interest in all its freshwater components, which could potentially constitute a data source and complement the information that will be collected under the

Organization/ Initiative	Relevance	Contact person(s)	Status and recommended follow-up actions
	state, use and management of the world's freshwater resources. In addition to coordinating this significant UN report, WWAP monitors freshwater issues in order to provide recommendations, develop case studies, enhance assessment capacity at a national level and inform the decision-making process.		global monitoring framework under the SDGs process up to 2030. The specific modalities of cooperation remain to be explored, and will be subject to the thematic focus of the future WWDR reports. See letter of support, annex 2.4.
World's Large Rivers Initiative	The World's Large Rivers Initiative is a UNESCO IHP Initiative. One of its aims is to perform a global study on the status of Large Rivers.	Prof. Helmut Habersack UNESCO Chair on Integrated River Research and Management	The complementarity and the potential mutual benefits of TWAP RB and this initiative have been discussed. The World Large Rivers Initiative's assessment does not intend to focus on transboundary aspects, but rather aims to take a more bottom-up, science-based approach and include a larger set of physical parameters than the TWAP RB indicators. Possible areas for collaboration include coordination between TWAP RB and the first pilot phase of the World's Large Rivers Initiative, by using the data for the 10 pilot basins to support some type of "Level 2" assessment of TWAP basins. TWAP RB will be kept up to date about these opportunities following the meetings of the initiative. See letter of support, annex 2.5.
	B. Basin-level use		
WWF (The World Wide Fund for Nature)	WWF is in the process of rolling out River Basin scorecards to monitor basin health in a number of basins globally. To date WWF have reached out to TWAP RB with specific interest in application of the framework of TWAP indicators to design of the	Michele Thieme, Senior Freshwater Scientist, WWF-US	First dialogue has been initiated between TWAP RB and WWF, with follow up meetings and further discussions arranged during World Water Week 2015. WWF have formalized the commitment to further explore opportunities for collaboration in

Organization/ Initiative	Relevance	Contact person(s)	Status and recommended follow-up actions
	scorecards, and the results of the TWAP basin factsheets.		a letter, included in Annex 2.2.
ZAMCOM (The Zambezi River Commission)	The Zambezi River Commission (ZAMCOM) is in the process of developing a "State of the Basin" type reporting. The TWAP RB indicators have the potential to support the development of such reporting to monitor programme implementation and to raise awareness.	John Metzger, Executive Secretary, ZAMCOM	The dialogue focusing on the use of TWAP RB indicator and assessment results in ZAMCOM is ongoing.
	C. Communities of research and practice		
INBO (International Network of Basin Organizations)	The objectives of INBO include the facilitation of knowledge exchange between river basin organizations and implementation of tools suitable for institutional and financial management, programming, organization of data banks etc. INBO also gathers a number of regional networks of basin organizations (Africa, Asia, Central and Eastern Europe, Central Asia, Europe, Latin America, Mediterranean and North America).	Christiane Runel	The information on TWAP RB assessment has been published in the latest INBOs Newsletter, ensuring dissemination of information on the assessment to river basin organizations. Further opportunities of direct collaboration with INBO will explored, including INBO's interest in facilitating the use of TWAP RB methods and indicators in monitoring and assessment initiatives undertaken at regional or individual basin levels.
IW:LEARN	TWAP RB has identified the following areas of collaboration with IW:LEARN: • Identification of basins with similar risk profiles to facilitate and support project-project twinning exchange programmes. • Identification of priority issues in regions with limited GEF IW investments to support regional	Mish Hamid, IW:LEARN Project Manager	UNEP-DHI have been in discussion with the IW:LEARN project manager. IW:LEARN are awaiting approval of phase IV. TWAP is referred to several times in the project document for phase IV. Collaboration to continue as described in section 2.5 of this report.

Organization/ Initiative	Relevance	Contact person(s)	Status and recommended follow-up actions
	dialogues • Organization of trainings on TWAP methodology and indicators to potential user RBOs • Updating TDA/SAP processes to take TWAP methodology and indicators into consideration		
SIWI-UNESCO International Centre for Water Cooperation	The International Centre for Water Cooperation (a UNESCO Category II Centre) focuses on transboundary water management in connection with peace, conflict and regional development.	Marian Patrick, Programme Manager, Transboundary Waters, SIWI	Anna to follow up.
Big Rivers Undergraduate Textbook	The forthcoming Big Rivers undergraduate textbook is expected to draw on the TWAP RB assessment results for teaching purposes.	James Best, University of Illinois	UNEP-DHI are in dialogue with James Best. The textbook is currently being written. UNEP-DHI have offered to review the textbook.

Annex 2. Submitted Letters of Support from potential users

Overview of contents (see attachment Annex 2 for documents)

Annex 2-1 Ramsar Convention

Annex 2-2 World Wildlife Fund

Annex 2-3 GRID Arendal

Annex 2-4 UN WWAP, UNESCO

Annex 2-5 World Large Rivers Initiative

Annex 3. Submitted Letters of Commitment from TWAP partners

Overview of contents (see attachment Annex 3 for the documents)

Annex 3-1 UNEP-DHI

Annex 3-2 SIWI

Annex 3-3 IUCN

Annex 3-4 CIESIN

Annex 3-5 CUNY

Annex 3-6 CESR (Uni Kassel)

Annex 3-7 OSU

Annex 3-8 IGBP

Annex 3-9 Delta Alliance

Annex 4. Other potential user organizations and initiatives (no concrete opportunities identified)

Programme	Relevance	Recommendations
UNEP-LIVE	UNEP is in the process of developing a web-based platform to, amongst others, facilitate the exchange and sharing of up-to-date environmental data, assessments and knowledge amongst its member countries, research networks and communities of practice. UNEP-Live strives to provide open access to national and regional information and global environmental datasets.	An initial dialogue has been started to explore how UNEP-Live could be linked to TWAP RB data portal, and how the assessment data could be harvested in an automated way.
GEO Process	The Global Environment Outlook (GEO) process is a participatory process for global environmental assessment and reporting on the state of the environment, trends and future outlooks. The process is led by the United Nations Environment Programme (UNEP) Division of Early Warning and Assessment (DEWA). A world-wide network of Collaborating Centres forms a strong assessment partnership at the core of the process and advisory groups provide guidance on conceptual approaches, methodology development and capacity building. The GEO is published periodically (GEO-1 in 1997, GEO-2000 in 1999, GEO-3 in 2002, GEO-4 in 2007, GEO-5 in 2012 and GEO-6, expected to launched in mid-2017). The contents of the latest reports have been divided by theme (land, water, biodiversity etc.) and by region (Africa, Asia and the Pacific, etc.).	The potential use of TWAP RB methodology and indicators to strengthen the GEO process, particularly focusing on the thematic assessment of transboundary water resources, will be explored.

Programme	Relevance	Recommendations
Abu Dhabi Global Environment Data Initiative	The Abu Dhabi Global Environment Data Initiative was launched at the World Summit for Sustainable Development in 2002 to address the gap in environmental data within and between developed and developing countries, particularly in the Arab region. Locally, the initiative is led by the Environment Agency of Abu Dhabi. At regional and global levels it is led by UNEP.	The possibility of Abu Dhabi Global Environment Data Initiative making use of TWAP methodology, indicators and data could be explored. Contact is through CIESIN, who interacted with AGEDI in the past.
IIASA (The International Institute for Applied Systems Analysis)	The International Institute for Applied Systems Analysis (IIASA) is an international scientific institute that conducts policy-oriented research into problems that are too large or too complex to be solved by a single country or academic discipline. Its research is focused in three main areas: Energy and climate change; Food and water; and Poverty and Equity and the methodology used is "advanced systems analysis". One of IIASA's research programs is Water (WAT). It has the objective to compile, consolidate and enhance knowledge of global water supply and demand balances, in order to advance the incorporation of hydrology and hydrologic uncertainty into integrated assessment modeling efforts and scenario development. Through that it strives to provide a sound scientific basis for responding to current and future global water challenges by assessing the robustness and complementarity of portfolios of measures being proposed as solutions, throughout various water-	The TWAP RB assessment may provide data that could support the work of IIASA in advancing its research in relevant fields (notably WAT). IIASA should be sensitized to the availability of data provided by the TWAP RB and other TWAP components for potential future use. The opportunities and interest of IIASA to integrate TWAP methodology and indicators into their work will also be explored. UNEP-DHI have made initial contact with David Wiberg (Acting Director of IIASA's Water Program and manager of the Water Futures and Solutions Initiative (WFaS)). This may be followed-up.

Programme	Relevance	Recommendations
	related sectors and management scales, against a range of possible future socio-economic changes and technological innovations, in the context of global environmental challenges such as climate change.	
GWP (The Global Water Partnership)	The Global Water Partnership (GWP) was founded in 1995 to foster application of Integrated Water Resources Management (IWRM) and is today a network consisting of 85 country water partnerships and 12 regional water partnerships.	The opportunity for GWP to integrated TWAP RB indicators into their work will be explored. Particularly the governance indicators (notably, the Enabling Environment indicator) could be relevant in the context of GWP work. UNEP-DHI have made initial contact with Jacques Rey, Head of Network Operations. This may be followed-up.