

# Transboundary Water Cooperation and the Sustainable Development Goals



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and the

# Sustainable Development

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## List of Acronyms

IAEG-SDGs	Inter-agency and Expert Group on Sustainable Development Goal Indicators
ISARM	International Shared Aquifer Resource Management
IWRM	Integrated Water Resource Management
MDGs	Millennium Development Goals
SDGs	Sustainable Development Goals
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNESCO-IHP	United Nations Educational, Scientific and Cultural Organization - International Hydrological Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNILC	United Nations International Law Commission
UNWC	United Nations Watercourses Convention

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# Executive Summary

The last several years have seen a discernible shift in global priorities towards advancing the concept of sustainable development. In particular the establishment of the post-2015 development agenda and the 17 Sustainable Development Goals (SDGs) by the UN General Assembly points towards an integrated plan towards tackling global challenges. The goals seek to protect and improve five key areas of the world including people, planet, prosperity, peace and partnership. The intent of this paper is to emphasize the vital role that transboundary water cooperation plays in global development, and to map out the relationship that this cooperation has with the other goals.

Existing and emerging rules and institutions have been developed in international law to minimise, and where possible halt, negative consequences stemming from poor management of transboundary waters. SDG 6 provides for an important spotlight on improving water and sanitation, however for the context of global development it is crucial for water management to be interpreted and actionably combined with the other relevant SDGs, rather than curtailed as an individual entity. From direct linkages to indirect references, transboundary water cooperation is intrinsically connected to several other principles of sustainable development reflected in the goals and targets, including environment, energy, and food amongst others, and therefore must be viewed as an integral piece of global water management.

Furthermore, target 6.5 requires a set of two indicators in order to fully capture the importance of both integrated water resources management (IWRM) and transboundary water cooperation in the implementation of the SDGs. It is paramount that an indicator is retained solely for the transboundary water cooperation element embedded in target 6.5. This paper advocates for an indicator that should be broad enough to reward also cooperative frameworks aimed at developing a sound system of exchange of information, and not only fully fledged IWRM systems. This is particularly important in the context of transboundary aquifers governance, where many of the cooperative frameworks being discussed are at a very initial stage. The indicator can be reviewed throughout the implementation of the SDGs, especially in relation to the quantity and quality of the information that needs to be exchanged in order to meet the indicator. UNESCO-IHP and UNECE can play an important role, together with other members of UN Water, in monitoring this much needed indicator.



# 1



## Introduction

In September 2015 the UN General Assembly adopted Resolution 70/1 titled “Transforming our world: the 2030 Agenda for Sustainable Development”.<sup>1</sup> This Resolution formally ended negotiations that had started back in 2012 following the United Nations Conference on Sustainable Development, also known as the Rio+20 Conference. The latter’s final output, *The Future We Want*,<sup>2</sup> launched an intergovernmental process aimed at agreeing a set of Sustainable Development Goals (SDGs) that were to be achieved by 2030.<sup>3</sup> As a result 17 SDGs have been adopted together with 169 targets. As stated by the Resolution itself:

“This is an Agenda of unprecedented scope and significance. It is accepted by all countries and is applicable to all, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. These are universal goals and targets which involve the entire world, developed and developing countries alike. They are integrated and indivisible and balance the three dimensions of sustainable development.”<sup>4</sup>

Sustainable management of water and sanitation for all has found its way in this Agenda through SDG 6. Target 6.5 refers to the need to implement integrated water resources management (IWRM) and to the need of including a transboundary dimension.

Against this background, this paper argues that sustainable development is inherently linked to, and requires, transboundary water cooperation. In the context of the implementation of the SDGs this leads to a twofold implication: firstly, that transboundary water cooperation should inform the implementation of other SDGs and targets therein; secondly, the implementation of the SDGs requires also an indicator capable of capturing the transboundary water cooperation element embedded in target 6.5.

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<sup>1</sup> ‘Transforming our world: the 2030 Agenda for Sustainable Development’ (2015) A/RES/70/1 United Nations Sustainable Development Knowledge Platform

<<https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>>

<sup>2</sup> ‘The Future We Want: Outcome Document Adopted at Rio +20’ (2012) A/RES/66/288 United Nations Conference on Sustainable Development <<http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N11/476/10/PDF/N1147610.pdf?OpenElement>>.

<sup>3</sup> The intergovernmental negotiations were led by the Open Working Group of the General Assembly on Sustainable Development Goals

<sup>4</sup> A/RES/70/1, note 1 above, para 5.

The paper reaches this twofold conclusion through the following analysis. In section 2 it highlights how transboundary waters are relevant for all five of the key crosscutting areas present in the SDGs. The paper then tackles the relationship between water and sanitation and sustainable development by highlighting the links between SDG 6 and the other SDGs finding that there are at least 31 direct and indirect references to water and sanitation in the SDGs. This mapping exercise is completed in section 4 of this paper where a case for transboundary water cooperation in the context of sustainable development is made. A study of the relationship between target 6.5 and the other targets in the stand-alone SDG on water and sanitation is combined with an analysis of how target 6.5 is also relevant and informs other SDGs and targets therein. Of the 31 previously identified links, at least 21 are enhanced if a cross-border dimension is present, hence calling for transboundary water cooperation. The latter is also required for two further SDGs, where a link with target 6.5 can be found. This mapping exercise leads to section 5 in which a clear case for retaining an ad-hoc indicator on transboundary water cooperation is presented along with the indicator focusing solely on IWRM.

# 2

## Transboundary Water Cooperation and the Five Key Sustainable Development Goals Themes

### Key Messages

- *Sustainable development cannot be achieved without transboundary water cooperation.*
- *Existing and emerging rules and institutions seek to halt and minimise the negative consequences of poor transboundary water management.*
- *Transboundary water cooperation is critical in meeting all five of the key areas which the SDGs intend to stimulate over the next 15 years (people, planet, prosperity, peace and partnership).*

It is not surprising that, with all members of the international community (190 and more States) involved in negotiating the goals that should be achieved by 2030 in order to meet sustainable development, we have ended up with a considerable number of SDGs and targets. Compared to the Millennium Development Goals (MDGs),<sup>5</sup> the negotiations have been even more complex since the SDGs are applicable to all, developed and developing countries alike, even if in their implementation countries will tailor their plans to their national circumstances. Within such a complex scenario it would be unrealistic to say that one SDG, or that one specific aspect of an SDG, is more important than others, or is the *silver bullet* that will lead to sustainable development in an easier way than others. However, it is important that no important SDG, that no important aspect for sustainable development, is left behind in the implementation of the SDGs. This paper makes the case that transboundary water cooperation is one of these important aspects.

<sup>5</sup> 'United Nations Millennium Declaration' (2000) A/RES/552 UN General Assembly resolution <<http://www.preventionweb.net/publications/view/13539>>

## 2.1 Transboundary Waters

Transboundary water cooperation is important for sustainable development because of the scale of transboundary waters per se and because of the consequences of water's mismanagement.

Almost half of the world's land surface can be found in a transboundary river or lake basin.<sup>6</sup> 40% of the world's population lives in transboundary rivers and lake basins,<sup>7</sup> and more than 90% lives in countries that share basins.<sup>8</sup> 276 transboundary surface water basins and 592 transboundary aquifers have been identified.<sup>9</sup> For the purposes of this paper the term *transboundary waters* will be used to refer simultaneously to transboundary surface water basins and transboundary aquifers, despite the fact that they are not the same natural resource, especially from a hydrogeological perspective.

If transboundary waters are not managed properly, countries (and people and stakeholders therein) can suffer dire consequences. In a nutshell, water and groundwater *overexploitation* can lead to severe water availability problems increasing stress on already water scarce countries. Industry and land use can lead also to water and groundwater *pollution* leading to environmental degradation and environmental health problems. When overexploitation and pollution occur in a transboundary context, this can lead to significant harm for a country that has not used the water source, or impacted thereon. In the case of a transboundary river, the downstream State may be affected negatively by pollution coming from the upstream country that has allowed for a chemical plant to operate on the banks of the river. Similarly, the construction of a large scale dam for hydropower in an upstream State could reduce water availability in the downstream State. In the case of a transboundary aquifer, over pumping of groundwater on one side of the border for large scale farming may impact negatively the availability of groundwater on the other side of the border. These are just some examples of possible harm occurring from mismanagement of transboundary waters.

Against this background, international rules have been established, or are emerging, in order to minimise and, where possible, avert completely the likelihood of significant harm occurring in the relationships between countries sharing transboundary waters. Transboundary surface waters are, in this sense, more developed than transboundary aquifers with bilateral and regional agreements

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<sup>6</sup> 'Transboundary Waters' (UN Water, 7 October 2014) <<http://www.unwater.org/topics/transboundary-waters/en/>> accessed 28 January 2016.

<sup>7</sup> Transboundary Waters, see supra note 6

<sup>8</sup> *Ibid*

<sup>9</sup> 'Transboundary Aquifers of the World Map' (UNESCO *International Groundwater Resources Assessment Centre, IGRAC*) <http://www.un-igrac.org/tbamap> accessed 27 January 2016.

having been in place in some cases for more than 100 years.<sup>10</sup> More than 400 agreements have been adopted to govern transboundary rivers and lakes,<sup>11</sup> and, furthermore, States now have a general framework under International Law applicable to the non-navigational uses of transboundary rivers and lakes in the form of the United Nations Watercourses Convention (UNWC).<sup>12</sup> In addition to the UNWC, there is a plethora of regional transboundary water agreements,<sup>13</sup> with one (the United Nations Economic Commission on Europe (UNECE) Water Convention)<sup>14</sup> having the potential of opening itself to the entire international community. On the contrary, international rules devoted specifically to transboundary aquifers are still in their infancy. Only a small number of transboundary aquifers have developed ad-hoc legal and institutional governing arrangements.<sup>15</sup> Furthermore, the emerging set of international guidelines on transboundary aquifers, the UN International Law Commission (UNILC) Draft Articles on the Law of Transboundary Aquifers,<sup>16</sup> have been annexed to a UN General Assembly Resolution, but have not led to an international treaty, as was the case with the UNWC. Considering that there are 592 transboundary aquifers worldwide and that 97% of available global freshwater is stored underground,<sup>17</sup> the importance of transboundary aquifer cooperation in the context of transboundary water cooperation should be self-evident.

The paper will now highlight how transboundary waters, and transboundary water cooperation, are inherently linked to sustainable development by focusing first on the five key cross cutting areas present in the SDGs: people, planet, prosperity, peace and partnerships.

## 2.2 Transboundary Waters and the Five Ps of Sustainable Development

The preamble of the “Transforming Our World: the 2030 Agenda for Sustainable Development” UN General Assembly Resolution maintains that “The Goals and targets will stimulate action over the next 15 years in areas of critical importance for

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<sup>10</sup> Pieter Huisman, Joost de Jong and Koos Wieriks, ‘Transboundary Cooperation in Shared River Basins: Experiences from the Rhine, Meuse and North Sea’ (2000) 2 Water Policy 83.

<sup>11</sup> ‘International Law: Facilitating Transboundary Water Cooperation’ (Global Water Partnership 2013) <[http://www.gwp.org/Global/Activities/News/August%202013/GWP%20Policy%20Brief\\_TEC%2017\\_FINAL.pdf](http://www.gwp.org/Global/Activities/News/August%202013/GWP%20Policy%20Brief_TEC%2017_FINAL.pdf)> accessed 27 January 2016.

<sup>12</sup> *Convention on the Law of the Non-Navigational Uses of International Watercourses*, signed in New York on 21 May 1997, entered into force on 17 August 2014.

<sup>13</sup> *Revised Protocol on Shared Watercourses in the Southern African Development Community* (Windhoek, 7 August 2000; in force 22 September 2003) and the *Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin*, signed in Chiang Rai on 5 April 1995.

<sup>14</sup> *UNECE Convention on the Protection and Use of Transboundary Watercourses and Lakes*, signed in Helsinki on 17 March 1992, entered into force on 6 October 1996.

<sup>15</sup> Robert G Varady, Christopher A Scott and Sharon B Megdal, ‘Transboundary Aquifer Institutions, Policies, and Governance: A Preliminary Inquiry’ [2010] Udall Center for Studies in Public Policy.

<sup>16</sup> International Law Commission *Draft Articles on the Law of Transboundary Aquifers* (UNGA Resolution A/RES/63/124, 11 December 2008).

<sup>17</sup> IGRAC, *supra* note 9.

humanity and the planet.” Transboundary waters are relevant for each one of these five important and cross cutting areas: people, planet, prosperity, peace and partnerships.

**People:** *“We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment”.*

Transboundary waters are crucial for the people because water is a key component of food security and of sustainable agriculture. Both are needed to end hunger and, if water availability or water quality is hindered because of lack of transboundary water cooperation, people will suffer. Furthermore, transboundary waters are part of the global environment and cooperation is required to keep the environment healthy.

**Planet:** *“We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations”.*

Transboundary waters are relevant for the planet since good water governance is crucial for a sustainable and resilient planet. The sustainable management of water resources, considered as one the means to protect the planet, requires considering also the transboundary dimension, since action across the borders can hinder domestic natural resources management. Transboundary water cooperation is, hence, crucial for the protection of the planet.

**Prosperity:** *“We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.”*

Transboundary waters are a key component of prosperity, and have been so since the early days in history. Wherever water was found, be it a spring or a river, civilisations flourished. Development and progress needs to be in harmony with nature and transboundary waters are part of such an equation. If the “transboundary” element is mismanaged or forgotten altogether prosperity will be undermined.

**Peace** *“We are determined to foster peaceful, just and inclusive societies, which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.”*

Transboundary waters should be seen as drivers for peace. Unfortunately this is not always the case, and water is often considered to be a trigger for conflict. But there is little empirical evidence that competition over water is the main or only cause for tension. The management of water, especially when it crosses borders, can be a key driver for cooperation. Transboundary water cooperation can, hence, be a crucial element for peace in the context of sustainable development.

**Partnership** *“We are determined to mobilise the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.”*

Transboundary water can be milestones of partnerships. There are good practices in which countries have created sophisticated examples of cooperation that can be replicated in the context of transboundary water cooperation for sustainable development.

Transboundary waters, and transboundary water cooperation in particular, are present in the five key areas that the SDGs will stimulate action over in the next 15 years. This can be said for many other specific SDGs and targets, but it is important to highlight that transboundary water cooperation is no exception. Furthermore, despite the limits and difficulties inherent in any transboundary cooperation practice, if water (surface water and groundwater alike) are not considered at both scales, domestic and transboundary, people, planet, prosperity, peace and partnerships will all suffer.

# 3

## Water and Sanitation for Sustainable Development

### Key messages

- *SDG 6 provides a much needed focus on water and sanitation.*
- *In addition to SDG 6, there are 31 direct and indirect references to water and sanitation in at least 11 other SDGs.*
- *The ubiquity of these references demonstrates the centrality of water and sanitation for the implementation of the rest of the SDGs.*
- *For this reason, it is necessary to consider the SDGs in an integral manner for their implementation.*

The previous section of this paper has clarified the importance of transboundary waters for sustainable development as a whole. This section focuses on the stand-alone SDG on water and sanitation and on whether links can be established between SDG 6 and other SDGs. It identifies up to 31 direct and indirect references to water and sanitation in other SDGs and concludes emphasizing that all SDGs need to be understood and interpreted together. As a consequence SDGs are to be considered as truly integral and indivisible, especially in their implementation.

### 3.1 SDG 6

SDG 6 reads as follows: “Ensure availability and sustainable management of water and sanitation for all.” This SDG provides a much needed focus on water and sanitation as a key element of sustainable development. A cursory analysis of this SDG reveals that it incorporates many recent developments in international water policy. Targets 6.1 and 6.2 bring into the SDG human rights language by emphasizing the need to achieve by 2030 access to water and sanitation for all. It is important to highlight that in both cases the SDG does not refer to free water or sanitation. In relation to drinking water, access to the latter should be *universal* and *equitable*, and the water itself should be *safe and affordable*. In what refers to

sanitation, access to it has no qualification, while sanitation itself should be *adequate and equitable*.<sup>18</sup>

Targets 6.3 and 6.4 refer to those situations that can lead to significant harm should water resources (both surface and groundwater) be mismanaged. Target 6.3 refers to *water quality* and addresses the need to reduce pollution in particular from the release of hazardous chemicals. Target 6.4 presents the other risk stemming from water mismanagement, which arises when stakeholders over-exploit the natural resource. In this case the SDG aims to address *water scarcity*.

Target 6.5 will be addressed in greater depth later in this paper and refers to the need “to implement IWRM at all levels, including through transboundary cooperation as appropriate”.<sup>19</sup> Target 6.6 highlights the need to consider water and groundwater dependent ecosystems and act accordingly to restore such ecosystems.

Targets 6.a and 6.b refer to means of implementation of the SDG and focus on the need to transfer finance to developing countries in order to deploy sustainable water management capacity and technology. Target 6.b highlights the need to include and support local communities in the water and sanitation management.

What follows is a cursory overview of how SDG 6 as a whole relates to the other SDGs.

### **3.2 Links between SDG 6 and other SDGs**

Due to the overwhelming importance of water for a healthy life and for development more generally it should not come as a surprise that water and sanitation are directly or indirectly present in most SDGs. This sub-section will map this relationship and classify the links as *direct* when water and/or sanitation are directly referred to in the targets of a specific SDG, or *indirect* if water and sanitation can be implied from the SDG itself or its targets. In both cases the consequence is that SDG 6 must be also considered in the implementation of other SDGs and that water and sanitation goals must inform the implementation of specific SDGs.

#### **3.2.1 Direct references to water and sanitation**

*SDG 3: Ensure healthy lives and promote well-being for all at all ages*

This SDG is one in which the relationship between water and sanitation and sustainable development is the clearest. Targets 6.1 and 6.2 are clearly linked with targets 3.1 and 3.2 as without proper access to clean water and adequate

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<sup>18</sup> The plethora of adjectives and qualifications should clarify the need for clear indicators that can be properly measured and reported. A discussion on SDG 6 indicators will come later in this paper in section 5.

<sup>19</sup> See section 4.

sanitation there will be increased maternal mortality and deaths of newborns and children. Target 3.3 makes a direct reference by advocating the end of *water-borne* diseases by 2030. Target 3.9 also makes a further direct reference linking with target 6.3 making a case to “substantially reduce by 2030 the number of deaths and illnesses from water pollution and contamination.” In other words, the mismanagement of water and sanitation can lead not only to serious environmental harm, but also to irreparable environmental health hazards. In order for these to be addressed in the context of SDGs, the implementation of SDG 3 and SDG 6 need to be harmonised.

### *SDG 12: Ensure sustainable consumption and production patterns*

Target 12.4 mandates to “significantly reduce the release of [chemicals and all wastes] to water in order to minimise their adverse impacts on human health and the environment.” This target links closely with target 6.3 which addresses water quality and deals with pollution. In order for 6.3 to be implemented a change in consumption and production patterns needs to take place, highlighting how one SDG cannot be met without the other. Target 12.6 promotes sustainable practices and the integration and disclosure of sustainability information into their reporting practices. This can be almost seen as a way to encourage a higher degree of corporate social responsibility, which will be important for water intensive sectors, along the lines of the mining sector or the brewing industry.

### *SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss*

SDG 15 is probably the SDG that has clearest and most direct links with SDG 6 as a whole. The links are not only with water quality and water scarcity, but with the wider need to manage water resources appropriately through an IWRM approach. Starting with target 15.1, this could have possibly sat quite comfortably in SDG 6 itself. The target reads as follows:

“By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland *freshwater* ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.”<sup>20</sup>

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<sup>20</sup> United Nations, ‘Open Working Group Proposal for Sustainable Development Goals’ (2015) <<https://sustainabledevelopment.un.org/focussdgs.html>> accessed 27 January 2016. Emphasis added.

At the same time target 6.6 has very similar language stating: “By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.” Target 15.1 acknowledges the direct relationship between water (both surface and groundwater) and terrestrial ecosystems. For the latter to be healthy and deliver their services, water resources need to be managed sustainably. Hence, the implementation and achievement of SDG 15 is inherently linked to SDG 6 and in particular to target 6.6. Targets 15.4 and 15.5 refer to losses to mountain ecosystems and of biodiversity, which can occur as a consequence of mismanagement of water resources: be it pollution, over exploitation or, especially in the case of mountain ecosystems, the presence of large scale dams. Once again, SDG 6 needs to be considered together with SDG 15 in order for these two targets to be achieved. Finally, another direct reference to water is present in target 15.8 that calls for the prevention of introduction of alien species on water ecosystems, which requires close cooperation, once again, with target 6.6 that addresses water-related ecosystems.

### **3.2.2 Indirect references to water and sanitation**

#### *SDG 1: End poverty in all its forms everywhere*

Access to water and sanitation should be considered as part of “the basic services” referred to in target 1.4. The latter posits that by 2030 all people should have access to such basic services, and access to clean water and appropriate sanitation is a clear component of ending poverty. The mobilisation of necessary financial streams to end poverty referred to in target 1.a should include water and sanitation programmes, as a means to implement SDG 1.

#### *SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.*

Although the targets included in this goal do not specifically mention water or sanitation, access to water is particularly relevant as agriculture is a highly intensive water sector. Additionally, water can be seen as intrinsic to SDG 2 given the critical role water plays in achieving food security, and the importance of improving agricultural productivity to reduce poverty, which is the overarching aim of the sustainable development agenda.<sup>21</sup> Hence, target 2.4 that refers to “sustainable

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<sup>21</sup> ‘UN DESA | DPAD | UN System Task Team on the Post-2015 Development Agenda’ (United Nations Development Policy and Analysis Division)

food production systems” and “resilient agricultural practices” is highly dependent on SDG 6, and in particular on targets 6.3 and 6.4 that deal with water quality and water scarcity, since pollution and over exploitation can both be linked to unsustainable agricultural practices.

*SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.*

It is still the case that in some countries children and women cannot attend school, or get an education, because they need to sustain their family. In some cases part of this includes fetching for water by walking long distances to a stream or to a borehole. By improving access to water, women and children will have a better chance to get an education. Hence, there is a dire need to integrate SDG 4 with SDG 6, especially in the means of implementation and finance in least developed countries that still suffer these daunting conditions.

*SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.*

This is another SDG in which water is not explicitly mentioned, but nonetheless very clearly linked. Target 7.2 calls for an increase in the share of “renewable energy” and in this context it is very important to note the existence of hydropower, which has long been debated as a source of sustainable energy. Hydropower currently supplies approximately one-fifth of the world’s power generation, and for many countries it is the only domestic energy resource.<sup>22</sup> However, large scale dams can have severe negative environmental effects, such as loss of biodiversity and severe negative effects on local communities, which, in some cases, can be displaced. This is just one example where the links are far more complex than just with the stand-alone SDG on water and sanitation, in this case with target 6.6. Target 7.2, in as much as it considers hydropower as a legitimate source of renewable energy, will need to be implemented in harmony with, for example, SDG 15, which calls for the protection of terrestrial ecosystems and forests, just to name part of its mandate. In addition to target 7.2 also target 7.a has an indirect relevance for SDG 6. The latter target wishes to promote “advanced and cleaner fossil- fuel technology”. Hence, unconventional oil and gas extraction, including shale gas, is on the 2030 Agenda.

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<[http://www.un.org/en/development/desa/policy/untaskteam\\_undf/process.shtml](http://www.un.org/en/development/desa/policy/untaskteam_undf/process.shtml)> accessed 27 January 2016.

<sup>22</sup> K Kaygusuz, ‘The Role of Hydropower for Sustainable Energy Development’ (2009) 4 Energy Sources, Part B: Economics, Planning, and Policy 365.

Leaving aside the possible groundwater pollution problems that shale gas may lead to, if the technology is not deployed properly, shale gas in any case requires vast amount of water resources. This can lead to competition over water uses and put further stress on already water scarce countries. For this reason, SDG 7 is inherently linked to the water goal, and in particular to target 6.4 on increasing water-use efficiency.

*SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.*

Some water scarce countries engage in very water intensive agricultural practices. The water footprint of agricultural products originating from such countries makes them very inefficient from an environmental perspective. Target 8.4 calls for gradual improvement in “global resource efficiency” and for “decoupling economic growth from environmental degradation” through new sustainable consumption and production practices. This target speaks directly to SDG 6 and in particular to target 6.4 about water scarcity. However, this is a further example where implementation of SDG 8 will need to take place in coordination not only with SDG 6, but also with SDG 12, which focuses on sustainable consumption and production patterns, and SDG target 2.4, which calls for “sustainable food production systems” and “resilient agricultural practices”. We have seen that SDG 2 is another one that refers indirectly to SDG 6.

*SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.*

In a similar way also this SDG is related to the use of water, hence relevant for target 6.4 that addresses the problem of water scarcity. Target 9.4 calls for industrialisation practices “with increased resource-use efficiency”, which includes water use, and “greater adoption of clean and environmentally sound technologies and industrial processes”. Hence, the 2030 Agenda calls for the use of water efficient process and production methods and processes that are less polluting (cleaner technologies) in already existing and new industries. Mining is just one of the sectors that will need to consider this SDG very carefully in its Post 2015 operations, with specific reference to targets 6.3 (water quality) and 6.4 (water scarcity).

*SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.*

By 2030 all people living in cities will have access to “basic services” and slums will be upgraded. If access to clean water and adequate sanitation are to be considered, and they should, basic services, then there is a clear (although indirect for the purposes of this paper) link between SDG 6 and SDG 11. Furthermore, one of the worse aspects of slums is the lack of proper sanitation, so achieving SDG 6 is crucial for target 11.1. This SDG refers in target 11.5 to reducing the number of death in cities from “water-related disasters”. However, despite the presence of “water” in this target, the link is mainly with SDG 13, the climate change SDG, as many of the water related disasters that cities are affected by, such as floods, are caused by climate change combined with poor urban planning, rather than lack of sustainable water and sanitation.

*SDG 13: Take urgent action to combat climate change and its impacts.*

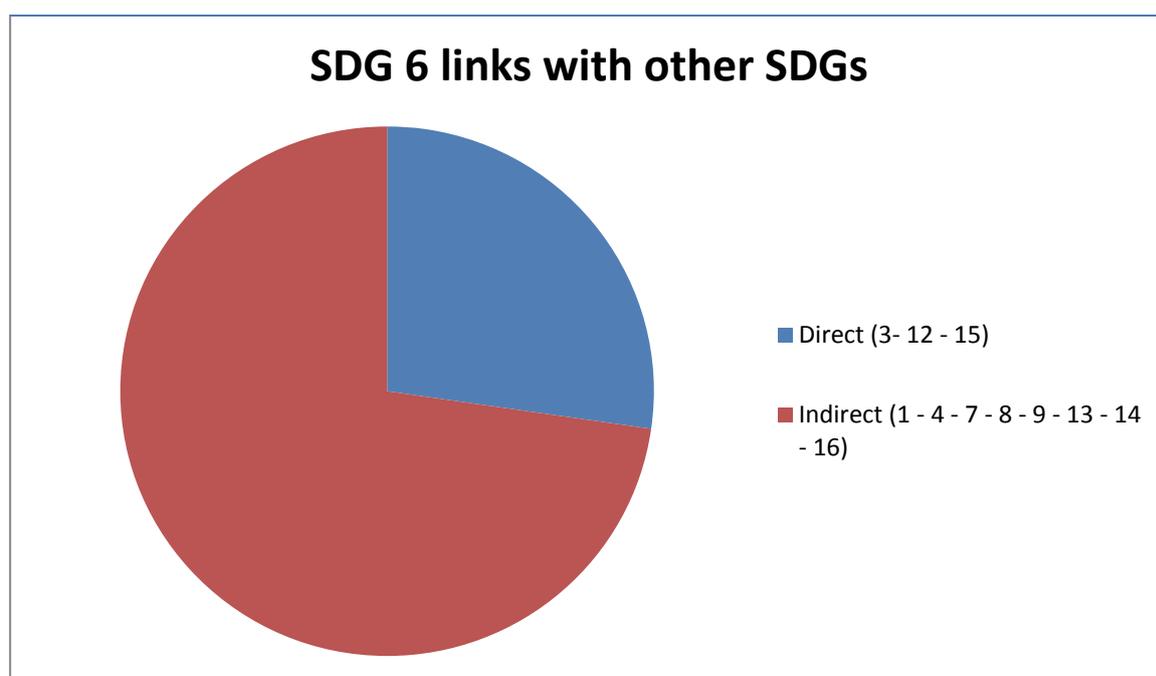
Despite the fact that the SDGs footnote the priority of the United Nations Framework Convention on Climate Change (UNFCCC) as the principal forum to deal with climate change, the latter is still present in the SDGs. Water and climate change are inherently linked. Water related disasters, such as floods and typhoons, are strengthened by climate change. But, more importantly in the context of this paper, good surface water and groundwater governance can make countries more resilient to climate change and can be critically important for climate change adaptation. Target 13.1 highlights this link by requiring stakeholders to “strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.” SDG 13 and SDG 6 need to be considered together in order for countries to become more resilient and better adapt to climate change.

*SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.*

The sustainable management of freshwater is also relevant for healthy seas and oceans. Target 14.1 calls for a reduction in marine pollution from land-based activities. If the latter ends up polluting a river or groundwater that ends up flowing into the sea, prevention needs to take place on land in order for the sea and oceans not to be hindered. Hence, target 6.3 that addresses water quality and pollution becomes crucial. Furthermore, coastal ecosystems mentioned in target 14.2 can, once again, be impacted negatively from pollution present in rivers (especially in their deltas or estuaries) and coastal aquifers.

*SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.*

Target 16.1 calls for a reduction of all forms of violence. It has been often said that the wars of the XXI century will be about water. There is not any clear empirical evidence that this is the case, but it is clear that mismanagement of water resources can lead to conflict and tension. This is particularly the case when access to water and sanitation is not equitable and affordable, and the most vulnerable segments of society end up being denied access to what can be considered a basic service. It is hence paramount to link SDG 16 and SDG 6 not as a way to *securitise* water, but as a means to promote sustainable management of water resources (surface and groundwater) for peace.



*Figure 1 - Quantity of direct and indirect links between SDG 6 and other SDGs*

In conclusion, 11 SDGs have been found to relate to SDG 6. Three of these (SDGs 3, 12 and 15) in a direct way and eight of these (SDGs 1, 4, 7, 8, 9, 13, 14 and 16) in an indirect manner. These relationships highlight the need to take into account SDG 6 in the implementation of other SDGs and to consider the latter as truly integral and indivisible, characteristic to which this paper turns to in the next sub-section.

### 3.3 SDGs are integral and indivisible

This section has highlighted that the SDGs feature a stand-alone goal for the management of water and sanitation (SDG 6), and that the latter relates in many ways to several other SDGs. SDG 6 includes a human right to water and sanitation component (targets 6.1 and 6.2), it addresses water quality and water scarcity (targets 6.3 and 6.4), and finally includes references to IWRM and to water related ecosystems (targets 6.5 and 6.6). SDG 6 relates, directly and indirectly, to at least other 11 SDGs and 31 links have been identified.

<i>SDG 6</i>	<i>Other SDGs</i>
6.1 Access to water	1.4, 3.1, 3.2, 4.1, 4.2, 11.1
6.2 Access to sanitation	1.4, 3.1, 3.2, 11.1
6.3 Water quality	2.4, 7.a, 9.4, 12.4, 14.1, 15.4, 15.5
6.4 Water scarcity	2.4, 7.a, 8.4, 9.4, 15.4, 15.5
6.5 IWRM	
6.6 Water-related ecosystems	7.2, 15.1, 15.8

*Table 1 – Goals and targets which link to SDG 6*

The table above summarises the links between SDG 6 and the other SDGs. IWRM has deliberately left blank for the moment, as it will be analysed in greater detail in the next section of this paper. The table highlights that access to sanitation and clean water is particularly important for ending poverty, ensuring healthy lives and for making cities and human settlements safer, more resilient and more sustainable. Tackling water quality and water scarcity are relevant for promoting food security and sustainable agriculture, ensuring sustainable energy, promoting economic growth, promoting sustainable industrialization, ensuring sustainable consumption and production patterns, conserving the oceans, and promoting the sustainable use of terrestrial ecosystems and halting biodiversity loss. Addressing water-related ecosystems has implications for ensuring sustainable energy and for protecting terrestrial ecosystems.

While the number of links between SDG 6 and other SDGs is important, as it highlights the relevance of water and sanitation for sustainable development, what really stems from this analysis is the confirmation that SDGs cannot be read in isolation. More than that, SDGs cannot be understood and cannot be implemented separately. Each one of the 31 links established in this section implies that for the specific SDG in question, attention needs to be paid also to SDG 6. In several occasions (links with targets 7a and 12.4) the links are even more complex leading to at least three SDGs needing to be implemented simultaneously in order for the SDG to be achieved. In conclusion, the analysis of the relationship between SDG 6 and the other SDGs confirms the preamble of Resolution 70/1 when it maintains that:

“They [the 17 SDGs and 169 targets] are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.”<sup>23</sup>

The paper will now focus on transboundary water cooperation in the context of target 6.5 and will demonstrate that many of the above mentioned links between SDG 6 and other SDGs are exacerbated when framed within a transboundary context.

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<sup>23</sup> The same language is present also in Resolution 70/1, paras 5 and 55.

# 4

## The Case for Transboundary Water Cooperation and Sustainable Development

### Key messages

- *The closely related principles of transboundary water cooperation and IWRM are referenced in target 6.5, demonstrating the need for them both to be implemented for sustainable development.*
- *Of the 31 previously established links between water and sanitation and the other SDGs, at least 21 also relate to transboundary water cooperation.*
- *Mapping these linkages highlights the need to consider transboundary water cooperation when implementing a wide range of goals and targets.*
- *Existing and emerging rules and institutions applicable to transboundary water cooperation need to inform the implementation of the SDGs while operating as normative frameworks for countries.*

Section 3 has provided a strong case for considering “availability and sustainable management of water and sanitation” as an important component of sustainable development. This section will demonstrate that transboundary water cooperation is also critically relevant for sustainable development and for the SDGs as a whole. Section 2 started this analysis by highlighting the relationship between transboundary waters, and transboundary water cooperation, and the five areas of critical importance (the five Ps) in which the SDGs will stimulate action over the next 15 years. This section will continue such analysis by detailing how target 6.5, and in particular the reference to transboundary water cooperation therein, relates to the other targets in SDG 6 and to the rest of the SDGs.

This section concludes that most of the links already established in section 3 of this paper will be exacerbated if found within a transboundary water context, with some new links also identified. In this context, transboundary water cooperation becomes

of paramount importance for the implementation of the SDGs as a whole, and not only for SDG 6.

#### **4.1 IWRM and transboundary water cooperation**

Target 6.5 reads as follows: “By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.” IWRM is now an established principle of water management and can be referred to as:

“an approach to managing water in a coordinated way. It takes into account the different water sources as well as various users and uses in a given situation, with the aim of maximising positive social, economic and environmental benefits. It uses catchment and aquifers, as the principle unit of water management, and stresses decentralization of governance structures and active stakeholder participation in decision making.”<sup>24</sup>

Many of the elements needed to promote “peaceful and inclusive societies for sustainable development” ex SDG 16 are present in IWRM. In particular, references to the rule of law and access to justice in target 16.3, to the development of accountable and transparent institutions in target 16.6 and to participatory and representative decision-making in target 16.7 all resonate with the above-mentioned definition of IWRM.<sup>25</sup>

In the context of SDG 6 IWRM can be considered as the means by which the other targets will be achieved. In other words, access to water and sanitation will be secured only by implementing IWRM properly. Likewise, IWRM is needed to tackle water quality and water scarcity problems. Furthermore, management of water dependent ecosystems also requires IWRM, as it depends on the integration of an ecosystems approach to water resources management.

Target 6.5 refers to the implementation of IWRM “at all levels”. This can be interpreted as relying on IWRM for all kinds of water resources (surface and groundwater), but also at all scales (local, national and international) and for dealing with all kinds of challenges that stakeholders face when dealing with water resources (quality, scarcity, competition over different uses, etc...). Target 6.5 includes a direct and clear reference to “transboundary cooperation” as a means to implement IWRM. Transboundary cooperation does not refer only to transboundary

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<sup>24</sup> ‘Consolidated Metadata Note from UN Agencies for SDG 6 Indicators on Water and Sanitation’ (IAEG-SDGs 2015), p 32.

<sup>25</sup> Mallory Orme, et al., ‘Good Transboundary Water Governance in the 2015 Sustainable Development Goals: A Legal Perspective’ (2015) 40 *Water International* 969.

water cooperation,<sup>26</sup> but in the context of this paper we will focus on transboundary water cooperation: i.e. established or emerging international rules and institutions aimed at minimising and, where possible, averting completely the likelihood of significant harm occurring in the relationships between countries sharing transboundary waters (transboundary rivers, lakes, aquifers, etc..).<sup>27</sup>

## 4.2 Links between Target 6.5 and other SDG 6 targets

SDG 6 includes a human right to water and sanitation component (targets 6.1 and 6.2), it addresses water quality and water scarcity (targets 6.3 and 6.4), and finally includes references to IWRM and to water related ecosystems (targets 6.5 and 6.6). But how does target 6.5 refer to the other targets in SDG 6? In a nutshell the analysis below demonstrates that all other SDG 6 targets depend, in one way or another, on IWRM and on transboundary water cooperation since mismanagement of transboundary waters (be it a transboundary river or a transboundary aquifer) can lead to negative impacts.<sup>28</sup>

While access to safe and affordable clean water and sanitation is usually considered as a national governance matter, if water stops flowing from one country to another, or if less water flows or is polluted, access to water (leave aside its quality) will become problematic. This is true also for sanitation, to the extent that the latter requires water. Transboundary water cooperation is, hence, also relevant for achieving access to water and sanitation and needs to be considered when implementing targets 6.1 and 6.2.

The link between transboundary water cooperation and water quality and water scarcity is clearer. If hazardous chemicals are dumped upstream and flow downstream uncontrolled pollution will occur and the quality of the waters will suffer. Similarly, if unsustainable withdrawals take place on one side of the border, this can lead to significant harm on the other side of the border.<sup>29</sup> Water quality and water scarcity will be dealt with domestically by implementing IWRM properly. If these challenges arise in the context of transboundary waters, then countries are required to use their waters (surface and groundwater alike) in an equitable and reasonable manner taking into account a certain number of factors provided for by

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<sup>26</sup> In fact, if IWRM calls for integration between water resources management and the management of other environmental, socio and economic activities that may have an impact on water resources, transboundary cooperation may also refer to international cooperation over other natural resources (biodiversity, climate change, desertification, etc...). It could also refer to transboundary cooperation in non-natural resources field, such as trade or investment, in ways that, again, may foster IWRM.

<sup>27</sup> See section 2.1 above.

<sup>28</sup> Surface and groundwater pollution from industrial activities, surface and groundwater over-exploitation from large scale farming, and modification of water flows from large scale dams are just three possible examples of significant harm occurring in a transboundary context.

<sup>29</sup> This is particularly the case for fossil (non-renewable) transboundary aquifers and it can lead to further water scarcity.

the existing and emerging rules applicable to transboundary water cooperation.<sup>30</sup> The latter include socio, geographical, climatic and economic factors,<sup>31</sup> which need to be considered together,<sup>32</sup> with priority for vital human needs.<sup>33</sup> The implementation of targets 6.3 and 6.4 is, hence, also dependent on target 6.5 and its reference to transboundary cooperation.

Finally, target 6.6 refers to the need to protect water-related ecosystems, including “rivers, aquifers and lakes”. When the latter cross borders, transboundary water cooperation becomes crucial. The existing and emerging rules of international law applicable to such water-related ecosystems need to be understood and utilised in the implementation of target 6.6.<sup>34</sup>

In conclusion, IWRM can be considered as the means for countries and all stakeholders more generally to achieve SDG 6. Whenever one of the aspects addressed by the targets in SDG 6 (access to water, access to sanitation, water quality, water scarcity and water-related ecosystems) acquires a cross-border dimension, transboundary water cooperation is also needed to properly address SDG 6 through IWRM. The paper will now move on to map the linkages between IWRM and the rest of the SDGs, and between transboundary water cooperation and the remaining SDGs.

### 4.3 Links between IWRM and other SDGs

This sub-section completes the previous section of this paper in which the relationships between SDG 6 and the rest of the SDGs was analysed. 31 instances in which the achievement of a specific SDG depends also on the implementation of SDG 6 have been identified. Within this picture there are at least 4 links between IWRM and other SDGs.<sup>35</sup>

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<sup>30</sup> *UNWC*, supra note 12 (Part II Art. 5), and *Draft Articles*, supra note 16 (Part II. Art. 4)

<sup>31</sup> *UNWC*, supra note 12 (Part II Art. 6.1(a)), and *Draft Articles*, supra note 16 (Part II. Art. 5.1(b))

<sup>32</sup> *UNWC*, supra note 12 (Part II Art. 6.3), and *Draft Articles*, supra note 16 (Part II. Art. 5.2)

<sup>33</sup> *UNWC*, supra note 12 (Part II Art. 10.2), and *Draft Articles*, supra note 16 (Part II. Art. 5.2)

Just as there will never be only one way of implementing IWRM, there is not one way of defining equitable and reasonable use of a transboundary water, as it will change and depend case by case. But it is very important to acknowledge that countries have at their disposal existing and emerging rules of international law. If implemented properly, these rules have the potential to address water quality and water scarcity issues in transboundary waters.

<sup>34</sup> *UNWC*, supra note 12 (Part IV Art. 20), and *Draft Articles*, supra note 16 (Part III. Art. 10)

<sup>35</sup> However, if we agree that IWRM is necessary to achieve all other SDG 6 targets, the relationship between IWRM and other SDGs can be considered to be much broader. An example may help to illustrate this point. We have seen that SDG 8 is about promoting sustained, inclusive and sustainable economic growth, and that target 8.4 calls for gradual improvement in “global resource efficiency” and for “decoupling economic growth from environmental degradation” through new sustainable consumption and production practices. This target speaks indirectly to target 6.4 that addresses water scarcity issues since some water scarce countries engage in very water intensive agricultural practices. The water footprint of agricultural products originating from such countries makes them very inefficient from an environmental perspective. Only through appropriate IWRM

There are, however, at least four instances in which IWRM becomes even more relevant for the implementation of specific SDGs. The first one can be found in target 13.2, which reads as follows: “Integrate climate change measures into national policies, strategies and planning.” The relationship between climate change and water is very clear, both in terms of the water related disasters caused or increased by climate change, and in terms of the role that good water governance can play in adapting to climate change. For water governance to play a positive role in climate change adaptation, an *integrated* approach needs to take place by which a country inserts climate change into national policies, strategies and planning. However, due to the links between climate change and water, climate change integration requires also a duly consideration of IWRM, and vice versa. When countries engage in IWRM, climate change considerations need to be considered properly.

Two other instances in which IWRM plays a key role can be found in targets 15.4 and 15.5 that deal with the conservation of mountain ecosystems and biodiversity, including threatened species. While there is also an obvious link with target 6.6 that refers to water-dependent ecosystems, IWRM is also needed to ensure that other environmental considerations are duly taken into account when developing water policies.

Finally, target 16.1 makes a call to “significantly reduce all forms of violence and related death rates everywhere”. No need to dwell again on whether water will lead to wars and conflict, or, quite the opposite, to cooperation between countries. However, well designed and appropriately implemented IWRM will undoubtedly lead to more sustainable water practices that will, ultimately, lead to more social and economic development. Violence and conflict tend to be less present if a country is developing, hence the link with IWRM.

SDG 6	Other SDGs
6.1 Access to water	1.4, 3.1, 3.2, 4.1, 4.2, 11.1
6.2 Access to sanitation	1.4, 3.1, 3.2, 11.1
6.3 Water quality	2.4, 7.a, 9.4, 12.4, 14.1, 15.4, 15.5
6.4 Water scarcity	2.4, 7.a, 8.4, 9.4, 15.4, 15.5
6.5 IWRM	13.2, 15.4, 15.5, 16.1
6.6 Water-related ecosystems	7.2, 15.1, 15.8

Table 2 – Goals and targets which link to SDG 6 and IWRM

will countries be able to shift their production and consumption practices towards more water efficient practices in the context of their economic growth. This is just one example of how IWRM ends up relating and being relevant for most, if not all, links between SDG 6 and the other SDGs.

The table above includes the links between IWRM as provided for in target 6.5 and other SDGs. However, it is worth emphasising again that IWRM (just like transboundary water cooperation) is also a tool for the other SDG 6 targets to be met.

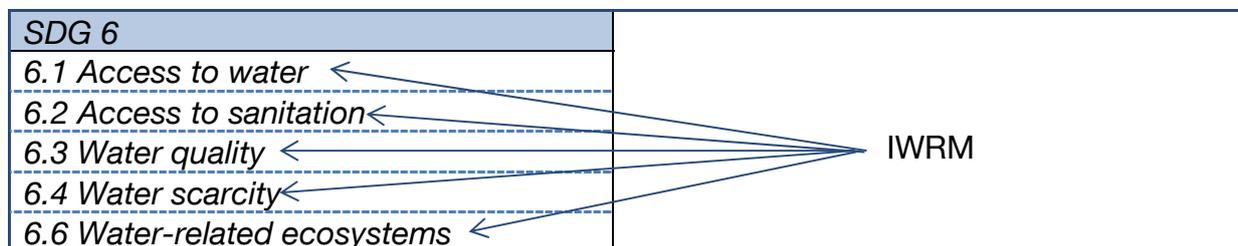


Table 3 – Links between IWRM and SDG 6 targets

What this means is that all links between SDG 6 and the other SDGs have, at least in some minimal part, relevance for IWRM, making the latter a pivotal tool for the successful implementation of the SDGs.

SDG 6	Other SDGs	
6.1 Access to water	1.4, 3.1, 3.2, 4.1, 4.2, 11.1	IWRM
6.2 Access to sanitation	1.4, 3.1, 3.2, 11.1	
6.3 Water quality	2.4, 7.a, 9.4, 12.4, 14.1, 15.4, 15.5	
6.4 Water scarcity	2.4, 7.a, 8.4, 9.4, 15.4, 15.5	
6.5 IWRM	13.2, 15.4, 15.5, 16.1	
6.6 Water-related ecosystems	7.2, 15.1, 15.8	

Table 4 – Associations between SDG 6 targets, other SDGs, and IWRM

Furthermore, whenever one of the aspects addressed by the targets in SDG 6 (access to water, access to sanitation, water quality, water scarcity and water-related ecosystems) acquires a cross-border dimension, transboundary water cooperation is also needed to properly address SDG 6.

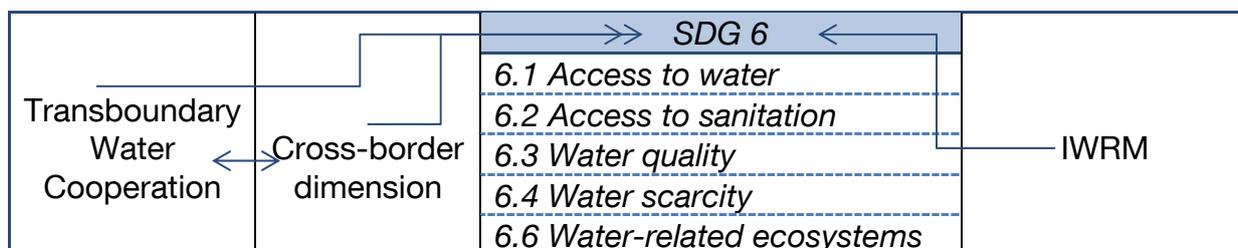


Table 5 – SDG 6 targets and levels of access between IWRM and transboundary water cooperation

The table above starts to highlight that, as much as IWRM and transboundary water cooperation are both present in target 6.5, they tend to operate at different levels. IWRM is mainly a domestic tool for water management, while transboundary water cooperation is needed when mismanagement of transboundary waters can lead to significant harm. The link between IWRM and transboundary water cooperation, and its implication for the implementation of the SDGs, will be further addressed later in this paper.<sup>36</sup> The latter now moves on to map the linkages between transboundary water cooperation and the SDGs.

#### **4.4 Links between transboundary water cooperation and other SDGs**

Concluding that IWRM and transboundary water cooperation is necessary to “ensure availability and sustainable management of water and sanitation for all (i.e. SDG 6)” should not be too surprising. The question is whether transboundary water cooperation plays a similar role in the context of other SDGs and targets therein. In order to answer this question, this sub-section will map and assess the relationship between the transboundary water cooperation element embedded in target 6.5 and the other SDGs and targets therein. Most of these links are the same as the ones identified when discussing the relationship between SDG 6 and the other SDGs, others are new. The mapping exercise and analysis highlights the need to retain transboundary water cooperation at the heart of the implementation of the SDGs.

##### **4.4.1 Already existing links between SDG 6 and other SDGs that call for transboundary water cooperation**

The first point to make is that of the 31 links identified in previous sections, most can be placed in a transboundary context. Should this happen, the link not only remains, but could become more acute should transboundary water cooperation not be present. This situation will be illustrated by focusing on how each specific SDG 6 target links to other SDGs and determining the extent to which transboundary water cooperation is needed to implement such SDG.

##### *Target 6.1 Access to Water, other SDGs and Transboundary Water Cooperation*

Access to water is crucial for the achievement of SDG 4 and in particular to ensure that all children have childcare and primary and secondary education. If water resources are transboundary and their quantity or quality is affected by mismanagement, access to water will become even more problematic. In this context, transboundary water cooperation becomes particularly important,

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<sup>36</sup> See infra sections 4.1-4.3.

especially the reference to the need to ensure surface water (or groundwater) for vital human needs.<sup>37</sup>

Access to water is also direly needed to achieve SDG 11, which aims to make cities and human settlements safer. With a similar rationale for SDG 4, if water that flows through a city comes from transboundary waters and transboundary water cooperation is not present, or does not function properly, the city can suffer pollution or scarcity as a consequence. This is particularly important for cities that are close to a border and for the most vulnerable of city dwellers. It is, hence, very important for transboundary water cooperation to be linked to SDG 11.

#### *Target 6.2 Access to sanitation, other SDGs and transboundary water cooperation*

Access to sanitation is mainly a domestic matter in which IWRM becomes particularly relevant. However, to the extent that proper sanitation requires water, its pollution or its scarcity can lead to problems. Transboundary water cooperation can, hence, become relevant especially in the context of SDG 11, in which sanitation constitutes one of the basic services that needs to be guaranteed to city dwellers. This is particularly true, as per the discussion above for access to water, for cities crossed by transboundary waters, be they rivers or aquifers.

#### *Target 6.3 Water quality, other SDGs and transboundary water cooperation*

Water quality is crucial for a number of SDGs. Starting with SDG 2 that addresses hunger, food security and sustainable agriculture. Transboundary water cooperation is extremely important for this SDG since farming operations within transboundary waters may pollute the waters of a neighbouring country hindering food security and sustainable agriculture. Mismanagement of transboundary waters can also lead to challenges to ecosystems on the other side of the border. It is, hence, crucial that in implementing target 2.4 close attention is given to the transboundary water cooperation element of target 6.5.

Water quality is also a critical issue for SDG 7 in as much as it allows and promotes for cleaner fossil-fuel technology. Should countries sharing transboundary waters engage in unconventional oil and gas extraction and not use safe technology (case pumping, high-volume hydraulic fracturing, etc...), shale gas can lead to groundwater pollution in transboundary aquifers. Hence, transboundary water cooperation needs to be closely considered when implementing target 7.a.

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<sup>37</sup> See supra note 33.

A third SDG in which transboundary water cooperation is important in relation to water quality is SDG 12 that refers to shifting patterns of production and consumption. Target 12.4 calls for a significant reduction of chemicals into the water. This is a clear example that transboundary water cooperation is crucial vis a vis transboundary waters. Countries can implement SDG 12 in the best possible way domestically, but if water quality is hindered by actions originating from outside their borders, only effective transboundary water cooperation will be able to tackle the problem. It is, hence, extremely important that target 6.5 is considered in harmony with target 12.4.

SDG 14 is a fourth one in which transboundary water cooperation is not just an option, but a requirement in case of transboundary waters. Marine pollution from land based activities may be caused by pollution upstream from a country different than the one where the transboundary water flows into the sea. This may be equally true for coastal aquifers, even if in this case, usually, the flow of groundwater will be much slower and gravest pollution problems will arise on more localised border areas. The transboundary water cooperation element of target 6.5 needs to be fully incorporated into the implementation of target 14.1.

Finally, SDG 15 requires transboundary water cooperation in order to effectively protect mountain ecosystems and biodiversity, when these feature transboundary waters. In particular, mountain ecosystems can be very fragile and pollution upstream can hinder the delicate balance downstream within a mountain ecosystem. It is important that countries use their waters in an equitable manner giving ecosystem protection the necessary value. This can happen only if transboundary water cooperation, as enshrined in target 6.5. is considered together with targets 15.4 and 15.5.

#### *Target 6.4 Water scarcity, other SDGs and transboundary water cooperation*

Very similar considerations apply for the need to incorporate transboundary water cooperation ex target 6.5 when dealing with water scarcity issues within other SDGs. Firstly, the mismanagement of transboundary waters can lead to significant harm to the agriculture sector of a country, which could have serious implications for food security and the fight against hunger. By engaging in good faith and meaningful transboundary water cooperation the risks of having further water scarcity due to the actions of transboundary water country over another are reduced. Hence, the need to consider the transboundary water cooperation dimension of target 6.5 and target 2.4 together also in relation to water scarcity challenges.

As for sustainable energy and target 7.a, here the challenge lies in the amount of water needed for operating unconventional oil and gas extractions. Should this take place in the context of transboundary waters, overexploitation for *sustainable* energy uses may cause competition not only over different uses, but also less available water for a neighbouring country.<sup>38</sup> Taking the above into account, the transboundary water cooperation dimension of target 6.5 needs to be considered when implementing 7.a.

A third SDG that has to be understood in conjunction with transboundary water cooperation is SDG 15 that refers, as we have seen previously, to the protection of mountain ecosystems and biodiversity. Just as for water quality, these ecosystems depend also on the amount of water, and this can be negatively affected by the mismanagement of transboundary waters.

#### *Target 6.5 IWRM, other SDGs and transboundary water cooperation*

IWRM is the first part of target 6.5 and, despite the fact that its presence is very much felt in each and every one of the 31 links identified between SDG 6 and the other SDGs, there are at least 4 instances in which IWRM has an even stronger relationship with a specific SDG. Transboundary water cooperation is relevant in each one.

The first refers to the relationship with SDG 13, the climate change SDG. Here transboundary water cooperation is of utmost importance due to the relevance of water resources (both surface and groundwater) in adapting to climate change. This is a case in which the cross border nature of transboundary waters requires transboundary water cooperation for target 13.2 that calls for integrated approaches to be effective. Hence, the need to consider also the transboundary water cooperation element of target 6.5 in the implementation of target 13.2.

The second and third instance refers to SDG 15 and in particular to its targets that refer to the protection of mountain ecosystems and biodiversity. IWRM is crucial to this, but if these ecosystems find themselves in a transboundary context, transboundary water cooperation is also extremely important.

Finally, SDG 16, which is about the promotion of peaceful and inclusive societies, also requires transboundary water cooperation. Transboundary waters have the potential to lead to conflict if not managed properly. But they also have the potential to lead to cooperation, if transboundary water cooperation is genuine and properly designed and implemented.

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<sup>38</sup> In this context, it is important that the factors that need to be taken into account to determine equitable and reasonable utilisation are properly balanced in such a situation giving priority to vital human needs. See supra note 33.

### *Target 6.6 Water-related ecosystems, other SDGs and transboundary water cooperation*

Large scale dams can be drivers of economic development, but can also constitute threats to biodiversity and to local communities that in some cases needs to be displaced due to the construction and operation of the large infrastructure. When dams are built on transboundary rivers the need for States sharing such a natural resource to cooperate is of paramount importance. Without cooperation, framed not only as the substantive obligation to use the waters in an equitable and reasonable way,<sup>39</sup> but also considered in its procedural guise as the obligation to notify and consult,<sup>40</sup> large scale dams, despite their contribution to the renewable energy mix of a country, or even of a region, can lead to tension and in some cases event to conflict. It is, hence, extremely important that the transboundary water cooperation element embedded in target 6.5 is built into the implementation of target 7.2.

A second SDG worth highlighting in the context of target 6.6 and transboundary water cooperation is SDG 15 and target 15.1 in particular. The latter reads as follows:

“By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with *obligations under international agreements*.”<sup>41</sup>

While reference to specific ecosystems may lead to highlight ad-hoc international agreements such as the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention),<sup>42</sup> target 15.1 can also be read as a clear and direct reference to the need to incorporate existing and emerging international rules applicable to transboundary waters for their relevance to the protection of ecosystems.<sup>43</sup> The need to harmonise the transboundary water cooperation element of target 6.5 and target 6.1 is the consequence of such a requirement.

Similarly, target 15.8 that calls for prevention of introduction and reduction of the impact of “invasive alien species on land and water ecosystems” requires close and full attention to transboundary water cooperation in order to deal with this threat to ecosystems when these stem from transboundary waters, surface water in primis.

<sup>39</sup> *UNWC*, supra note 12 (Part II Art. 5), and *Draft Articles*, supra note 16 (Part II. Art. 4)

<sup>40</sup> *UNWC*, supra note 12 (Part III Art. 12), and *Draft Articles*, supra note 16 (Part III. Art. 15.2)

<sup>41</sup> Emphasis not present in the original.

<sup>42</sup> *The Convention on Wetlands of International Importance, especially as Waterfowl Habitat*, signed in Ramsar on 2 February 1971 entered into force on 21 December 1975

<sup>43</sup> *UNWC*, supra note 12 (Part IV Art. 20), and *Draft Articles*, supra note 16 (Part III. Art. 10)

SDG 6	Other SDGs
6.1 Access to water	4.1, 4.2, 11.1
6.2 Access to sanitation	11.1
6.3 Water quality	2.4, 7.a, 12.4, 14.1, 15.4, 15.5
6.4 Water scarcity	2.4, 7.a, 15.4, 15.5
6.5 IWRM	13.2, 15.4, 15.5, 16.1
6.6 Water-related ecosystems	7.2, 15.1, 15.8

Table 6 – Target 6.5 (transboundary cooperation) and links between SDG 6 and other SDGs

This extensive mapping has highlighted 21 instances in which the transboundary water cooperation element of target 6.5 finds its way into links that have already been identified between SDG 6 and other SDGs. These links highlight the need to consider *also* transboundary water cooperation when implementing the SDGs. It also clarifies that transboundary water cooperation needs to *inform* the implementation of those SDGs in which a link can be found. Before clarifying what we mean by *also* and *inform* this paper will now move on to see whether further ad-hoc links can be found between transboundary water cooperation and other SDGs and targets therein.

#### **4.4.2 New links between SDG 6 and other SDGs that call for transboundary water cooperation**

##### *SDG 1 – End poverty in all its forms everywhere*

Target 1.5 reads as follows: “By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.” The non-equitable use of natural resources contained in a transboundary river or in a transboundary aquifer can lead to an environmental shock or disaster. Non-equitable use can arise from over-exploitation or pollution of a transboundary river or of a transboundary aquifer. To avoid such shocks and disasters countries that share a transboundary river or a transboundary aquifer need to cooperate, based on existing and emerging rules of international law. In order to effectively build by 2030 the resilience of the poor and of those in vulnerable situations to environmental shocks and disasters caused by the non-equitable use of transboundary rivers and transboundary aquifers, transboundary water cooperation must *also* be considered. Furthermore, transboundary water cooperation in target 6.5 should also *inform* the implementation of target 1.5.

## *SDG 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*

Target 9.1 includes “transborder infrastructure” within its scope. Both transboundary surface water, and to a lesser extent, transboundary aquifers, can be impacted by transboundary infrastructure. The latter will be built to promote economic development, but needs to be “affordable” and there should be “equitable access for all”. In particular, the reference to *equity* leads to the need to develop and build transboundary infrastructure in an equitable and reasonable manner, which can be assisted by referring to the similar provision in transboundary water cooperation agreements.<sup>44</sup> Despite the fact that this link may not be as clear and apparent as others, target 6.5 also plays a role in the implementation of target 9.1.

In conclusion, there are at least 31 instances in which SDG 6 links directly or indirectly with other SDGs. Of these 31 links, 21 have a cross-border dimension that require the transboundary water cooperation element provided for in target 6.5 to be also considered and to inform the implementation of the SDGs. Two further links between transboundary water cooperation and the rest of the SDGs have also been identified.

We now conclude this section by clarifying once again that sustainable development requires transboundary water cooperation. The relationship between IWRM and transboundary water cooperation within target 6.5 emphasises this requirement.

### **4.5 Sustainable Development requires Transboundary Water Cooperation**

Target 6.5 highlights the importance of IWRM for successfully achieving SDG 6. IWRM is also relevant for a number of other SDGs and targets therein, but IWRM is mainly a domestic/national water management approach. In fact, “without an adequate coordination at the basin level water resources management cannot be truly integrating the different water uses and ensure sustainability.”<sup>45</sup> Even the best designed and best implemented IWRM at a national level will not be able to cope with water resources challenges (pollution and over exploitation in primis) if these challenges originate from a neighbouring country. Since water often crosses national boundaries, IWRM will be limited if a transboundary component is not considered. Transboundary water cooperation is, hence, paramount for sustainable

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<sup>44</sup> See supra note 30.

<sup>45</sup> Consolidated Metadata (2015) p 33.

development and for the implementation of the SDGs as a whole. This is not to say that domestic water resources management, and IWRM in particular, are not important, quite the opposite. But it cannot be denied that, without appropriate transboundary cooperation, some national water resources challenges cannot be properly dealt with.

Against this background, this section has highlighted the importance of transboundary water cooperation for sustainable development. In particular, transboundary water cooperation as provided for in SDG 6 is *also* relevant for other SDGs and it *informs* the implementation of other SDGs. Before moving forward in this paper and addressing the topical issue of indicators for SDGs and the need to include transboundary water cooperation therein, what is meant by *also* and *inform* in the context of SDG implementation and transboundary water cooperation will be briefly clarified.

Transboundary water cooperation is not the only and most important means of implementation of the SDGs. One of the key characteristics of the SDG as a whole is that they cannot be understood and, more importantly, implemented in isolation.<sup>46</sup> Transboundary water cooperation is needed for the proper implementation of the SDGs, but the opposite also stands true. Each SDG has to be considered in the development of new, or amendment of already existing, transboundary water cooperation frameworks.

On the other hand, transboundary water cooperation needs to *inform* the implementation of the SDG. It is not enough just to consider transboundary water cooperation together with other factors that are ultimately aggregated to a list of indicators. Transboundary water cooperation, and the existing and emerging international rules and institutions that define it, need to constitute a normative framework within which to implement the SDGs. Again, it does not have to be the only normative framework, but it is important that stakeholders involved in the implementation of the SDGs are aware of the international laws and policies applicable to transboundary rivers and transboundary aquifers. However, awareness is only the first step. Those involved in the implementation of the SDGs need to also incorporate any rights and obligations (both substantive and procedural) stemming from existing and emerging transboundary waters international rules into policies and strategies aimed at implementing the SDGs. Retaining a strong and clear indicator for transboundary water cooperation is a first step in this direction.

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<sup>46</sup> See supra section 3.3

# 5

## The Case for retaining a strong indicator for Transboundary Water

### Key messages

- *Target 6.5 requires a set of two indicators in order to fully capture the importance of both IWRM and transboundary water cooperation in the implementation of the SDGs.*
- *An indicator must be retained solely for the transboundary water cooperation element embedded in target 6.5.*
- *This paper advocates for an indicator that should be broad enough to reward also cooperative frameworks aimed at developing a sound system of exchange of information, and not only fully fledged IWRM systems.*
- *This is particularly important in the context of transboundary aquifers governance, where many of the cooperative frameworks being discussed are at a very initial stage.*
- *The indicator can be reviewed throughout the implementation of the SDGs, especially in relation to the quantity and quality of the information that needs to be exchanged.*
- *UNESCO-IHP and UNECE can play an important role with other members of UN Water in monitoring this indicator.*

### 5.1 A case for two indicators for target 6.5

Countries are currently in the delicate phase of preparing for the implementation of the SDGs, involved once again in an inter-governmental process, this time led by the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs). In particular, this process is called to develop a set of indicators that will allow to measure and report back on the 169 targets that have been agreed on. On 2 November 2015 a document was made public containing a list of indicators reviewed at the second meeting of the IAEG-SDGs in Bangkok from 26-28 October 2015.<sup>47</sup> In this document there is only one indicator for target 6.5, which reads as follows “Degree of integrated water resources management (IWRM) implementation”.

<sup>47</sup> Results of the list of indicators reviewed at the second IAEG-SDG meeting

This paper instead aligns itself with the December 2015 UN Water contribution for the IAEG-SDGs,<sup>48</sup> in which a second indicator for target 6.5 is included:

“Percentage of transboundary basin area with an operational arrangement for water cooperation.”<sup>49</sup>

This paper has argued throughout that sustainable development is inherently linked to and requires transboundary water cooperation, and it concludes that an indicator for transboundary cooperation, along the lines of the above, is needed not only in the implementation of target 6.5, but for the implementation of the SDGs as a whole.

An indicator solely on IWRM is not enough to operationalise and implement target 6.5. IWRM and transboundary cooperation are related, but they tend to operate at different levels. IWRM and transboundary water cooperation need each other to work properly. IWRM is mainly a national/domestic tool, and transboundary water cooperation is needed to manage cross-border management of water resources. A country can put in place the best possibly designed IWRM policies, but if the challenges to its water resources originate from another country, only effective transboundary water cooperation can manage such challenges. At the same time, the most effective and well-designed transboundary water cooperation framework will not lead to any results if it is not accompanied by properly implemented national IWRM policies.

The strong relationship between IWRM and transboundary water cooperation calls for indicators for both components of target 6.5, and not only one for IWRM.

## 5.2 Suggested indicator 6.5.2 (current and revised formulation)

Suggested indicator 6.5.2 would read as follows: “Percentage of transboundary basin area with an operational arrangement for water cooperation”. The document compiled by UN Water clarifies the definition further:

“Proportion of surface area of transboundary basins that have an operational arrangement for transboundary water cooperation. Regular meetings of the riparian countries to discuss IWRM and exchange of information are required for an arrangement to be defined as “operational””.<sup>50</sup>

The indicator requires a clear understanding of *water cooperation arrangements* and what makes such an arrangement *operational*.

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<sup>48</sup> Metadata on Suggested Indicators for Global Monitoring of the Sustainable Development Goal 6 on Water and Sanitation (IAEG-SDGs) 2015 p. 33.

<sup>49</sup> *Ibid*, p. 32.

<sup>50</sup> *Ibid*, p. 32.

A water cooperation arrangement “provides a framework for cooperation on transboundary water management”. This could come in the form of a treaty, but not necessarily, and does not always have to be signed by central governments. In fact, transboundary water management can be facilitated by local governments.<sup>51</sup> In some cases, cooperation can stem from “bilateral or multilateral commissions or other appropriate institutional arrangements”. Finally, transboundary water management can also be led by multi-sectorial arrangements.<sup>52</sup> Whatever the form or scale, the water cooperation arrangement needs to be operational for it to be a valid component of the suggested indicator.

Only a water cooperation arrangement that enables riparian countries to meet regularly will be operational. But even that will not be enough. Regular meetings have to take place with two specific goals in mind: 1) to discuss IWRM and 2) to exchange information.

The language provided for in the suggested indicator leads to several observations. First, transboundary water cooperation treaties may have been signed, but, in some cases, until they do not enter into force, the necessary institutions and finance needed to enable “regular meetings” can be frozen.<sup>53</sup> Second, water cooperation arrangements may be able to bring together riparian countries, but only to focus on one of the two required contents of such meetings: to discuss IWRM or to exchange information.<sup>54</sup> Arguably, the exchange of information is a pre-condition of IWRM, but the latter is much more than just exchange of information. However, in some cases the goal of transboundary water cooperation frameworks is mainly to develop a sound system of rules and institutions for the exchange of information regarding a specific natural resource.<sup>55</sup> Would such an arrangement be labelled as “operational”? This is particularly relevant for the governance of transboundary aquifers for which rules and institutions are just being developed, compared to the existing law of transboundary surface waters. If a narrow interpretation of the indicator were to be followed, according to which only water cooperation

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<sup>51</sup> This is the case, for example, of the Genevese Aquifer Agreement signed by two sub-national entities: the Canton de Geneve and the Haute Savoie Prefecture.

<sup>52</sup> As is the case for the *Tratado Entre Las Repúblicas de El Salvador, Guatemala Y Honduras Para La Ejecucion Del Plan Trifino*, signed in Guatemala on 31 October 1987, and the *Autonomous Binational Authority of Lake Titicaca (ALT)*, inaugurated in May 1996.

<sup>53</sup> This appears to be the case for the Guarani Aquifer Agreement, which was signed in 2010, but has not entered into force; see *Acuerdo Sobre el Acuífero Guarani* (San Juan, 2 August 2010; not yet in force), (‘Guarani Aquifer Agreement’) and F. Sindico, ‘The Guarani Aquifer System and the International Law of Transboundary Aquifers’, 13:3 *International Community Law Review* (2011), 255.

<sup>54</sup> In some cases agreements in force may be so only on paper, and countries lack the necessary capacity or financial resources to bring riparian countries together “regularly”. Such an arrangement would, obviously, not be “operational”.

<sup>55</sup> This could be the case of the North Western Sahara Aquifer System; see *Establishment of a Consultation Mechanism for the Northwestern Sahara Aquifer System (SASS)* (Rome, 19-20 December; endorsed 6 January 2003 (Algeria), 15 February 2003 (Tunisia), 23 February 2003 (Libya)), found at: <http://www.fao.org/docrep/008/y5739e/y5739e05.htm#bm05.2.1> (‘NWSAS Agreement’).

arrangements that enable regular meetings between riparian to discuss IWRM and exchange information, the indicator would capture very few transboundary aquifer specific arrangements. Since the goal of an indicator is also to provide an incentive for cooperation, it is suggested herewith that, for an agreement to be considered *operational* ex suggested indicator 6.5.2, the agreement needs to enable:

“regular meetings of the riparian countries to discuss IWRM and/or exchange information”.

The suggested interpretation would highlight the importance of arrangements that provide the necessary pre-condition for IWRM and would reward those countries that move in this direction. Countries do not need to flesh from the beginning an arrangement that allows them to discuss IWRM for these arrangements to meet the conditions in the suggested indicator. In order to counterbalance such an interpretation, the indicator could be qualified as clarifying what kind of information and how regularly such information needs to be exchanged.<sup>56</sup>

SDG 6 target 6.5				
Indicator 6.5.1				
Indicator 6.5.2 (Percentage of transboundary basin area with an operational arrangement for water cooperation)	Cooperative Frameworks	Regular meetings between riparian countries	To exchange information To exchange information and discuss IWRM To exchange information and discuss IWRM and...	Information (quantitative and qualitative)

Table 7 – Proposed indicators for SDG 6, target 6.5

### 5.3 Monitoring the revised indicator 6.5.2

The revised suggested indicator would need to be monitored. There are enough sources and data sets available to make this a workable endeavour. And there are international organisations equipped to fulfil this monitoring role. The indicator requires more than just a list of existing transboundary water cooperation frameworks, but less than an in depth complex understanding of all the multifaceted nature of IWRM relationships. The organisations involved in the monitoring of

<sup>56</sup> This is line with the UN Water compiled document where it maintains that “Eventually, the scope, quality and/or extent of application of operational arrangements for transboundary cooperation could be reviewed for refining the monitoring”; UN Water, p. 33.

indicator 6.5.2 could use a system by which a cooperative framework that provides for regular meetings that enables exchange of information would be considered to have met the indicator.<sup>57</sup> If the cooperative framework exceeds this initial stage of cooperation, and provides also for IWRM discussion more broadly (i.e. not limited to exchange of information), the specific transboundary water cooperation can be given a specific status, which again would push countries towards this goal. A system could also be put in place to prevent backpedalling, by carefully monitoring cooperative frameworks that slide down from a fully-fledged discussion of IWRM matters, to *only* an exchange of information.

Which organisations could be involved in such monitoring and through which processes? The entire UN Water family has a role to play, but for transboundary water cooperation, both in the phase of SDG implementation and in the current phase of development of indicators, two organisations appear to have a legitimate competitive advantage. Legitimate because of their mandate and because of their universality.

On the one hand, UNESCO-IHP stands at the heart of transboundary aquifer cooperation and has been tasked by the UN General Assembly in repeated occasions to offer “scientific and technical assistance” to countries in this field.<sup>58</sup> UNESCO-IHP through its International Shared Aquifer Resource Management (ISARM) Initiative has been mapping transboundary aquifers for over a decade and stands well positioned to play a central role in enabling transboundary water cooperation to contribute to the implementation of the SDGs, especially from a groundwater and transboundary aquifer perspective.<sup>59</sup> UNESCO-IHP can also contribute to the monitoring of the suggested indicator 6.5.2.

On the other hand, UNECE has also the potential of contributing decisively to the transboundary water component of SDG implementation and suggested indicator 6.5.2 monitoring. Despite its regional origins, the UNECE Water Convention has now opened itself to universal UN membership,<sup>60</sup> making it a tool for global (and not just Pan-European) transboundary water cooperation. This has been further confirmed in November 2015 when a Decision of the UNECE Water Convention Meeting of the Parties has established a regular reporting mechanism on

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<sup>57</sup> Capacity and financial resources become crucial components both for the riparian countries involved and for the transboundary water cooperation institution itself, if present. See supra note 55.

<sup>58</sup> A/C.6/68/L.25, para 2.

<sup>59</sup> UNESCO, ‘Transboundary Cooperation’ (18 November 2015) <<http://en.unesco.org/themes/water-security/hydrology/groundwater/transboundary-cooperation>> accessed 27 January 2016.

<sup>60</sup> ‘UNECE Water Convention Goes global’ (UNCECE Press Releases, 6 February 2013), <<http://www.unece.org/index.php?id=32154>> accessed 28 January 2016.

transboundary water cooperation that includes all transboundary waters, surface and groundwater.<sup>61</sup>

In conclusion, this section has made a case for keeping a clear and strong indicator for transboundary water cooperation. It has argued that target 6.5 cannot depend only on an IWRM related indicator, but a second indicator capable of capturing the transboundary water component element needs to be present as well. The indicator will be met if an operational cooperative framework is present. However, the current interpretation of *operational* is broadened to include transboundary water cooperation frameworks that enable regular meetings between riparian countries to discuss IWRM and/or exchange information. The revised indicator is needed to provide a positive and rewarding environment to those countries that are starting their transboundary water cooperative pathway by establishing rules and institutions devoted to the exchange of information. The latter is a necessary pre-condition for IWRM and information is acutely needed especially in the context of transboundary aquifer management. The revised indicator will be monitored by the entire UN Water family, but UNESCO-IHP and UNECE can lead the way due to their past and ongoing track record in transboundary waters.

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<sup>61</sup> 'UNECE Water Convention Gears up for Role as the "United Nations Home for Transboundary Water Issues", Adopting a Reporting Mechanism to Track Progress towards Global Goals' (UNECE Press Releases, 24 November 2015) <<http://www.unece.org/info/media/presscurrent-press-h/environment/2015/unece-water-convention-gears-up-for-role-as-the-united-nations-home-for-transboundary-water-issues-adopting-a-reporting-mechanism-to-track-progress-towards-global-goals/doc.html>> accessed 28 January 2016.

# 6



## Conclusion

The importance of transboundary water cooperation for sustainable development, its relevance for the implementation of the SDGs as a whole, and the intrinsic relationship between IWRM and transboundary cooperation, are the three key arguments in favour of retaining a clear transboundary water cooperation indicator in the implementation of the SDGs. Considering the wide range of stakeholders in transboundary water governance, it is critical to ensure that existing institutions and norms are able to effectively harmonize with increased IWRM and the goals and targets put forth by the SDGs. Against this background, this paper aligns itself with the indicator suggested by the December 2015 UN Water compiled document:

“6.5.2 Percentage of transboundary basin area with an operational arrangement for water cooperation”.

With this consideration in mind, there must also be a broader interpretation of what constitutes an *operational arrangement*. For an agreement to be considered *operational* the agreement needs to enable:

“regular meetings of the riparian countries to discuss IWRM and/or exchange of information”.

This broader interpretation can better encapsulate cooperative frameworks that *only* establish regular meetings between riparian countries to exchange information. It is important to broaden the scope of the suggested indicator 6.5.2 since in many cases (and in particular for transboundary aquifer governance) cooperative frameworks are in their inception stage and exchange of information is a much needed pre-condition for fully fledged IWRM.

Finally, UNECE and UNESCO-IHP both have unique and individual roles to play in establishing and monitoring these indicators. They are uniquely positioned to facilitate information exchange, prevent against backpedalling and coordinate regular discussions concerning the applicability of the indicators. Concise and consistent monitoring will be paramount in measuring the success of integrating transboundary water cooperation and IWRM, and implementing the proposed indicators for congruous global water governance.





The International Hydrological Programme (IHP) is the UNESCO intergovernmental programme devoted to water research, water resources management, and education and capacity building. IHP facilitates an interdisciplinary and integrated approach to watershed and aquifer management, which incorporates the social dimension of water resources, and promotes and develops international research in hydrological and freshwater sciences.

As the global community is working on the framework for the implementation and monitoring of the Sustainable Development Goals (SDGs), this paper aims at shedding light on the cross-cutting issue of transboundary water cooperation. From direct linkages to indirect references, transboundary water cooperation is intrinsically connected to several other principles reflected in the SDG goals and targets. In this context, this paper advocates retaining an indicator dedicated to transboundary water cooperation.

- **Contact information**

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