**”COUNTING OUR GAINS”**

**Policy Guidance Note on identifying, assessing and communicating the benefits of transboundary water cooperation**

**Second draft**

This document presents the second draft of the Policy Guidance Note. This second draft is based on the first draft of the policy guidance note circulated in April 2014 and the case studies presented at the Workshop “Counting our gains: [Sharing experiences on identifying, assessing and communicating the benefits of transboundary water cooperation”](http://www.unece.org/env/water/workshop_benefits_cooperation_2014.html) that took place in Geneva on 22-23 May 2014.

This second draft is work in progress and it will experience revisions after the Workshop “Beyond Water” that will take place in Tallinn on 28-29 January 2015 to reflect the main messages and recommendations of the Workshop. **Readers are invited to provide comments on this second draft by 27 February 2015.**

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# Executive Summary

The Executive Summary will be prepared for the third draft of the Policy Guidance Note.

The Executive Summary will present the key messages of the Policy Guidance Note on identifying, assessing and communicating the benefits of transboundary water cooperation. It will be the basis for a stand-alone publication targeted to high-level policymakers as well as a slide show.

*Target length of the Executive Summary: four pages. Target length of the Policy Guidance Note (main text), excluding the Executive Summary: 25 pages.*

# How to use this document

*A “How to use this document” section will be prepared for the third draft of the Policy Guidance Note.*

# Chapter 1 - Setting the stage for this Policy Guidance Note

Section 1.1 - Aim

* + 1. **Transboundary water cooperation (TWC) has the potential to generate many and significant benefits for cooperating countries**. Those benefits can be realised by accelerating economic growth, increasing human well-being, enhancing environmental sustainability and contributing to political stability. Higher levels of TWC can be expected to generate greater benefits.
    2. **This Policy Guidance Note aims to support governments and other actors in realizing the potential benefits of transboundary water cooperation.** To do so, it provides an overview of the full set of potential benefits that can be generated by transboundary water cooperation, an introduction to how the specific benefits can be assessed, and guidance on how the assessment of benefits can be integrated into policy processes.
    3. **The primary target audience of this Policy Guidance Note is decision-makers in ministries responsible for environment, water and foreign affairs, as well as joint bodies for transboundary water management.** This Policy Guidance Note is also relevant for development cooperation partners and national stakeholders (including relevant business and civil society organizations).

Section 1.2 - Rationale

* + 1. **Transboundary water cooperation has been increasing, but some countries are still facing difficulties in cooperating**. Simply put, countries cooperate when the net benefits of cooperation (in a wide sense) are perceived to be greater than the net benefits of non-cooperation, and when the distribution of these net benefits is perceived to be fair. Part of the reason for the failure to cooperate is the lack of recognition of (some of) the benefits of cooperation.
    2. **Even those countries that cooperate often do it only on narrow issues**. **There is scope for increasing transboundary water cooperation** from quantity or quality issues to a broader set of issues, and by moving from “sharing water” (i.e. allocating water resources among riparian States) to “sharing the benefits of water” (i.e. managing water resources to achieve the maximum benefit and then allocating those benefits among riparian States, including through compensation mechanisms). There is even greater scope for increasing cooperation by moving from “sharing the benefits of water” to “realizing the broader benefits of water cooperation”.
    3. **A systematic process of identifying all the benefits of transboundary water cooperation will help to uncover previously overlooked benefits.** By itself, this may already strengthen the case for cooperation. A simple and practical framework is needed to support the identification of TWC benefits.
    4. **Assessments of the benefits of TWC cooperation will further strengthen the case for cooperation.** The range of benefits may be broad, but their relative importance will vary from case to case. There is already long-standing technical guidance on how to assess some types of benefits generated by TWC; although this is not the case for other types of benefits. At the same time, there is little available guidance on how to approach the assessment of benefits from a policymaker’s perspective.
    5. **Identifying and assessing benefits will not be enough, however.** The process of identifying and assessing TWC benefits and inserting those **inputs into a policy process** is equally important, if not more. Guidance is also needed on how to communicating the benefits of cooperation, if policy processes are to be effectively influenced by the evidence on the benefits of TWC, whatever its level of detail.
    6. **The process of identifying, assessing and communicating TWC benefits can build on existing experiences.** Some countries, development cooperation agencies, and international organizations already have experience in identifying, quantifying and communicating transboundary water cooperation benefits, but many of those experiences have not been documented or made widely available. This Policy Guidance Note tries, to the extent possible, to make available the lessons learned in some of those experiences.

Section 1.3 – Scope and institutional background

* + 1. **This Policy Guidance Note is a high-level introduction to the benefits of transboundary water cooperation, focusing on benefit assessment.** As stated in the aim, this Policy Guidance Note provides an overview of the full set of potential benefits that can be generated by transboundary water cooperation, an introduction to how the specific benefits can be assessed, and guidance on how the assessment of benefits can be integrated into policy processes. This Policy Guidance Note does not cover all possible aspects related to the benefits of TWC. For example, it does not discuss how the implement actions to ensure that the benefits of TWC are realised, and it does not discuss how to share the benefits of TWC.
    2. **This Policy Guidance Note covers transboundary cooperation of surface and groundwaters, within a global geographical scope**. In 2013, the Helsinki Water Convention became a global convention. Accordingly, this Policy Guidance Note targets a global audience, and draws on expertise and case studies from around the world.
    3. **This Policy Guidance Note focuses on benefit assessment. Benefit assessment is part of broader analytical agenda that supports transboundary water cooperation.** A TWC benefit assessment is an analytical exercise that tries to identify and assess (qualitatively or quantitatively) the benefits of transboundary water cooperation. Transboundary diagnostic analyses (TDA) and strategic action programmes (SAP) are carried out in an increasing number of transboundary basins. Other tools that support TWC include political economy analysis, social assessment, and risk assessment.
    4. **The Policy Guidance Note is being developed in the framework of the Convention on the Protection and Use of Transboundary Water Courses and International Lakes** (Helsinki Water Convention). The development of this Policy Guidance Note was mandated by the Meeting of the Parties of the UNECE Water Convention at its sixth session (Rome, 28–30 November 2012), as part of the 2013–2015 programme of work for the Convention (ECE/MP.WAT/37/Add.1). It is the result of an extended process of information gathering, reflection and consultation. A scoping workshop[[1]](#footnote-1) took place in Amsterdam in June 2013, an expert workshop[[2]](#footnote-2) discussing case studies took place in Geneva in May 2014, and a final workshop will take place in January 2015 in Tallin. Additional consultations have taken place in Stockholm, Barbados, Geneva and Quebec in September-October 2013 and May 2014.
    5. **This Policy Guidance Note provides additional arguments for acceding to and implementing the Water Convention**. Transboundary water cooperation generates more benefits than usually recognized, even if they are sometimes difficult to assess.

**Box 1. The Water Convention**

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) was adopted in Helsinki in 1992 and entered into force in 1996. Almost all countries sharing transboundary waters in the region of the United Nations Economic Commission for Europe (UNECE) are Parties to the Convention. The Water Convention strengthens transboundary water cooperation and measures for the ecologically-sound management and protection of transboundary surface waters and groundwaters. The Convention fosters the implementation of integrated water resources management, in particular the basin approach. The Water Convention recognizes that water is a cornerstone of societies and promotes a holistic approach to cooperation, looking at environmental, social and economic implications of water use.

The Water Convention requires Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable management. Parties bordering the same transboundary waters have to cooperate by entering into specific agreements and establishing joint bodies. As a framework agreement, the Convention does not replace bilateral and multilateral agreements for specific basins or aquifers; instead, it fosters their establishment and implementation, as well as further development. The Water Convention enshrines a balanced approach, based on equality and reciprocity, which offers benefits to and places similar demands on both upstream and downstream countries. In 2003, the Water Convention was amended to allow accession by countries outside the UNECE region. The amendment entered into force on 6 February 2013, turning the Water Convention into a global legal framework for transboundary water cooperation.

Section 1.4 – Transboundary water cooperation

* + 1. **In the context of this Policy Guidance Note, transboundary water cooperation is understood as effective cooperation between two or more countries sharing a transboundary water basin**. The concept of *cooperation* includes a continuum of different modes ranging from *coordination* (sharing information regarding national planning and management), to *collaboration* (adaptation of national plans for mutual benefits), to joint action (joint planning, management or investment).[[3]](#footnote-3) *Effective cooperation* can be defined as any action or set of actions by riparian states that leads to enhanced management or development of the watercourse to their mutual satisfaction. *Transboundary waters* are waters that form part of a transboundary water basin and can include rivers, lakes and aquifers, as well as related coastal waters. These working definitions are closely related to the legal definitions that can be found in the text of the Water Convention as well as the United Nations Convention on the Law of Non-navigational Uses of International Watercourses (Watercourses Convention). Approximately, 40% of the world population live in transboundary basins.
    2. **Transboundary water cooperation is necessary to manage international waters according to the Integrated Water Resources Management (IWRM) approach.** Worldwide, water policy and management are increasingly reflecting the fundamentally interconnected nature of natural resources. IWRM is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. It represents an alternative to the sector-by-sector, top-down management style that has dominated in the past. IWRM implementation requires looking at basins as a management unit, looking at water demands and impacts across sectors, and encouraging the participation of all stakeholders. Transboundary water management can take different forms, such as sharing hydro-meteorological information, coordinating management measures, agreeing on water allocation mechanisms, developing joint water development projects, or implementing jointly agreed basin-wide management plans.
    3. **Transboundary water cooperation is an evolving process.** TWC may evolve from incipient stages (characterized by technical-level exchanges and political talks) to medium stages where agreements of limited scope (e.g. navigational uses, pollution control standards, or water allocation) are signed, and finally to advanced stages where joint action (of different levels of depth) is taken. The benefits of cooperation are also likely to evolve over time as cooperation opens up new options, including greater capacity to adapt to climate change. However, too often transboundary water cooperation is only pursued when a disaster strikes (such as major floods, droughts or pollution episodes) and the potential benefits of stronger cooperation remain unexploited. TWC processes are long-term processes. Some may remain stuck at low levels over decades, while others may evolve more rapidly.
    4. **The ambition of transboundary water cooperation has increased over time, but sustaining it is challenging.** The ambition of the international community for TWC has moved from reaping “easy” win-wins through bilateral actions (e.g. information sharing, coordination of actions) to joint actions that make every party a winner (e.g. joint projects), then to agreements that in order to reap the largest benefit overall may require one party to lose and thus need to be accompanied by compensation mechanisms (sharing the benefits of water). The increasing ambition of TWC brings increasing demands on the mechanisms that sustain the cooperation. A “benefit sharing” stage of TWC is particularly demanding, with challenges ranging from the lack of adequate pre-existing institutional settings where it can be discussed and agreed to the design and implementation of compensation mechanisms. Legal instruments need to include enforcement and dispute resolution mechanisms. But in a situation where large pay-offs are at stage and any party can denounce (with due notice) the cooperation agreement, it is increasingly necessary that cooperation agreements are designed to be self-enforcing. This requires a better knowledge of the benefits that each party can derive from cooperation (so that every party can be satisfied that it gains from continuing to cooperate more that it can gain by abandoning cooperation).
    5. **Transboundary water cooperation has generated different institutional frameworks**. Ideally, the legal framework governing transboundary water cooperation would be a multilateral agreement involving all relevant countries – although in practice many transboundary basins are characterized by multiple bilateral agreements and missing parties. The nature of the joint bodies established for managing transboundary waters varies widely, from commissions that meet rarely and have limited powers and secretariat support, to large basin agencies with large staff numbers and responsibilities that include the development and operation of major infrastructure. The institutional arrangement will delimit the range of benefits of transboundary water management that can be exploited, but large benefits can be exploited from relatively modest institutional arrangements – such as those in the Danube River Basin.
    6. **Transboundary water cooperation is influenced by domestic dynamics.** No party (country) that engages in transboundary cooperation is a monolithic entity, rather they are a composite of domestic actors and interests. Some of those domestic actors will gain more from transboundary cooperation than others. It is important to understand the domestic distribution of the benefits and costs of TWC in order to identify supporters as well as the need to design domestic compensation mechanisms to minimise opposition. TWC discussion needs to be informed by and inform domestic inter-sectoral policy design.
    7. **Transboundary water cooperation is also influenced by external dynamics.** Globalisation and regional integration tend to provide positive incentives to strengthen TWC. Political conflicts, of different degrees, between two or more countries that share a basin will in most cases slow down or even halt TWC.

# Chapter 2 – A policy-focused benefits assessment framework

Section 2.1 – Tying benefit assessments to policy processes

* + 1. **To be effective, any TWC benefit assessment needs to be tied to an existing TWC policy process.** Effective, in this context, means that the benefit assessment has a positive impact in the process of TWC. If there is no existing policy process in place at all (however weak), a rapid exercise of benefit identification and assessment may be useful for awareness-raising and advocacy, but a fully-fledged assessment would be difficult to implement and is unlikely to generate significant impacts. The demand and mandate for the TWC benefit assessment should be explicitly articulated in the TWC policy process – for example as part of a Transboundary Diagnostic Analysis. This Policy Guidance Note does not discourage independent exercises, such as those undertaken for academic research purposes. Those exercises are useful, both in terms of developing methodologies and increasing awareness of the benefits of TWC. Those exercises are, however, unlikely to be very effective in broadening and deepening transboundary water cooperation – which is to be expected as that is not, generally, their intended objective.

**Box 2. Informing Transboundary Policy Dialogues**

In the UNECE region, several countries have engaged in National Policy Dialogues around integrated water resources management. These National Policy Dialogues are processes that engage domestic stakeholders to identify policy reforms and, with the support of tailored analysis, discuss them and generate consensus that will pave the way for implementation. This concept can be translated to a transboundary context. A Benefit Assessment would be part of the tailored analysis that supports the transboundary policy dialogue.

* + 1. **The process of benefits assessment needs to be carefully designed**. Benefit assessment is both a product and a process, and must be seen as part of and consistent with the overall governance framework. Ensuring that the process of benefit assessment is transparent would help to attract allies (such as local governments, civil society organisations, or recognised academics) that could contribute to increase the technical quality and political acceptability of the benefit assessment. Engaging a neutral party in launching the benefit assessment –such as an international organisation or a regional university – may be very helpful in getting the benefit start to a promising start.
    2. **A TWC benefit assessment needs to match the level of maturity of the TWC policy process that it intends to support.** TWC policy processes can be at different levels of maturity. Even when no formal TWC policy process is in place, informal talks may be regarded as incipient transboundary water cooperation. At the other end, a TWC policy process may be characterized by a well-established formal framework that includes legal agreements, institutional structures (such as joint bodies), and joint action programmes. Different TWC policy processes will offer different opportunities for including the results of a TWC benefit assessment in the TWC decision-making process. The characteristics of the TWC policy process should drive the level of ambition of the TWC benefit assessment, the selection of methodologies, the involvement of stakeholders (policymakers, experts, beneficiaries), and the strategies for communicating the results. More mature stages of cooperation require greater supporting evidence. Table 1 provides a stylised description of the stages of development of a TWC policy process as well as the associated needs in terms of TWC benefit assessment.

**Table 1. Matching benefits assessments to policy processes**

|  |  |  |
| --- | --- | --- |
| **Stage of development of the TWC policy process** | **Needs of the TWC policy process** | **Focus of the TWC benefit assessment** |
| Initial stage (e.g. basins without international agreement or transboundary coordination body) | Launch of the cooperation process, supported by awareness raising on the need to cooperate | Identification of the full range of the benefits of cooperation |
| Medium stage (e.g. basins with international agreement, but without coordination body) | Consolidation of the cooperation process through strategic planning and the implementation of basic cooperation initiatives (e.g. information sharing) | Broad assessment of the full range of benefits of cooperation (including cost of non-cooperation) |
| Advanced stage (e.g. basins with international agreement and coordination body, but without basin plan) | Realisation of the benefits of cooperation through the implementation of operational planning advanced cooperation measures (e.g. infrastructure solutions) | Assessment of the benefits of independent national projects as well as joint projects |
| Very advanced stage (e.g. basins with formal agreement, coordination body, and basin plan) | Maximisation of the benefits of cooperation, including through the development of compensation schemes | Assessment of the benefits of integrated management solutions  Ex post analysis of outcomes compared with non-cooperation |

Section 2.2 – Benefits-assessment framework

* + 1. **TWC benefit assessment is a cyclical process**. The process includes three major steps: identifying, assessing, and communicating the benefits of transboundary water cooperation (see figure 2.2). The focus of the TWC benefit assessment (see table 1) will determine the level of detail of each of those steps. TWC benefit assessment should not be seen as one-off effort, but rather as a cycle that will have to be repeated and improved over time to respond to policy demands.

**Figure 1 Steps of the benefit assessment cycle**

* + 1. **Step 1. Identification of benefits** **and beneficiaries**. It is important to ensure that all relevant benefits are identified. The relevant benefits will vary from basin to basin according to their economic, social and environmental characteristics. They will also vary according to the cooperation stage. For example, while for cooperation in the initial stage, it may suffice to highlight as one of the benefits “lives and property saved thanks to the improved flood management”, for a very advanced level of cooperation it would be necessary to identify the detailed benefits of each measure (whether soft or hard) that is being considered. The identified benefits should undergo a “screening” to select for assessment the most important benefits, taking into account their potential magnitude and other policy-relevant criteria.
    2. **Step 2. Assessment**. The nature and the level of detail of the “assessment step” will also vary according to the issues and the cooperation stage. The benefit assessment can be ex-ante (to inform new options) or ex-post (to evaluate past options and inform new decisions). All the benefits that passed the screening test in the identification step should undergo at least a qualitative assessment. Many, but not all, the benefits can undergo a quantitative assessment. Only in some cases the monetary valuation of the benefits can be assessed (c.f. figure 2). In recent decades, the discipline of environmental economics has developed new methodologies that allow attaching economic values to an increasingly large range of benefits. However, the use of some of those methodologies can be contested in certain policy processes. The aim of the assessment step is to contribute to advance the TWC process, and this should guide the ambition of the assessments of individual benefits and the selection of assessment methodologies.
    3. **Step 3**. **Communication**. The final step is the integration of the assessment results in the TWC policy process through communication efforts for awareness-raising, advocacy, and policy development.

**Figure 2 Scope of the assessment step**

* + 1. **TWC benefit assessment is an investment that requires funding but also brings significant benefits**. A TWC benefit assessment will incur “establishment costs” (to launch and establish the different elements of the process) as well as “recurrent costs” (to keep producing results). The costs will depend on the ambition of the benefit assessment. The costs should be preferably funded on a cost sharing basis by the cooperating parties or as part of a technical programme of the joint body (if it exists). The benefits (in terms of improving the quality and effectiveness of the policy process) of a well-designed TWC benefit assessment is expected to largely outweigh its costs, as long as it is designed to match the needs of the policy process.

Section 2.3 – From benefit assessment to benefit sharing

* + 1. **Countries should aim to maximise the benefits that can be derived from stronger transboundary water cooperation**. As mentioned above, cooperation can take different forms -- from coordination, to collaboration, to joint action. As TWC cooperation becomes stronger, additional options for improving the management of the shared basin become possible, and with them additional benefits can be realised. In the last decades, the concept of *benefit sharing* has gained prominence. Its key insight is that, once the parties sharing a basin have agreed on how they are going to “share the waters”, they can go one step further and look together at options to maximise the joint benefits from optimising the management of the basin. For example, Party A may agree to transfer part of her water entitlement to Party B to make it possible for Party B to produce hydro-electricity, and in exchange Party B agrees to provide Party A part of the hydro-electricity produced. Another example may be downstream Party C agreeing to co-finance flood control measures executed in Party D’s jurisdiction and that generate benefits for Party C. Benefit sharing requires strong institutional arrangement that would make possible to put implement complex mechanisms – such as tradable water rights, side payments, or joint infrastructure investments. Guidance on how to share the benefits of cooperation is beyond the scope of this guidance.
    2. **Benefit assessment can help countries realise the benefits of stronger cooperation**. By helping to map out and assess the potential benefits of cooperation, benefit assessment helps parties to better understand the benefits that can be gained by stronger cooperation. It thus paves the way for realising of benefits of cooperation -- from the easy-to-get benefits of sharing hydro-meteorological information to those generated by demanding *benefit sharing* arrangements.
    3. **Benefit assessment is a key part of the broader process of transboundary water cooperation**. Transboundary water cooperation is an iterative and self-reinforcing cyclical process that can be thought as having three different phases (see Figure). Phase 1 would consist on the analysis of the opportunities for transboundary water cooperation. This is where benefit assessment is primarily located. Phase 2 would consist on the negotiation of cooperative solutions. This is what benefit assessment is trying to inform. Phase 3 would consist on the implementation of agreed cooperative solutions. This is the source of additional information to improve the benefit assessment.

**Figure 3. The dynamics of transboundary water cooperation**



*Source*: Grey D and C Sadoff (2005) Cooperation on International Rivers: A Continuum for Securing and Sharing Benefits, Water International, 30:4, 420-427.

# Chapter 3 - Identifying the benefits of transboundary water cooperation

Section 3.1 – Why do we need to identify benefits

* + 1. **The identification of a comprehensive set of benefits can contribute to achieving greater levels of cooperation**. The identification of benefits is the first step in any TWC process. Countries engage in cooperation discussions because they have already identified that they can benefit from it. Most cooperation processes are initiated around a small number of easy-to-identify benefits. At least in some settings, it is likely that a more thorough look at the potential benefits of TWC will identify additional benefits, some of which will only be generated by deepening the level of cooperation. The identification of benefits will help to make the case for stronger TWC, even if some of the benefits may not be assessed quantitatively or even qualitatively.
    2. **The identification of a comprehensive set of benefits can contribute to the realization of benefits.** Realizing the benefits of cooperation will involve some type of investment, which will need to be financed. In fact, financial resources would be needed also to kick-start and sustain the cooperation process. A better understanding of the full potential of the benefits of TWC would help to attract financial resources, whether from domestic public budgets, bilateral and multilateral development cooperation (such as the Global Environment Facility), or private sources.
    3. **The identification of benefits will make it possible to define a “benefit-shed”.** A “benefit-shed” can be defined as the geographical space where the benefits of TWC are generated. This is likely to be a useful unit of analysis within the cooperation policy process. Two or more countries may share a set of different basins, and the benefits that TWC can generate may vary from basin to basin – for example, Israel and Palestine share five main transboundary water resources, with Israel upstream in two cases and Palestine upstream in three cases. It may be useful to look at the set of basins as a “benefit-shed” to identify and assess the benefits of cooperation, instead of looking at single basins in isolation.

Section 3.2 –Types of benefits that can be identified

* + 1. **Transboundary water cooperation can potentially generate many benefits, in terms of both development outcomes and process**. There are at least two major “families” of benefits generated by TWC. The first “family” of benefits refers to development outcomes. Transboundary water cooperation allows the individual parties to improve the way they manage their water resources (for example by having better information). This will result in positive impacts in different economic sectors (for example in terms of agricultural productivity) as well as for the affected population (for example in terms of health impacts). A second “family” of benefits refers to development process. For example, the demands of the TWC process in terms of information, analysis, establishment of cooperation mechanisms and stakeholder participation will have positive impacts for the domestic governance of water resources and it may have spill-over impacts to the broader domestic water governance agenda.
    2. **Transboundary water cooperation helps to improve water management.** In some cases, transboundary water cooperation will require the improvement of information collection and treatment systems. This will help to improve decision-making regarding domestic water resources. In many settings, cooperative actions (from information exchanges to joint projects) will help to improve the efficiency of water management by reducing the cost of achieving water objectives. In some settings, cooperative actions will help to increase the effectiveness of water management by making possible to achieve water objectives previously out of reach. In context of climate change, transboundary water cooperation effectively expands the water management options and thus has the potential to increase the climate resilience of the countries in the basin.
    3. **Improved water management provides a large number of direct economic, social and environmental benefits.** The potential direct benefits of improved water management are well known. They include benefits in terms of economic production (for example, increased agricultural production and energy production) and protecting economic assets (for example, avoiding the damages of floods on urban infrastructure). They include social benefits (for example, lives saved from water-related disasters and water pollution, and increased access to electricity and water services for some populations). And they include environmental benefits, such as improvements in habitat conditions for many species. The direct benefits of improved water management are likely to have second-order benefits in the economies of the involved countries – for example, it may lead to an increase in competitiveness across the economy due to lower energy prices
    4. **Transboundary water cooperation helps to pay the way for other forms of cooperation.** There are a fair number of international conflicts revolving around transboundary water resources, in the same way that there are many domestic water conflicts. But in many settings, transboundary water management is actually an entry point to build trust between countries. Advances in transboundary water cooperation may facilitate advances in other policy areas – most notably regional economic integration as well as peace and security. More intense regional economic integration, for example through increased trade of goods and services or cross-border investments, would produce economic benefits for all countries involved. Advances in peace and security, although not easy to identify and measure, would also provide benefits to all countries involved – these may include from the avoided economic, social and environmental impacts of conflict to budget savings from lower military spending.
    5. **This Policy Guidance Note offers a typology to help interested parties to identify the benefits of transboundary cooperation.** Because TWC can generate many benefits and some of them are not very familiar to many audiences, a typology may be a useful tool to guide stakeholders in the identification of the benefits of TWC. Table 2 presents a typology of benefits, building on previous work from Sadoff and Grey (2002)[[4]](#footnote-4). The typology highlights that there are two main avenues for the generation of benefits: improved water management and enhanced trust among cooperating parties). It also highlights that many of the benefits are relate to economic activities, but that there is also a range of benefits that go beyond the impact on economic activities. The list of examples is not exhaustive - some TWC processes may generate benefits that are not included below. At the same time, not all the TWC processes are expected to generate all the benefits listed below. The realisation of benefits under the different categories identified will result in reduced vulnerability and increased resilience – itself a major benefit.

**Table 2. Typology of the potential benefits of transboundary water cooperation**

|  |  |  |
| --- | --- | --- |
|  | **On economic activities** | **Beyond economic activities** |
| **From improved water management** | **Economic benefits**   * Expanded activity and productivity in economic sectors (aquaculture, irrigated agriculture, mining, energy generation, industrial production, nature-based tourism) * Reduced cost of carrying out productive activities * Reduced economic impacts of water-related hazards (floods, droughts) * Increased value of property | **Social and environmental benefits**   * Health impacts from improved water quality and reduced risk of water-related disasters. * Employment and reduced poverty impacts of the economic benefits * Improved access to services (such as electricity and water supply) * Improved satisfaction due to preservation of cultural resources or access to recreational opportunities. * Avoided habitat degradation and biodiversity loss |
| **From enhanced trust** | **Regional economic integration benefits**   * Development of regional markets for goods, services and labour * Increase in cross-border investments * Development of transnational infrastructure networks | **Peace and security benefits**   * Avoided costs of military conflicts * Savings from reduced military spending * Other geo-political benefits |

* + 1. **ECONOMIC BENEFITS**
    2. **Transboundary water cooperation contributes to securing current economic activity**. Many economic activities require water as a key input. Examples include aquaculture, irrigated agriculture, mining, energy generation, industrial production, nature-based tourism, or water-based transport. Each economic activity will have specific requirements regarding quantity of water, quality of water, and timing. By improving water management, transboundary water cooperation can make possible to provide more water (of the right quality and at the right time) and thus make possible to expand economic activity and productivity in those economic sectors.
    3. **Transboundary water cooperation contributes to enhancing the profitability of current economic activities.** Providing water (of the right quality and at the right time) for economic activities has a cost. The cost may be reflected in the price of water or it may be assumed by the public sector and financed through general tax receipts. Transboundary water cooperation, through improved water management, can reduce the cost of providing water and thus improve the profitability of economic activities (if they pay the cost) or improve the financial position of the public sector (if water is subsidised). For example, in the absence of TWC some firms will have to turn to more expensive sources of water supply (e.g. because they are further away), some firms will have to pay a higher cost for treating raw water to the right level of quality (whether for human consumption or for economic uses), some firms will have to pay higher cost for energy inputs (because cheaper hydropower may not be developed), and some firms will have to pay higher cost of transport for their inputs and outputs (because cheaper river transport may not be an option).
    4. **Transboundary water cooperation can reduce the extent and economic impact of water-related hazards**. Water-related hazards can inflict high economic damages. In addition to their impact on the loss of human lives, floods can destroy economic infrastructure that is costly to replace, damage the material possessions of households, and disrupt economic activities (for example by making it impossible to transport people and goods for days or weeks or by causing energy blackouts). Droughts can inflict major damage in rural areas (through the loss of crops and the ripple effects on agricultural-based economies) and, in some contexts, cause food shortages.
    5. **Transboundary water cooperation can generate additional economic benefits within the concerned basin**. For example, healthy water ecosystems provide aesthetic benefits that sometimes have hard monetary values attached to them. In particular, increased water quality can have substantial impacts in the value of riverfront properties in urban areas.

{Possible box. Israel example from OECD work on water financing}

* + 1. **Improved water management brought about by TWC has additional economic impacts on the national economy, beyond the concerned basin**. These additional economic impacts are caused by the backward and forward linkages of basin-based economic activity with other economic activities in each of the basin countries. “Backward and forward linkages” refers to the positive impact in the rest of the national economy caused by the increase in economic production in the transboundary basin. “Backward linkages” are caused by the increased demand for inputs – for example, increased agricultural production will drive up the demand for agricultural inputs and machinery. “Forward linkages” are caused by the increased availability of outputs that serve as inputs to sectors located elsewhere in the country -- for example, major hydropower development may reduce the cost of providing energy to industrial factories across the country.
    2. **SOCIAL AND ENVIRONMENTAL BENEFITS**
    3. **Transboundary water cooperation contributes to improving health outcomes**. Poor water quality and water-related disasters can have large impacts on human health through diseases (morbidity impacts) and the loss of human lives (mortality impacts). Transboundary water cooperation contributes to reducing those impacts by improving water management, both in terms of improving water quality and reducing the risks to water-related disasters.
    4. **Transboundary water cooperation contributes to reducing poverty and creating jobs**. These social benefits are generated through some of the economic impacts discussed in the previous section. Improved water management results in an increase in economic activities that create jobs and generate income for households. Depending on the specific context, these social benefits may be generated not only in the transboundary basin but also in other parts of the country.
    5. **Transboundary water cooperation can also contribute improving access to basic services** for populations that previously did not have access to them. These benefits can be particularly important in less developed countries with substantial gaps in access to basic services. The most important services are likely to be electricity supply and water supply. These services and often have knock-on effects on issues such as educational performance (e.g. through improved school attendance rates), health (e.g. through reduced prevalence of water-borne diseases), and income-poverty (e.g. by freeing up time for engaging in income-generating activities).
    6. **Transboundary water cooperation contributes to preserving cultural and recreational benefits**. Water is also related to improved satisfaction of the population through mechanisms that are sometimes ignored – such as the preservation of cultural resources or access to recreational opportunities. While intangible, they are real benefits that people value. Improved water management made possible by TWC can contribute to preserving those benefits.
    7. **Transboundary water cooperation generates a range of environmental benefits.** Improved river ecosystem health is an important outcome of TWC. Many of the environmental benefits generated through improved river ecosystem health are ultimately reflected in the economic and social benefits discussed previously. Avoided habitat degradation and avoided biodiversity loss are some of the benefits that only partially show up in estimates of economic and social benefits and require specific attention. Some of these environmental benefits are felt beyond the concerned basin, since they also include the preservation of spawning grounds for marine fish species and migratory bird habitats.

**Box 3.1. Environmental benefits of transboundary water cooperation – the case of the Rhine**

Cooperation on the Rhine goes back over a thousand years to navigation agreements. In the mid-19th century salmon production was an important economic activity in the Rhine. Growing populations and industries led to a complete extinction of salmon in the Rhine by the 1920s—with over half of the world’s chemical production occurring along the Rhine by the 1950s, when the Rhine was known as ‘the sewer of Europe’. In 1987, ministers of the Rhine countries launched the Rhine Action Plan, with the symbolic goal of ‘Salmon 2000’—a readily understood objective which popularized the much more complex goal of reducing chemical contaminants to a level that would bring life back to the river. Following intensive international cooperation, major investment and widespread public support, by 2000 salmon were swimming up the river as far as Mannheim to breed once more,signifying a healthy river again. Today, much wider Rhine cooperation is planned—such as in the area of flood control.

*Source*: Sadoff and Grey (2002)

* + 1. **REGIONAL ECONOMIC INTEGRATION BENEFITS**
    2. **Regional economic integration can generate major economic benefits for the countries involved**. Regional economic integration is characterised by and leads to a number of changes in economic relations and the emergence of new economic opportunities and the generation of economic efficiencies.
    3. **Transboundary water cooperation can be one facilitator of the process of regional economic integration.** There are many factors that affect the pace of regional economic integration. Transboundary water cooperation can directly contribute to regional economic integration in water-related areas such as development of hydropower or water-based transport. Transboundary water cooperation can also contribute indirectly to regional economic integration by facilitating enhanced trust and providing examples of mechanism to discuss policy issues and resolve disputes.
    4. **Regional economic integration benefits include the gradual opening of markets for goods, services and labour; increases of cross-border investment, and the development of transnational infrastructure networks** (such as energy and transport infrastructure). The processes that generate those benefits are driven by sectoral policies, such as trade and migration policies, investment policies, or energy and transport policies. The implementation of those sectoral policies requires international negotiations and agreements that are facilitated by pre-existing good relations between the riparian countries. In some cases, water-related negotiations and agreements will be good candidates to show that international cooperation can deliver concrete benefits, and thus contribute to develop good relations and facilitate cooperation in other policy areas.

**Box 3.2. Transboundary water cooperation as a driver of regional economic integration -- the case of SADC**

When South Africa joined the Southern Africa Development Community in 1994, the very first Protocol that was signed in terms of the SADC Founding Charter was the Protocol on Shared Watercourse Systems. This became the foundation for regional economic integration within SADC, much like the Coal, Atomic Energy and Steel agreements that underpinned the European Economic Community in the early days of the European Union.

*Source*: Phillips D et al (2006) Trans-boundary Water Cooperation as a Tool for Conflict Prevention and for Broader Benefit-sharing, Global Development Studies No.4, Ministry for Foreign Affairs, Sweden.

**Box 3.3. Regional economic integration benefits in the Mekong**

The fragmentation of regional infrastructure, especially in the case of small, landlocked economies, can be a major obstacle to growth. Where cooperation on international rivers can contribute to increased integration of infrastructure systems, development impacts can be significant. The Mekong basin, shared by Cambodia, China, Laos, Myanmar, Thailand, and Vietnam, where relationships among the riparians have been turbulent for decades, provides an interesting case. Transboundary water cooperation in the Mekong has proved to be an important stabilizing factor in the region, bringing substantial economic benefits, both directly from forward linkages and indirectly from diminishing tensions. During years of conflict between Laos and Thailand, for example, Laos always provided hydroelectricity to Thailand, and Thailand always paid. Similarly, the Government of Thailand has followed an explicit strategy of increasing regional stability by creating mutual dependency and thus purchases gas from Myanmar and Malaysia and hydropower from Laos and China, in part because these are low-cost supplies and in part because they create ties that bind the countries in a web of mutual dependency.

*Source*: Sadoff and Grey (2002)

* + 1. **PEACE AND SECURITY BENEFITS**
    2. **Transboundary water cooperation helps to solve existing water-related conflicts and to avoid such conflicts, facilitating the realisation of the economic, social and environmental benefits** discussed above. The traditional view has been that disputes over water could lead to “water wars”. But the analysis of empirical evidence has led to the realisation that while access to water can be a source of conflict, international relations over freshwater resources are overwhelmingly cooperative. An analysis based on a total of 1,831 events connected to trans-boundary ‘basins at risk’ has shown that the riparians in fact tend to cooperate, rather than entering into conflicts. At the same time, while wars are not necessarily triggered by competition over water resources, other forms of conflict are driven by increased competition over such scarce resources -- including social instability, ethnic clashes, low-intensive international conflict, and border disputes (Phillips, 2006).
    3. **Transboundary water cooperation has “spill-over” effects, contributing to reduced political tensions and improved security.** The Strategic Foresight Group (2013) has found that any nations engaged in active water cooperation do not go to war. While correlation does not imply causation, it is very suggestive that, of the 148 countries covered by their analysis, 37 are at risk of going to war over issues other than water (including land, religion, history and ideology), and they happen to be precisely the 37 countries which do not engage in active water cooperation with their neighbours. Reduced political tensions and improved security facilitates the realisation of the regional economic integration benefits discussed above. In addition, the benefits of reduced political tensions and improved security include the avoided economic and human cost of conflicts (from trade wars to military conflicts), as well as other benefits from reduced political tensions, such as savings from reduced military spending.
    4. **The institutional mechanisms developed through transboundary water cooperation constitute one key element for the realisation of the peace and security benefits**. For example, in the SADC region, even when military conflict was being waged in specific river basins, the existence of transboundary River Basin Organisations (RBOs) made possible continuing cooperation between water managers and the facilitation of inter-State contact.

**Box 3.4. Promoting peace and security through TWC mechanisms -- the Lake Chad Water Charter**

The Lake Chad Water Charter, formally approved or adopted by the Lake Chad Basin Commission (LCBC) Heads of State and Government held in 2012, sets out the rights, obligations, duties, restrictions, processes and procedures pertaining to proper management of the Lake Chad resources. The Charter aims to promote sustainable development in the Lake Chad Basin and to prevent or minimize conflicts and disputes between member states as well as between citizens of member states. To that end, the Charter introduces or reinforces institutional frameworks designed to ensure sub-regional cooperation and integration. The Regional Parliamentary Committee of the Lake Chad, which came into existence in 2004, mainly to support the actualization and implementation of the Inter-basin Water transfer from Congo basin to the Lake Chad, was reactivated in February 2013. The Charter also provides outlets of addressing disputes, within the general objective of promoting regional cooperation, peace and security. Under Article 85, State parties have committed themselves to settle inter -state disputes in a friendly manner, having regards to UN, AU Charters governing the matter. Article 87 enjoins the members to refer any dispute they are unable to resolve directly between them, to the LCBC to mediate and resolve. Where the LCBC is unable to resolve a dispute, regional or sub-regional authorities may be involved. As a last resort, the parties may resort to judicial arbitrations, if all the above measures are exhausted.

*Source*: Lake Chad Basin Commission, http://www.cblt.org/en/lake-chad-water-charter-vehicle-sub-regional-integration-and-security

**Box 3.5. Water-for-peace deals – the case of the Teesta basin**

The Teesta basin, shared by India and Bangladesh, is home to nearly 30 million people. The two countries discuss management of the Teesta river in the framework of the India-Bangladesh Joint Rivers Commission (JRC) – created in 1972 to facilitate joint efforts in the management of all 54 shared rivers. In 1983, India and Bangladesh entered into an ad hoc agreement over the Teesta, but were unable to implement it. In 2010, they arrived at a new draft agreement on water allocation – which was opposed by the state government of West Bengal (India). Presently, the most vital benefit accrued from the Teesta Basin agreement is the informal trade-off between the Indian and Bangladeshi governments which essentially represents a water-for-peace deal. The Indian government, as the upper riparian, has agreed to a water sharing agreement during the lean season in exchange for the present Bangladeshi administration’s cooperation in addressing some of India’s security concerns regarding violent extremist groups operating from the Bangladeshi territory. Once a treaty on the Testa is signed, a large range of potential economic, social and environmental benefits can be unlocked. But transboundary water cooperation between Bangladesh and India over the Teesta could also lead to broader bilateral security that could potentially expand gradually to include China, Nepal and Bhutan.

Source: Raj A (2014) Teesta Basin Case Study

* + 1. **While the typology focuses on “outcome” benefits, TWC processes also generate important benefits in terms of improving domestic water governance.**  The most difficult barriers to achieve domestic water management objectives challenges are not, or not just, of technical of economic nature -- in many countries they relate to improving domestic water governance. Unclear or inadequate allocation of responsibilities, secretive use of information, or insufficient stakeholder engagement are among the factors that hinder faster progress towards domestic water security. A process of transboundary water cooperation can act as an important driver for improving some aspects of domestic water governance. A TWC process will demand information about the status and trends of water resources, it will demand more transparency about how water resources are managed, it will require the involvement of different ministries, levels of governments and non-governmental stakeholders regarding the impacts of new options that become available under the process of TWC. These water governance benefits are difficult to identify and assess, but they are not less real than the outcome benefits on which the rest of this Policy Guidance Note focuses.

**Box 3.6 “Process” benefits of transboundary water cooperation – the case of the North American Great Lakes**

Formal transboundary water cooperation in the Great Lakes, shared among Canada and the United States, began in 1909 with the Boundary Waters Treaty. Cooperation expanded in 1972 with the Great Lakes Water Quality Agreement (GLWQA), signed in response to the then-growing nutrient pollution problem. GLWQA has generated environmental benefits in the form of increased water quality – with concentrations of nutrients decreasing by 60% and those of toxic contaminants decreasing by 90%. These environmental benefits have generated economic benefits in commercial fishing, sport fishing, recreational boating and beach use.

A range of “process” benefits have also been generated. These include greater cross-border cooperation between government agencies and scientists through the bi-national science advisory boards; increased transparency and accountability of federal activities brought about by increased public engagement; and the emergence of strong non-governmental organizations (NGOs) in response to the non-binding authority of the GLWQA and the need for linkages between federal and local policy. These benefits were indirectly created through the process of environmental problem solving, but were nonetheless integral to the successful realization of environmental benefits.

Source: Ho J.C. (2014) Case Study on North American Great Lakes

Section 3.3 – Challenges and opportunities for the identification of benefits

* + 1. **The benefits of TWC vary from basin to basin**. The benefits of improved upstream water management depend on the structure of uses downstream -- two basins that are equivalent in hydrological terms will generate different types (and sizes) of benefits if one has large cities and irrigation districts downstream and the other does not. Those basins that have very different characteristics in different parts of the basins are more likely to generate greater benefits from transboundary water cooperation.
    2. **The identification of TWC benefits involves levels of uncertainty.** For several individual benefits, it may be unclear with the information available whether those benefits can be generated in a particular basin. Strategies need to be developed to try to reduce that level of uncertainty, but it may not possible to eliminate it.
    3. **The identification of TWC benefits must involve a wide variety of stakeholders and experts.** Different stakeholders have different knowledge and information about the different aspects and impacts of TWC. Thus, the inclusion of different types of stakeholders should help to ensure that benefits that may otherwise go unidentified are uncovered. While TWC processes are the responsibility of national authorities, it is important to include local government and other local stakeholders. A range of disciplines need to be represented in the process of identification of benefits – this should include hydrology, engineering, micro-economics, macro-economics, sociology, anthropology, military studies, and politics. An inter-sectorial approach to the benefits identification is therefore required.
    4. **The identification of TWC benefits may be an extended process.** In order to set out the potential for cooperation, it is helpful to map out as many benefits as possible from the start. However, in many cases, only some benefits will be identified in a first phase of negotiations leading to (enhanced) cooperation. Enhanced cooperation may lead to further efforts to identify additional benefits, both because the parties are ready to “invest” in the identification process and because some potential benefits may only be apparent (or appear feasible) after the basis for cooperation has been established.
    5. **The identification of TWC benefits does not mean that all the benefits can be realised at the same time.** Many benefits may be reachable simultaneously, but in some cases there will be trade-offs among different benefits – because actions aiming to realise some of the potential benefits will preclude the realising of some other benefits. The benefit assessment should aim to clarify which benefits should be prioritised in order to maximise the value of the overall set of benefits generated by TWC.
    6. **The identification of TWC benefits needs to be complemented by the identification of costs and risks.** TWC cooperation can generate many benefits, but it may also involve some costs and risks. These represent the flip-side of the benefits. Costs and risks may be of an economic nature – such as the cost of launching and sustaining the cooperation process, and the cost of adopting measures required to generate the benefits. They may also be of a political nature – the adoption of new water management measures will benefit some stakeholders more than others and discussions about water management can generate controversies within a country. Risk mitigation strategies will range from better communication to the implementation of internal compensation measures.
    7. **But failing to cooperate will not be free of costs and risks, as it will carry costs of inaction**. Many countries are currently suffering high costs because of absent or underdeveloped TWC. Human loss and economic damage from floods which impact could have reduced from stronger cooperation may be the most evident. But the whole array of economic, social, environmental and political benefits discussed in the typology represents the true measure of the cost of failing to cooperate.
    8. **It is important to identify not just the benefits, but also the beneficiaries.** This would help to inform the political processes (coalition formation) to achieve cooperation. And it would inform the development of possible options for compensation whenever relevant. This applies both at the transboundary (international) and domestic (national) levels.

{A box with the example of the Africa’s Great Lakes showing how cooperation on hydropower development led to broader cooperation could be included here}

# Chapter 4 – Assessing the benefits of transboundary water cooperation

Section 4.1 – How to approach the assessment of TWC benefits

* + 1. **Benefit assessment should be designed to inform decision-making.** Transboundary water cooperation can be articulated in alternative ways and as a process it will evolve, sometimes in unexpected ways. Planning for benefit assessment should consider what the information needs of the TWC policy process are, both current and foreseeable. At the same time, it should pursue an opportunistic approach, taking advantage of emerging windows to input into the TWC policy process
    2. **TWC benefit assessments can have different levels of ambition.** These may vary from rough-and-ready estimates to sophisticated, data-hungry and costly methodologies such as scenarios and outlooks. Efforts to assess benefits need to be commensurate with the intended use of the results — in some cases some rough estimates will suffice, in others, good quality studies will need to be developed.
    3. **Benefits assessment efforts should focus on the final outcomes of cooperation**. TWC will generate intermediate outcomes – such as sharing of information and other aspects of technical-level cooperation. It will be useful to track progress with those intermediate outcomes, to show progress in the process of TWC. However, the real justification for TWC regards achieving policy objectives such as economic growth, employment creation, life losses avoidance, or improvements in the quality of habitats. Major efforts need to be made to define the outcomes sought, including a selection of indicators, in order to assess the expected benefits of cooperation ex-ante and evaluate the benefits ex-post. In some cases, the most important outcomes of cooperation will relate to the “avoided costs of inaction”, including conflict prevention. Once the key outcomes have been identified, a baseline will need to be established. When the links between intermediate and final outcomes are not clear, it may be necessary to focus as well on intermediate outputs, but care should be taken to avoid double counting (for example when one intermediate output is linked to various final outcomes).
    4. **Benefits assessment efforts should focus on the right geographical and time scales.** Basin-wide assessments can identify win-win opportunities that are not apparent in project-based assessments. Given that some of the benefits of transboundary water cooperation will be generated over long time scales, a TWC benefit assessment should look also at the long-term benefits.
    5. **Benefit assessment is a process that requires an “adaptive approach”.** A TWCbenefit assessment can be thought of as a long-term process of improvement. To support it, a long-term research programme should be preferred over short-term consultancies, focusing on a small number of high-quality studies.As new policy needs are expressed and new benefits are identified, new benefits assessment efforts will need to be undertaken. As discussed earlier, a TWC process may be able to deliver increasing benefits over time, as increasing levels of trust open new opportunities for cooperation. In addition, the estimation and valuation of TWC benefits is likely to contain errors (due to different causes, including not fully understood action-response links). These errors can be picked up and corrected in the process of monitoring and evaluation, supported by the long-term research programme.
    6. **Benefit assessments need to be conducted jointly by the different parties and involve stakeholders.** To be useful in supporting a TWC policy process, a TWC benefit assessment needs to be credible and its findings accepted by the relevant parties. This is likely to require a team of experts from the different basin countries. Moreover, the results need to be accepted not just by the parties at national level, but also by the different stakeholders within each country. Thus different stakeholders (policymakers, experts, beneficiaries) need to be involved in the benefit assessment efforts. This will increase the parties’ feeling of ownership and enhance dissemination of the results.
    7. **In many cases, local communities should be involved in assessing benefits.** Local communities will be the beneficiaries of many of the economic, social and environmental benefits generated in the basin. In some cases, benefit assessment will have an exploratory nature and rough-and-ready assessments will not have the capacity to engage local communities. But in many other cases there is clear potential to improve the quality of the results of the assessment exercise by involving local communities -- which is also likely to have positive impacts in terms of gaining local support for promoting TWC solutions.
    8. **It is preferable to undertake integrated assessments.** As discussed above, there is potentially a large range of benefits of TWC. Given the varying nature of those benefits, it will be necessary to adopt different approaches to assessing different types of benefits.Nevertheless, a common framework for integrating the different benefits would be invaluable to support the decision-making process when considering trade-offs.

**Box 4.1 Benefits and costs – the case of the Columbia River**

The Columbia River Treaty (CRT) is perhaps the classic example of a successful, benefit-sharing international river treaty. The CRT was signed in 1964 between Canada and the United States to develop and operate four large dams in order to generate the economic benefits of hydropower generation and flood control. The power benefits were estimated by a team combining experts from Canada (BC Hydro) and United States (US Army Corps of Engineers and Bonneville Power) at what was the down of the computer age. The estimated benefits for the first 30 years were estimated to be USD 64 million for flood control and USD 512 million for hydropower generation. These benefit estimates justified and made possible the agreement. On retrospect, the gross benefits in terms of flood control and hydropower were underestimated, as at that time engineers thought that dikes would be more effective for flood control and the actual price of electricity was significantly higher over the 30 year period than predicted. At the same time, the costs of what have turned out to be long-standing concerns about the social and environmental impacts of the dams were not considered to derive net benefit estimates.

|  |  |
| --- | --- |
| **Benefits of the CRT** | **Costs of the CRT** |
| * Flood control * New power generation * Increased efficiency in existing power generation * Increased integration and coordination of water management | * Increased negative impact to fish * Negative impacts to wildlife and the loss of important wetlands * Displacement of people * Flooding of productive valley floor * Increased sense of marginalization of local communities and indigenous peoples |

Source: Paisley R K (2014) Columbia River Treaty Case Study

* + 1. **It is rarely possible, or desirable, to provide a monetary value of all the benefits of transboundary water cooperation**. A TWC benefit assessment may include qualitative assessment, physical quantification, and monetary valuation (through market and non-market techniques). The advantage of being able to provide monetary values is that the importance of the benefits of TWC can be more easily grasped by policymakers, as it becomes easier to compare with other policy initiatives. Essentially, calculating monetary values for all types of benefits would provide a common metric that would simplify the evaluation of trade-offs. However, despite progress made in recent decades in economic science, it is still difficult or impossible to value some of the potential beneficial impacts of TWC. There may be cases where monetary valuation of certain impacts would create controversies among stakeholders that undermine the process of TWC rather than support its progress.
    2. **Benefit assessment should generally consider different scenarios** .Scenario analysis can be used to inform the impacts of alternative policy paths – such as non-cooperation, weak-cooperation, and strong-cooperation – by asking “what if” questions. The value of the indicators that define each scenario will vary and, since it is unlikely that one single scenario will provide superior values for all the indicators, trade-offs will need to be negotiated. To the extent possible, the different values of those indicators need to be quantified and attached monetary values, as to inform decisions involving trade-offs. At transboundary level, it may be appropriate to focus only on the “gross benefits” as there may be different perceptions among the parties regarding how to value any negative impacts, but each individual party should look at “net benefits” to inform its position.

**Box 4.2 Benefit assessment tools to support policy processes – scenario planning in the Mekong**

The Mekong River Commission deploys various tools of scenario planning for envisaging future trajectories in management of different aspects of the Mekong River. This includes discerning possible changes with regards to population, economy, ecology and technology. This enables the MRC and the member countries to have a vision which is based on where the region wants to go in years from now rather than being trapped in the realities of today. This futuristic approach has underpinned the evolution of the MRC all around. It has helped to define objectives for a better future rather than being caught in conflicts of the past and the present.

*Source*: Strategic Foresight Group (2014) Blue Peace in the Middle East – Mekong Learning Journey in Cambodia and Lao PDR -- Outcome Report: Learning from Gradualism.

* + 1. **Benefit assessment will always be imperfect.** Assessing the benefits of TWC is fraught with difficulties. The available methodologies are now always satisfactory. While crucial, the knowledge base is crucial is often weak – at least for some types of benefits. Attribution of the benefits of policy initiatives, always a torny issue, is even more difficult in a transboundary context. But even if imperfect, benefit assessment can have major positive impacts in terms informing decision-making and promoting cooperative solutions.

**Box 4.3 . Assessing the potential benefits of transboundary water cooperation: the Inter-SEDE model**

Phillips et al (2006) present one of the rare efforts to assess the benefits of transboundary water cooperation in an integrated manner. Their assessment framework considers three types of benefits: economic development, security, and environmental benefits. They then develop a model (Inter-SEDE) to assess the relative importance of each type of benefit. The model is based on 23 indicators (9 for security, 9 for economic development, 5 for environment), some of which are quantitative and some descriptive. For each indicator, a score can be developed by a ranking and banding procedure. In their application for the Jordan, Kagera, and Mekong basins, the authors collect data for the 23 indicators for 21 countries. For each indicator, the 21 countries are first ranked, then grouped in bands, and then assigned a score from 1 to 5 according to the band that they belong to. To assess the relative importance of the benefits in a given transboundary basin, an overall score is derived for each type of benefit by combining the scores all the riparian countries for all the indicators related to that particular type of benefit. This methodology reveals how different types of benefits are of different relevance in different basins, but also for different countries within the same basin.



**Box 4. 4 Assessing the economic, social and environmental benefits of transboundary cooperation in the Okavango basin**

In order to inform decision making in the Cubango-Okavango river system, OKACOM Member States needed to have a common understanding of trends and issues in the basin to be able to ascertain joint development opportunities. An integrated flow assessment methodology was used to support the development of alternative scenarios that would have associated different economic, social and environmental impacts. Economic valuation of ecosystem services was used to assign a monetary value to some of those impacts. The scenarios have helped decision-makers to define an “acceptable” development space.



*Source*: Chonguica E and Molefi T (2014) Cubango-Okavango River Basin Case Study, developed for the UNECE Workshop on the Benefits of Transboundary Water Cooperation.

Section 4.2 – Assessing economic benefits

{to be further developed – this section will try to discuss the extent to which these benefits can be quantified with existing methodologies: their potential and limitations -- target length 1 page}

* Expanded activity and productivity in economic sectors (aquaculture, irrigated agriculture, mining, energy generation, industrial production, nature-based tourism)
  + Quantification possible
  + Monetary valuation possible
* Reduced cost of carrying out productive activities
  + Quantification possible
  + Monetary valuation possible
* Reduced economic impacts of water-related hazards (floods, droughts)
  + Quantification possible
  + Monetary valuation possible
* Increased value of property
  + Quantification and monetary valuation possible (hedonic pricing method)
* Additional economic impacts on the national economy, beyond the concerned basin
  + Quantification and monetary valuation sometimes possible
  + Input output-analysis
  + General equilibrium analysis
* Some issues to be discussed:
  + Cost benefit analysis framework for (marginal) projects
  + Informational demands of economywide analysis are very high
  + The limiting factor for economic valuation is often the availability of physical information

**Box 4.5. Economic benefits of transboundary water cooperation in the Senegal River Basin**

In the Senegal River Basin, the three countries of Mali, Mauritania and Senegal – through the OMVS (the Senegal River Basin Development Authority) – developed a clear methodology and framework to first quantify and then allocate the benefits and costs of multi-purpose investments across the entire basin. The Manantali Dam, for example, which is located entirely inside western Mali, was constructed through the OMVS in the 1980s for hydropower, irrigation and navigation benefits to be distributed across all three countries. The scale of benefits derived and the perceived fairness of the benefit sharing arrangement together with the political ideal of solidarity between the three countries have sustained substantive cooperation and a strong river basin organisation on the Senegal River.

*Source*: Yu, W. (2008) Benefit Sharing in International Rivers: Findings from the Senegal River Basin, the Columbia River Basin, and the Lesotho Highlands Water Project. World Bank AFTWR Working Paper 1, November

## Section 4.3 – Assessing social and environmental benefits

{to be further developed – this section will try to discuss the extent to which these benefits can be quantified with existing methodologies: their potential and limitations -- target length 1 page}

* Health benefits
  + Morbidity and mortality
  + Quantification possible (dose response functions)
  + Monetary valuation possible (value of statistical life), not always desirable
* Employment and anti-poverty benefits
  + Quantification possible
  + Monetary valuation sometimes possible (cost of alternative measures)
* Improved access to services (such as electricity and water supply)
  + Quantification possible
  + Monetary valuation possible (time savings, production function, willingness-to-pay)
* Improved satisfaction due to preservation of cultural resources or access to recreational opportunities.
  + Quantification sometimes possible
  + Monetary valuation sometimes possible (travel cost method, contingent valuation), not always desirable
* Environmental benefits (avoided habitat degradation and biodiversity loss)
  + Quantification often possible
  + Monetary valuation possible (contingent valuation)

Section 4.4 – Assessing regional economic integration benefits

{To be developed – target length one page}

**Box 4.6 Regional economic integration benefits at the local scale – the Prespa Basin**

The Prespa Basin is a relatively small basin (1,519 km2) shared by Albania, Greece and FYR Macedonia. A comprehensive assessment of the potential benefits of transboundary water cooperation was undertaken in the early 2000s, at the very early stages of cooperation, with the involvement of three environmental NGOs participating in the Prespa Park governance scheme, WWF Greece, and national and international experts. Environmental and social benefits identified included improved water quality (through improved agricultural practices and wastewater management systems), maintaining river health (by avoiding new diversion works), improved satisfaction of local communities (through on-the-ground activities and the pride generated by greater international recognition), and a stronger civil society (through active participation in sustainable development activities). The assessment also identified a number of geo-political and regional integration benefits at the local scale: from the convergence of views at the transboundary municipal level, to transboundary cooperation at sector level that included water, fisheries, spatial planning, veterinary services, and firefighting services.

*Source*: Mantziou D (2014) Case Study: The Prespa Park Basin

Section 4.5 – Assessing peace and security benefits

{To be developed – target length one page}

## Chapter 5 - Communicating the results of a TWC benefit assessment

Section 5.1 – How communication efforts can support policy processes

* + 1. **Communication efforts are essential to ensure that the benefit assessment effectively supports the policy process.** When approaching a benefit assessment it is important to consider how the results will be communicated. A communications strategy, however simple, will be needed to understand how the results of the benefit assessment will be fed into the TWC policy process. This may need to start by identifying of the opportunities to influence the policy process through the types of information that can be generated by a benefit assessment – which will lead to the definition of the intended purpose and how to achieve it.
    2. **The results of a TWC benefit assessment can be used for multiple purposes**. It can be used for raising awareness among key stakeholders and the general public, for advocacy purposes, for policy development, and for negotiation and compensation. Whatever the purpose, it is important to use the results to clarify basic concepts, illustrating the trade-offs of the with/without cooperation alternatives.
    - **Awareness-raising**. Many stakeholders may not know what the benefits of strengthened cooperation will be, both in general and for themselves in particular. Communicating those benefits will help to gather public support for the process of cooperation.
    - **Advocacy**. Some stakeholders, such as local governments or CSOs, may be keen supporters of the process of cooperation, but they will need the right type of information to try to influence domestic decision-making.
    - **Policy development**. Policy development is not merely a function of evidence, but timely evidence presented in the right way can greatly support policy development. Within an established transboundary policy dialogue, evidence will need to be supplied at different stages. At each stage, the type of evidence communicated to policymakers and its level of detail will have to vary.
    - **Negotiation and compensation**. Moving towards advanced forms of cooperation will require more detailed and robust information.
    1. **Communication efforts can support the policy process through multiple cycles.** As discussed previously, transboundary water cooperation is a cyclical process that goes through not always well defined analytical, negotiation and implementation phases. Benefit assessment is also a cyclical process that goes through identification, assessment and communication phases. Communication efforts should be conceived as part of a communications cycle that will evolve to support the needs of the cyclical policy process and the accompanying benefit assessment cycle, rather than as a battery of efforts at the end of a linear process of benefit assessment.

**Box 5.1. Communicating trade-offs – the ECO2 decision-support framework**

In South Africa, the Council for Scientific and Industrial Research (CISR) has developed an approach and decision making framework (ECO2) to support the three pillars of the National Water Act (equity, efficiency and sustainability).The focus is on how the natural resource base can be used efficiently and on a sustainable basis to promote socio-economic development. Firstly, water resources are characterised through biophysical surveys and potential socio-economic activities that can be supported by the water resources are identified. Secondly, the potential benefits of these socio-economic activities are identified and then quantified in the context of macro-economic growth. These options, with their associated costs and benefits, are presented such that it facilitates public participation and the democratisation of the decision making process. The CSIR applied the ECO2 framework to areas where water resource use is highly contested between agricultural and industrial users and found that it provided significant clarity on the combination of use, which best contributes to accelerated socio-economic growth and sustainable environments.

*Source*: CSIR (2007) ECO2 – Sharing the benefits from water resources, Focus on CSIR Research in Water Resources

Section 5.2 – How to approach communication efforts

* + 1. **Communication is a strategic element of any TWC benefit assessment and needs to be carefully considered.**  Communication efforts are key to maximise the impact of the benefit assessment. At the same time, if the results of a TWC benefit assessment are presented at the wrong time or in the wrong way, it may derail the programme of increased cooperation. In many cases, TWC processes will include a communications plan. A strategy for communicating the results of a TWC benefit assessment should be carefully included in that communications plan. This will include issues such as who are the target audiences, which content needs to be developed for those specific target audiences (key messages and required supporting information), who will deliver the messages, how will the messages be delivered (communication products), and when will the messages be delivered.
    2. **Cooperating parties should communicate the benefits of the overall programme of cooperation**. This includes benefits from the improved management of both surface and groundwaters; benefits related to water quantity and quality; benefits generated at the basin and beyond the basin scale; and it includes the evolution of benefits over time (short term, long term).
    3. **The communication of the results of a TWC benefit assessment should be tailored to the needs of the TWC policy process**. Chapter 2 of this Policy Guidance Note discussed how a TWC benefit assessment needs to be tied to an existing policy process of TWC. The status of the TWC policy process should have determined the scope and detail of the TWC benefit assessment. Similarly, the TWC policy process will determine the type and level of efforts for communicating the results of the TWC benefit assessment. Poorly planned or executed communication efforts are likely to be counter-productive and damage the TWC process by increasing transaction costs and decreasing ambitions.

**Box 5.1 The impact of communication on cooperation outcomes – the case of the Murray-Darling Basin**

The Murray-Darling basin (MDB) spans over 1,06 million km2 across four states and one territory in Australia. Transboundary water cooperation goes back to 1915. Since 2000 the federal government has assumed an increasingly active role to ensure state collaboration and coordination. It introduced the Water Act in 2007, created the Murray-Darling Basin Authority (MDBA), and implemented the *Water for the Future* policy (with an attached AUD 12.9 billion public expenditure over 10 years to fund water reallocation). One of the goals of the new independent MDBA was to establish an independent, basin-wide plan for water sustainability. In 2010, the MDBA released a guide to the Basin Plan that called for environmental water holdings to be increased by 3000-4000 gigalitres (GL) annually, which represented an average reduction in current watercourse diversions of 27-37%. The MDBA wanted the release of the Guide to be the first time that sustainability diversion limits were proposed, and kept its content under secrecy, with no communication or consultation with other water management authorities (state or federal). In the run-up to the Guide’s release there was great speculation about its content, with lots of rumours spreading fear. The MDBA released the Guide and supporting materials on their website with an immediate impact on the national news. It had the misfortune to happen at a time that many irrigation regions were suffering from flooding. The lack of knowledge about water products by journalists led to inaccurate media coverage.

After releasing the Guide, the MDBA started touring regional towns in the MDB, meeting irrigators, answering questions and handing out copies of the Guide and supporting material. The MDBA started the tour in the town of Griffith, one of the areas that stood to suffer the most from reallocation, where angry farmers started a fire and burned copies of the Guide. This became the public image of the Guide and how irrigators felt about the water policy. Irrigators did not accept economic modeling studies (usually based on computable general equilibrium models) that modeled impacts on future jobs and agricultural production, and non-use values of environmental benefits were disputed. Community consultations were dominated by loud and angry farmers and more disruptive actions. This led to a federal inquiry, the resignation of the head of the MDBA, new programmes to support rural areas, additional expenditure on irrigation infrastructure to recover water, and, finally, substantial reduction in the targets for environmental holdings in the final Basin Plan. Huge transactions costs, in consultancies and extensive community consultation, were also incurred.

*Source*: Wheeler S.A. (2014) Case Study: Murray-Darling Basin

* + 1. **The intended use of the results should shape the communication efforts**. A TWC benefit assessment can support the TWC policy process in multiple ways. It can establish a credible and commonly accepted baseline. It can provide commonly accepted estimates of benefits that can be generated under different cooperation scenarios. It can inform the design of incentive and compensation schemes. It can contribute to monitoring the generation of benefits. And it can inform the need to redesign the institutional setting for cooperation. Each of those possible uses of the results of a TWC benefit assessment will require different communication efforts. A stakeholder analysis would help to identify the potential target audiences given the intended use of the results.
    2. **Communication efforts should frame the messages in ways that are meaningful to the intended audiences.** There are several intended audiences for the communication efforts: decision-makers; different stakeholder groups (such as business industry within the basin, youth at tertiary education level, international science community); populations in the basin, the general public. Each intended audience may require a different type of information, and each audience will require that the information is presented in a way that is meaningful to them. For example, it may be more compelling to communicate the “avoided losses and risks” than the “new gains”.
    3. **The intended audiences will drive the selection of the “communication agents”.** The question of who is delivering the message should be carefully considered. For example, communication of TWC benefits at the local level is often more successful when transmitted by local stakeholders (such as civil society organisations with local presence and on-the-ground activities). For decision-makers and high level officials, peers often carry a higher degree of credibility than external technical advisors – peers can be mobilised as “communication agents” through study tours and twinning activities, for example.
    4. **Communication efforts need to take into account that upstream and downstream countries may have different perspectives**. For example, upstream countries may be more focused on minimising risks and downstream countries may be more focused on maximising benefits. It is often more difficult to communicate the benefits for upstream countries.
    5. **Effective and continuous sharing of benefits requires financial resources**. In some settings, they may be provided by international organisations and the donor community.

**Box 5.3 Communicating the benefits of transboundary cooperation – efforts in the Okavango basin**

The governments of Angola, Botswana and Namibia established in 1994 the Permanent Okavango River Basin Commission (OKACOM). After a period of infancy that lasted over a decade, OKACOM focused on the development of a Transboundary Diagnostic Analysis (TDA) and a Strategic Action Programme (SAP). The TDA used an integrated flow assessment to support the development of different scenarios, which in turn helped to define a development space.

OKACOM has paid particular attention to the communication of the results from the TDA. It took care of developing different communication products aimed at different target audiences. For policy makers, it developed policy briefs. For experts (including basin technocrats, academics and the private sector) it produced a consolidated technical TDA report, as well as over 70 technical specialist reports, which were made available through OKACOM’s website. For youth and students, it produced the River Cousins Comic Book. For the international community of river scientists, it took part in the 2012 International Riverprize competition. For non-specialist audiences, the results of the “what if” scenario analysis were presented in simple and pragmatic language, using spatial visualization and info-graphic techniques to make it easier for the target audiences to grasp their meaning. All these efforts were guided by a communications strategy.

Source: Chonguica E and Molefi T (2014) Cubango-Okavango River Basin Case Study, developed for the UNECE Workshop on the Benefits of Transboundary Water Cooperation.

**Box 5.4 Communication strategies to support the policy process – the case of the Teesta Basin**

Strategic Foresight Group has developed an analysis of the opportunities for and benefits of increasing cooperation between Bangladesh and India in the Teesta Basin. Communication efforts to disseminate the results of the analysis have targeted both high-level political representatives and the public at large. The final report was presented to the Prime Minister’s Offices of both Bangladesh and India; as well as through bilateral meetings to the National Security Advisor of the Prime Minister of India, the Chief Foreign Policy Advisor to the Prime Minister of Bangladesh, and members of parliament from both countries and all major political parties. Efforts to reach the public at large focused on the media – hundreds of related articles have been published in the mainstream media and op-ed pieces were published simultaneously in both countries to mobilize public opinion. But in order to reach political representatives, one key aspect has been promoting their involvement in the development of the analysis. These efforts have helped to create a sense of ownership across the political aisle that should facilitate the signing of the treaty as well as further steps in transboundary water cooperation.

*Source*: Raj A (2014) Teesta Basin Case Study

Section 5.3 – How to communicate the benefits of transboundary water cooperation for specific purposes

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| **TARGET STAKEHOLDER GROUPS** | **SPECIFIC PURPOSES** | **POSSIBLE COMMUNICATION EFFORTS** |
| **National decision-makers** (ministries of foreign affairs, economic development and finance) | Awareness-raising | Develop a joint multi-language website |
| Advocacy | Develop policy briefs |
| Policy development |  |
| Negotiation and compensation |  |
| **National water community** (ministries of water, basin organisations, large water users/ beneficiaries) | Awareness-raising | Develop a joint multi-language website |
| Advocacy | The general public can make use of scientifically-defensive recommendations |
| Policy development | Involve national water community in the benefit assessment efforts  Use science advisory boards to promulgate scientifically-defensible recommendations |
| Negotiation and compensation |  |
| **Local stakeholders** (local governments, local communities, local water users/ beneficiaries) | Awareness-raising | Deliver messages through local NGOs with on the ground activities  Organise events (e.g. Danube Day, Nile Day) |
| Advocacy |  |
| Policy development | Involve local stakeholders in the benefit assessment efforts |
| Negotiation and compensation |  |
| **General public** | Awareness-raising | Deliver messages through media articles and op-eds |
| Advocacy | Deliver messages through media articles and op-eds |

1. More information at : www.unece.org/env/water/1st\_workshop\_benefits\_cooperation.html [↑](#footnote-ref-1)
2. More information at : www.unece.org/env/water/workshop\_benefits\_cooperation\_2014.html [↑](#footnote-ref-2)
3. While greater *levels of cooperation* can be expected to generate greater benefits for the cooperating parties, the optimal *mode of cooperation* will depend on a mix of factors (including hydrologic characteristics, the economics of cooperative investments, numbers and relationships of parties, and the costs of parties coming together). [↑](#footnote-ref-3)
4. Sadoff C and D Grey (2002) Beyond the river: the benefits of cooperation on international rivers, Water Policy 4, 389-403, Elsevier. [↑](#footnote-ref-4)