

Good Practices on Transboundary Water Resources Management and Cooperation

This compendium of good practices was developed by the CADRI Partnership under the leadership of FAO with inputs from UN Environment and the United Nations Economic Commission for Europe in February and April 2020.

I. Definition

Transboundary waters refer to the aquifers, and lake and river basins shared by two or more countries.

There are approximately 276 transboundary river basins on the planet with a geographical area corresponding to almost half of the earth's surface and 60 percent of freshwater supplies. About three billion people in 145 countries live in this area. Two billion people rely on groundwater resources, of which approximately 273 are transboundary aquifer systems. Transboundary waters connect people from different countries or regions. These physical realities, together with the need for sustainable development and the equitable and reasonable use of these common resources, create the conditions necessary for cooperation between people, groups and countries.

Many transboundary waters are, however, not covered by agreements between the riparian states and do not have the joint institutional structures in charge of their joint management and cooperation. Notably, more than half of the world's 276 international river basins, plus transboundary aquifer systems, lack any form of cooperative management framework. Even where joint institutions exist, the growing pressures on water resources—coupled with the impacts of climate change—amplify the challenges in implementing existing agreements and achieving progress in transboundary water cooperation, thereby calling for strengthened governance frameworks to build the required capacity to sustainably manage the joint-resources.

Boundaries in transboundary systems exist not just between countries. At the international level, transboundary cooperation in water management heavily depends on circumstances at the national level. For example, in a federal system, problems between administrative authorities are similar to those at transboundary level may also occur and complicate matters. Moreover, failure to cooperate between these different administrative levels within a country, such as the community level with the provincial level, can have severe impacts.

II. Relevance

International water/river basins represent nearly half of the Earth's land surface and are home to 40 percent of the world's population. Risks and challenges associated with their management are often shared by neighbouring countries; hence, there is a strong call for effective collaboration within and across borders. Transboundary water management and cooperation between and amongst riparian countries, is key to reducing disaster risks due to the fact that a large part of disaster risk is directly or indirectly linked to water such as floods, droughts, typhoons/ cyclones, flash floods, and landslides. Transboundary water resources cooperation can be established to deal with a multitude of issues. Riparian countries might decide to cooperate¹ because there is a need to: manage water quantities (i.e., make joint decisions on the allocation between user groups for purposes such as power

¹ Vollmer R., et al. (2009). Institutional Capacity Development in Transboundary Water Management. UN-Water Decade Programme on Capacity Development (UNW-DPC).

production, recreation, irrigation, drinking water and household supply, and industry); prevent and control pollution (through an inventory of pollution sources, joint water-quality objectives); jointly monitor and assess the state of water resources; share data and information; conduct shared research and/or development projects; create warning and alarm systems; deepen mutual assistance; increase public awareness; build a forum for exchange; or steer and coordinate adaptation to climate change in the water sector.

The sharing of good practices on transboundary water management will provide countries with information and ideas for the sound management of their transboundary waters. It will also assist them to identify key factors influencing or enabling the effectiveness of their cooperation for joint intervention and management.

III. Key considerations and principles

Due to the heterogeneity of the physical, political and socio-economic contexts of specific rivers, lake basins and aquifer systems; **there is no magic/single practice or method for managing transboundary water related issues**, but rather a set of **practices or methods that can help foster cooperation and build better relationships between users of transboundary water resources**. Good practice is often achieved through the presence of enabling factors/principles which, upon identification, can be used as catalysts to create opportunities for more effective cooperation. Based on the analysis of many available good practices on transboundary water resources management and cooperation, **eight enabling factors/principles**, among others, are defined as follows:

Data collection and information sharing among riparian countries

Ensuring that **data and information are readily available and accurate** is crucial to manage water-related disasters at a scale ranging from local to national and to transboundary levels. For example, meteorological, hydrological and climate data is needed to assess the exposure of assets to water-related events. Socio-economic information is needed to determine the potential hazard as a result of the hydrologic events. This information should be collected and shared among riparian states in order to get a sense of the shared risks. In doing so, a **basin-wide information and data exchange system is needed**. Such a system includes a range of agreements, for example on data-exchange protocols, including frequency of exchange, contact points, warning levels, communication channels and so on. The system should be created with a standardized data formats to ensure that the shared data can be incorporated into each country's early warning or decision support system. If this is not possible, a data comparability procedure needs to be established between countries adopting different methods of data collection, different methods of data surveying, instruments, procedures, and so on. **The system should be accompanied by a disaster preparedness and response system that prescribes the necessary action in case of a developing extreme event.**

Furthermore, to support effective cooperation in (water-related) disaster risk reduction at the transboundary basin level, the development of **joint monitoring and joint information systems** (such as databases or GIS systems) is recommended. Such systems should be based on an agreement regarding the information to be shared and the country responsible for producing the information. **If a joint information system is not feasible, regular and operational data and information exchange between different countries, bodies and sectors is needed**. This includes an exchange of information on risk management and adaptation plans and measures to enable riparian countries to harmonize their activities, and the exchange of data permitting the improvement of climate and hydrological prediction models. Finally, data should also be made publicly available, except in cases where disclosure to the public might damage confidentiality provided for under national law in terms of international relations, national defense or public security, the course of justice, the confidentiality of commercial and industrial information (where such confidentiality is protected by law to protect a legitimate economic interest), intellectual property rights, and so on. In such cases, data should be processed so that it cannot be used for purposes other than risk assessment.

A basin level organization or joint body management is needed

Joint bodies such as river basin commissions can help facilitate international cooperation², including the sharing of data, as well as the elaboration of management plans, including River Basin Management Plans, Flood Risk Management Plans and Drought Management Plans (i.e., the Mekong River Commission, the Sava River Basin Commission). Where no transboundary river basin commissions exist, these should be established, preferably at a high institutional level and with political support to ensure sufficient funding for all joint activities. Developing formalized communication between parties through, for example, joint bodies provides **a means for solving possible water conflicts and for negotiating water allocations, thereby removing the need to rely entirely on inflexible rules on resource sharing**. Joint bodies with a wide scope, competence and jurisdiction are hugely important for making transboundary agreements “disaster and climate risk proof”. Joint bodies, such as river basin commissions, should be responsible for the development of **joint or coordinated disaster risk management strategies for transboundary basins and for following up on their implementation while evaluating their effectiveness**. The bodies therefore need to have the capacity and means to effectively undertake these tasks. Furthermore, **conflict resolution mechanisms at river-basin level** such as compulsory fact-finding, conciliation, negotiation, inquiry or arbitration can help solve conflicts between concerned parties.

Joint implementation of integrated approach to water resources management

Joint problem definition and a common understanding of interests among all riparian countries are important for stimulating and improving transboundary cooperation. This includes issues on ecological functioning, reservoir and dam operations, and so on. Integrated planning approaches such as **Integrated Water Resources Management (IWRM)³** in large and complex river basins can help ensure effective management and equitable use of water and related resources. IWRM promotes the coordinated development and management of water, land, and related resources in a way that maximises economic and social welfare without compromising the sustainability of vital ecosystems. General activities under IWRM of special importance in transboundary basins include: i) maintaining a water balance for the entire basin; ii) good communication between riparian countries; iii) jointly defining issues and arriving at a common understanding of interests among all riparian countries; iv) sharing hydro-meteorological data across borders, as well as a joint legal and institutional framework for cooperation, pilot projects and regional and sub-regional workshops on transboundary water management; and v) capacity-building and training at both the technical and decision-making levels, and on early warning.

Joint Benefit Assessment of transboundary cooperation

Joint benefit assessment⁴ is important in helping the riparian countries move from perception to facts regarding what can be gained from strengthening cooperation on shared water resources. The development of the benefit assessment includes i) **the identification and assessment of the benefits of cooperation with multi-stakeholder basin representatives** through the identification of country perspectives on benefits, and the qualitative assessment of benefits of proposed nexus actions; and iii) **the drafting of agreed joint benefits for implementing intersectoral nexus solutions to improve transboundary water cooperation**. Once the joint benefits are clearly identified, they will serve as important basis to incentivize riparian countries to strengthen cooperation for the co-benefits in water resources management. Several international and

² <http://www.mrcmekong.org/assets/Publications/MRC-procedures-EN-V.7-JUL-18.pdf>

http://www.savacommission.org/dms/docs/dokumenti/public/projects/usace/technical_documentation_sava_hms_model.pdf

³ <http://www.mrcmekong.org/about-mrc/mekong-integrated-water-resources-management-project/>

⁴ UNECE (2018). Identifying, assessing and communicating the benefits of transboundary water cooperation: Lessons learned and recommendations.

basin organizations have carried out work on the benefits of transboundary water cooperation or the cost of inaction. They include, but are not limited to, three pilot benefit assessments carried out in the Cubango-Okavango River Basin (shared by Angola, Botswana and Namibia), the Sio-Malaba-Malakisi River Basin (shared by Kenya and Uganda) and the Drina River Basin (mainly shared by Bosnia and Herzegovina, Montenegro and Serbia).

Multi-level stakeholder involvement and cooperation

Water-related disaster risk management involves a variety of disciplines, institutions and stakeholders that are active at different levels in time (sequential interventions) but also at different scales (transboundary actors like basin-wide institutions, national actors including line ministries/authorities and local actors such as governorates, municipalities, local communities). Therefore, transboundary cooperation is crucial to address the complexity and scale of the challenges faced in managing transboundary basins. Achieving successful transboundary water management will require **coordination within and across sectors and actors, coherent policies, and integrated planning**. The different sector authorities within each country and the basin need to work under better coordination and involve the different key interests and stakeholders. A comprehensive mapping of these actors/stakeholders and layers is needed to understand their respective specific mandate; agree on their roles and responsibilities in developing and implementing a joint water resource management plans and measures. Full stakeholder inclusion/engagement is a critical factor for successful transboundary cooperation. Every stakeholder should have access to the decision-making process at all stages of the risk assessment framework, ranging from risk assessment to planning and the selection of priority risk reduction measures. Also, **measures at the community level can only be effective if the communities have played a part in designing (including risk assessment) and implementing the measures**. It is worth noting that while transboundary cooperation and sectoral cooperation at all levels, may further complicate the implementation of disaster risk reduction measures, it also offers unique possibilities to enhance the efficiency and effectiveness of plans and programmes by advancing synergies arising from cooperation and resulting in more robust risk reduction activities. Studies show that transboundary water cooperation promotes increased energy and food production, enhanced resilience to disasters and regional economic integration.

Continued regional/basin level dialogue is imperative and forms a basis for cooperation

To enhance cooperation between all riparian states, **a platform for continued intersectoral dialogue and systematic multi-stakeholder consultation processes at the basin level is needed**. The platform is key to coordinate sustainable management of transboundary waters at national/regional/basin level by creating an enabling mechanism/environment to facilitate a trust building process, stimulate the initiation of processes that help strengthen cooperation at a basin level, share of experience and knowledge at the regional and/or basin level and improve capacities of institutions and other stakeholders through capacity building/training workshops and study visits/exchanges. Good practice examples include the [regional dialogue](#) for transboundary water cooperation in Southeastern Europe and the [Mekong Transboundary Dialogue](#).

Institutional capacity development for key stakeholders/actors is key

The capacity of water practitioners, managers and policy makers within transboundary basins needs to be developed, in terms of their knowledge of the most suitable techniques to support of cross-sectoral stakeholder participation in planning and public participation, and their ability to implement participatory activities⁵. Key areas for institutional capacity development for stakeholders/actors to ensure effective transboundary water resources management include: (1) **Legal frameworks** – capacity is needed, among others, to improve the design, development and implementation of water related policies and strategies/plans; monitoring and evaluation of water policy and governance and

⁵ Vollmer R., et al. (2009). Institutional Capacity Development in Transboundary Water Management. UN-Water Decade Programme on Capacity Development (UNW-DPC).

sharing the information and results with the public and make adjustments, if needed. Enhanced capacity is also required to negotiate and write adaptable agreements and to improve horizontal and vertical inter-agency and inter-sectoral coordination. (II) **Cooperative/coordination mechanisms** – capacity is needed to support cross sectoral integration and coordination, data, information and analysis and sharing and dissemination mechanism, and regular information and communication exchange between technical and policy experts, including expert inputs into the political process that can lead to more cross-sectoral and transboundary understanding, which leads to stronger cooperation. (III) **implementing capacity** – Capacity is needed to support the coordination, harmonization and implementation of transboundary water management programme, projects and activities, as well as the development of financial management skills to ensure transparency and accountability.

Financing mechanism for transboundary water resources management needs to be in place

Transboundary water resources management programmes and water infrastructure development require **sustainable financing for the development and implementation of a legal framework; capacity-building; establishment and tailoring of institutional arrangements; management costs of transboundary institutional arrangements; cost of basin management: joint data collection, planning and monitoring; and long-term investment in water-related infrastructure for shared river management**⁶. Financing mechanisms for transboundary water cooperation include⁷: (i) Inter-riparian financing by public means; this requires countries to fund activities beyond their territories; (ii) Public-private partnerships; (iii) Revolving funds to engage private investors in projects with positive transboundary externalities; (iv) Trust funds for programme implementation, administered by a transboundary or international institution or joint-body. Investment needs often exceed the resources available to riparian countries. International organizations, international financial institutions or specialized development funds can play an important role in providing resources to build and strengthen the enabling environments, in which financial cooperation over transboundary management becomes a possibility. **Existence of a river basin organization/joint body river/basin management increases a basin's chances of receiving donor support.** This is evident through a number of GEF and EU funded projects in [the Sava River Basin](#), [the Mekong River Basin](#), [the Drina River Basin](#) and [the Nile River Basin](#).

IV. Country examples

The Mekong River Basin

a. The Establishment of Joint Body to manage water resources in the Mekong River Basin (article extracted from the source cited below)

The Mekong River is one of the world's largest rivers flowing 4,900 km through six countries: China, Myanmar, Thailand, Lao PDR, Cambodia and Viet Nam. It is renowned for its rich biodiversity and abundant natural resources that directly support the livelihoods of more than 65 million people living in the lower Mekong basin. Called "Mother of Rivers", it provides a great potential for the region's development. However, from rapid population growth to intensified investments in water infrastructure to severe natural disasters, both human activities and climate change pose serious threats to the management and development of the Mekong's water resources.

Over the last few decades since the 1950s, four countries of the lower Mekong basin – Cambodia, Lao PDR, Thailand and Viet Nam – have been working together to address those challenges. In 1995, they

⁶ Vollmer R., et al. (2009). Institutional Capacity Development in Transboundary Water Management. UN-Water Decade Programme on Capacity Development (UNW-DPC).

⁷ Ibid.

signed an agreement for **regional water cooperation and created the Mekong River Commission (MRC) to jointly manage the river's shared water resources in a more sustainable and equitable manner.** The MRC has since provided a **platform for water diplomacy for the four countries to closely collaborate on better use of water resources, despite their differences in national interests and development priorities.** Serving as a knowledge hub, it has also accumulated and shared a wealth of scientific knowledge and technical expertise in various water-related sectors, such as fisheries, flood and drought management and navigation, to support better basin development planning.

The 1995 Mekong Agreement provides a legal framework for the four countries to cooperate for better development and management of water resources that could bring them economic benefits while protecting the environment. It defines the mission and goals of the organisation, and sets out the roles and responsibilities of its three bodies – the Council, the Joint Committee, and the Secretariat – and the strategic objectives of cooperation. Ultimately, the agreement tasks the MRC to promote optimal use of water and well-balanced development of the basin, and support the achievement of the Mekong's full potential through the formulation of a basin development plan. Over the years, the MRC and its member countries have developed five sets of procedural rules and associated technical guidelines on data sharing, water use monitoring, water use cooperation, flow maintenance, and water quality. The first three establish the process of water cooperation, while the rest set the criteria to assess water conditions. These rules, known as the MRC Procedures, provide a systematic and unified instrument for the implementation of the Mekong Agreement. The Five sets of procedural rules are as follows:

1. **Procedures for Data and Information Exchange and Sharing (PDIES)**, approved in 2001 to operationalise data and information exchange of vital water-related indicators among the four Mekong countries.
2. **PWUM Procedures for Water Use Monitoring (PWUM)**, approved in 2003 to establish an effective monitoring system of water use of the Mekong and tributaries by various sectors, including domestic supply, irrigation and hydropower.
3. **PNPCA Procedures for Notification, Prior Consultation and Agreement (PNPCA)**, approved in 2003 to facilitate the cooperation on water use and development with a set of three specific processes for proposed water infrastructure projects.
4. **PMFM Procedures for the Maintenance of Flows on the Mainstream (PMFM)**, approved in 2006 to set out assessment criteria and a process to monitor and maintain adequate water flow in the Mekong and Tonle Sap rivers.
5. **PWQ Procedures for Water Quality (PWQ)**, approved in 2011 to strengthen a cooperative framework to monitor and safeguard water quality of the Mekong and Bassac rivers with agreed sets of assessment criteria.

Source: Mekong River Commission (MRC). (2018). *An introduction to MRC procedural rules for Mekong Water Cooperation*. <http://www.mrcmekong.org/assets/Publications/MRC-procedures-EN-V.7-JUL-18.pdf>

b. Integrated Water Resources Management Project in the Mekong River Basin (article extracted from the source cited below)

Integrated planning approaches in large and complex river basins can help ensure effective management and equitable use of water and related resources. This is very relevant for the Mekong River Basin and is a reason why Integrated Water Resources Management (IWRM) is a cornerstone of the MRC's approach to managing planning on a basin-wide scale. The MRC's Mekong IWRM Project follows the IWRM approach with the aim to institutionalize its principles across the Mekong Basin in a coordinated way that proactively involves all divisions as well as relevant national authorities.

The Mekong Integrated Water Resources Project builds on 15 years of MRC achievements, particularly the Water Utilisation Project (WUP), which operated from 2000 to 2008. The Project developed important tools for integrated basin-wide management that include MRC Procedures and Technical Guidelines as well as respective models to implement the 1995 Mekong Agreement. The Mekong

IWRM Project directly supports the MRC's strategic directions for 2016 to 2020, which assists Member Countries with implementing IWRM approaches in national water resources management and related sectors to support sustainable and equitable regional development on the basin-wide scale. It also supports and feeds into the IWRM Basin Development Strategy 2016-2020.

The Project has technically facilitated the first-ever implementation of the prior consultation process of the Procedures for Notification, Prior Consultation and Agreement (PNPCA). This process stipulates that prior consultation between all Member Countries is required for any development project proposed for the Mekong mainstream. Regarding the submission of the proposed Xayaburi mainstream hydropower project, M-IWRMP technically coordinated the MRCS PNPCA Task Group and the development of the MRCS Prior Consultation Review Report.

To assist Member Countries with improved water resources management, the project works towards the practical implementation of the MRC's Procedures and Guidelines. The project implements the organization's procedures and guidelines through a three-tiered approach, which combines the regional (basin-wide), transboundary and national levels.

Cooperation, communication, and a reciprocal exchange of knowledge between all three levels are the project's key approach to implementing effective IWRM. At the regional level, the Project addresses the basin-wide scale and respective issues regarding joint IWRM planning and development through the MRC advisory and facilitation platform between all Lower Mekong Basin countries. The transboundary level is strategically applied and focuses on bi-and multilateral cooperation between the MRC Member Countries and cross-country projects that are facilitated through the MRC Secretariat. Such projects include, for example, transboundary fisheries management. The Project also addresses gaps at the national level, where help in implementation is needed in national water resources management to anchor IWRM approaches and merge them with the basin-wide approaches.

A key characteristic of IWRM is that all activities are inter-linked. All approaches should contribute to each other, working towards improved IWRM coordination. Member Countries play a crucial role in the success of IWRM as they implement the integrated procedures through their relevant authorities, mechanisms and structures. The project equally addresses issues that ensure the success of putting IWRM into practice. This includes national-level capacity building, establishment of environmental baselines, and encouraging the involvement of the upstream MRC Dialogue Partners.

Source: Mekong River Commission (MRC). Mekong Integrated Water Resources Management Project. <http://www.mrcmekong.org/about-mrc/mekong-integrated-water-resources-management-project/>

c. Flood management in the Lower Mekong Basin (article extracted from the source cited below)

The Mekong River Commission (MRC) implements different activities to support its Member Countries (Cambodia, Lao PDR, Thailand and Viet Nam) to improve flood management in the Lower Mekong Basin (LMB).

The Initial Studies Project is currently running and aims at assessing the existing, future and residual flood risks in three flood focal areas of the LMB (namely the Nam Mae Kok basin North of Thailand, the Xe Bang Fai Basin in Central Lao PDR and the Mekong Delta in Cambodia and Viet Nam), leading to the formulation of strategic directions to manage these risks through the demonstration of an integrated flood risk management planning process.

Pilot projects at local level, located in these different flood focal areas, have been implemented in 2014-2016. In these pilot projects current and future flood risks and damages were assessed, taking into account future climate scenarios. The developed methodology integrated social and economic vulnerabilities to facilitate the formulation, prioritization and cost justification of flood mitigation measures (factsheets available for download under <https://www.giz.de/de/weltweit/14435.html>).

Besides, the MRC developed and operates a regional flood forecasting system for the Lower Mekong Basin for current flood risks (visit http://_w.mrcmekong.org/). This system relies largely on the collaboration between countries in terms of data sharing for its overall performance. Data from 138 hydro-meteorological stations together with satellite estimates of rainfall are used to generate water level forecasts for 23 stations along the Mekong main stream. The forecast is issued daily with a 5-day range forecast, and it is disseminated through different channels (website, bulletin, social media, fax, etc.) to a variety of actors. The response mechanisms to potential alarms are arranged at the national levels. In parallel to this system, and because flash flooding from intense rainfall in the Mekong's tributaries is the largest risk for people and infrastructure, the MRC is currently developing a flash flood guidance system for tributary rivers (see http://_w.mrcmekong.org/_g.php).

Source: United Nations (2018). *Words into action guidelines: implementation guide for addressing water related disasters and transboundary cooperation. Integrating disaster risk management with water management and climate change adaptation.* New York and Geneva.

The Sava River Basin

a. The establishment of joint-body to manage transboundary water in the Sava River Basin (article extracted from the source cited below)

After dissolution of the Socialist Federal Republic of Yugoslavia in the early 90s, the Sava River, which was once the biggest national river, became an international river of recognized importance. Before then, activities related water resources management in the Sava River were regulated by the national regulation, plans and programmes. Appropriate institutional framework for implementation of water policy was no longer fit after the Sava River became an international river basin. Hence, international framework was required for the use, protection and control of the Sava River through transboundary water resource management. However, it is worth noting that the Balkan war in the 1990s was a key obstacle for the establishment of such framework. Following the support of the Stability Pact, the four riparian countries of the Sava River Basin - Bosnia and Herzegovina, Federal Republic of Yugoslavia, Republic of Croatia and Republic of Slovenia entered into a process of cooperation known as “the Sava River Basin Initiative” (Figure 1: the Sava River Initiative Process). The process resulted in the “Letter of Intent” signed in Sarajevo (B&H) on November 29, 2001, by the ministers of foreign affairs of the four countries. The Letter of Intent aimed to promote the implementation of joint activities to utilize, protect and control the Sava River Basin water resources in a sustainable manner, and to find appropriate institutional frame in order to enhance the cooperation

Figure 1: The Sava River Initiative Process

Activity / Event	Date
Launch of the Initiative	June 2001
Signing the Letter of Intent on Cooperation in the SRB	November 29, 2001
Signing the FASRB	December 3, 2002 (Kranjska Gora, Slovenia)
Establishment of the Interim Sava Commission	March 12, 2003 (Brussels, Belgium)
Ratification of the FASRB	December 29, 2004
Establishment of the ISRBC	June 27-29, 2005 (Zagreb, Croatia)
Establishment of the ISRBC Secretariat	January 9, 2006 (Zagreb, Croatia)

Later on, the basin countries developed the Framework Agreement on the Sava River Basin (FASRB), which is a unique international agreement, integrating all aspects of the water resources management and established the (joint) International Sava River Basin Commission (ISRBC) for the implementation of the FASRB, with legal status of an international organization. After signing the FASRB on December 03, 2002, at Kranjska Gora (Slovenia), a remarkable amount of work was done by the Interim Sava Commission – temporary joint body established at the Conference of the Interested Parties of the Sava Basin Initiative, held on March 12, 2003. The Interim Sava Commission was formed to prepare all steps necessary for the establishment of the permanent Commission upon entry of the FASRB into force. In the years which followed, all Parties ratified the FASRB, so it entered into force on December 29, 2004. The First Constitutional Session of the Sava Commission was held on June 27, 2005. The permanent Secretariat of the Sava Commission started to work on January 09, 2006.

Sources: *The Sava Basin Commission* <https://www.savacommission.org/>

b. Framework to advance transboundary water cooperation in the Sava River Basin (article extracted from the source cited below)

The Sava River Basin is critical in ensuring energy, water and job security as well as the environmental integrity of the region. Its water resources are fundamental for economic development, and the impacts from development and water management in any of the riparian countries can be felt across borders. The Sava River Basin is also a meaningful example of a transboundary basin in which transboundary cooperation is advanced and oriented towards intersectoral dialogue. At the heart of this cooperation and coordination is the International Sava River Basin Commission (ISRBC), which was established for the purpose of the implementation of **the Framework Agreement on the Sava River Basin (FASRB)**.

The ISRBC has three main goals for which it provides a cooperation platform for riparian countries. They are: i) the establishment of an international regime of navigation on the Sava River and its navigable tributaries which includes provision of conditions for safe navigation on the Sava River and its tributaries; ii) the establishment of sustainable water management which includes cooperation on management of the Sava River Basin water resources in a sustainable manner, including integrated management of surface and ground water resources; and iii) the undertaking of measures to prevent or limit hazards such as floods, ice, droughts and accidents involving substances hazardous to water, and to reduce or eliminate related adverse consequences.

The agreements on water cooperation in the region contribute towards the implementation of provisions of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes that in addition to the International Sava River Basin Commission (ISRBC), constitutes a common legal/institutional framework for all the riparian countries of the Sava River Basin. The related obligations concern the equitable and reasonable use of shared waters, as well as the prevention of transboundary impacts.

Sources: *The Sava Basin Commission* <https://www.savacommission.org/>

c. The Sava River hydrologic and hydraulic model (article extracted from the source cited below)

Under the International Sava River Basin Commission (ISRBC), composed of the four Sava riparian countries (Bosnia and Herzegovina, Croatia, Serbia and Slovenia), a flood risk assessment methodology was developed that led to the joint identification of potential significant flood risk areas, the preparation of joint flood risk and flood hazard maps, the development and implementation of a flood risk management plan, and the design and implementation of a joint flood forecasting and flood warning system. A hydrologic and hydraulic (H&H) model was developed to support these endeavours and will be used to prepare flood inundation mapping to support the flood forecasting system. The hydrologic model product includes not only a basin-wide hydrologic model, but also hydrologic models of each major tributary and mainstream basin within the Sava River Basin. Successful development of the joint

Sava River watershed H&H models will have a direct impact on international efforts to develop integrated flood hazard and risk maps, integrated data collection, and flood forecasting and warning systems, which in turn will reduce its vulnerability to natural, technological, and wilful hazards.

Source:

http://www.savacommission.org/dms/docs/dokumentil/public/projects/usace/technical_documentation_on_sava_hms_model.pdf cited in **United Nations (2018)**. *Words into action guidelines: implementation guide for addressing water related disasters and transboundary cooperation. Integrating disaster risk management with water management and climate change adaptation*. New York and Geneva.

Resources

Other examples of good practices are available at UN-Water Good Practice at

https://www.ais.unwater.org/ais/TPA_Transboundary/map/

The good practices available at the UN-Water Compendium were documented based on the following criteria for successful transboundary water cooperation: effective and successful; sustainable; environmentally sound; socially acceptable; technically applicable; inherently participatory; replicable and adaptable. The thematic focus of these good practices are: legal and institutional aspects; climate change adaptation and mitigation; water quality; cooperation over transboundary ecosystems and freshwater protected areas; monitoring and assessment; involvement of non-state stakeholders, transboundary aquifers; exchange of data.

Link to some selected Good Practices from the UN-Water Compendium:

- [Cooperation between the Republic of Belarus, Ukraine and Russia in river basins Dnepr and Pripjat \(signed cooperation agreements\)](#)
- [Establishment of a Flood Prediction and Early Warning System in Meric Transboundary Basin by Bulgaria and Turkey](#)
- [Transboundary Water Cooperation in the Small transboundary tributaries in the Ferghana Valley, Central Asia](#)
- [Improving water governance by leveraging cooperation over data, technical coordination, and IWRM](#)
- [Indigenous Water Governance: Yukon River Inter-tribal Watershed Council](#)
- [Revitalisation of cooperative management through expanding stakeholder involvement in the Goascorán River Basin](#)
- [Role of dialogue in managing conflict and facilitating cooperation : A Case from Brahmaputra Basin](#)
- [The Human Right to water in international river basin agreements - Good practices from the Senegal and Niger river basins](#)
- [Transboundary multi-stakeholder cooperation for the sustainable management of karstic groundwater systems in the framework of the DIKTAS Project \(Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System\).](#)
- [Transboundary water cooperation on the Orange-Senqu River, the case of Lesotho Highlands Water Project](#)
- [Flow Regimes from International Experimental and Network Data of the River Nile Basin \(FRIEND/Nile\)](#)

- Revitalisation of cooperative management through expanding stakeholder involvement in the Goascorán River Basin
- Role of dialogue in managing conflict and facilitating cooperation : A Case from Brahmaputra Basin
- Baikal Information Center, with NGO Forum and Business and Industry Partnerships
- Capitalization on transboundary basin organization good practices
- Groundwater Resources in Shallow Transboundary Aquifers in the Baikal Basin: Current Knowledge, Protection and Management
- The Kobilje stream or The Kebele stream flood protection project

V. References

Mekong River Commission (MRC). (2018). An introduction to MRC procedural rules for Mekong Water Cooperation. <http://www.mrcmekong.org/assets/Publications/MRC-procedures-EN-V.7-JUL-18.pdf>

United Nations (2018). Words into action guidelines: implementation guide for addressing water related disasters and transboundary cooperation. Integrating disaster risk management with water management and climate change adaptation. New York and Geneva.

United Nations Economic Commission for Europe – UNECE. (2016). Reconciling resource uses in transboundary basins: assessment of the water-food-energy-ecosystems nexus in the Sava River Basin. New York and Geneva.

UNECE. (2015). Policy Guidance Note on the Benefits of Transboundary Water Cooperation: Identification, Assessment and Communication. New York and Geneva.

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