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## ДЕЯКІ ЗАКОНОДАВЧІ СУПЕРЕЧНОСТІ У ПРАКТИЦІ СПРАВЕДЛИВОГО І СТАЛОГО ВИКОРИСТАННЯ ТРАНСКОРДОННИХ ВОДНИХ РЕСУРСІВ<sup>1</sup>

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Останнім часом використання транскордонних водних ресурсів привертає все більше уваги. Незважаючи на те, що прибережні країни визнають переваги транскордонних річок і домовляються з іншими країнами басейну річки через укладання угод, договорів, узгодження правил, але іноді їх діяльність, спрямована на збільшення власних вигод, може призвести до порушення рівноваги у басейні та навіть загрожувати мирному співіснуванню. Чинні міжнародні договори та двосторонні і багатосторонні угоди наразі не є достатньо повноважними, щоб зобов'язати країни суворо дотримуватись законодавчих правил та принципів справедливого, сталого і скоординованого використання вод. Крім того, наразі існують конфліктні ситуації між країнами, розташованими у верхніх і нижніх частинах річкових басейнів, стосовно використання транскордонних водотоків через недосконалість санкцій за порушення. Постала необхідність організації спеціалізованого міжнародного органу з найвищими повноваженнями від усіх країн для регуляції антропогенної діяльності у транскордонних водотоках для провадження їх справедливого і сталого управління і розвитку. Крім того, сучасні юридичні принципи мають бути переглянуті з метою заповнення прогалин і суперечностей для уникнення потенційних конфліктів між країнами верхніх і нижніх частин річкових басейнів.

**Ключові слова:** транскордонні водотоки, вторинний аналіз, прибережні країни, міжнародні конфлікти, юридичні принципи.

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It is undeniable that water plays a crucial role in the existence of all species on the Earth, and it is considered as an indispensable component of the ecosystem, which really necessitates the life of all beings. Together with the ever-increasing number of the world population, the greater demand to exploit exhaustively natural resources in general and water in particular has posed a burning problem for all States to address the collaborative equity of how to protect and use transboundary watercourses. Many reports [11, 15, 25] have given alarming warnings of the depletion of freshwater resources due to mostly human interventions of the excessive, unplanned exploitations of transboundary watercourses. This severe process has made the world's freshwater resources increasingly scarce and depleted, which possibly results in widespread crises, threatening all species, directly human beings. In fact, most of the world's freshwater resources are mutually shared by at least two or more countries; consequently, the States' executive policies and people's attitudes towards the protection and use of freshwater resources are decisive in utilizing and preserving this valuable resource via appropriate international legal rules, treaties, and conventions. According to the definition terms of the clause 1, Article 1, it clearly states that «Transboundary waters» means any surface or ground waters which mark, cross or are located on boundaries between two or more States; wherever transboundary waters flow directly into the sea, these transboundary waters end at a straight line across their respective mouths between points on the low-water line of their banks» [28, p. 2]. However, the scope of this paper only deals with the analysis of international principles of protection and use of transboundary freshwater resources management and water-related agreements with lower river basins, typically hydrological conditions in the lower Mekong riparian basins as a case study.

The physical realities of transboundary watercourses have great impacts on the lives of people from different countries and regions for the sustainable development, equitable share, and reasonable use of the transboundary watercourses. In recent years, the collaborative management in relation to internationally shared watercourses has confronted many challenges for riparian States, remarkably the flow of transboundary watercourses by hydroelectric dams [15]. Since the 1997 UN Watercourses Convention [29] the transboundary water cooperation among countries concerned have been increasingly emphasized to revise and renew existing, emerging rules and institutions to minimize negative consequences as the result of legal management flaws. Despite the vital role of International Water Law and transboundary water policy areas, many legal and policy frameworks for transboundary water management have been unable to be incorporated by agreements among the riparian States, and those legal documents are not totally bound to have joint institutional structures liable to their joint management and cooperation, which leads to the chaotic exploitation of transboundary water resources [2]. According to the compendium of good practices by the CADRI Partnership 2020, more than half of the world's 276 transboundary river basins have faced the improper cooperative management framework. Remarkably, even though there are some forms of the presence of joint water institutions, the increasing demands on the exploi-

tation of water resources, together with the negative impacts of climate change has accelerated the challenges in performing international legislative water agreements and making progress in transboundary watercourses cooperation [3]. The present occurrence calls for more strengthened governance frameworks to formulate the required capacity in order to sustainably manage all the activities of the implementation of the legal joint-resources exploitation of transboundary watercourses [26].

It is extremely important to promote transboundary watercourse cooperation relating to its physical significance for the sake of many reasons such as poverty alleviation, peace and security, clean energy, ecosystem protection, and climate change. Ensuring sustainable management of transboundary water cooperation in regard to the mutual use and protection of the shared rivers challenges countries concerned in terms of managing transboundary rivers efficiently to maintain the tangible benefits from the integrated transboundary watercourses activities [33, 34]. In simple words, governing transboundary water basins in a cooperative, equitable, and sustainable ways play a vital role in keeping sustainable development, conflict prevention, peace and climate change resilience [35]. There have been many growing concerns about lacking or weak cooperative manners among riparian countries to address current water-related challenges [35]. These heated controversies have fiercely urged the need to strengthen further transboundary water cooperation to obtain great shared benefits from its close collaborative actions. Consequently, it is crucial to formulate initiative transboundary water resources cooperation between riparian countries to address a multitude of issues emerging from increasing human populations and growing demand due to the expanding economies. As a consequence of on-going population growth, the need to satisfy human living conditions has intensified the excessive exploitation of natural resources, especially fossil fuels for mostly energy consumption [14]. Accordingly, fossil fuels have become exhausted due to the excessive exploitation, so people have turned their focal exploitation to rivers for mostly hydroelectric power plants, which has a great negative impact on natural habitats as well as climate changes [3, 9]. In reality, the Water Convention [28] entails specific commitments emphasizing transboundary riparian basins, encompassing the basis of agreements and arrangements, along with joint bodies; nonetheless, the strict compliance among shared-river countries, which have already entered the legally international binding agreements, has not been totally observed [33].

The improper exploitation of shared rivers among upper riparian countries has directly influenced badly lower riparian neighbours in respect of food production, sustainable ecology, and industrial and domestic water use [14]. For the purpose of utilizing a non-fossil energy resource, shared-upstream riparian countries keep altering the river water currents by building multi-hydroelectric power plants, and pay a scarce attention to the rights of equity and sustainable use of transboundary water resources in the lower riparian countries [16]. In addition, legal documentation to impose sanctions on upstream countries in the high likelihood of contaminating river water has been promulgated, but this law enforcement does not act as much of a deterrent for upper ri-

parian countries to protect water resources and respect lower riparian's rights [2]. To highlight the necessity of preserving ecosystem integrity while balancing mutual benefits between upper and lower riparian countries regarding the adoption and implementation of certain principles for basin agreements, this study aims to review the influential impacts of international treaties and water conventions governing transboundary water resources management, including global, multilateral treaties in the field of international water law and international environmental law concerning the protection of transborder water resources as well as bilateral or regional treaties and agreements on transboundary water cooperations. Besides, the research also studies the rulings of the jurisdictions in resolving disputes related to the protection and exploitation of transboundary watercourse resources. Basing on this investigation from the analysis of secondary sources of primary qualitative datasets following Long-Sutehall et al.'s model [13], the study suggests improved policies and initiative practices for the equitable and sustainable development for lower riparian countries to maintain social, economic, environmental and political inter-dependencies at national, regional, and international scales. The scope of this paper synthesizes, analyses, and evaluates the transboundary watercourses management among lower and upper riparian countries, typically a case study of ASEAN-Mekong Basin Development Cooperation [20].

### **Current situations relating to rivers and legacies to legal normative enforcements**

With the steady population growth, the devastating scale of transboundary water exploitation has occurred more excessively, which requires substantial efforts between the share of rivers among countries to establish agreed mechanism and processes of joint-transboundary water management. The most remarkable documentation turns to the existence of the UN Watercourses Convention [6], which stipulates a comprehensive legal framework to govern the equitable and sustainable management of the shared rivers on account of reinforcing cooperation between shared water resources countries to respect key principles of international law to avoid potential conflicts. In other words, international treaty [6, 27] specifies legal structures empowering countries to utilize water resources efficiently to maximize joint socio-economic and environmental benefits. On mentioning the instrument to regulate the common use of transboundary water, it is normally referable to the international treaties, bilateral and multilateral basin agreements, and principles. These normative documents state specifically the principal legal frameworks on governing shared rivers, basic water administrative principles, and determining the relevant mechanisms for collaborative water exploitation and dispute settlement. Currently, the governance of transboundary waters has greatly been based on three universal legal frameworks, namely Helsinki rules, UN watercourses convention, and UNECE water convention [6, 29, 35]. These key international legal instruments have triggered more international treaties to address the great exploitation of the water resources to meet the demand of the continued growth of the world's population.

Although there have been many national, regional leveled conventions on the use of transboundary waters, the excessive and endangered exploitation of shared river resources have become burning debates among riparian countries, especially between upstream and downstream shared-river countries regarding the non-compliance of international treaties on governing transboundary watercourses. Historically, due to the untreated release of toxic and hazardous substances disposed into riverine systems, the alarming rate of water contamination has caused increasing global concerns. This situation also stems from long-term legacies, which requires more actions to diminish the deteriorations of water quality. For example, the mining and ore processing of large-scale gold and silver exploitation leads to the accumulation of mercury mine contaminating severely the water dumping directly into riverine systems. For the sake of socio-economic development, each national sanction imposed on environmental polluted restriction has been likely to put under the control loosely in the past time [4, 22]. According to [28], clause 1, Article 21 it clearly defines that «Pollution of an international watercourse» means any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct». It can be noted that the aforementioned article accuses human activities of any violated action to alter the current riverine systems to a worsened condition. In [12] the authors assert that water pollution has negative influences on human health problems, poisoned wildlife, and long-term ecosystem damage. In addition, the World Bank [9] illustrates the severely negative impacts of water pollution (Fig. 1) originating from water pollutants which are produced by human actions. In reference to clause 6, Article 1 [28] hazardous substances are defined as «Substances which are toxic, carcinogenic, mutagenic, teratogenic or bio-accumulative, especially when they are persistent». Similarly, water pollutants are classified as «organic pollutants, inorganic pollutants, pathogens, suspended solids, nutrients and agriculture pollutants, thermal, radioactive, and other pollutants». [36, p. 245]. As a matter of fact, although environmental law in most countries stipulates specifically how to treat water pollutants, the costs to process them are expensive; consequently, these pollutants are not strictly treated or unprocessed before dumping into riverine systems. The main causes of water pollution could be blamed for industrial activities, population growth, religious and social practices, agricultural runoff, and accidental incidents. As such, the consequences of water pollution have disastrous impacts on the ecosystem as well as living organisms where the contamination of water pollution covers. In fact, water quality is heavily affected by wastewater discharges, which requires proper planning and management activities at national, regional scales to diminish negative consequences of contaminated water bodies. As mentioned in previous studies [5, 14, 24, 31], countries in relation to shared river resources have currently tried their best to act in good faith to reduce the water pollution situation, but their efforts have not come up to their expectations. This explains the reason why their ordinances are either obsolete or not legally enforceable enough to deter the actions of anyone who contaminates the water resources. Besides, water protection activities have not widely conducted to raise people's



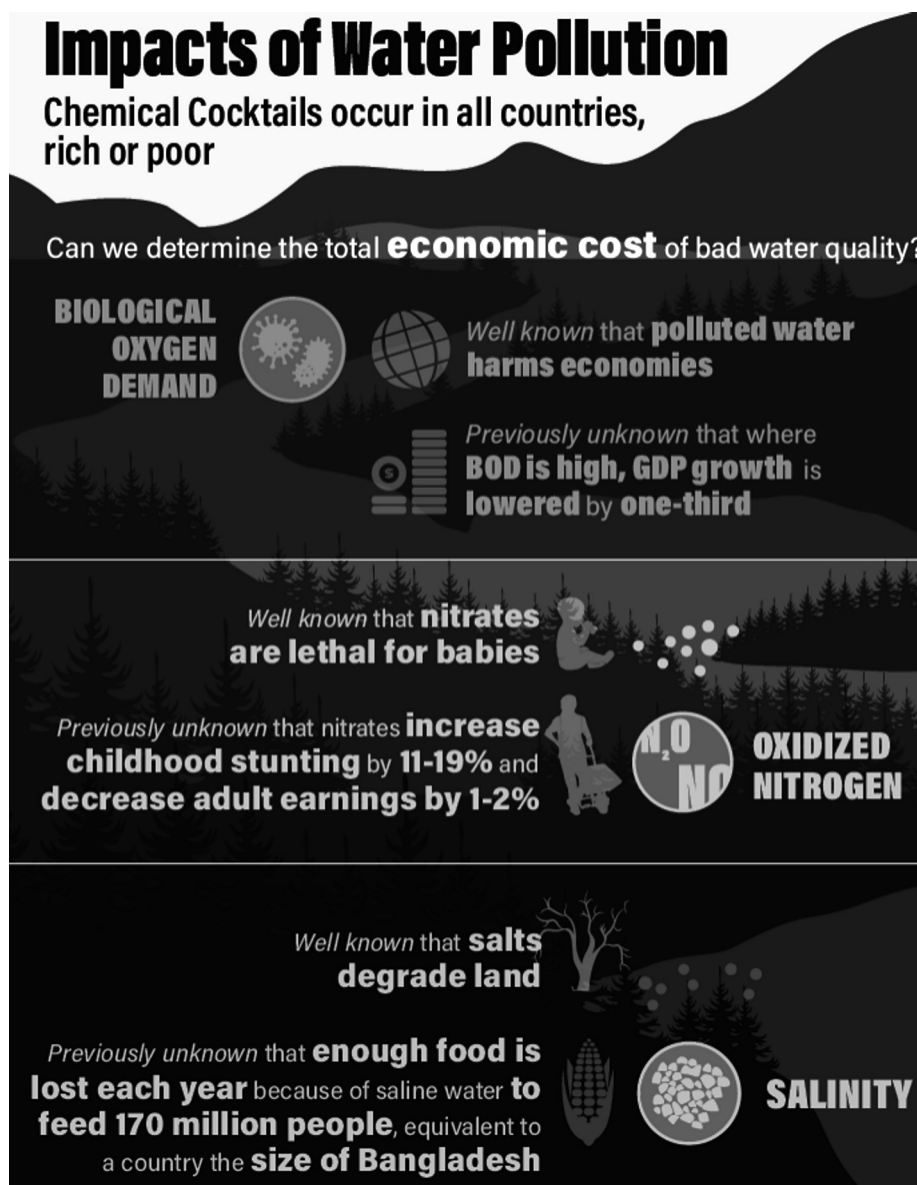


Fig. 1. The impacts of water pollution [9]

awareness of their crucial roles in using, managing, and reserving water resources for their own sake and future generations [7, p. 325].

Another biggest temporary global concern is subject to the controversial human alternation of flow regimes, which traces back to some basic sources such as the construction of (a) dams, (b) water diversion, (c) urbanization, sealing, drainage, (d) levees and channelization, and (e) groundwater pumping. Of these burning matters, this section concentrates mainly the negative burdens of the ever-emerging giant hydrologic power stations along the shared-river co-

untries, especially the lower river basins. It cannot deny the benefits of dam construction along the shared river watercourses. Specially, Zeiringer et al. [38] enumerate some positive aspects of the presence of dams in the transboundary river basins such as «low and high flows for flood control, electrical power generation, irrigation and municipal water needs, maintenance of recreational reservoir levels, and navigation» [38, p. 72]. However, many published studies [3, 14, 15] have claimed that flow regime alterations result in negative ecological changes and other endangered consequences relative to sustainable development and peace. The principal cause of the flow alteration criticizes for the continual building of large-scale dams along the shared river watercourses. It is assumable to concede that the primitive convention concerning the development of hydraulic power in transboundary watercourses possibly dates back to the convention in Geneva 1923 [10], which incorporates 22 articles pivoting the exploration and the yield of the hydraulic power. Unfortunately, when examining the detailed provisions of the convention carefully, it is clear to remark that none of the articles entails the side effects of hydraulic power in relation to transboundary river basins. In fact, the convention mostly stipulates the managerial rights of each State towards the exploitation of any operations for the development of hydraulic power within its own territory in compliance with the limits of international law. The successive, notable convention — the Helsinki Rules [6] mainly addresses the uses of the waters of international rivers. In its essence, the Helsinki Rules consist of 37 articles concerning deeply the governance of international rivers and international drainage basins. Similar to the 1923 convention, the Helsinki Rules do not impose any restriction on the construction of hydraulic power stations along the transboundary watercourses. Another remarkable convention in the early 1990s done at Helsinki [28] centralizes the protection and use of transboundary watercourses and international lakes. In particular, the clause 1, Article 3 thereof specifies 12 points (a-l) defining the prevention, control and reduction of transboundary impact. Nonetheless, by researching carefully the aforementioned article, together with other 27 ones, none of them refers to the governance and impact of dam construction along the riparian basins. Remarkably, a convention on the law of the non-navigational uses of international watercourses [29] takes place in 1997. This convention encompasses 37 articles dealing with problems affecting many international watercourses resulting from increasing demands and pollution. Compared with previous conventions mentioned earlier, this convention constrains factors relevant to equitable and reasonable utilization of watercourse States (see Article 5 & 6). It is certain to state that the Convention, which was conducted in Helsinki in 1992 and became officially in effect in 1996, is considered as a unique legally binding instrument in which the principal cores of the Convention is to promote four major aspects, namely the sustainable management of shared water resources, the implementation of the Sustainable Development Goals, and the prevention of conflicts, and the promotion of peace and regional integration. Following the Convention, at its eighth session (Astana, 10—12 October 2018), the Meeting of the Parties to the Convention on the Protection and Use of transboundary watercourses and International Lakes (Water Convention) [28] promulgated the strategy for the implementation of the Conven-

tion at the global level, and its liabilities should be regularly reviewed by the Meeting of the Parties and its subsidiary bodies, particularly the Bureau and the Working Group on Integrated Water Resources Management in terms of regulating the riverine activities in transboundary water basins. In the same vein, at the ninth session of the Convention (Geneva, 29 September — 1 October 2021), the focal theme of the Meeting of the Parties to the Convention on the Protection and Use of transboundary watercourses and International Lakes (Water Convention) [32] is to strengthen the implementation of the Convention and its principles in regard to transboundary water cooperation and sustainable management of shared water resources. Nonetheless, there is still absence of the controversial hydraulic power stations along the transboundary riverine systems.

Regarding the Convention on the protection and use of transboundary watercourses and international lakes, it is worth examining two official documents concerned. Firstly, Policy Guidance Note on the Benefits of Transboundary Water Cooperation: Identification, Assessment and Communication [30] consists of five chapters, which is supposed to be a resourceful guideline for gaining numerous achievements of joint action deriving from experiences in transboundary basins at a global scale. Furthermore, this Policy Guidance Note is also expected to avail the diversified frameworks for the benefits of collaboration among riparian States, where neighborly relations have mutual struggles in solving shared-river potential benefits of cooperation. In reality, the Policy Guidance Note places great emphasis on resolving the stagnant bottleneck of shared-river collaborative utilization, especially a burning problem of the negative consequences resulting from the construction of dense hydroelectric power plants in the upper river basins, which poses directly negative impacts for the lower riverine States, but this documentation hardly ever refers to the governance of building dams along the shared-river basins for the good of peaceful and beneficial transboundary watercourses cooperation. The second legal enforceable documentation turns to the Principles for Effective Joint Bodies for Transboundary Water Cooperation [31]. The Principles entail the operational aspects of bilateral or multilateral joint bodies for transboundary water cooperation to foster an effective and fruitful collaboration over the precious shared water resources. Accordingly, the rationalized presence of the Principles is to reconcile the operational diversity between the existing joint commissions and other bodies for transboundary water cooperation to their practices in specific hydraulic, political, economic, ecological/environmental, and social contexts. As glimpsed from Table 1 below, it is noteworthy to recognize that the side effects of continued dam construction in the upper shared river watercourses have not seriously been put into consideration therein.

Recognizing the importance of transboundary water cooperation, global shared-river countries have recently done their best efforts to improve their legal provisions and implement renovative sanctions to ensure that their environmental law has to be pursuant to international law. Nonetheless, there still exists some unsolvable problems regarding the circumstance that different States have applied different approaches to identify the benefits of transboundary water cooperation which are supposed to vary either from basin to basin accor-



ding to their economic, social, environmental and geopolitical characteristics or the different stages of the transboundary riverine cooperation. To overcome these obstacles, it is advisable for the shared-river countries collaboratively to determine and select the most relevant and vital benefits of transboundary water cooperation, which serves on the grounds that riparian States find it necessary to consider their potential magnitude and other policy-relevant criteria to jointly promulgate the best initiative policies for the purpose of equitable and sustainable share of transboundary water resources. Table 2 UNECE [30] exemplifies the importance of the benefits of transboundary water cooperation as follows.

### **A case study relating to the fundamental flaw of Principles of Transboundary Water Resources Management and Water-related Agreements in Mekong riparian Cooperation**

The Mekong River is reported to be one of the world's largest rivers running through six countries — namely China, Myanmar, Thailand, Lao PDR,

Table 1

**Overview of the Principles** [31, p. 19]

Establishment of structure and function	Operation	
Broad competence	Procedural considerations	Accountability mechanisms
Clear definition of the waters		Mechanisms for cooperation and implementation
Clearly defined tasks and powers		Clearly defined lines and mechanisms
Adequate organizational structure		Public participation and stakeholder involvement
Adequate representation of natural authorities		Neutral facilitators and external expertise
		Coordination with other joint bodies
Flexible agreement	Selected technical aspects	Exchange of information and data
Availability of support		Ensuring the consideration of groundwater issues
Regularity		Facilitation of impact monitoring and assessment
Availability of information	Financial and human resources	Capability to adapt to change
Mandate to identify and assess benefits		Early warning mechanisms
		Adequate financial and human resources
		Financial sustainability

Cambodia, and through southern Vietnam into the South China Sea with the length of approximately 4,900 km. Over the last few decades, the negative impacts of human excessive activities due to the rapid population growth of riverine countries concerned have posed serious challenges to the management and development of the Mekong's water resources. As the matter of fact, the flow alteration stemming from intensified investments in water infrastructure

Table 2

**Typology of the potential benefits of transboundary water cooperation [30]**

Origin of benefits	Benefits for economic activities	Benefits beyond economic activities
Improved water management	<p><i>Economic benefits</i></p> <ul style="list-style-type: none"> <li>• Expanded activity and productivity in economic sectors (aquaculture, irrigated agriculture, mining, energy generation, industrial production, nature-based tourism)</li> <li>• Reduced cost of carrying out productive activities</li> <li>• Reduced economic impacts of water related hazards (floods, droughts)</li> <li>• Increased value of property</li> </ul>	<p><i>Social and environmental benefits</i></p> <ul style="list-style-type: none"> <li>• Health impacts from improved water quality and reduced risk of water-related disasters.</li> <li>• Employment and reduced poverty impacts of the economic benefits</li> <li>• Improved access to services (such as electricity and water supply)</li> <li>• Improved satisfaction due to preservation of cultural resources or access to recreational opportunities.</li> <li>• Increased ecological integrity and reduced habitat degradation and biodiversity loss</li> <li>• Strengthened scientific knowledge on water status</li> </ul>
Enhanced trust	<p><i>Regional economic cooperation benefits</i></p> <ul style="list-style-type: none"> <li>• Development of regional markets for goods, services and labor</li> <li>• Increase in cross-border investments</li> <li>• Development of transnational infrastructure networks</li> </ul>	<p><i>Peace and security benefits</i></p> <p>Strengthening of international law</p> <ul style="list-style-type: none"> <li>• Increased geopolitical stability and strengthened diplomatic relations</li> <li>• New opportunities from increased trust (joint initiatives and investments)</li> <li>• Reduced risk and avoided cost of conflict and savings from reduced military spending</li> <li>• Creation of a shared basin identity</li> </ul>

leads to severe natural disasters, more severely the lower riparian countries. Confronting the significant threats of over-excessive exploitation of the Mekong shared-river current, especially the ongoing dam construction in the upper riparian States, four countries of the lower Mekong basin including Thailand, Lao PDR, Cambodia, and Vietnam altogether signed an agreement for transboundary water cooperation, and formulated the Mekong River Commission (MRC) to jointly manage the shared-river water resources in a more sustainable and equitable manner. In other words, the 1995 Mekong Agreement [17] ratified by the MRC enables these countries collaboratively to ensure better development and management of the use of transboundary watercourses for the sake of economic benefits while protecting the environment, which characterizes the central mission and goals of the MRC (see Table 3). To achieve the strategic objectives of cooperation, the MRC organizes and delegates three bodies, namely the Council, the Joint Committee, and the Secretariat to undertake their respective roles and responsibilities to maximize the use of water and well-balanced development of the riparian basin, and assist the achievements of the Mekong's full potential thanks to the formulation of a basin development plan. Over the years of cooperation, the MRC has kept renovating its legal regime by adopting additional protocols and arrangements to enhance more effectiveness of the Agreement. It is somehow to affirm that the Mekong Agreement is thought to function as one of the most efficient multilateral cooperative frameworks for water resources management until now.

Consequently, to promote enhanced transboundary water resources management, the MRC has developed five sets of procedural rules and associated technical guidelines on data sharing, water use monitoring, water use cooperation, flow maintenance, and water quality. It is possibly classified that 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 could be chronologically summarized in MRC Procedural Rules [19] as follows:

1. Procedures for Data and Information Exchange and Sharing (PDIES), approved in 2001 to operationalize data and information exchange of vital water-related indicators among the four Mekong countries;
2. 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. 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. 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;

Table 3

**The 1995 Mekong Agreement [17]**

Legal Framework	Details	Additional information
Scope	Mekong River Basin (Art. 5). The parties agree «To cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin including, but not limited to irrigation, hydro-power, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimize the multiple-use and mutual benefits of all riparian and to minimize the harmful effects that might result from natural occurrences and man-made activities»	It would be more accurate if the term 'lower Mekong Basin' was used, as the upper riparian States to the Mekong — China and Myanmar — are not parties to the agreement. Thus, in the absence of a basin-wide agreement including all Mekong watercourse States, the rules of customary international law apply to the upper reaches.
Substantive rules	The Parties agree to use 'the waters of the Mekong Rivers system in a reasonable and equitable manner' (Art. 5) subject to additional rules to be agreed under Art. 26	The rules in Article 5 are modified by the prescriptions in Article 6 which require the maintenance of a minimum flow level on the mainstream and those in Article 7, which provides: "[The Parties agree:] To make every effort to avoid, minimize and mitigate harmful effects that might occur to the environment, especially the water quantity and quality, the aquatic (ecosystem) conditions, and ecological balance of the river system, from the development and use of the Mekong River Basin water resources or discharge of wastes and return flows.
Procedural rules	Specific body of rules on notification, consultation and data exchange, elaborated in subsequent Protocols	The general rule of equitable and reasonable utilization under the Mekong Agreement is linked directly to a body of specific procedural rules (such as notification and consultation) that apply to intra-basin and inter-basin uses of the system. All uses of the tributaries of the Mekong, including Tonl Sap, require notification to the Joint Committee.
Institutional mechanisms	The council of Ministers is the highest decision-making body for the Mekong River Commission	The MRC is central to the implementation of the Agreement; comprised of 3 permanent bodies —

Table 3 (continued)

Legal Framework	Details	Additional information
Dispute settlement	<p>(MRC), the oversight of the commission is the responsibility of the Joint Committee and the national level implementation is by the National Mekong Committee in each contracting State. Technical and administrative functions fall under an operational arm, the MRC Secretariat.</p> <p>MRC responsible for dispute settlement (Art. 18). Disputes not resolved by MRC are to be referred to governments (Art. 34; 35)</p>	<p>the Council (one member from each participating riparian State at the Ministerial and Cabinet level, empowered to make policy decisions on behalf of his/her government); the Joint Committee (one member from each participating riparian State at no less than Head of Department level); and, the Secretariat.</p> <p>One of the functions of the Council is «to entertain, address and resolve issues, differences and disputes referred to it by any Council member, the Joint Committee, or any member State on matters arising» under the Agreement. The Joint Committee is also required to «address and make every effort to resolve issues and differences that may arise between regular sessions of the Council, referred to it by any Joint Committee member or member State on matters arising» under the Agreement, and «when necessary to refer the matter to the Council». Disputes not resolved by MRC are referred to the Governments for negotiation, possible mediation or eventual settlement «according to the principles of international law». The Agreement contains no reference to any form of compulsory third party dispute settlement procedure.</p>

5. 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 (p. 6).

Recent studies [21, 26, 37, 38] have shown that the alarming state takes place in the upper part of the Mekong basin originating from increasing storage for hydro-electricity generation; that is, there is a significant alteration of flows that reports have recorded the imbalance of unusual climate occurrence when dry season flows tend to last longer whereas flood season flows are reported shorter for the past few years. Accordingly, rapid river level fluctuations result-



ting from climatic variability have become focal controversial concerns at the regional and international scale. In reality, the human activities such as construction and uncoordinated operation of hydropower facilities have resulted in the change of the flow environments, directly affecting water quality and natural habitat for aquatic organisms. Thus, the ecosystem services are posed under a serious threat. To tackle the problems of climate change and related water security challenges, MRC initiates Basin Development Strategy for the Mekong River Basin 2021—2030 & MRC Strategic Plan 2021—2025 [19] with five strategic priorities as follows:

Strategic Priority 1: Maintain the ecological function of the Mekong River Basin

Strategic Priority 2: Enable inclusive access and utilization of the basin's water and related resources

Strategic Priority 3: Enhance optimal and sustainable development of water and related sectors

Strategic Priority 4: Strengthen resilience against climate risks, extreme floods and droughts

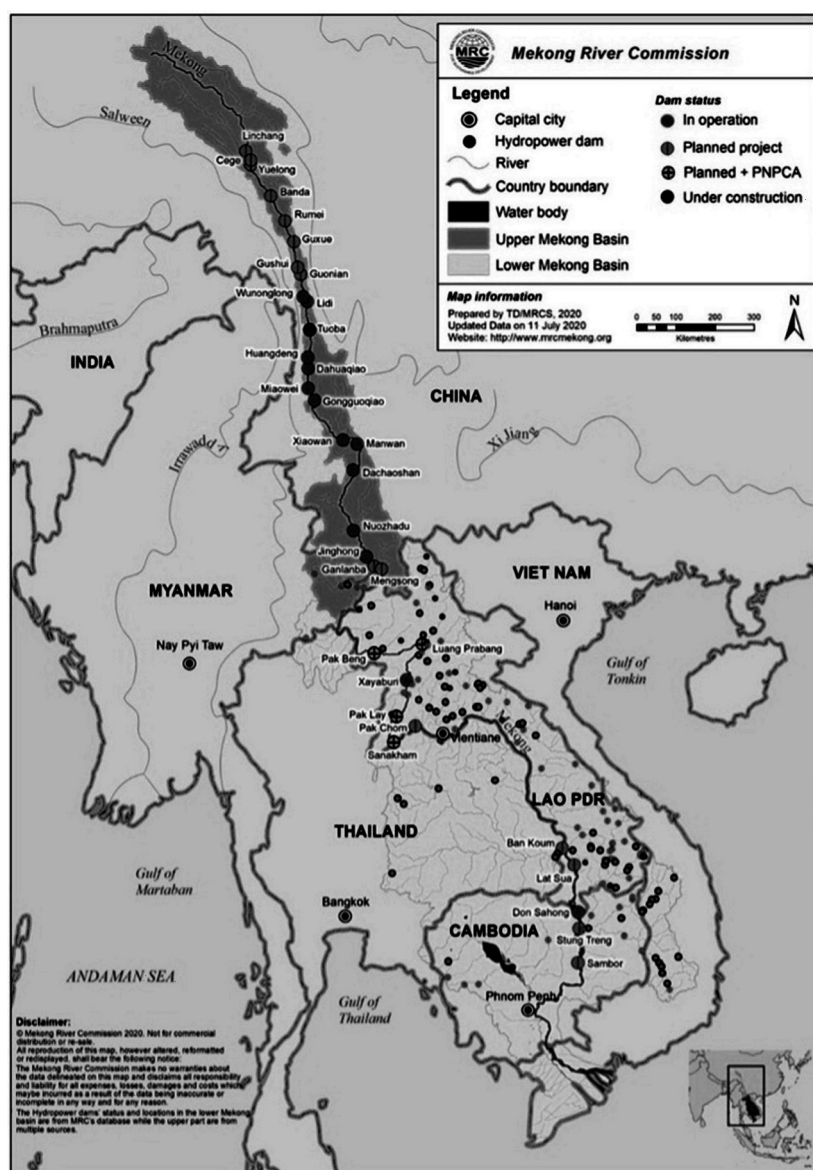
Strategic Priority 5: Strengthen cooperation among all basin countries and stakeholders

Overviewing the outlook of the previous strategic plan, it is easily noted that the proposal plan might be effective only within the territory of shared-river basin which belongs to the sovereignty of those countries altogether signing the transboundary watercourses convention. This plan is, however, unable to compel Myanmar or China to comply with any sanctions, especially the 1995 Mekong Agreement as these countries are dialogue partners of the MRC, but they have heavily influenced the Mekong watercourses because of their upstream geographical location. As glimpsed from Fig. 2, dams in operation and planned projects along the upper basin are densely constructed, which is certain to cause the climate change and reduced floodwater storage capacity in the Mekong Delta. This insoluble situation occurs not only in the Mekong River but in other global shared rivers. Many studies [1, 18, 23, 26] and UN water conventions have claimed the urgent actions to compensate for hydro-political and administrative gap concerning the equitable and sustainable management and cooperation of transboundary water resources in the world. Unfortunately, the stagnation is still facing the ineffective legal provisions of international water law to tackle the unsolvable ongoing situation.

Briefly, there is still lack of multi-lateral cooperation of all shared-riverine countries to be constrained by a single convention in terms of equitable and sustainable coordination and development in the Mekong River.

### **Conclusion**

Reports have shown that water resources have become increasingly scarce over the past decades. Provided that water crisis takes place, it might lead to climate, health, agricultural, economic, and political crises. The construction of legal regimes at many levels, from bilateral, multilateral or from regional to global scales is to regulate the activities of countries with respect to transboundary



**Fig. 2.** Sub-basins, major rivers and evaluation of the Upper Mekong River Basin in China [8]

water resources, it also demonstrates the efforts of countries in building general rules and principles to effectively protect transboundary watercourses from its quantitative, qualitative and ecological damages from excessive human impacts, especially upper riparian States. Human activities towards shared rivers possibly results in riverbank erosion due to construction on the opposite riverbank of the contiguous source country, greatly increase in sedimentation due to deforestation upstream, interfering with the flow regime, and the extinction of a number of species. The aforementioned facts demonstrate that the impor-

tance of establishing legal frameworks is to regulate the behaviour of countries to ensure the sustainable, reasonable and equitable exploitation and use of transboundary water resources to protect the survival of each country as well as of all mankind. It is necessary to use international legal principles and norms to govern riparian countries to prevent, limit and respond to negative impacts on the quantity, quality and ecology of transboundary water resources. Thus, international water law is a legal instrument to ensure that all shared-river countries, especially downstream countries, have the opportunity to enjoy the benefits from international water sources on an equitable and sustainable basis, which protects these countries against the acts of «monopoly on water resources» of upstream countries, and simultaneously ensures the use of transboundary water resources of a country not to harm its interests and other countries, and the needs of future use; thereby, it contributes to ensuring the peaceful and friendly relationship between riparian countries.

On the basis of the provisions of the UNWC Convention [29], the UNECE Convention [32] regional and bilateral treaties on transboundary watercourses, a legal framework for the protection of shared-river water resources has been formed; however, this legal framework is also revealing certain limitations. As a global multilateral treaty, the UNWC Convention still has the nature of a framework treaty, establishing fundamental issues, and the basis for activities to protect transboundary water sources. Although the UNECE Convention is more binding and specific than the UNWC Convention, providing for membership expansion since 2003, there is no country being a member of UNECE participating in UNECE Convention because one of the main reasons is that the UNECE Convention is a legal document of developed countries, so other countries, especially developing countries, have to consider carefully when acceding to this Convention. Although there are many bilateral or regional treaties, they have only limited scope or content. Therefore, from the basic provisions of the UNWC Convention, it is necessary to develop more global legal tools to serve as the basis for the establishment of more detailed legal frameworks in the protection and use of transboundary watercourses. In other words, current legal rules and principles encompass four weaknesses; that is, (1) the legislative gap between water law's aspiration to ensure all riparian States enjoy a sustainable and equitable share of transboundary watercourses and enforceable constraints for powerful and wealthy States to restrict their unilateral actions threatening the well-being of the downstream countries; (2) the legislative gap between practical research into global climate change stemming from water flow alteration, which requires flexible management regimes, and the legal, long-standing objectives of promoting all riparian States to jointly negotiate common entitlement treaties to secure the stability necessary for infrastructure investment; (3) the conservation of aquatic ecosystems is somehow affected by inconsistent and consumptive principles and norms despite recent, considerable efforts to renovate the preservative regulations on the aquatic ecosystems of transboundary water resources; and (4) the repetitive construction of large-scale dams, popularly in the upstream, results in the flow alteration, negative climate change, and aquatic ecosystems, especially the adverse endurance of

the lower riparian countries. To improve the effectiveness of the protection and use of transboundary water sources, it is necessary to perfect the legislative water sanctions and a single international management apparatus to regulate all shared-river alteration activities and ensure the implementation of the international water law for the purpose of sustainable and equitable management and share among the riparian States.

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SOME LEGAL CONTROVERSIES ON EQUITABLE AND SUSTAINABLE  
UTILIZATION OF TRANSBOUNDARY WATER RESOURCES IN PRACTICE (ON  
THE EXAMPLE OF THE MEKONG RIVER)

The use of transboundary water resources has gained internationally special attention for the past time. Although riparian countries recognize the benefits of cross-border rivers and enter into an agreement with countries sharing the transboundary rivers by legal rules, treaties and principles, they have done excessively riverine exploitation activities to maximize their socio-economic benefits causing the imbalance of the ecosystems and peace. International treaties, bilateral and multilateral basin, and principles are currently not enforceable enough to compel riparian countries strictly to comply with these legal rules and principles on the equitable and sustainable water coordination and development. Besides, there still exists internal conflicts among the upper and lower riparian countries on the use of transboundary river watercourses due to defective sanctions of transboundary water use. There is an urgent need to establish a specialized international water management commission designated by all nations with the utmost power to regulate human related activities concerning transboundary watercourses to govern equitable and sustainable management and development. Besides, current international law principles have to be revised to bridge the gap of disagreement and potential conflicts between the lower and upper riparian States.

**Keywords:** *transboundary watercourses, secondary analysis, riparian countries, internal conflicts, principles.*