A trans-national analysis of equitable utilisation and minimisation of environmental harm under environmental laws at international, federal and national levels

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Qaraman Mohammed Hasan

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Abstract

Due to increasing demand for various human needs and climate change issues, rivers are now under enormous pressure. With increasing pressure on these valuable natural resources, responses among state and non-state actors are insufficient in the Anthropocene. To fill the gap, International Environmental Law (IEL) provides several principles for better management of these resources. Equitable utilisation and minimisation of environmental harm are among the most important principles of the IEL. From a theoretical perspective, these principles should lead to the sustainability of these resources and promote cooperation among relevant actors.

However, many river basins are still not allocated equitably and suffer from environmental damage. By using comparative, doctrinal, and empirical research methods, this thesis evaluates the two principles at the international level in Tigris and Euphrates River Basin, the federal level in Murray Darling Basin and at the local level in the Waikato River catchment. The research discovered major challenges for implementing the two principles. One major challenge is sovereignty, another is a lack or weakness of local voices and transparency. As the nature and status of all basins are different, the challenges are not exactly the same. For example, hearing local voices and better information transparency have significantly improved in the Waikato River.

As the challenges for implementing the two principles are not purely legal, the responses should blend legal solutions with political and socio-economic solutions. Therefore, this thesis strongly supports shared sovereignty among states at the international level as well as shared sovereignty with indigenous and

minority groups at the national level. Cooperation among national and international actors in the river basins is also crucial for implementing the two principles effectively. Finally, there is the opportunity to establish basin institutions or organisations to manage river basins integrated and sustainable. This is vital in the case of TE-RB because the basin still lacks an institution. Furthermore, the basin institution in the MDB requires more robust compliance and monitoring power because the provisions of the *Water Act 2007* and the basin plan still have not been implemented effectively.

Finally, the thesis concludes with two common lessons in comparing these cases. The first lesson is that equitable utilisation cannot be implemented effectively if it is not accepted by the local community in a broad and deep meaning. It means that the equitable allocation should be extended from only the riparian states to equitable allocation among the people within each state. The second lesson is that the minimisation of environmental harm cannot be implemented without determining the minimum flow of rivers, particularly transboundary rivers. Determining an environmental impact assessment for water projects and taking advantage of available solutions of nature contributes significantly in implementing the two principles and sustainable management of our rivers.

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List of Abbreviations

ANCOLD	Australian National Committee on Large Dams
ATSI	Aboriginal and Torres Strait Islander people
BCM	Billion Cubic Meters
CEWO	Commonwealth Environmental Water Holder
COAG	Council of Australian Governments
CWA	Clean Water Act
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESLT	Environmentally Sustainable Level of Take
GAP	(Güneydoğu Anadolu Projesi) South-eastern Anatolia Project
GAP-RDA	GAP Regional Development Administration
ICJ	International Court of Justice
ICOLD	International Commission On Large Dams
IEL	International Environmental Law
IIL	Institute of International Law
ILA	International Law Association
ILC	International Law Commission
IRBM	Integrated River Basin Management
IUCN	International Union for Conservation of Nature
JTC	Joint Technical Committee
KRG	Kurdistan Regional Government
LTPP	Lake Taupō Protection Project
MDB	Murray–Darling Basin
MDBA	Murray Darling Basin Authority
MEM	Mesopotamian Ecology Movement
MfE	Ministry for the Environment
MLD	Million Liter per Day
MLDRIN	Murray Lower Darling Rivers Indigenous Nations
MOP	Meeting Of the Parties
MoWR	Ministry of Water Resources
NBS	Nature-Based Solutions
NSW	New South Wales
NTA	Native Title Act 1993
NWC	National Water Commission
NWI	National Water Initiative 2004
NWPFM	National Policy Statement for Freshwater Management
PCIJ	Permanent Court of International Justice
PKK	(Partiya Karkerên Kurdistan) Kurdistan Workers' Party
RMA	Resource Management Act 1991
SDGs	Sustainable Development Goals
SDL	Sustainable Diversion Limit
TE-RB	Tigris and Euphrates River Basin
TPD	Tongariro Power Diversion scheme
TVA	Tennessee Valley Authority
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNGA	United Nations General Assembly
VEWH	Victorian Environmental Water Holder
WFD	Water Framework Directive

WRA	Waikato River Authority
WRA	Waikato River Authority
WRC	Waikato Regional Council
WSCA	Water and Soil Conservation Act

A trans-national analysis of equitable utilisation and minimisation of environmental harm under environmental laws at international, federal and national levels

Chapter One: Introduction

1.1 Introduction

The 2018 report by the United Nations (UN) on water indicates that the number of people who live in areas with potential water-scarcity of at least one month annually is around 3.6 billion. It means approximately half of the world's population has been suffering from water scarcity annually for some time.[1] As a result of global warming and climate change issues, water resources, in particular rivers, are now at risk globally. Ice and snow are the main sources for one-sixth of rivers worldwide, but these sources are now decreasing dramatically.[2] Thus, countries have a responsibility to focus on managing their water resources more efficiently and sustainably. The most significant part of water resource management is appropriately managing local and transboundary rivers.

All the transboundary river basins shared by two or more two states account for 286 basins.[3] However, cooperation does not exist among two-thirds of these countries regarding the equitable use of these transboundary rivers.[4] As well as the lack of collaboration, since the twentieth century, states have been constructing dams at an unprecedented rate.[5] According to The International Commission On Large Dams (ICOLD), more than 58,000 are registered globally.[6] Many of these dams have been built on transboundary rivers and for hydropower purposes because they are clean energy sources.[7] Notwithstanding climate change issues, dam construction and other

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[1] UN-Water UNESCO *The United Nations World Water Development Report 2018: Nature-Based Solutions for Water* (2018) 248.

[2] Bronwyn Wake "Water wars" (2021) 11(84) Nature Climate Change 84 at 84.

[3] See TWAP "Transboundary Waters Assessment Programme: River Basins Component" (2021) <http://twap-rivers.org/>.

[4] Anders Jägerskog "Transboundary water management–why it is important and why it needs to be developed" in Jacqui Griffiths and Rebecca Lambert (ed) *Free Flow–Reaching Water Security through Cooperation; UNESCO: Paris, France* (Unesco, Paris, 2013) at 4.

[5] See Lucia De Stefano and others "Assessment of transboundary river basins for potential hydro-political tensions" (2017) 45 *Global Environmental Change*; Christiane Zarfl and others "A global boom in hydropower dam construction" (2015) 77(1) *Aquatic Sciences*.

[6] See The International Commission On Large Dams (ICOLD) "World Register of Dams: General Synthesis" (2021) <https://www.icold-cigb.org/article/GB/world_register/general_synthesis/general-synthesis>.

[7] Cecilia Llamosas and Benjamin K Sovacool "The future of hydropower? A systematic review of the drivers, benefits and governance dynamics of transboundary dams" (2020) *Renewable and Sustainable Energy Reviews at* 11.

human interventions of the river's natural flow negatively influence the quality and quantity of available water in the river basin's lower areas.[8] As a result, these issues may lead to conflicts between countries and internal actors because of sharing the rivers' wealth. If upstream actors do not intend to negotiate, the possibility of these conflicts accruing is high, particularly if they have more power than downstream actors.[9]

International Environmental Law (IEL) and its principles work to mitigate and resolve these transboundary water issues. The most important principles for sharing transboundary rivers are equitable utilisation and minimisation of environmental harm. In many cases, equitable utilisation is expressed as "equitable and reasonable use," but equitable utilisation is used in this thesis as an umbrella term and incorporates a broader meaning of the principle. This issue is also discussed in *UN Watercourses Convention User's Guide* and illustrates as the following:[10]

> The principle of equitable and reasonable use, then, recognises equity as a broader umbrella within which the concept of reasonableness becomes relative. This means that what may be considered to be perfectly reasonable by one state can be inequitable when looked at within the broader picture of the whole watercourse and the various needs and interests of co-riparian states. Hence, 'reasonable' uses are still subject to an 'equitable' allocation.

The two principles are central for discussion among scholars of environmental law. The basis of equitable utilisation as a principle in international law dates to the last century. In 1929, the Permanent Court of International Justice (PCIJ) in the case between Poland and other European countries refers to the possibility of sharing transboundary rivers in "justice and the considerations of utility." The court suggests the "community interests" as the base for sharing transboundary rivers among riparian states.[11] The court did not explicitly mention the two principles, but it referred to the allocation of transboundary rivers equitably among riparian countries.

Therefore, the research analyses and evaluates these two fundamental principles at

[8] Neha Mittal and others "Impact of human intervention and climate change on natural flow regime" (2016) 30(2) *Water resources management at 696.*

[9] Aaron T Wolf, Kerstin Stahl and Marcia F Macomber "Conflict and cooperation within international river basins: the importance of institutional capacity" (2003)(125) Water Resources Update at 9.

[10] Alistair Rieu-Clarke, Ruby Moynihan and Bjørn-Oliver Magsig *UN Watercourses Convention: user's guide* (IHP-HELP Centre for Water Law, Policy and Science (under the auspices of UNESCO), Dundee, 2012) at 108.

[11] *Territorial Jurisdiction of Int'l Comm'n of River Oder (United Kingdom V Poland)* [1929] (ser A) at 27.

international, federal and local levels. According to these two principles, all countries have equal rights to use and share river's water reasonably, but they should not damage other countries' environment.[12] The International Law Association (ILA) and the Institute of International Law (IIL) have contributed significantly to developing and codifying these principles. The ILA and IIL were established in 1873 as independent organisations, but ILA covers wider-ranging legal issues because it is a larger organisation and has more members than the IIL.[13] After raising transboundary water problems among various states globally in the 1950s, the ILA concentrated on establishing legal rules for equitable and reasonable use of these water resources. The ILA had organised serious meetings and conferences which resulted in adopting the Resolution of Dubrovnik in 1956 and the New York Resolution in 1958 until finalising the Helsinki Rules in 1966.[14]

The IIL, on the other hand, worked intensively on developing rules related to minimising the environmental harm of international freshwater resources. The Madrid Declaration in 1911 and Salzburg Resolution in 1961 are major rules toward codifying the harm principle.[15] The main reason for the concentration on the harm principle was that equitable utilisation would not be implemented effectively if the principle does not link with another significant principle: minimising environmental harm. This principle also has a significant position in the IEL. The Helsinki Rules is among the earliest documents that linked the two principles, but not considerably. Article V.II mentions the factors for determining equitable utilisation and, not "causing substantial injury" is one of the factors.[16] Thus, the principle of minimisation of environmental harm is considered part of equitable utilisation.

The ILA also attempted to codify the environmental harm principle in the Rules on the Water Pollution in an International Drainage Basin (Montreal Rules in 1982). However, the Montreal Rules did not clearly define water pollution because it was not a

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[12] Charles Harper, Charles L Harper and Monica Snowden *Environment and society: Human perspectives on environmental issues* (Routledge, New York, 2017) at 52-53.

[13] Salman MA Salman "The Helsinki Rules, the UN Watercourses Convention and the Berlin Rules: perspectives on international water law" (2007) 23(4) Water Resources Development at 625.

[14] Charles B Bourne *International water law: selected writings of Professor Charles B. Bourne* (Kluwer Law International, London, 1997) at 233.

[15] Salman MA Salman "Entry into force of the UN Watercourses Convention: why should it matter?" (2015) 31(1) International Journal of Water Resources Development at 6.

[16] The Helsinki Rules on the uses of the waters of international rivers, art V II.

significant issue for the committee.[17] The Declaration of the United Nations conference on the human environment (Stockholm Declaration) in 1972 is another significant document, it is a part of soft law that emphasises these two principles' significance. Principle 21 of the declaration states that the countries have equal rights to use their natural resources. Still, this usage should not lead to damage to the environment of other countries.[18]

All these rules and resolutions significantly influenced transforming these non-binding rules and principles on transboundary watercourses to codifying and binding principles in international conventions. As a result, modern agreements among states and all international conventions support equitable utilisation and minimisation of environmental harm towards transboundary water resources. The two fundamental conventions are the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) in 1992 [19] and the Convention on the Law of the Non-navigational Uses of International Watercourses (UN Watercourses Convention) in 1997. The UN Watercourses Convention profoundly explains the meaning of equitable and reasonable water in articles 5 and 6. The Convention determined all factors that should be considered for explaining these terms.[20]

These significant developments of the IEL motivated the ILA to revise the Helsinki Rules as they were obsolete by the 2000s. After serious discussions and conferences, the Association adopted the Berlin Rules on Water Resources in 2004. These Rules are more comprehensive and intensive compared to the Helsinki Rules. They also illustrated the issues that have not been covered in Helsinki Rules and the UN Watercourses Convention.[21] The Berlin Rules confirm the significance of the two principles for managing transboundary rivers at both the national and international levels.[22] This is a distinctive approach from the Helsinki Rules because they are limited to international watercourses only. Despite avoiding the management of the local

[17] Slavko Bogdanović *International Law of Water Resources: Contribution of the International Law Association (1954-2000)* (kluwer law international, The Hague, 2001) at 30.

[18] See Declaration of the United Nations conference on the human environment 1972.

[19] Convention on the Protection and Use of Transboundary Watercourses and International Lakes art 2.

[20] Convention on the Law of the Non-navigational Uses of International Watercourses, art 5-6.

[21] Salman, above n 13 at 335-336.

[22] Berlin Rules on water resources, arts 12-16.

rivers, the Helsinki Rules did not recognise the harm principle, though it was mentioned marginally as part of the equitable utilisation principle.[23]

Equitable utilisation and minimisation of environmental harm have been developed now in the context of a legal theory that is limited territorial sovereignty. This theory concentrates on equal and reasonable use of transboundary rivers among riparian countries, but these countries should not cause significant environmental damage to each other. [24] Moreover, the two principles have international recognition from scholars, states, and international courts and conventions.[25] The principles can offer a great solution for disputes related to transboundary rivers and improve river basin management at both local and global levels.

Due to the two principles' importance, this thesis applies and evaluates them at different levels. First of all, the two principles are applied and evaluated with regards to the Tigris and the Euphrates rivers at the international level. The Tigris and the Euphrates are worthy rivers in the Middle East because they are shared by Turkey, Syria, and Iraq. They have tremendous political, economic, and environmental value for these countries and the wider world. The issue of equitable utilisation of the two rivers and minimisation of environmental harm are major disputes between these states.[26] These issues are considered a major source of potential conflict between Turkey, Syria, and Iraq. As the upstream country, Turkey claims that it has the right to use these two rivers because they originate in Turkey. The Turkish officials claim that they have absolute ownership of the two rivers, and they have a right to sell, share, or obstruct any state.[27]

Highly ranked Turkish officials presented this argument in the 1990s. During the opening of Ataturk Dam on 25th July 1992, former president of Turkey, Suleyman Demirel stated that: [28]

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[23] The Helsinki Rules on the uses of the waters of international rivers art, IV V and X.

[24] Esther Schroeder-Wildberg *The 1997 International Watercourses Convention–Background and Negotiations* (Berlin, 2002) at 13.

[25] Nurit Kliot, D Shmueli and Uri Shamir "Institutions for management of transboundary water resources: their nature, characteristics and shortcomings" (2001) 3(3) Water Policy at 233-234.

[26] Dogan Altinbilek "Development and management of the Euphrates–Tigris basin" (2004) 20(1) International Journal of Water Resources Development at 28-29.

[27] Murat Metin Hakki "Turkey, Water and the Middle East: some issues lying ahead" (2006) 5(2) Chinese Journal of International Law at 449.

[28] Christopher Mitchell "Thirsting for war" (5 October, 2000) BBC

> Neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. This is a matter of sovereignty. We have a right to do anything we like. The water resources are Turkey's, the oil resources are theirs. We don't say we share their oil resources, and they can't say they share our water resources.

However, according to customary international law and international law, Iraq and Syria have a right to ask for equitable utilisation and minimisation of environmental harm as downstream countries. These two principles are outlined in both hard and soft law. For instance, The PCIJ in 1929 reaffirmed that transboundary rivers are subject to international law. The court also indicated that all the riparian states have equal rights to use the river. [29] Additionally, in the case between Hungary and former Czechoslovakia, the International Court of Justice (ICJ) refers to a violation of international law by Czechoslovakia because the country prevented Hungary from equitable use of the Danube River and caused environmental harm.[30]

While the issue is a very serious one, little scholarly work has been done on the subject. There is no significant research in the existing literature to apply these two principles on the Tigris-Euphrates River Basin (TE-RB) and explain their direct relationship. This research's main goal is to evaluate the principles of IEL in particularly the two principles on a triple-level, which are international, federal and local levels. As mentioned above, the Tigris and Euphrates case involves three countries directly and Iran indirectly. As Iran contributes to the two rivers through small tributaries and the two rivers are not crossing the country, Iran's influence on the TE-RB will be mentioned briefly in later chapters. This thesis does not reject the notion of sovereignty and nation-states and does not provide post-sovereign solutions, as the role of the nation-state and sovereignty is crucial in this case. However, this thesis does criticise the strong notion of sovereignty as a common model around the TE-RB.

Secondly, the thesis applies and evaluates the two principles at the federal level. For this purpose, Australia's Murray–Darling Basin (MDB) is selected among all federal cases. While it is a national example, it has the appearance of an international one because of the remarkable size of the basin and the overutilisation of the basin in the

<http://news.bbc.co.uk/2/hi/programmes/correspondent/958132.stm>.

[29] *Territorial Jurisdiction of Int'l Comm'n of River Oder (United Kingdom V Poland)*, above n 11 at [74].

[30] *Gabcikovo-Nagymaros Project (Hungary V Slovakia)* [1997] (Rep 1997) at [85].

market.[31] MDB is an interesting and controversial case in river basin management. The basin is part of four major states in Australia, including Queensland, New South Wales, South Australia, and Victoria, in addition to the Australian Capital Territory. It is also home to many Aboriginal nations. The basin covers more than one million km^2, and consists of three major Australian rivers: Darling, Murray, and Murrumbidgee.[32] For building effective river basin management and implementing basin plan in the MDB, the Water Act 2007 is considered an essential legal instrument. It is expected that the plan and its reforms will bring remarkable social, economic, and environmental benefits to the basin and people in the basin.[33]

Lastly, the thesis applies and evaluates the principles of equitable utilisation and minimisation of environmental harm at a national level. The Waikato River in New Zealand will be the main case for analysing the two principles at the national level. In this part of the thesis, the two principles will apply to the Waikato River as the largest river in New Zealand.[34] The Resource Management Act 1991 (RMA) of New Zealand will also be an analytical tool for evaluating the two principles. The RMA is a significant act for allocating freshwater resources in New Zealand because the RMA is reformed toward a "collaborative approach."[35] For a profound evaluation of the two principles, the internal actors' role, including Māori, the indigenous people in New Zealand, will be addressed in this case.

The new direction of the RMA is very interesting because the act emphasises the significance of the two principles indirectly. The language of the RMA is similar to international conventions related to watercourse management. For instance, if a person wants to obtain consent for using water in New Zealand, this person has to use it in "reasonable need."[36] The act also confirms that environmental impact assessment

[31] R Quentin Grafton and James Horne "Water markets in the Murray-Darling basin" (2014) 145(C) Agricultural Water Management at 38.

[32] Rosemary Lyster and others *Environmental and planning law in New South Wales* (Federation Press, 2016) at 288.

[33] Graham R Marshall and Jason Alexandra "Institutional Path Dependence and Environmental Water Recovery in Australia's Murray-Darling Basin" (2016) 9(3) Water Alternatives at 679.

[34] Renee Jens "Who's steering this ark?: Exploring the role of power in environmental governance in the Waikato Region of New Zealand" (2017) Master Thesis Series in Environmental Studies and Sustainability Science at 1.

[35] Trevor Daya-Winterbottom "Sustainability, governance and water management in New Zealand" in L Feris M Kidd, T Murombo, and A Iza (ed) *Water and the Law: Towards Sustainability* (Edward Elgar, Cheltenham, 2014) 167-197 at 43.

[36] Resource Management Act 1991 s 14 (3)(b) and (d).

should take any activity related to water utilisation. The act refers to "the scale and significance of the activity's effects on the environment" should be taken.[37] This quote reflects the strong position of the two principles at the domestic level.

Thus, the thesis will apply the two principles on the Waikato River, MDB and TE-RB, under national and international environmental law. The IEL and national law, such as the Water Act in Australia and RMA in New Zealand, will be the primary tools for this evaluation. The thesis then illustrates the strong relations between these two concepts because the absence of proper water allocation leads to environmental harm. The thesis also discusses challenges in applying these principles and providing opportunities for them. Finally, to achieve better outcomes of this transboundary analysis study, the thesis will compare these case studies and extract lessons in the last chapter. Therefore, the thesis raises several questions in the following section. All these questions will be answered in the following chapters.

1.2 Research Questions

This research seeks to explore the following questions.

1. What is sovereignty, its theoretical framework, and how does it relate to transboundary water issues?
2. What is river basin management? How do equitable utilisation and minimisation of environmental harm principles work with river basin management? How are the two principles addressed in the international conventions related to this issue?
3. How do the principles work at the international level? How are the principles active in the TE-RB?
4. How do the two principles work at the federal level? How effective are they at this level?
5. What are the implications of the two principles at the national level in the Waikato River? How do the RMA and other laws and regulations respond to that?
6. What are the challenges and opportunities in implementing equitable utilisation and minimisation of environmental harm in the TE-RB, MDB and Waikato River basin?
7. What lessons can be learned from the TE-RB, MDB and Waikato River basin cases?

[37] At s 88 (3)(c).

1.3 Outline of significance

The Middle East and North Africa region is one of the driest places on the planet, more than 85% of the population lives under the line of water scarcity. Additionally, more than two-thirds of the region's available water resources are shared by multiple states and there is little cooperation among these states.[38] The Tigris and the Euphrates are two major rivers in the Middle East region. Both rivers rise in Turkey, and flow to Syria and Iraq. Nature has granted these two rivers a greater position in the region because humanity's history has started in this basin. The two rivers' basin was the centre of long-lasting civilisation.[39] The Euphrates is considered the longest river in southwest Asia, with a length of 2793 km. The Tigris is the second-longest river after the Euphrates in the region.[40]

The marshlands in the south of Iraq are the largest wetlands in the Middle East. These marshlands were home to more than half a million people who known as Ma'adan or Marsh Arabs. These people have lived in this area for over 5000 years since the Sumerians era. In addition to special freshwater ecosystems, these marshes have significant heritage and cultural value.[41] They are home to many fauna and flora threatened species such as smooth-coated otter, grey wolf, and Indian crested porcupine, along with Iraq babbler and the Basra reed warbler.[42] These points illustrate the two rivers' heritage and environmental value for these countries and the whole world. Thus, researching this area will significantly impact protecting the environment, culture, and world heritage in the basin lacks comprehensive agreement and basin institution.

The second case is the Murry-Darling River basin in Australia. The basin covers a million km^2 and one-seventh of the whole of Australia.[43] The MDB is the source of 40% of agricultural production in Australia.[44] The Murray–Darling Basin Plan has been

[38] United Nations *The United Nations World Water Development Report 2021: Valuing Water* (Paris, 2021) at 8.

[39] Nadhir Al-Ansari and others "Water Resources of the Euphrates River Catchment: Water Resources of the Euphrates River Catchment" (2018) 8(3) Journal of Earth Sciences and Geotechnical Engineering at 1.

[40] Shane Mountjoy *The Tigris & Euphrates River* (Chelsea House Publishers, China, 2004) at 7-8.

[41] At 96.

[42] Aqeel Abbas Al-Zubaidi "The importance of geodiversity on the animal diversity in huwaiza marsh and the adjacent areas, southeastern Iraq" (2017) 14(3) Bulletin of the Iraq Natural History Museum at 241.

[43] Benjamin Docker and Ian Robinson "Environmental water management in Australia: experience from the Murray-Darling Basin" (2014) 30(1) International Journal of Water Resources Development at 165.

[44] William Blomquist and others *Decentralization of river basin management: a global analysis* (The World Bank,

developed since the 1980s. The plan has influenced the states considerable competition over the basin. Despite the plan's shortcomings, these states' behaviour has changed from competing for overutilisation to proper water allocation in the basin. This change was paralleled with reducing harm to the environment.[45] As an arid country that faces droughts frequently, it would be important to investigate applying the IEL principles in a basin with a solid legal framework and institutions arrangement.

Finally, comparing the two above cases with the Waikato River basin's case will help build or develop an approach related to applying equitable utilisation and minimisation of environmental harm in a catchment with a significant indigenous voice. Waikato River is 425km long; this makes the river the longest one in the whole of New Zealand. The river's catchment basin is about 14,260 km^2. The area of the basin is equal to 12 per cent of North Island's total area. The Waikato River is the major source for generating electricity because all the eight dams in the Waikato Region can generate 1450MW of electricity. This makes the Waikato region to be the first region for producing power in New Zealand.[46] Waikato River also has significant ecological value because the river and its catchments and lakes are home to native species and fish.[47]

In all of the above cases, equitable utilisation and environmental harm are significant issues and is the main topic in negotiation among the actors and stakeholders in these basins. Important insights can be gained through testing and evaluating the IEL principles at the national and federal levels to discover the interaction and influence between the IEL and national law.

1.4 Methodology

Researching any topic requires a particular methodology for answering the research questions. The term research is described as a "systematic process of discovery and

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Washington, DC, 2005) at 8.

[45] See Andrew Ross and Daniel Connell "The evolution and performance of river basin management in the Murray-Darling Basin" (2016) 21(3) Ecology and Society.

[46] WRC Waikato Regional Council "About the Waikato River" (2021) <https://www.waikatoregion.govt.nz/environment/natural-resources/water/rivers/waikato-river/about-the-waikato-river/>.

[47] See Waikato Regional Council *The health of the Waikato River and catchment: Information for the Guardians Establishment Committee* (March 2008).

advancement of human knowledge."[48] This process is not just about data collection, but it imposes investigation deeply for answering the questions. The process may not be complete if the methodology is not undertaken academically and adequately.[49] However, legal research methodology may be considered different from other fields because legal research requires the identification of relevant jurisdictions and law cases.[50]

This thesis uses comparative, doctrinal, and empirical research methods to discover the possible answers to the research questions. All these research methodologies were applied together with the law in the context of the countries' social, political, and economic aspects. Firstly, the comparative legal method compares different jurisdictions with similar problems and discovers common solutions and opportunities for the problems. A positive aspect of this methodology is that it can be practised at both national and international levels.[51] This methodology is also known as comparative and international legal research; it considers the influence of international law and the legal systems on national law and forming public policy in the current interdependent world system.[52] As the thesis investigates different jurisdictions and legal systems at the national and international levels, the research's comparative legal method is fundamental. The thesis compares TE-RB with other cases. Despite analysing international cases for transboundary rivers, the primary focus will be on domestic river basin management, such as Murry-Darling Rivers in Australia and the Waikato River in New Zealand.

In addition, the thesis uses an empirical research method by applying the IEL principles at the international level in the TE-RB case, at the federal level in the MDB case, and at the national level in the case of Waikato River in New Zealand. By using this methodology, the thesis investigates how these principles are applied in the real world and in these case studies. In this methodology, it is crucial to look at the "Distinction between law in the books and law in action, between the rules that purport to govern of

[48] Chris Gratton and Ian Jones *Research methods for sports studies* (Routledge, London, 2010) at 4.

[49] At 3.

[50] Michael Salter and Julie Mason *Writing law dissertations: An introduction and guide to the conduct of legal research* (Pearson Education, Harlow, 2007) at 31.

[51] Geoffrey Wilson (ed) *Comparative legal scholarship* (Edinburgh University Press, Edinburgh, Research methods for law, 2017) at 163-165.

[52] Mike and Hong Chui Mcconville, Wing *Research methods for law* (Edinburgh University Press, Edinburgh, 2017) at 7.

man and those that in fact govern them will appear and it will be found"[53] Here, it is important to investigate available legal cases, information, and facts to analyse them critically.[54] For example, the ICJ's judgment on the *Gabcikovo-Nagymaros* case between Hungary and Slovakia is considered a significant example of equitable utilisation and minimising environmental harm.[55] There will also be many international and national cases to test the principles.

In order to investigate the application of IEL principles, the thesis also uses doctrinal methodology by identifying relevant legislation, cases and other materials related to the topic. To know what the law is, the thesis will "involve a critical conceptual analysis of all relevant legislation and case law to reveal a statement of the law relevant to the matter under investigation".[56] As well as international conventions and rules related to watercourses in the TE-RB, the role of major legislations in the two other cases will also be assessed such as Water Act in Australia and the RMA in New Zealand. The RMA's role is particularly significant in this area because the RMA is considered a new approach for environmental law, and it has superseded about 59 laws and acts in New Zealand.[57]

However, while knowing 'what is the law' is fundamental, researching should progress beyond this simple question and critically analyse "what the law is for?"[58] The law should reflect the will of the public, Rousseau defined it as "acts of the general will"[59] or, as Montesquieu defined law as a, "condition of civil association." He argues that if "the law is prudent in all its parts, and perfectly well known," this should be in the context of society.[60] Therefore, the main focus of the thesis is to evaluate IEL principles in national, federal and international law through the social, political and economic

[53] Roscoe Pound "Law in books and law in action" (1910) 44 Am. L. Rev at 15.

[54] Chakravanti Rajagopalachari Kothari *Research methodology: Methods and techniques* (New Age International, New Delhi, 2004) at 3.

[55] Muhammad Mizanur Rahaman "Principles of international water law: creating effective transboundary water resources management" (2009) 1(3) International Journal of Sustainable Society at 219.

[56] Terry Hutchinson "Vale Bunny Watson: Law Librarians, Law Libraries, and Legal Research in the Post-Internet Era" (2014) 106 Law Libr. J. at 584.

[57] Trevor Daya-Winterbottom "Water Management" in Peter Maxwell Salmon and David Paul Grinlinton (eds) *Environmental Law in New Zealand* (Thomson Reuters Wellington, 2018) at 710.

[58] Anne-Marie Slaughter and Steven R Ratner "The Method is the Message" (1999) 93(2) American Journal of International Law at 421.

[59] Jean Jacques Rousseau *Social contract* (Wordsworth Editions Limited, Hertfordshire, 1998) at 137.

[60] Charles De Montesquieu *The spirit of the laws* (Batoche Books, Kitchener, Ontario, 2001) at 81.

context of the counties involved in this study.

Some international environmental law experts, including Stephen McCaffery, believe that there are four main principles for managing international watercourses. These principles are equitable and reasonable utilization, preventing significant harm to a corporation in good faith, and notifying planned measures.[61] However, the thesis selected equitable utilisation and minimisation of environmental harm as the main principles. Two other principles are discussed marginally and as a part of the two main principles for two reasons. Firstly, cooperation in good faith can be part of all the other principles because none of the principles can be implemented without cooperation. Secondly, notifying planned measures is a part of the minimalization of the environmental harm principle. This principle will also not be implemented effectively if riparian states do not notify other states regarding their projects on transboundary rivers.

As well as the two principles, this thesis uses four other metrics that have a connection with implementing the principles and are relevant to the three case studies. The metrics are; sovereignty, Ramsar designations, Nature-Based Solutions (NBS) and indigenous/minority rights. These metrics are significant for understanding the principles in a broad context and providing comprehensive solutions for implementing them. Finally, theoretical research methods are used to provide an understanding of the management of international watercourses. There are four main theories in this regard. These theories are introduced briefly here, but will be discussed further in the substantial chapters.

1.4.1 Absolute Territorial Sovereignty versus Absolute Territorial Integrity

These theories can be used to explain transboundary rivers like the Tigris and the Euphrates. Absolute territorial sovereignty theory offers absolute state sovereignty over the river and river basins inside its defined territory.[62] It is also known as Harmon Doctrine because the US Attorney General Judson Harmon introduced it in a dispute

[61] Stephen C McCaffrey "Intertwined general principles" in *Research Handbook on International Water Law* (Edward Elgar Publishing, Cheltenham, 2019) at 83.

[62] Joseph W Dellapenna "The customary international law of transboundary fresh waters" (2001) 1(3-4) International journal of global environmental issues at 269.

between the US and Mexico in 1895.[63] This theory has support among upstream states. In contrast, the absolute territorial integrity doctrine prohibits states from changing their area or river basin's normal conditions that negatively affect other states or neighbours. This theory is more in favour of downstream counties.[64]

Absolute territorial sovereignty is still applied in the TE-RB by upstream countries. This thought makes environmental law ineffective in this basin. The South-eastern Anatolia Project (GAP) in Turkey can be considered an appropriate example of the IEL law's vulnerability because upstream countries do not consider downstream countries in constructing dam projects. Many tensions have occurred between riparian countries in the past. Turkey stopped the Euphrates flow of water for one month in 1990 when work was accomplished in one major dam of the GAP project called Ataturk Dam. This created significant signs of an environmental and humanitarian threat to both Syrian and Iraq. In addition, Syria stopped the flow of water for one month after completing Tabaq Dam in 1975. As a reaction, Iraq warned Syria by bombing the dam.[65]

1.4.1 Limited Territorial Sovereignty

This theory is considered an accepted theory among most riparian countries. This theory emphasises imposing legal obligations on riparian states. According to the theory, countries have the right to use their natural resources, but they should not cause any harm to other countries. The theory also obtained support from international treaties and the majority of legal scholars.[66] It is argued that most conventions concerning watercourses and the ICJ's decision on *Gabcikovo-Nagymaros* Case support the unlimited territorial integrity theory.[67]

The theory's basic principles are extracted from Roman Law's *maxim sic utere tuo ut alienum non laedas principle*. This principle refers to individuals right to their property,

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[63] Aaron Schwabach "Transboundary Environmental Harm and State Responsibility: Customary International Law" (2009) International Law and Institutions at 202.

[64] Korwa Gombe Adar and Nicasius A Check *Cooperative Diplomacy, Regional Stability and National Interests: The Nile River and the Riparian States* (African Books Collective, South Africa, 2011) at 179.

[65] Heidi M Cullen and Peter B Demenocal "North Atlantic influence on Tigris–Euphrates streamflow" (2000) 20(8) International Journal of Climatology: A Journal of the Royal Meteorological Society at 862.

[66] Kliot, Shmueli and Shamir, above n 25, at 233.

[67] Murat Metin Hakki "An analysis of the legal issues concerning Turkey's Southeastern Anatolia Project (GAP)" (2007) 169(4) World Affairs at 178.

if this usage does not cause harm to others. This theory has a wide range of applications among international judgments, customary international law, and agreements between states. It is also acceptable among water law scholars.[68] Both equitable utilisation and minimisation of environmental harm reflect the core principles of Limited Territorial Sovereignty. Many countries accept the theory and the two principles through major international conventions related to this area. However, some upstream countries still reject the two principles, and they do not have a significant position in negotiation among riparian states. Turkey is one of these states. The state still believes in absolute territorial sovereignty rather than limited territorial sovereignty theory for these two rivers.

1.4.2 Common Management (community of interests)

The theory considers shared rivers as common property. This theory confirms that transboundary river basins are united economic and geographic systems, and they are restricted political boundaries or owned by a particular state.[69] This is a new theory compared to the previous one. This theory is a tool for international cooperation over transboundary rivers. The theory refers to the common management of a river basin among riparian states because it is a natural resource for all these countries.[70]

However, evidence confirms that the common management of transboundary rivers is mentioned in the treaties among states. For instance, the treaty between the former Soviet Union and Turkey in 1927 was based on this theory. The treaty entered into force in 1928. This treaty mentions that the Aras River, the border river between Turkey and the former Soviet Union, should be managed "in common" between the two countries.[71] Thus, common management was practised among states, and it can be practised in the future.

1.5 Thesis outline

The research aims to evaluate IEL principles particularly, equitable utilisation and

[68] Schwabach, above n 63, at 212.

[69] Kliot, Shmueli and Shamir, above n 25, at 223.

[70] Dante A Caponera and Dominique Alhéritière "Principles for International Ground-Water Law (II)" (1978) 2(4) Natural Resources Forum at 615.

[71] Ibrahim Kaya *Equitable utilization: the law of non-navigational uses of international watercourses* (Ashgate Publishing, Ltd., Hampshire, 2003) at 86.

minimisation of environmental harm at quite distinctive levels. Then, discover the challenges and opportunities in applying these principles at the national and international levels. The main case will be the Tigris and Euphrates Rivers at the international level, the Murry-Darling River at the federal level, and the Waikato River at the national level. These issues are a source of potential conflict between countries in the region at the international level, but they impact the whole world, too. At the domestic level, the effectiveness of the two principles has not been evaluated in the Waikato River.

The thesis will be divided into eight chapters. The chapters attempt to answer the research questions. They are connected with each other to achieve the objectives of the thesis. Chapter one introduces the thesis and provides a general introduction, significance of the study, research question and the methods for answering these questions. Chapter two introduces the fundamental terms related to transboundary river basin management; sovereignty and its philosophical development. It also evaluates the concept and the theories related to sovereignty over transboundary rivers. A strong notion of sovereignty was a major feature in the previous centuries, but it is not the same in the new century, particularly with the issues of climate change and other global issues at Anthropocene. The chapter does not reject the importance of sovereignty and nation-states because they are major actors of the IEL. However, the chapter argues that there should be room for other non-state actors to participate and be involved in water management and decision-making.

Chapter three introduces river basin management with equitable utilisation and minimisation of environmental harm principles in general. River basin management, its mechanisms, and its approaches will be the first part of the chapter. In addition, this chapter provides a more critical analysis of equitable utilisation and minimisation of environmental harm principles. The principles will be explained in light of international conventions related to the transboundary river, including the UN Watercourses Convention, the UNECE Water Convention, the Helsinki Rules and the Berlin Rules. The definition and mechanisms of river basin management will be a great part of this chapter. Despite the international convention and rules, there will be much concentration on the Ramsar Convention. Furthermore, the chapter explores the direct relationship between equitable utilisation and minimisation of environmental harm in the three river basins.

Chapter four explores equitable utilisation, minimising environmental harm and other metrics at TE-RB as an international case. It addresses the current situation of IEL principles, the challenges for implementing them and providing opportunities for cooperation. The GAP's impact in Turkey is also a significant part of the chapter. Lack of agreement among parties and lack of basin management institution will be addressed as the main obstacles for implementing the IEL principles and achieving sustainability. It illustrates the different mechanisms taken by Turkey, Iraq, and Syria regarding TE-RB management.

Chapter five evaluates the application of equitable utilisation, minimisation of environmental harm and other metrics in Australia's MDB at a federal level. The chapter's central question is how the two principles work at this level and how they are effective. Australian water policy and the Water Act's role, the amendments and institutional arrangement in the basin are addressed in this chapter. The role of indigenous people in Australia in the management of the basin will be a significant part of the chapter because it directly links with the principles. In the last case study, chapter six will evaluate the two principles at the domestic level. The Waikato River in New Zealand will be the main case for applying these principles. The role of the RMA on freshwater management will be a significant part of this chapter. The chapter investigates river basin management in the Waikato River. The effectiveness of the RMA and the role of the Waikato Regional Council (WRC) in this matter will also be evaluated.

Chapter seven summarises all of the challenges in implementing equitable utilisation, reducing environmental harm and other metrics in all the basins. It provides opportunities and solutions for the challenges. Shared sovereignty, reforming legislation, enhancing basin institutions and benefiting from natural solutions are listed among the opportunities and solutions. The chapter concludes by extracting the lessons that can be learned in the three river basins. As the final chapter, chapter eight provides a summary and conclusion of the thesis. It addresses the summary of the responses to the challenges at local and international levels.

Chapter Two: Sovereignty and water management

2. Introduction

The theoretical background is deemed a backbone for any subject, but it is even more substantial for the law. Theories assist the researcher in carefully investigating the foundations and principles of the topic. Here, a critical analysis of these theories' underlying principles contributes to a more significant research outcome. Thus, as a foundation of the thesis, chapter two analyses all theories directly related to water resource management in general and transboundary rivers in particular. This chapter investigates the common theories in international environmental law and refers directly to transboundary river basin management.

Before discussing these theories under the IEL, it is essential to illustrate the issue of sovereignty and its implications on transboundary rivers. Sovereignty is significant in this area because it is a substantial element of these theories. Thus, the first part of the chapter illustrates the meaning of sovereignty and the influence of this concept on managing transboundary rivers. In this section, the historical and philosophical development of sovereignty will be addressed. This section discusses the notion of sovereignty through various periods of history.

The second part of the chapter addresses the theories that deal with transboundary issues. This part of the chapter evaluates the four main theories for transboundary river management. It starts with the earliest and radical theory, which is absolute territorial sovereignty. Other theories, such as absolute territorial integrity, limited territorial integrity, and community of interests, are also explained in this section. The last part of this chapter examines the sovereignty over transboundary rivers in the new century. With the increasing awareness regarding climate change and environmental issues, how sovereignty adjusts itself with the new era will conclude the last part of the chapter.

2.1 The meaning of sovereignty

Sovereignty can be defined as the "supreme authority within a territory."[72] This

[72] Daniel Philpott "Sovereignty" (31 May 2003) <https://plato.stanford.edu/entries/sovereignty/>.

authority is mainly practised through a state as a top political institution in a territory. Gathering the number of states creates a sovereign state system.[73] In modern times, sovereignty is considered an essential tool for a legitimate state's actions. This tool "signifies a form of legitimation that pertains to a system of relations".[74] Sovereignty is one of the main principles of establishing the UN in 1945. The UN Charter recognises that all members have equal sovereignty, and all the members should follow this principle in their relations.[75] From the perspective of etymology, the word sovereignty was taken from the Latin word *superanus*. This word refers to a particular quality of state, the condition for being the supreme order of human conduct or being the supreme power.[76] Sovereignty as a tool for legitimising state action has a long history, and is paralleled with the history of state formation.

Some writers traced the origin of sovereignty to the Peace of Westphalia in 1648. Leo Gross claims that Westphalia was a beginning of "a new system characterised by the coexistence of a multiplicity of states, each sovereign within its territory, equal to one another, and free from any external earthly authority."[77] However, this view of the Peace of Westphalia as the foundation of the concept of sovereignty is problematic because it was not a multilateral treaty and did not mention or explain the meaning of sovereignty. In addition, sovereignty as an idea existed before the treaty. Westphalia was significant for creating more balance between European powers, but its contribution to the meaning of sovereignty is not substantial. It helped the European powers make alliances and diplomatic relations to face any future hegemonic power in the continent.[78]

The origin of sovereignty (particularly in the context of the TE-RB) has a significantly longer history than what is mentioned in the literature. Discussion of sovereignty without analysing the Sumerian state system misleads the history and the origin of

[73] At [1].

[74] John Gerard Ruggie "Continuity and transformation in the world polity: Toward a neorealist synthesis" (1983) 35(2) World Politics at 276.

[75] United Nations, Charter of the United Nations, 1 UNTS XVI art 2.1.

[76] Hans Kelsen "Sovereignty and international law" (1959) 48 Geo. LJ at 627.

[77] Leo Gross "The peace of Westphalia, 1648–1948" (1948) 42(1) American Journal of International Law at 28-29.

[78] Derek Croxton "The Peace of Westphalia of 1648 and the Origins of Sovereignty" (1999) 21(3) The international history review at 571-572.

sovereignty. Sumer is considered the earliest recorded civilisation that humans have ever discovered on the planet. Their innovations are significant in all areas in particularly their system of states and public affairs.[79] The Sumerians lived in the middle and south of Iraq or the lower part of the Tigris and Euphrates River basin. It is believed that they came to this area in the third millennium BC.[80] The strong possibility demonstrates that they came from the Kurdistan region or the northern part of Iraq. In this area, villages and agricultural equipment were found, and archaeological discoveries prove that it dates to 7000 BC.[81]

Sumerian civilisation is significant and related to the thesis in two main areas: water resource management and its relationship with sovereignty. Independent city-states comprised and shaped the Sumer city-state system. These states were established based on religious and cultural values, and each state had its king. Based on their religious and cultural values, none of the kings had the authority to interfere in other kings and territories' internal issues.[82] However, one of the kings had power over all other states to act as a moderator. This role circulated among various kings of the Sumerian city-states. The significance of the sovereign border among the Sumerian city-states can be found in the following quote:[83]

> Enlil, the king of all the lands and the father of all the gods, marked out a boundary for the God of Lagash and the God of Umma [i.e. between the territories of the cities belonging to those gods] by his decree. The king of Kish measured it out in accordance with the word of the God of legal settlements, and erected a stone boundary marker there.

This statement illustrates the significance of sovereignty for each city-state in the Sumerian civilisation. The legitimacy over territorial borders was crucial for the states because God protected sovereignty according to their religious and cultural beliefs. Also, proper allocation of water resources, particularly the Tigris and Euphrates Rivers among individuals and states, was one reason for establishing this influential and stable

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[79] Adam Watson *The Evolution of International Society: A Comparative Historical Analysis Reissue with a new introduction by Barry Buzan and Richard Little* (Routledge, 2009) at 24.

[80] Samuel Noah Kramer *The Sumerians: Their history, culture, and character* (University of Chicago Press, 2010) at 3.

[81] See Robert J Braidwood and Bruce Howe *Prehistoric Investigations in Iraqi Kurdistan. Stu-dies in Ancient Oriental Civilization 31* (Chicago: University of Chicago Press, 1960).

[82] Watson, above n 79 at 25-26.

[83] At 26.

civilisation. Thus, each city-state enjoyed its sovereign rights, while the cooperation among Sumerian societies for building an adequate irrigation system was one of the characteristics for sharing the rivers among these city-states.[84]

Thus, the history of sovereign practice did not emerge in the Peace of Westphalia, but instead emerged and developed during the Sumerian city-states system. Importantly, these city-states were successful in solving the sovereign issues over the shared rivers among them. The most ancient treaty for managing a river basin dates back to Sumerian civilisation. Lagash and Umma were two Sumerian city-states that drafted an agreement for managing Tigris and Euphrates between them in 2500 BC. The treaty was signed after the famous water war between the two city-states. This agreement is considered the earliest treaty in international water law.[85] In addition, the Code of Hammurabi in 1738 BC is considered the first local law that has several provisions related to water management. The Code mentions the responsibility of individuals toward their neighbours for flooding. Hammurabi's Code is the earliest written Code in history. [86]

The Sumerians had an influential impact on advancing irrigation systems and water resource management. The Sumerians lived in a hot and dry region, but they used the Tigris and Euphrates Rivers to transform this area into a productive land with magnificent gardens.[87] Thus, the two rivers were vital for Sumerian city-states because they were the source of agricultural products. The Sumerians were quite innovative by building channels and managing the water of the two rivers because the flood was predictable, and they had to manage their water resources. [88] Therefore, analysing sovereignty and, in particular, its relationship with river basin management without analysing the Sumerian city-state system presents a fragmented picture. Sovereign practice and claims of sovereignty over natural resources have a long history, which is derived from the Sumerian era.

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[84] Kramer, above n 80 at 3.

[85] Meredith A Giordano and Aaron T Wolf "Sharing waters: Post-Rio international water management" (2003) 27(2) Natural Resources Forum at 168.

[86] Itzchak E Kornfeld "Mesopotamia: a history of water and law" in *The Evolution of the Law and Politics of Water* (Springer, 2009) at 21-36.

[87] Kramer, above n 80 at 3.

[88] Nasrat Adamo, Nadhir Al-Ansari and Varoujan Sissakian "How Dams Can Affect Freshwater Issues in the Euphrates-Tigris Basins" (2020) 10(1) Journal of Earth Sciences and Geotechnical Engineering at 44.

2.2.1 Philosophical development of sovereignty

Sovereignty and practising sovereign rights have existed since the Sumerian era, but developing the philosophical notion of sovereignty does not have a long history. The French philosopher Jean Bodin is the first scholar who developed philosophical theories about sovereignty, followed by English philosopher Thomas Hobbes. [89] Bodin defines sovereignty as "the absolute and perpetual power of a commonwealth."[90] This means that the government has absolute and continuous authority over the people and the territory. This notion of absolute sovereignty also exists in Thomas Hobbes's thoughts. According to Hobbes, when people obey a government, they should know that the government's sovereignty is unlimited and absolute over the people and territory. The government's approach to taking power is not a matter for Hobbes, but how effectively the government protects the people and territory is essential.[91]

Here, a question that quickly comes to mind is why these philosophers were enthusiastic about the absolute power of sovereignty? Both had an awareness of the negative impacts of absolute power in some leaders' hands, but they also supported it. An appropriate answer can be found in their historical context. Both philosophers lived during periods of sectarian tensions and civil war. Bodin was about to be murdered in religious tension in France in 1572.[92] Hobbes wrote his famous book *Leviathan* in 1651. This was only two years after the execution of King Charles I in the English Civil War.[93] Thus, both Bodin and Hobbes were concerned about the domestic order of their countries. For them, justice cannot be achieved without preserving domestic order.[94]

John Locke and, later, Jean Jacques Rousseau rejected the idea that sovereign power is supreme because of the law of nature. They also rejected the absolute notion of sovereignty. According to them, the relationship between people and government is represented by rulers, who are in a social contract with them. Hence, sovereignty is

[89] Stephen D Krasner "Sovereignty" (2001) Foreign Policy at 21.

[90] Jean Bodin and Bodin Jean *Bodin: On Sovereignty* (Cambridge University Press, 1992) at 1.

[91] Thomas Hobbes *Leviathan: Or, the matter, form, and power of a commonwealth ecclesiastical and civil* (G. Routledge and sons, 1887) at 106-111.

[92] Krasner, above n 89 at 21.

[93] Aloysius P Martinich *Hobbes* (Routledge, New York, 2013) at 15.

[94] Krasner, above n 89 at 21.

limited by a social contract.[95] Locke, in particular, did not use the word 'sovereignty' frequently. He used the word 'supreme power' to describe sovereign power. He stated that:[96]

> The reason why men enter into society, is the preservation of their property; and the end why they chuse and authorise a legislative, is, that there may be laws made, and rules set, as guards and fences to the properties of all the members of the society, to limit the power, and moderate the dominion, of every part and member of the society.

Here, Locke confirms the limitation of sovereign power and this power depends on the peoples' will because the people are creating this sovereign power based on a social contract. Rousseau also confirms this in his famous book *Social Contract; or, Principles of Political Right.* He believes that the people are collectively sovereign, not a single ruler. Therefore, the power of the ruler is bound by the people's will because he supports collective sovereignty, not absolute sovereignty.[97]

Moreover, the concept of sovereignty was illustrated more deeply by the positivist legal philosopher Jeremy Bentham. Under the influence of Bentham, John Austin developed legal positivism and popularised Bentham's thoughts, including the concept of sovereignty.[98] As one of the most influential legal positive thinkers, Bentham attempts to define the idea of sovereignty from a legal perspective. This distinguishes him from Hobbes, which he described it a part of political philosophy. In his book, *The Limits of Jurisprudence Defined* Bentham states that:[99]

> By a sovereign I mean any person or assemblage of persons to whose will a whole political community are (no matter on what account) supposed to be in a disposition to pay obedience

According to the above definition, sovereignty can be represented by one person or a number of persons. This is embodied by the head of state or the people who govern the

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[95] Takashi Inoguchi and Lien Thi Quynh Le "Toward modelling a global social contract: Jean-Jacques Rousseau and John Locke" (2016) 17(3) Japanese Journal of Political Science at 494.

[96] John Locke *Two Treatises of Government: With a Supplement, Patriarcha, by Robert Filmer* (Simon and Schuster, 1947)Chapter XIX. s222.

[97] See Jean-Jacques Rousseau *The social contract: or, principles of political right* (G. Allen & Unwin, Limited, London, 1916).

[98] Leslie Green and Thomas Adams "Legal positivism" (2003) Stanford Encyclopedia of Philosophy <https://plato.stanford.edu/entries/legal-positivism/?utm_source=fbia>.

[99] Jeremy Bentham and Charles Warren Everett "The Limits of Jurisprudence Defined: Being Part Two of An Introduction to the Principles of Morals and Legislation" (1945) at 101.

state. For Bentham, it is not important how the government comes to power, but the main element for creating sovereignty is obedience. Thus, sovereignty is indefinite, but a convention can limit it.[100] Regarding this absoluteness of sovereignty, he illustrates the issue more thoroughly in his book *A Fragment on Government*. He believed that:[101]

> The authority of the supreme body cannot, unless where limited by express convention, be said to have any assignable, any certain bounds. That to say there is any act they cannot do, to speak of any thing of their's as being illegal, as being void; to speak of their exceeding their authority (whatever be the phrase) their power, their right, is, however common, an abuse of language.

Here, Bentham distinguishes himself from both Bodin and Hobbes by limiting sovereignty in some specific circumstances. According to him, sovereignty can be limited by "express convention."[102] F.C. Montague believes that Bentham refers to two circumstances to restrict sovereignty. Firstly, a victorious sovereign can impose sovereignty over a beaten sovereign by a convention. Secondly, several sovereign states can limit their sovereignty when they all agree to pass it to an independent federal council in the case of federal states. Except for these circumstances, sovereignty is unlimited even by law. Thus, the law cannot limit absolute sovereignty, but the limitation should accrue through a treaty or federal agreement. This is a clear distinction from Hobbes because, for him, sovereignty is morally unlimited. In addition, the nature of the state is not a matter. If the state is free or despotic, they are all equal sovereign states.[103]

Another philosopher of the theory of legal positivism is Austin, who looked at sovereignty in the same approach as Bentham. Austin was significantly influenced by Bentham in many of his legal thoughts. He considered Bentham as his legal master, but he clarified and simplified many of Bentham's juristic thoughts. As many of Bentham's jurisprudence writings were unpublished until 1945, his influence mostly came after

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[100] See Jeremy Bentham *A fragment on government Edited with an Introduction by F.C. Montague* (The Lawbook Exchange, Ltd., New Jersey, 2001).

[101] Jeremy Bentham *A fragment on government;: being an examination of what is delivered, on the subject of government in general in the introduction to Sir William Blackstone's Commentaries:: With a preface, in which is given a critique of the work at large* (Printed for T. Payne... P. Elmsly... and E. Brooke, 1776) at 155.

[102] Bentham, above n 99 at 75.

[103] At 75-76.

Austin.[104] In his explanation for sovereignty, Austin states that: [105]

> If a determinate human superior, not in a habit of obedience to a like superior, receive habitual obedience from the bulk of a given society, that determinate superior is sovereign in that society, and the society (including the superior) is a society political and independent

In the above definition of sovereignty, Austin argues that all independent political societies are sovereign by nature.[106] Also, Austin follows Bentham's approach that sovereignty is unlimited by law, but he distinguishes himself in the federal pack's responsibility. He considered that this pack does not have consistency with the characteristic of sovereignty. According to Austin, sovereignty cannot be ascribed to the federal authority as the representation of all sovereign states, "but only to the authority which can alter the terms of the federal pack."[107]

H. L. A. Hart sharply criticised Austin's definition because it dismissed three main points of sovereignty. According to Hart, the three features are: "(i) legal limitation of sovereign power; (ii) division of sovereign power; and (iii) plurality of sovereigns each having full sovereign power."[108] As Hart noted, it is not possible to find a sovereign legal system with the limitations and divisions of power in Austin's thought. Ignoring these two significant features of sovereignty led Austin to present a distorted perception of his sovereign doctrine. Furthermore, Austin refused to accept the possibility of more than one sovereign power inside any political society. This claim seems to be impossible, logically.[109]

Therefore, analysing sovereignty and defining sovereignty without considering the historical background can lead to contestable outcomes. Sovereignty has changed by time and location. The concept has altered throughout different periods of history. It varies in meaning and characteristic from country to country. Even in the same period and place, it may be interpreted diversely by rulers of the same state.[110] For the

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[104] Herbert LA Hart "Bentham on Sovereignty" (1967) 2(2) Irish Jurist at 327-328.

[105] Austin John *The province of jurisprudence determined* (University of London, 1832) at 200.

[106] Brian Bix "John Austin" (2001) <https://plato.stanford.edu/entries/austin-john/>.

[107] Bentham, above n 100, at 71.

[108] Hart, above n 104, at 329.

[109] At 329.

[110] Dieter Grimm *Sovereignty: The origin and future of a political and legal concept* (Columbia University Press,

philosophers such as Bodin and Hobbes, absoluteness was the fundamental element for sovereignty. They had a high impact on the positive legal scholars such as Bentham and Austin because they accepted and developed the same sovereignty notion. However, Bentham's understanding of sovereignty is more refined and more logical for that particular time. Bentham and Austin agreed that sovereignty could not be limited by law, but Bentham believed that the federal pack could limit sovereignty.

The above discussion is concentrated mainly on domestic sovereignty, which is distinctive from external sovereignty. Domestic or internal sovereignty is a "structure capable of making authoritative determinations" inside any political body.[111] However, external or international sovereignty focuses on a method of "organising political life among political entities" or states at the international level. Territory, autonomy, and equality are the three main particulars for recognising this external sovereignty.[112] Therefore, internal sovereignty concerns the relationship between individual and state, and external sovereignty involves states' relationships. However, the relationship between individuals and states (internal sovereignty) should be extended and linked with external sovereignty under modern internal or domestic law.[113] This is one of the main factors that sovereignty's (external) absoluteness has faced more critical challenges, which will be discussed in the following sections.

2.2.2 Sovereignty and international environmental law

For classical positivist legal scholars, international law cannot be considered as a law because a sovereign legal system does not issue or legislate it. They were disseminating a strong notion of sovereignty, which led them to deny international law.[114] For them, sovereign states cannot obey international rules and regulations if states are not agreed on that. According to Hart, sovereignty is a legal concept determined by international law. Sovereignty is limited, and sovereign states can act on the scope that is allowed by

New York, 2015) at 5-8.

[111] Stephen D Krasner "Sovereignty" in George Ritzer (ed) *The Blackwell Encyclopedia of Sociology* (2007) at 4631.

[112] At 4631.

[113] Ronald A Brand "External sovereignty and international law" (1994) 18 Fordham Int'l LJ at 1685-1697.

[114] Mehrdad Payandeh "The concept of international law in the jurisprudence of HLA Hart" (2010) 21(4) European Journal of International Law at 969-971.

international law.[115] Thus, absolute sovereignty for any state is almost impossible under international law. All states share several norms and principles in international society, and states should follow these international norms and principles. Thus, international law can limit sovereignty and, in many cases, has supremacy over the national legal system.

However, this argument is challenged by some scholars who confirm the international law exists, but sovereignty grants supremacy to national law over international law.[116] According to Kelsen, national law can be interpreted in both a narrow and broader sense. In a narrow sense, national law contains the norms of the state constitution with other norms of national legal sources of law. In the broader sense, national law includes norms of national law in a narrow sense, in conjunction with the norms of international law. Treaties and customs create the norms of international law among states. Thus, national law will be subordinate to international law because national law, in the narrow sense, is a part of international law in a wider sense.[117] It means that a sovereign state should follow the norms and rules of international law.

Thus, sovereignty in the context of international law has a particular meaning that is different from international relations. In international relations, sovereignty is used in place of independence. "Sovereignty does not mean actual quality of rights or competences" because these can be limited by a constitution, treaty or international rules.[118] This means that the unlimited and the wider notion of sovereignty does not have a position in international law. However, sovereignty is still accounted for as a controversial topic in IEL. This area of law initially developed on two main objectives: sovereign right on natural resources and not causing environmental damage to other states. States agreed on these two goals in the Stockholm Declaration in 1972. Even though countries could not further develop the scope or language of these two objectives in the Rio Declaration in 1992, they are now the basis for states' obligations under IEL.[119]

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[115] At 969.

[116] Kelsen, above n 76, at 627.

[117] At 628.

[118] James Crawford *The creation of states in international law* (Oxford University Press, New York, 2006) at 33.

[119] Philippe Sands and Jacqueline Peel *Principles of international environmental law* (Cambridge University Press, Cambridge, 2018) 201.

The roots of these principles are related to the *Trail Smelter* case between the US and Canada in 1941. The dispute started when a Canadian company was operating smelter from British Colombia's province proximate to the state of Washington in the US during the 1930s. The US complained about the issue because the pollution caused harm to plants and forests inside the US territory. Both countries agreed to proceed with the issue to international arbitration. In the arbitration award, the court ruled in favour of the US. According to the court, Canada was responsible under international law to ensure that activities inside its territory would not cause harm to other countries.[120] This case was crucial for revising the concept of sovereignty under international law and the IEL in particular. The court states that:[121]

> Considering the circumstances of the case, the Tribunal holds that the Dominion of Canada is responsible in international law for the conduct of the Trail Smelter. Apart from the undertakings in the Convention, it is, therefore, the duty of the Government of the Dominion of Canada to see to it that this conduct should be in conformity with the obligation of the Dominion under international law as herein determined.

This statement refers to the premise that states do not have absolute power to do any activity inside their sovereign territory. It means that any country's sovereignty is limited and not absolute because activities inside a sovereign state may cause damage to its neighbours. This rejects the notion of sovereignty, which early positive legal scholars claimed. Thus, sovereignty can be limited by international law, and customary international law confirms that. Importantly, understanding the meaning of sovereignty has changed throughout history. The idea of sovereignty is growing more complicated because the world system is different, with nearly two hundred sovereign states. Prior to the evolution of IEL, sovereignty had strong ties with independent and autonomous states from other states. The states still have the freedom to choose their political system, and other states do not have the authority to interfere with the state's internal and domestic issues. However, their activities inside their territories should not cause damage to those outside the sovereign territories.

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[120] Bradly J Condon *Environmental Sovereignty and the WTO: Trade Sanctions and International Law* (BRILL, 2006) at 66.

[121] See *Trail Smelter Arbitration (United States v Canada) Reports of International Arbitral Awards* [1941].

In his famous book *Sovereignty*, Sir Francis Hinsley refers to a significant point: "sovereignty is not a fact, but it is an assumption." Thus, it can be changed, limited, or restricted. This concept had various meanings according to time and places.[122] This concept has been used and will be used frequently as a legitimate tool for exploiting natural resources, particularly water resources. However, the idea requires reinterpreting from the perspective of environmental law because humanity and the planet live in a critical situation. There is a comprehensive discussion that the earth has entered the Anthropocene era.[123] This means that we are living in "a time interval marked by a rapid but profound and far-reaching change to the Earth's geology, currently driven by various forms of human impact."[124]

Therefore, the concept of sovereignty requires reframing to adapt to the challenges of the Anthropocene era.[125] Reframing the concept means thinking beyond the current understanding and reimagining the concept to respond to the climate change and other environmental challenges in the new century. Reframing and reimagination of the sovereignty concept are critical for implementing the principles of the IEL and river basin management principles because exploiting the concept to control the basin creates a significant challenge for cooperation. This idea will be discussed in more detail in the following sections. In addition, analysing the international watercourse law's theoretical bases can facilitate our understanding of the concept of sovereignty.

2.2 Sovereignty and managing transboundary river basins

According to the Transboundary Waters Assessment Programme, two or more countries share most rivers.[126] These transboundary rivers contain more than sixty per cent of river flows globally. This does not include groundwater that is divided under political borders. As water is crucial for nations and water policies directly impact individuals, states attempt to politicise it and link it with national security. States may

[122] Francis Harry Hinsley *Sovereignty* (2nd ed, Cambridge University Press, Cambridge, 1986) at 345.

[123] Daniel Matthews "Reframing sovereignty for the anthropocene" (2021) Transnational Legal Theory at 44.

[124] Jan Zalasiewicz and others "The Working Group on the Anthropocene: Summary of evidence and interim recommendations" (2017) 19 Anthropocene at 56.

[125] See Matthews, above n 123, at 44.

[126] TWAP, above n 3.

have more interest in the shared rivers because they flow across boundaries.[127] Thus, a claim of sovereignty over the river may arise by one of the riparian states because some states are attempting to link this issue with national security and interests in transboundary river basins.

Therefore, sovereignty can be listed as one of the main challenges for water management because managing the transboundary rivers is much more complicated than managing water resources inside particular national borders.[128] Especially when upstream countries invest heavily in these rivers by building dams and water projects. This contributes to increasing or reducing water flow to downstream countries with a high potential for water pollution. For instance, most of the water projects carried out by China, the US, Turkey, Ethiopia, and India as upstream states, jeopardise downstream countries' water security, such as Cambodia, Mexico, Iraq, Egypt, and Bangladesh.[129]

To understand the relationship between sovereignty and transboundary river basins, an illustration of sovereignty through its compounds may lead to a better outcome. Sovereignty has three main compounds: autonomy, control, and legitimacy. Autonomy means that the state is independent in its actions and decisions.[130] The second compound is control. This means the state's ability to maintain control over people and natural resources without intervention by others. This compound is recognised as the principle of non-intervention in the UN charter.[131] The last compound is legitimacy, which means that other states should recognise the state in the international society. The international society should accept the state as a member of the family states.[132]

In many cases, the three sovereignty compounds do not facilitate cooperation among riparian states in transboundary river basins because they allow a state to make

[127] See Stephen C McCaffrey "Introduction: Politics and Sovereignty over Transboundary Groundwater" (2008) 102 Proceedings of the American Society of International Law Annual Meeting 2008.

[128] Mark Zeitoun, Marisa Goulden and David Tickner "Current and future challenges facing transboundary river basin management" (2013) 4(5) Wiley Interdisciplinary Reviews: Climate Change at 335-336.

[129] At 335.

[130] Karen T Litfin "Sovereignty in world ecopolitics" (1997) 41 Mershon international studies review 180-191.

[131] United Nations, Charter of the United Nations, 1 UNTS XVI at Art 2.4.

[132] Martin Wight *Systems of states* (Leicester Univ Press, Leicester, 1977) at 153.

decisions affecting the basin inside its political border. All three compounds encourage states to act unilaterally, creating issues for other states in the transboundary river basin. The upper stream countries may claim that they are autonomous and independent for their decisions regarding river basins inside their sovereign border. Based on the second compound, they may consider management of the basin as an internal issue, and they may require non-intervention in the domestic affairs of the sovereign state. By viewing the issue as an internal issue, states may claim legitimacy for decisions about the basin in any dispute with other states. This understanding of sovereignty over international watercourses brings more challenges than serving any solution for managing transboundary rivers in this Anthropocene epoch.

Therefore, sovereignty has been recognised as the main topic linked with the water allocation of transboundary rivers. Since the development of modern water law, particularly in the last two decades, the term "sovereignty" was the centre of the disputes between the upper stream and downstream countries.[133] Thus, it is not surprising that sovereignty was used as the main claim for shared resources, especially by the upper stream states. To discuss this issue more profoundly, it would be useful to explain and evaluate all the main theories since the emergence of modern water law. These theories illustrate the claims and counterclaims for managing shared rivers among riparian states.

2.3 The theoretical bases for transboundary river basin management under international environmental law

As one of the most necessary elements for life, water has been allocated since the beginning of human history in the Neolithic era, 12,000 years ago. This vital resource does not know political or national boundaries, but emerging nation-states motivated countries to secure these resources inside national borders, especially in the last century.[134] This situation may lead states to cooperate or conflict on transboundary rivers. However, the possibility of waging war over water is quite weak. Water resources have not contributed as the main factor for any wars throughout history. There

[133] See Gábor Baranyai "Laws of Transboundary Water Governance" in *European Water Law and Hydropolitics* (Springer, Cham, Switzerland, 2020).

[134] Anton Earle, Anders Jägerskog and Joakim Öjendal (eds) *Transboundary water management: Principles and practice* (Routledge, Earthscan, 2010) at 1.

could be some minor clashes, but not war. Therefore, water may cause conflicts but not significant battles.[135]

This does not mean that water wars will not occur in the future because the challenges and demands for water are not the same in the previous centuries for many reasons. Firstly, increasing population and demand from all the sectors are not parallel with this limited small amount of freshwater. For example, the global population was about 1.6 billion in 1900, and it has increased dramatically to 7.2 billion now.[136] Furthermore, the population is expected to increase further this century, and demand for freshwater will also increase. Secondly, climate change has affected water quality and quantity negatively. These effects are expected to be higher in this century because of the precipitation rate decrease with melting snow in many parts of the world.[137]

Thirdly, increasing sovereign member states automatically contributes to increasing riparian states of transboundary river basins. In the establishment of the UN in 1945, fifty-one states were members of the international community, including Poland, that signed the UN Charter later, but 193 countries are now members of the UN, excluding the Holy See and the State of Palestine.[138] In other words, this was the main factor for increasing transboundary river basins and increasing the complexity of this significant issue. Lastly, IEL in general and international water law, particularly, suffers from a lack of strong international institutions to enforce the law and regulations in this area.[139]

All the above factors should encourage states and the international community to rethink the approaches for managing water resources, and shared river basins in particular. A dramatic change has happened from the state perspective for the management of these basins, but it may not be sufficient in this century. In the last century, riparian states were more sensitive, and they took a radical approach to manage

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[135] Aaron T Wolf ""Water wars" and water reality: conflict and cooperation along international waterways" in *Environmental change, adaptation, and security* (Springer, 1999) 251-265.

[136] Glenn A Jones and Kevin J Warner "The 21st century population-energy-climate nexus" (2016) 93 Energy Policy at 206.

[137] Field CB IPCC *Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014) at 229.

[138] United Nations "Overview" (2020) <https://www.un.org/en/sections/about-un/overview/index.html>.

[139] Owen McIntyre "International water law: concepts, evolution and development" in *Transboundary Water Management* (Routledge, 2013) at 59-71.

these resources. They looked at these resources as a part of national resources and a part of their sovereignty. The development of international law has changed this thought. In many regions worldwide, transboundary river basins are managed collaboratively among riparian states. The following sections discuss the theories for managing these basins through history.

2.3.1 Absolute Territorial Sovereignty

According to this theory, states have an absolute right to use rivers inside their territory. The US Attorney General Judson Harmon proposed this theory during the dispute between the U.S. and Mexico in 1895. The dispute was over the Rio Grande River that creates part of the US and Mexico border.[140] This theory typically benefits upstream states. In contrast, the absolute territorial integrity doctrine prohibits states from changing their area or river basin's normal conditions in a way that negatively affect other states or neighbours. This theory is more in favour of downstream counties.[141] Absolute territorial sovereignty is the earliest and most extreme theory for managing these river basins.

In the late nineteenth century, absolute territorial sovereignty was proposed when several farmers in the US overused water of the Rio Grande River. In response, Mexico complained about reducing the river's water flow. The US Department of State asked Attorney General Harmon to express his opinion regarding the US rights to the river under international law.[142] He explained his view as follows:[143]

> The fact that the Rio Grande lacks sufficient water to permit its use by the inhabitants of both countries does not entitle Mexico to impose restrictions on the USA which would hamper the development of the latter's territory or deprive its inhabitants of an advantage with which nature had endowed it and which is situated entirely within its territory. To admit such a principle would be completely contrary to the principle that USA exercises full sovereignty over its national territory.

[140] Schwabach, above n 63, at 202.

[141] Adar and Check, above n 64, at 179.

[142] Stephen C McCaffrey *The law of international watercourses* (Oxford University Press, 2019) at 100.

[143] See US Attorney General "Official Opinions: The Attorneys-General of the United States, Advising the President and Heads of Departments, Op. Att'y Gen. 274" (1895).

In this statement, Harmon put sovereignty as the main instrument for states to act without external interference. According to him, states have absolute rights inside their sovereign borders to utilise their natural resources without considering other states. This is quite the opposite of the natural and geographical conditions of rivers and river basins. However, even the US has not concentrated on this doctrine in arrangements for transboundary rivers with its two main neighbours. The US signed two agreements with both Mexico and Canada in 1906 and 1909 to manage shared rivers. Both agreements are approached to implement equitable utilisation rather than absolute sovereignty.[144] In addition, the US prevented its citizens in the states of Colorado and New Mexico from using the Rio Grande River against the interests of Mexican citizens, according to the 1944 treaty.[145]

Despite the US position, many upper stream states used this theory as a claim in the early stages of developing the IEL, such as Germany, Austria, Chile, India, and Ethiopia.[146] These states all followed the US path by concluding agreements with their neighbours to share their transboundary rivers equitably. They used the Harmon theory solely for negotiation and diplomatic issues because they agreed to the opposite of their claims. For instance, Austria, a former supporter of the doctrine, signed three agreements with its neighbours. The treaty with Hungary in 1956, a treaty with former Yugoslavia in 1956, and another treaty with former Czechoslovakia in 1967 for allocation of their shared rivers. In all three treaties, Austria ignored the absolute sovereignty of these shared resources.[147]

A few jurists and authors show their support for the theory.[148] However, nine publicists[149] are from four upper stream countries: the US, Germany, Austria, and Canada, and only two of them are from Europe. This explains the reason behind their

[144] McIntyre, above n 139, at 61.

[145] Stephen C McCaffrey "The harmon doctrine one hundred years later: buried, not praised" (1996) Natural Resources Journalat 1005.

[146] János Bruhács *The law of non-navigational uses of international watercourses* (Martinus Nijhoff Publishers, 1993) at 44.

[147] Nahid Islam *The law of non-navigational uses of international watercourses: Options for regional regime-building in Asia* (Kluwer Law International BV, 2010) at 104.

[148] See Friedrich Joseph Berber *Rivers in international law* (Stevens, 1959).

[149] The authors listed by Berber include, Johann L. Klüber (1821), August W. Heffter (1888), Edmund Bousek (1913), Robert A. Mackay (1928), Schade (1934), James Simsarian (1939), Charles C. Hyde (1945), Charles G. Fenwick (1948), and Herbert W. Briggs (1952).

support because the non-navigational issue of international watercourses was not significant outside Europe from the late eighteenth century to the first half of the twentieth century. Their place and their period reflect their attraction to the theory.[150]

In addition, the theory ignores the reality and the nature of transboundary river basins because it drives states to the individuality of the management of shared resources. It also dismisses the interdependence of states for shared resources. Thus, the theory faced significant criticisms from downstream countries.[151] Simultaneously, the Harmon doctrine was used by downstream countries to accuse upper stream countries of using absolute sovereignty over shared rivers.[152] Thus, while it was used by both downstream and upstream states as a mechanism for negotiation, the theory does not have a place in international law. It is contrary to sources and principles of international law. Therefore, it does not have support among treaties, customs, and judicial decisions worldwide.

2.3.2 Absolute Territorial Integrity

In contrast to absolute sovereignty, this theory restricts sovereignty entirely because it does not allow riparian states to change the transboundary rivers natural flows. This favours downstream countries because it will enable them to require the river's full flow without interfering with the upstream countries.[153] This factor contributed mainly to the unattractiveness of the theory. The substantial restriction for not utilising the rivers and the basin deprive the upstream states of the basin's benefits. This will be unfair for the upper part of the basin communities because they will be disadvantaged from the river's wealth from economic and social perspectives.[154]

The theory is also known as the 'theory of natural flow' because the river should remain natural from quality and quantity when entering other states. This theory was developed during the 1950s by countries such as Pakistan, Bangladesh and Egypt, but it has not been implemented in international and customary international law.[155] Other countries

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[150] McCaffrey, above n 142, at 111.

[151] Islam, above n 147, at 104-106.

[152] McCaffrey, above n 142, at 107.

[153] McIntyre, above n 139, at 63.

[154] Johan G Lammers *Pollution of international watercourses: a search for substantive rules and principles of law* (BRILL, 1984) at 562.

[155] Dante A Caponera and Marcella Nanni *Principles of water law and administration: national and international* (Routledge, 2019) at 279.

such as Argentina, Spain and some Arab countries attempted to depend on this theory to reinforce their claims.[156] These countries accepted the theory because it does not impose any responsibility on downstream countries while granting them significant rights. The theory is almost unknown, and it does not have a place in international environmental law, but it is raised as a claim by many downstream states.

For instance, Spain claimed the natural flow of the Carol River in the *Lake Lanoux Arbitration* Case. France had a plan to divert water from the lake to establish a hydroelectric project in the 1950s. France promised to return a sufficient amount of water to the lake, but Spain refused to accept the idea. In arbitration, Spain claimed that France diverted water from the lake, which affected the water of the Carol River.[157] According to Spain, this action violated the agreements signed between the two countries for managing their shared waters. Spain's claim was based on two factors. Firstly, the River was altered into another basin. Secondly, the change was human made. In 1957, the Arbitration award rejected the Spanish claim for the river's natural flow but required France to deliver a sufficient discharge to Spain.[158]

The Nile Water Agreement in 1929 could also be considered one of the treaties designed according to the theory. The agreement was signed between Britain and Egypt because other upper riparian states were under the control of Britain at that time. The agreement recognized the Egyptian right to the natural flow of the Nile River.[159] According to the agreement, the British agreed not to construct any water projects in territories under its rule that impact water flows to Egypt. As it states[160]

> Save with the previous agreement of the Egyptian Government, no irrigation or power works, or measures are to be constructed or taken on the River Nile or its branches, or on the lakes from which it flows in the Sudan or in countries under British administration, which would, in such a manner as to entail prejudice to the interests of Egypt, either reduce the quantities

[156] Bruhács, above n 146, at 44.

[157] *Lake Lanoux Aribitration (France v. Spain)* [1957] International Law Reports 24 101.

[158] McCaffrey, above n 142, at 63-65.

[159] Mahir Al Banna "International Law and the Challenges of Transboundary Watercourses Governance: The Blue Nile Dam Controversy" in *Sustainable Development and Social Responsibility—Volume 2* (Springer, 2020) at 105-121.

[160] "Exchange of notes between his majesty's Government in the United Kingdom and the Egyptian Government in regard to the use of the waters of the River Nile for irrigation purposes, Cairo" at art 4(ii).

of water arriving in Egypt or modify the date of its arrival, or lower its level.

This is a clear example of the treaty practice of absolute territorial integrity, and prevents the upper stream party from changing the river's natural flow. In the latter article, the treaty requires Egypt to consider local interests in the case of building any projects on its side. This treaty put a burden on both sides to maintain the natural flow of the Nile. Thus, both parties were responsible for the natural flow of the river.[161] However, the theory does not have a place in international law, and it cannot create an environment for cooperation. Besides, it is impossible to find a case in customary international law to support or depend on the theory. It does not have a place in international rules and conventions without advocacy among international legal scholars.

2.3.3 Limited Territorial Sovereignty (Equitable Utilisation)

As the two above theories could not convince the majority of the countries, the need for middle ground theory was necessary. The above two approaches cannot create an environment for cooperation among riparian states. Thus, the theory of limited territorial sovereignty developed and gained a remarkable position in both international law and customary international law. In this theory, sovereignty over transboundary river basins is prorated and qualified because all the riparian states share mutual rights and obligations over the basin.[162]

This theory refers to the limitation of sovereignty over transboundary rivers among riparian states. This is because the freedoms of one riparian state can limit those of other riparian states. In addition, each riparian state has an equal right to use the river and manage it freely if this management does not cause harm to other riparian states.[163] This theory is linked directly with equitable utilisation, because states must use water inside their territory equitably and reasonably. As it is not easy or clear to explain the equitable and reasonable allocation of shared water, these allocation factors should be based on each case.[164] This theory obtained global acceptance with the adoption of the UN

[161] Arthur Okoth-Owiro "State Succession and International Treaty Commitments: A Case Study of the Nile Water Treaties" (2004) Konrad Adenauer Stiftung, Law & Policy Research Foundation at 8.

[162] Caponera and Nanni, above n 115, at 280-281.

[163] Ines Dombrowsky *Conflict, cooperation and institutions in international water management: An economic analysis* (Edward Elgar Publishing, 2007) at 64.

[164] Owen McIntyre *Environmental protection of international watercourses under international law* (Routledge,

Watercourses Convention in 1997. Based on the theory, many countries adopted the convention and its mechanism for sharing data, negotiation, and dispute resolution.[165] Thus, this theory is widely accepted by state practices, judicial decisions, and international rules and conventions. It maintains the balance of interests among riparian states with harmonizing needs and usage of water among them.[166]

According to Stephen C. McCaffrey, two points should be borne in mind in illustrating this theory. Firstly, sovereignty has never been absolute, and it will not be absolute under international law. When this theory recognises "limits," it means states' sovereignty is limited not to cause harm to other states.[167] Even though some states claim absolute sovereignty over shared resources, this claim (as noted above) cannot occur under international law. States depend on each other and they cannot exist alone. Thus, the claim of absolute sovereignty is deemed to be illogical under the principles of international law. As the theory is the central part of the thesis, it will be addressed fully in chapter three. It will be evaluated as a part of equitable utilisation in the later chapter.

2.3.4 Community of interests

The above three thoughts provide insights into river basin management from both downstream and upper stream states' perspectives. However, there was still legal uncertainty among the international legal experts as there was no agreed international convention until later in the last century. Depending on their geopolitical positions and interests, riparian states have depended on different theoretical backgrounds to support their claims and actions. Simultaneously, riparian states have mostly depended on bilateral and regional agreements instead of multilateral treaties in a broad context.[168] Adopting both the UN Watercourses Convention and UNECE Water Convention in the 1990s was significant to develop general principles for international watercourses. The two conventions created an environment for co-management among riparian states in

2016) at 23.

[165] Anamika Barua, Sumit Vij and Mirza Zulfiqur Rahman "Powering or sharing water in the Brahmaputra River basin" (2018) 34(5) International Journal of Water Resources Development at 838.

[166] Patricia W Birnie, Alan E Boyle and Catherine Redgwell *International law and the environment* (Oxford University Press, United Kingdom, 2021) at 571-616.

[167] McCaffrey, above n 139, 62-65.

[168] McIntyre, above n 164, at p.12.

various regions worldwide.

However, sovereignty appears as a central focal characteristic in arguments and counter-arguments of all the above theories, but ecological reality may not be the same as the political imagination. The quote of John Locke can illustrate this. He stated that "I shall endeavour to shew, how Men might come to have a property in several parts of that which God gave to Mankind in common."[169] According to Locke, it is not appropriate to believe that humankind has ownership of a property that God granted. This could be translated as applicable to the issue of sovereignty over transboundary river basins in modern times. Thus, it will not be accurate to allow the state to impose sovereignty over transboundary rivers because all states and societies naturally share these resources in reality.

As a result, the community of interests' theory is presented as a good solution for the water allocation of transboundary river basins. This approach is also known as "common management" because it reacquires all riparian states to manage the basin. According to this approach, the river basin should be managed in an integrated and united economic unit. This will be achieved by establishing a basin institution or implementing a common policy by all riparian states.[170] If a transboundary basin enjoys a high level of cooperation, this approach is considered more logical and acceptable than other theories for several reasons. Firstly, it is more accurate compared to limited territorial sovereignty because the word "limited" may not be accepted by some states. Secondly, the basin is treated as a single unit in this approach. It also creates unity among riparian states and motivates them for collective work in the basin. Finally, the theory reflects the physical integration of the basin.[171]

The theory has a long history in customary international law. The idea of the theory was presented approximately one century ago. In the *River Oder* case, the PCIJ emphasized that the 'community of interests' should replace the previous understanding of transboundary rivers that were designed to favour upstream countries.

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[169] John Locke "An essay concerning the true original extent and end of civil government" (1948) Social contract at 24.

[170] McIntyre, above n 139, at 67.

[171] McCaffrey, above n 142, at 138.

The court explained as follows:[172]

> This community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian States in the user of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others.

Finally, the approach encourages all riparian countries to cooperate in managing the basin. According to this approach, joint actions, co-management, and governing the basin collectively can be used for managing the basin. As Locke explained a couple of centuries ago that:[173]

> God, who hath given the world to men in common, hath also given them reason to make use of it to the best advantage of life and convenience. The earth and all that is therein is given to men for the support and comfort of their being.

Therefore, transboundary river basins should be managed collectively among riparian states. A shared basin can observe and manage as a common pool. Finally, having one integrated and united basin organisation contributes largely to better management of the basin. However, the significant influence of nation-states on societies and individuals' imaginations convinced all that we live in separate independent sovereign states outside the ecological world. This thought led to overlooking and ignoring the ecological reality in the last two centuries. Despite the advantages of a community of interests theory, it is not accepted easily by upper stream countries, particularly the states that support the strong notion of sovereignty.

2.4 Sovereignty in the Anthropocene

Undoubtedly, sovereignty is one of the main challenges for transboundary river basins because it is linked with states' national interests. However, this situation has been shifting in recent decades, especially with growing awareness of global environmental changes. In the early period of the global concern for environmental issues, states took a strong approach to protect their sovereignty. For instance, Brazil was one of the countries that opposed the word 'shared' in relation to natural resources during the UN Conference on the Human Environment in 1972 in Stockholm. Brazil was contrary to

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[172] *Territorial Jurisdiction of Int'l Comm'n of River Oder (United Kingdom V Poland)*, above n 11, at 27.

[173] Locke, above n 96, at 134.

all arguments related to sharing resources in the 1970s and 1980s because the government was afraid that its sovereignty would be restricted by international conventions under the supervision of the UN.[174]

The close examination of principle 21 of the Stockholm Declaration illustrates that states were concerned about any restriction for their sovereignty. The first part of the principle reaffirms the sovereign rights of states to utilise their resources inside their national border under international law and the UN Charter. It explains that states have:[175]

> …the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Even though the second part of the principle urges states not to cause harm to their neighbours and the environment, sovereignty appears untouchable and is expressed strongly. Thus, most UN institutions avoided working with transboundary river basins and could not achieve progress in the 1980s and 1990s regarding this issue.[176]

However, international awareness of global environmental changes is rising in this century. Scientific proof is also motivating and shaking governments to prepare for the rapid changes in the climate. According to research that took a decade, fresh surface water and groundwater are also experiencing critical changes. Among the thirty-seven giant aquifers in different parts of the world, twenty-one of them have already exceeded the sustainability point. This means the amount of water extracted is more than the amount that gets into these aquifers in the study period between 2003 and 2013. More seriously, thirteen of them are in a threatening situation that leaves significant long term and negative impacts on these aquifers because they need thousands of years to fill up again.[177]

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[174] Asit K Biswas "Management of transboundary waters: an overview" in *Management of transboundary rivers and lakes* (Springer, 2008) at 8.

[175] Declaration of the United Nations conference on the human environment 1972 principle 21.

[176] Biswas, above n 174, at 8-10.

[177] Todd C. Frankel "Nasa data shows the world is running out of water" (2015) The Independent <https://www.independent.co.uk/environment/nasa-data-shows-the-world-is-running-out-of-water-10325188.html>.

Thus, the absoluteness of sovereignty, which Bodin, Hobbes, and Austin claimed, is not acceptable in the modern global legal and political system. The EU is an obvious example of the non-absoluteness of the sovereign system because the EU members agree to transfer most of their sovereign rights to the EU institutions. The EU, not the members, governs several issues such as trade, social welfare and monetary policies.[178] Limiting sovereignty and transferring some of what is known as sovereign rights to other actors at the national and supernational will impact international environmental and water management effectiveness. This will also be crucial for enhancing enforcement and compliance with environmental law.[179] This can be achieved in two primary methods: transferring the power to international institutions and internal actors inside the state.

This does not mean that the post-sovereign world is coming and will exclude sovereign states as one of the main actors for transboundary environmental issues, because sovereign states will remain important for two reasons for the world and the international community. Firstly, sovereignty is vital to maintaining international order. Secondly, leaders and political elites need sovereignty to use it as a political weapon during their disputes.[180] Thus, it is hard to convince politicians to relinquish their power over people and territory. States and state leaders hardly resist maintaining control and remain the main actor in the intentional order. Still, the environmental and climate issues encourage and require all to reform the meaning and understanding of sovereignty, particularly in the Anthropocene.

Sovereignty should be reframed to meet rapid environmental changes and challenges. It means other actors need to take their role in this regard. Sovereign states, and other actors (such as internal actors inside states and international organisations) should be the main decision-makers for designing and implementing environmental and water policies. Three main characteristics demonstrate that post-sovereign thought should be a part of environmental and water management. The first characteristic is non-

[178] Philpott, above n 72.

[179] Rüdiger Wolfrum, R WOLFRUM and Nele Matz *Conflicts in international environmental law* (Springer Science & Business Media, 2003) at 163.

[180] Michael Ross Fowler and Julie Marie Bunck *Law, power, and the sovereign state: the evolution and application of the concept of sovereignty* (Penn State Press, 2010) at 32.

exclusivity in water management. This characteristic means that states are not the only actors in managing transboundary river basins. Other actors need to play their role as co-designer and co-implementer for environmental issues. Thus, the role of states is not dismissed, but part of their role is transferred to other actors.[181]

Secondly, the non-hierarchical decision-making is another fundamental characteristic for managing environmental issues in this century. Traditionally, states were the main actor in the decision-making process of river basin management. State leaders would decide at the top of the governmental level, and other organs of states at lower levels would implement these policies.[182] However, the role of states is decreasing as the central and only actor to command water management. With the development of integrated river basin management in the last century, the hierarchical role of the state has altered. As river basin management is a social, political, economic, and technological process, the state, alongside other actors, should decide about it collaboratively.[183]

Thirdly, post-territorial responses is another significant characteristic for issues of transboundary river basin management. Most of the environmental issues in this century are crossing sovereign borders at all events, and they are not bound by sovereign territories. Thus, the solution for these issues should be broader than the borders of sovereign states.[184] In the period between the Second World War and the 1980s, states attempted to solve most issues inside their territorial boundaries. The power of sovereign states was centrally designed and planned for dealing with many issues in society. However, this approach is considered an obstacle for addressing many issues and, more specifically, environmental issues.[185]

2.5 Sovereignty at the triple-level

Despite the fact that sovereignty is a significant challenge for managing transboundary

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[181] Bradley C Karkkainen "Post-sovereign environmental governance" (2004) 4(1) Global environmental politics at 75-76.

[182] At 76.

[183] Iskandar Abdullaev and Shavkat Rakhmatullaev "Transformation of water management in Central Asia: from State-centric, hydraulic mission to socio-political control" (2015) 73(2) Environmental Earth Sciences at 851.

[184] Karkkainen, above n 183 at 77.

[185] Dave Huitema and Sander Meijerink "The politics of river basin organisations: institutional design choices, coalitions and consequences" in *The Politics of River Basin Organisations* (Edward Elgar Publishing, 2014) at 39.

rivers, sovereign states are still and will continue to be major actors in solving these environmental challenges with the cooperation of other non-state actors. Sovereign states are still attempting to keep their sovereign power over their natural resources. The UN International Law Commission Draft Articles on the Law of Transboundary Aquifers is the latest and good example of emphasizing sovereignty over transboundary natural resources, but according to international law. Even though the language of article 3 is designed to convince sovereign states to accept the draft, the document remains as a draft after thirteen years.[186] Thus, the role of sovereignty and understanding sovereign states approaches and perspectives are crucial toward managing transboundary rivers on a different level.

In the absence of a basin agreement between Turkey, Iraq, and Syria over TE-RB management, absolute and limited sovereignty claims are still inevitable. The three states are not members of the UNECE Water Convention. Iraq and Syria are members of the UN Watercourses Convention, but Turkey has not joined it yet. The bilateral agreements and the Memoranda of Understanding (MoU) between the riparian states do not refer to the equitable utilisation and no harm principles.[187] Thus, Turkey is imposing sovereignty over the basin. In addition, sovereignty remains a sensitive and controversial topic for the riparian states in the TE-RB. The main reason for that is Turkey, Iraq and Syria were not established naturally. Major superpowers created them after the First World War. Before that time, the whole TE-RB was under the control of the Ottoman Empire. As the only inheritor of the Ottomans, Turkey was created and recognised by the Treaty of Lausanne in 1923.[188] The Treaty divided the Tigris and Euphrates among the new Turkish state and two new states, Iraq and Syria.

Imperial powers created Iraq and Syria after the First World War. Both countries are very diverse in terms of ethnicity, religion and culture. However, the two states were governed by political elites that repressed religious and minority groups. Thus, the two counties remained destabilized by internal and external forces.[189] In addition to both

[186] The United Nations International Law Commission Draft Articles on the Law of Transboundary Aquifers, art 3.

[187] Francesco Sindico "National sovereignty versus transboundary water cooperation: can you see international law reflected in the water?" (2021) 115 American Journal of International Law at 181.

[188] Veli Yadirgi *The political economy of the Kurds of Turkey: from the Ottoman empire to the Turkish republic* (Cambridge University Press, Cambridge, 2017) at 5-6.

[189] Raymond Hinnebusch "State de-construction in Iraq and Syria" (2016) Politische Vierteljahresschrift at 563-

Iraq and Syria's weak and failed political status, their geopolitical position as downstream countries granted more power to Turkey to impose almost absolute sovereignty over the basin. Thus, it is argued that Turkey is utilising the two rivers' water for its own benefit without taking other states into account.[190] As an upstream country, Turkey has repetitively claimed absolute sovereignty of the two rivers inside the country.[191] Thus, there is no cooperation or mechanism for the basin's management among riparian states.

In contrast, cooperative governance manages transboundary water issues inside the federal system, such as in MDB in Australia. The basin constitutes Murray and Darling rivers with several tributaries. It covers about one million km^2 in Australia. MDB has more than 3000 wetlands, and 11 of them are ranked among the significant wetlands of the Ramsar Convention.[192] As an independent institution, Murray-Darling Basin Authority (MDBA) has broad powers for managing the basin, for example the MDBA should be informed regarding any proposal or project related to the basin. The MDBA also has the responsibility to consider environmental impact assessments for these projects. Meanwhile, the Australian government has to provide sufficient information related to the basin.[193]

Thus, all relevant states and territories in Australia agreed to transfer their internal sovereign powers regarding the MDB management to the Commonwealth and its federal institution, the MDBA. However, the Aboriginal people have significant sovereign claims over the MDB as well, because they believe their traditions and customs have been ignored since colonialization.[194] The basin was home to Aboriginal people for thousands of years. Any action regarding management of the basin should therefore consider Aboriginal peoples in the decision-making process for

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[190] Aysegul Kibaroglu and others *Water Law and Cooperation in the Euphrates-Tigris Region: A Comparative and Interdisciplinary Approach* (Martinus Nijhoff Publishers, 2013) at 119.

[191] Waltina Scheumann "Conflicts on the Euphrates: An analysis of water and non-water issues" in *Water in the Middle East* (Springer, 1998) at 127.

[192] GR Marshall, Daniel Connell and Bruce M Taylor "Australia's Murray-Darling Basin" (2013) 1(3-4) International Journal of Water Governance at 236-237.

[193] Rosemary Lyster and others *Environmental and planning law in New South Wales* (Federation Press, 2012) at 315.

[194] Jessica K Weir *Murray River country: an ecological dialogue with traditional owners* (Aboriginal Studies Press, 2009) at 79-80.

management.[195] Thus, despite a mechanism for cooperation among Australian states and territories, sovereignty over the basin has not been shared with the traditional owners of the basin. Shared sovereignty for them means their rights, customs and values should be considered in the MDB management.

As well as TE-RB and MDB, the Waikato River has a transboundary nature within New Zealand. In the north of the Waikato region, the Waikato River's water is transferred to the Auckland region via pipes. One-third of Auckland's water supply is now provided by the Waikato River.[196] From the south of the Waikato Region, the River's flow is supplemented by the sources of the Whanganui River via the Tongariro diversion. The Tongariro Diversion Scheme, which is located in the Manawatu-Wanganui region, increased the Waikato River's water flow.[197] In addition, the Waikato River catchment has two features that grant it international significance. Firstly, the sources of the Waikato River, which fed on Tongariro National Park, is inscribed to the World Heritage list in 1993.[198] Secondly, the Whangamarino wetland is allocated in the lower Waikato is recognised as one site in the Ramsar List of Wetlands of International Importance.[199]

However, the Waikato River catchment is quite distinctive from TE-RB and MDB in terms of governance and sovereignty. Turkey favours absolute sovereignty in TE-RB and cooperative governance has been adopted in MDB. Still, subsidiarity governance is the main feature in New Zealand and regional councils have the power to manage water resources inside their regions.[200] As one of the councils, the WRC is responsible for managing the Waikato River according to national legislation and regional plans. Before the WRC, the Waikato Valley Authority was responsible for managing the River under the Waikato Valley Authority Act 1956. After enacting the Water and Solid

[195] Jessica K Weir "10. Water Planning and Dispossession" (2011) Basin futures at 188.

[196] See Watercare *Looking after our future: Annual report 2020* (2020).

[197] Roger Young, Graeme Smart and Jon Harding "Impacts of hydro-dams, irrigation schemes and river control works" (2004) Freshwaters of New Zealand at 37.2.

[198] Scientific and Cultural Organisation (UNESCO) UN Educational "Tongariro National Park" (2021) <https://whc.unesco.org/en/list/421/>.

[199] Department of Conservation "New Zealand wetlands of International Importance" (2021) <https://www.doc.govt.nz/about-us/international-agreements/ramsar-convention-on-wetlands/nz-wetlands-of-international-importance/>.

[200] Resource Management Act 1991, s 30.

Conservation Act 1967 (WSCA), the Authority's factions were extended to Catchment Board/Regional Water Board.[201]

The power and functions of regional councils, including WRC, were reaffirmed and expanded under the RMA 1991 to prepare regional plans and rules for managing water resources sustainably.[202] However, the role of the WSCA should not be disregarded in two areas. Firstly, "it suspended common law rights and vested access to freshwater in the Crown".[203] This is stipulated in s 21(1) of the WSCA.[204] Secondly, it allowed the public and Māori, in particular, to have their voices regarding resource consents and protect their interests in water resource management. As s 24(4) stated:[205]

> Any Council, Board, public authority, or person may.....lodge with the Board an objection to the application on the ground that the grant of the application would prejudice its or his interests or the interests of the public generally.

In the interpretation of the above section, the High Court in the *Huakina Development Trust V Waikato Valley Authority* case asserted that Māori groups can demonstrate their relationship to water.[206] The RMA also emphasised that regional councils should recognise the Māori relationship to water.[207] However, Māori iwi in the Waikato River were not satisfied until they reached an agreement with the Crow in the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (Settlement Act 2010).[208] The Act provides the co-management and co-governance between Māori iwi and the WRC.

Even though integrated management was introduced to water resources in the 1940s, water allocation and quality issues increased in the last few decades,[209] including in the Waikato River. For instance, dam constructions and overusing the upper Waikato River

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[201] Waikato Regional Council "The work we do" (2021) <https://www.waikatoregion.govt.nz/council/about-us/the-work-we-do/>.

[202] Resource Management Act 1991 at s 30.

[203] Daya-Winterbottom, above n 58, at 708.

[204] Water and Soil Conservation Act 1967 s 21(1).

[205] At s 24(4).

[206] See *Huakina Development Trust v Waikato Valley Authority* [1987] 2 188.

[207] Resource Management Act 1991 s 6(e).

[208] See Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

[209] HC Perkins and PA Memon (eds) *Environmental Planning in New Zealand* (Dunmore Press, Palmerston North, 2000) at 57-75.

lands for farming led to increasing nitrogen levels into the Waikato River. This increase of nitrogen in the river harms the river's water quality.[210] Studies emphasize that the groundwater of farming lands has a higher volume of nitrogen compared to other lands. Nitrogen is essential for rivers, but the overload of nitrogen remarkably affects the river's ecosystem for an extended period.[211] A study on the Waikato River found that human and ecological factors have participated in a nutrient loss of the river and its lakes and reservoirs.[212] It is suggested that co-management is a suitable method for managing the Waikato River. This approach can achieve major success if indigenous rights are considered in this management.[213]

2.7 Conclusion

As a fundamental part of the thesis, this chapter has evaluated the theoretical background surrounding the issue of sovereignty of transboundary river basins. The term sovereignty is crucial because all the claims and counterclaims for managing these basins are based on sovereignty. This concept has ancient roots that go back to the Sumerian civilization. Sovereignty has developed, and the meaning of the term has changed throughout history. Since the formation of the state in the early stages of history, sovereignty has been practised. The Sumerians practised the notion of sovereignty in their city-states system. However, the ideas and concepts of sovereignty were developed philosophically by Bodin and Hobbes in the sixteenth and seventieth centuries. Subsequently, it was profoundly illuminated by Bentham and Austin. All these scholars concentrated on the absoluteness of sovereignty.

With the developing nation-states in the last two centuries, and more particularly in the twentieth century however, the concept arose in a more robust version, particularly regarding the management of shared resources. Thus, while states claimed the absolute version of sovereignty strongly in the last century, the evolution of international law has challenged the absoluteness claims of sovereignty. The issue of transboundary harm

[210] See Channa Rajanayaka and others "Assessing changes in nitrogen contamination in groundwater using water aging: Waikato River, New Zealand" (2020) 234 Journal of Contaminant Hydrology.

[211] Thomas Bournaris and others "Economic Analysis of Reducing Diffuse Nutrient Discharge into Water Bodies" in *Economics of Water Management in Agriculture* (CRC Press, 2014) 129-157 at 145.

[212] See Richard B Alexander and others "Estimating the sources and transport of nutrients in the Waikato River Basin, New Zealand" (2002) 38(12) Water resources research.

[213] Linda Te Aho "Indigenous challenges to enhance freshwater governance and management in Aotearoa New Zealand-the Waikato river settlement" (2010) 20(5) Journal of Water Law at 292.

had a pivotal role in this regard, and was emphasized in the *Trail Smelter* case in 1941. In the case, the court of arbitration confirmed that state actions inside its sovereign borders should not cause harm to neighbours and other states. This is a fundamental principle of international environmental law for issues related to transboundary river basin management.

These are four main theories for the management of transboundary river basins. The first theory is absolute territorial sovereignty, which emphasizes the absolute power of upstream countries to manage shared resources. In this theory, concerns of downstream countries are dismissed. In contrast, absolute territorial integrity deprives states of changing the natural flow of the transboundary rivers. Both theories do not support any sources of IEL because they do not provide a solution for shared resources. Therefore, limited territorial sovereignty is presented as a solution to the issue. The majority of international conventions, cases, rules and legal scholars have supported the theory because it creates a balance between upstream and downstream countries. The theory rejects absolute sovereignty over shared resources and requires riparian countries to share them equitably and reasonably.

Therefore, with increasing awareness of environmental and climate issues, sovereignty has altered to meet these challenges. In particular, sovereign states are and will be effective actors for IEL and transboundary river basin management. However, the sovereignty claims over transboundary river basins and the claims raised, particularly by upstream countries are not logical in the Anthropocene. Transferring some sovereign rights to the actors at both top and bottom levels is a fundamental approach for sustainable management of international watercourses. As effective actors in the top level and communities and other actors inside sovereign states at the bottom governance level, international institutions can substantially settle transboundary issues.

Chapter Three: Integrated management and the two principles

3.1 Introduction

This chapter focuses on river basin management and integrates this approach with the two fundamental principles of the IEL: equitable utilisation and minimisation of environmental harm. The definition, approaches, and mechanisms of river basin management will form the first part of this chapter because it is impossible to apply the two principles without adopting an integrated approach for basin management. Hence, integrated river basin management as a practical approach for managing basins will be addressed at the beginning of the chapter. For evaluating the approach critically, two major examples, the US and EU, will be discussed.

The second part of the chapter clarifies the principle of equitable utilisation from the perspective of IEL and customary international law. The principle will be explained in the context of vital legal documents related to transboundary rivers. The Helsinki Rules, the Stockholm Declaration, the Berlin Rules, the UNECE Water Convention, and the UN Watercourses Convention are considered significant legal bases for internationally evaluating this principle.

The third and last part of this chapter will discuss what is implied by minimising environmental harm and the position of this principle in international environmental law. In addition to the UN Watercourses Convention, the Helsinki Rules and the Berlin Rules, this principle will be evaluated in the light of the Ramsar Convention. Finally, this chapter will link with the previous one by addressing the relationship between these three fundamental principles and the concept of sovereignty. The last section provides NBS and concentration on basin management based on basin boundaries rather than political boundaries for effective implementation of the principles.

3.2 River basin management

Managing or governing a river's water has a comprehensive meaning far broader than just providing clean water.[214] Water management and river basin management, in

[214] Werner Brack and others "Toward a holistic and risk-based management of European river basins" (2009) 5(1) Integrated environmental assessment and management at 8.

particular, are considered global challenges because there is an imbalance between demand for water and its global availability. This is a significant challenge for water management because management should include economic and social sustainability together with protecting the river's ecosystem.[215] Thus, river basins can be managed as a cohesive unit consisting of all water, land, ecology, and people living within the basin's border. In this basin, upstream influences downstream and vice versa.[216]

According to the European Water Framework Directive 2000/60/EC (EU WFD), river basins can be defined as an "area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta."[217] Managing River basins has a long history. Since the beginning of civilization, communities have attempted to regulate water and river basins because the rivers were the primary source for developing agriculture. Early civilizations would not have survived and prospered without the management of their water resources. For instance, the Yellow River in China, the Nile in Egypt, and Tigris and Euphrates in Mesopotamia are considered significant river basins that enabled early civilizations to emerge and perpetuate.[218] More significantly, in the lower part of the TE-RB, the Sumerians were the first to manage both the basin and an advanced irrigation system. Lagash and Umma were Sumerian city-states that signed the first treaty related to river basin management in history.[219]

However, managing international river basins became more significant among riparian states during the nineteenth century. The establishment of the Danube Commission was an excellent step for managing river basins among riparian counties. The commission was established by the Paris Peace Treaty in 1856. Even though the commission's main focus was navigation, it was a significant achievement because the commission was an independent institution from all parties, and it had its own regulatory system. This was

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[215] Laurence Smith and others *Catchment and river basin management: integrating science and governance* (Routledge, 2015) at 3-5.

[216] Erik Mostert "River basin management and community: the Great Ouse Basin, 1850–present" (2018) 16(1) International Journal of River Basin Management at 51.

[217] Water Framework Directive "Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy" (2000) 22(12) Official journal of the European communities art 2.13.

[218] Terje Tvedt, Owen McIntyre and Tadessa Kasse Woldesadik *A History of Water: Sovereignty and International Water Law* (IB Tauris, 2015) at 33.

[219] Giordano and Wolf, above n 85, at 168.

a significant step towards cooperation among European countries for managing river basins.[220] This cooperation continued among riparian states in the last century. Thus, eleven riparian countries on the Danube River signed the Danube Convention in 1948. The convention entered into force in 1964 and established legal guidelines among Danube states to manage navigation and floods of the river together.[221]

Two major conferences followed this development in 1992. The International Conference on Water and the Environment in Dublin with the UN Conference on Environment and Development (Earth Summit) played a great role in developing an integrated approach for water resources at the basin level.[222] The Dublin Conference issued a statement that included guideline principles for water management. According to Principle No.1, a strategy should be developed to link all environmental, social and economic aspects of water management. It states:[223]

> Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

This development in the understanding of managing transboundary rivers at the basin level opened the door for more discussion regarding the environmental sustainability of river basins. Despite linking economic, social and ecological aspects of river basin management, the Dublin statement encouraged states to involve all various actors in decision-making to manage the basins. Principle No. 2 of the Statement, which involves local users, planners and policymakers, reinforced the decision-making process.[224] This was a considerable shift to move river basin management from a very narrow perspective that concentrates management inside the national border, to a broader perspective by managing them locally and internationally.

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[220] Josef L Kunz "The Danube Regime and the Belgrade Conference" (1949) 43(1) American Journal of International Law at 104-105.

[221] Libor Jansky, Nevelina I Pachova and Masahiro Murakami "The Danube: a case study of sharing international waters" (2004) 14 Global Environmental Change at 11.

[222] Christopher J Barrow "River basin development planning and management: A critical review" (1998) 26(1) World development at 171.

[223] The Dublin statement on water and sustainable development: International conference on water and the environment Principle No. 1.

[224] At Principle No. 2.

As a result, the UN and its organisations recognised this integrated approach as a global solution for transboundary basins. According to the UNDP, this approach is about the political, social and economic process that governmental and non-governmental institutions decide as the best mechanism for using water.[225] National borders do not limit this process, but also require social mobilization and public participation in this process. The process should start from the local level to the international level. Locally, the people who directly link with a river or basin are essential in favour of good water governance. Internationally, proper river basin management requires cooperation between riparian states in the basin to allocate water and decrease upstream and downstream tension.[226]

This integrated approach was suggested as a crucial solution for facing challenges in water management globally. This holistic approach is not only about supply management, but also involves demand management. It accounts for all factors that influence water management, from quality, recycling, ground and surface water to public involvement and environmental aspects.[227] The pressure of water scarcity and pollution in different parts of the world motivated the UN to formalise Integrated Water Resource Management (IWRM) in Agenda 21 of the Rio Declaration. According to the Agenda, IWRM:[228]

> … must cover all types of interrelated freshwater bodies, including both surface water and groundwater, and duly consider water quantity and quality aspects. The multisectoral nature of water resources development in the context of socio-economic development must be recognized, as well as the multi-interest utilisation of water resources for water supply and sanitation, agriculture, industry, urban development, hydropower generation, inland fisheries, transportation, recreation, low and flat lands management and other activities. Rational water utilisation schemes for the development of surface and underground water-supply sources and other

[225] UNDP "Water governance for poverty reduction. Key issues and the UNDP response to the Millennium Development Goals" (2004) <http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/water-governance/water-governance-for-poverty-reduction/UNDP_Water%20Governance%20for%20Poverty%20Reduction.pdf>.

[226] At 10.

[227] Herman Bouwer "Integrated water management for the 21st century: problems and solutions" (2002) 128(4) Journal of Irrigation and Drainage Engineering at 193.

[228] Janerio R De United Nations Conference on Environment & Development Ch 18.3.

potential sources have to be supported by concurrent water conservation and wastage minimization measures.

This point in Agenda 21 explains that three particulars should be accounted for in water resource management. Firstly, economic efficiency is significant to utilise water resources for various sectors to avoid water scarcity in the future. Secondly, social equality is considered another element for management to allocate water resources, provide gender equality and reduce the gap between different social classes. Finally, environmental protection and sustainability of water resources is the third and crucial area because the management of these resources could address recent challenges of climate change, energy and food stability. Therefore, to balance all three areas in water governance, water resources should be viewed as a public good with tremendous economic and social value. In this respect, water resources should be managed in a holistic approach, including the involvement of people related to these resources at various levels.[229]

In summary, river management is not a simple concept to just provide drinking water or use it for energy and navigation. The management should cover the whole river basin because it affects all people and riparian states. For many reasons, river basin management might not be sufficient if the basin is not managed by a cooperative and integrated approach. Firstly, managing the river basin requires significant cooperation among administrative and institutional bodies in the basin. Secondly, the cost of managing the whole basin could be substantial. Finally, the decision-making process and planning may be complicated in this method.[230] River basin management is now improved in an integrated and comprehensive process. This process is known as integrated river basin management, which will be addressed in the following section.

3.2.1 Integrated River Basin Management (IRBM)

The tendency to manage rivers in an integrated way that includes all aspects of the basin, from water to land and environment, traces back to the early twenty-first century

[229] Roberto Lenton and Mike Muller *Integrated water resources management in practice: Better water management for development* (Routledge, 2012) at 7.

[230] Mark Svendsen *Irrigation and river basin management: Options for governance and institutions* (CABI, 2005) at 3.

in the US.[231] The earliest project for managing river basins in the integrated method was the Tennessee Valley Authority (TVA). The Tennessee Valley is considered the first and most significant project for the management of the river basin. This project includes a great part of the US's land area. It has significant regional and global impacts because the project broadened the concept of basin management.[232] For managing the Tennessee Valley project, President Franklin D. Roosevelt established the TVA in 1933. The US government invested about $20 billion in the project between 1934 and 2000. The main ambition of the project, in the beginning, was economic development, but the TVA has a great environmental focus now.[233] For example, the TVA adopted a new environmental review process that is consistent with international environmental standards and new policies for protecting the environment and stewardship.[234]

The integrated approach can be illustrated through two principal interpretations. Firstly, it is a comprehensive approach because the river basin is managed on a large scale. Secondly, it is an integrated approach because it chooses the primary variable and management aspects to determine their relationship among them.[235] This new approach for managing river basins is known as Integrated River Basin Management (IRBM). The IRBM is defined as "comprehensive water management approach that aligns multiple objectives in a river basin across different spatial scales and temporal dimensions." [236] This definition presents the technical aspects of river basin management, but it does not adequately explain the approach. In summary, IRBM:[237]

> … is the process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin, in order to maximise the economic and social benefits

[231] Farhad Mukhtarov and Aleh Cherp "The hegemony of integrated water resources management as a global water discourse" (2014) River basin management in the twenty-first century: Understanding people and place at 4-5.

[232] Bill Adams *Green development: Environment and sustainability in a developing world* (Routledge, 2008) at 218.

[233] Patrick Kline and Enrico Moretti "Local economic development, agglomeration economies, and the big push: 100 years of evidence from the Tennessee Valley Authority" (2013) 129(1) The Quarterly Journal of Economics at 282.

[234] See Jon M Loney and others "Integration of the national environmental policy act into a comprehensive environmental management system: the Tennessee Valley authority experience" (2003) 5(4) Environmental Practice.

[235] Robert-Jan den Haan and others "Understanding actor perspectives regarding challenges for integrated river basin management" (2019) 17(2) International journal of river basin management at 229.

[236] Jeroen Rijke and others "Room for the River: delivering integrated river basin management in the Netherlands" (2012) 10(4)at Cited Pages at 371.

[237] Global Water Partnership Technical Advisory Committee "Integrated water resources management" (2000) 4 TAC Background papers at 22.

derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems.

This definition provides essential elements for the IRBM. The river and all surrounding areas of the river and the whole basin should be managed collectively. The management should also take into account the economic, social and environmental aspects of the basin. Therefore, the IRBM is distinguished by two main characteristics. Firstly, the IRBM is integrated and involves water, land and all-natural resources related to the river. Secondly, the success of this mechanism can be achieved through coordination between different institutions and actors.[238] Subsequently, managing river basins on a large scale would not be enough if it is not combined with the participation of all the actors around the basin, from local people to the decision-makers in the states. This process can be reinforced by establishing reliable and effective institutions from the basin level to consider various aspects and allow all the actors in the basin to participate.[239]

Decentralisation and participation in the lower level of decision making are crucial for the integrated approach. These elements increased the practice of the approach and made it attractive worldwide, which increased the implementation of this approach globally.[240] In a survey carried out by UN-Water on more than 130 countries globally, the approach is being adopted and implemented increasingly worldwide. Approximately eighty per cent of all 130 countries that responded to the survey have implemented or reformed the IRBM since 1992. Despite growing in implementing the IRBM, governments and non-government organisations need to take lessons from previous applications of the IRBM projects.[241]

One of the main lessons that can be learned in the previous practice of the IRBM is that it should involve experts in different sectors. IRBM may not provide its remarkable outcomes if only water or engineering experts supervise it. The approach should involve environmental, legal, and technical experts with local people in the basin and the whole process of decision making. Thus, the IRBM objectives will be achieved when the

[238] Jeroen Warner *Multi-stakeholder platforms for integrated water management* (Ashgate Publishing, Ltd., 2007) at 34.

[239] Jadwiga R Ziolkowska and Jeffrey M Peterson *Competition for water resources: experiences and management approaches in the US and Europe* (Elsevier, 2016) at 16.

[240] UN Water *Status report on the application of integrated approaches to water resources management* (2012) at 14.

[241] At 8.

government sets rules and regulations related to water management and opens the door for society to participate in different levels. The IRBM can therefore achieve social, economic and environmental objectives of water management.[242]

At the IRBM's implementation stage, policymakers or people who govern a river basin should consider two main concepts. These are ecological sustainability and institutional sustainability, essential terms in the EU WFD. Both of them are crucial to the long term management of water resources under the EU WFD. Ecological sustainability means that water resources should be utilised in a positive way for both the ecosystem and humanity. It is concerned with maintaining a "good status" for all kinds of water resources in Europe. Thus, the quality and quantity of water should meet the needs of present and future generations.[243] Ecological sustainability also applies to all EU members, including the EU candidates, such as Turkey, which should attempt to implement it in all 25 river basins in the country.[244]

Institutional sustainability could be accounted as a secondary to ecological stability. The term refers to the availability and equitable provision of water resources for all users. This utilisation of water resources should also meet the requirements for future generations. Despite the recognition of water rights for different users, institutional sustainability should drive the regulation of water policy. In the IRBM, institutional sustainability has a crucial role because it refers to the participation of various actors in designing water policy and management in river basins. In this approach, the IRBM will include all aspects of the river basin.[245] As these elements are pivotal for the IRBM, they can be implemented globally. Hence, there is a possibility to apply the approach to non-European countries, but this requires political will, strong monitoring capacity and legal or legislative support.[246]

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[242] Jorge Arturo Hidalgo-Toledo, Cipriana Hernández-Arce and Sergio Vargas-Velázquez "River Basin Organization, the Best Path Towards Integrated Water Resources Management?" in *Water policy in Mexico* (Springer, 2019) at 153-169.

[243] Hans Bressers and Stefan Kuks "Integrated governance and water basin management" in *Integrated Governance and Water Basin Management* (Springer, 2004) 247-265 at 7.

[244] Bülent Selek and Zeliha Selek "River Basin Management" in *Water Resources of Turkey* (Springer, 2020) at 445-465.

[245] Bressers and Kuks, above n 243, at 8.

[246] Sonja Heldt and others "Is the EU WFD suitable to support IWRM planning in non-European countries? Lessons learnt from the introduction of IWRM and River Basin Management in Mongolia" (2017) 75 Environmental Science & Policy at 35.

Finally, the success of the IRBM in the transboundary basins also depends on the effectiveness of water governance of the basin, which includes political, economic, social and administrative systems. The IRBM should meet the basic needs of all actors while simultaneously maintaining the basin's sustainability. This goal would be achieved through an agreement among participants for setting the objectives and procedures of basin management.[247] The Rhine River basin may be one of the successful examples of following the IRBM approach. Nine major states of Europe share a basin, which covers an area of 200,000 km^2. The basin is the primary source of freshwater for sixty million people in the basin.

Two significant factors had a critical role in the success of IRBM among the riparian states in the Rhine River basin. Firstly, the political will of the riparian states. Secondly, public pressure forced politicians to create mutual objectives to protect the basin.[248] The riparian states established the International Commission for the Protection of the Rhine (ICPR) in 1950, but the Sandoz accident in 1986 with two floods in 1993 and 1995 had considerable influence on the public and politicians to take more effective measures. Thus, political willingness and public participation played a vital role in pushing riparian states to meet at a high level and establish a common interest in managing the basin. As a result of this firm and integrated cooperation, the Rhine is the most prominent river basin for water quality in the whole of Europe.[249]

Furthermore, the concept of the IRBM may be illustrated profoundly with some applications of IRBM worldwide. The earliest and broadest examples of these are the Clean Water Act of the US and the EU WFD.

(a) American approach: Clean Water Act

The US is an exemplar for implementing IRBM in a substantial and broad context because the idea of managing water in an integrated approach started with the TVA in 1933. The TVA covered many aspects of water management from navigation,

[247] Vasudha Pangare and others *Global perspectives on integrated water resources management* (Academic Foundation, 2006) at 45.

[248] Anne Schulte-Wülwer-Leidig and others "Transboundary Cooperation and Sustainable Development in the Rhine Basin" in Dejan Komatina (ed) *Achievements and Challenges of Integrated River Basin Management* (IntechOpen, London, UK, 2018) at 123.

[249] At 123.

hydropower, flood control, welfare, and public health.[250] The TVA and IRBM share many elements. Both of them attempt to manage water resources in an integrated method to cover the management of social, economic, and environmental goals.[251] More importantly, the US experience proves that limiting the sovereignty of the states inside a federal system can enable them to cooperate more effectively regarding proper transboundary management.

As the US is a federal government, states can manage water resources inside their state borders.[252] Notably, the western states claimed ownership of water resources inside the state borders. They believed that their power was primary, not federal power. However, when their water policy could not achieve major success, the federal government filled this deficiency by enacting federal legislation, including the Federal Water Pollution Control Act Amendments 1972 or the Clean Water Act (CWA).[253] However, this does not mean that the federal government has to supervise all water management processes in all states. States can still develop solutions by participating with the public and communities with the support of related federal agencies.[254]

After enormous pressure from various institutions in the US regarding water pollution, Congress issued the CWA in 1972 to restore and protect water resources in the US in respect of ecological, physical, and chemical integrity.[255] The CWA is considered a significant act to apply IRBM at the national level. This Act has achieved success in improving water quality and minimizing environmental harm in rivers and lakes in the US.[256] For instance, "the share of waters that met standards for fishing" increased by 12% since the Act's enactment until 2001.[257] In addition, the WCA stated that "The

[250] See Bruce Mitchell "Integrated water management: international experiences and perspectives" (1990).

[251] WB Snellen and A Schrevel "IWRM: for sustainable use of water 50 years of international experience with the concept of integrated water management" (2004) Ministry of Agriculture, Nature and Food Quality at 4.

[252] K Hansen "Meeting the Challenge of Water Scarcity in the Western United States" in *Competition for Water Resources* (Elsevier, 2017) 2-18

[253] David H Getches "The metamorphosis of western water policy: have federal laws and local decisions eclipsed the states' role" (2001) 20 Stan. Envtl. LJ at 17-20.

[254] At 12.

[255] Robert W Adler, Jessica C Landman and Diane M Cameron *The clean water act 20 years later* (Island Press, 1993) at 2.

[256] William L Andreen "Water quality today-has the clean water act been a success" (2003) 55 Ala. L. Rev. at 539.

[257] David A Keiser and Joseph S Shapiro "Consequences of the Clean Water Act and the demand for water quality" (2019) 134(1) The Quarterly Journal of Economics at 352.

objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[258] Empirical studies prove that all types of water pollution were reduced after the enactment of the CWA.[259]

The Act intensively focused on two water management areas: the quality of surface water and drinking water. The CWA is considered a successful example in comparatively improving water quality in these two areas, but the improvement was insufficient because groundwater and the quality of groundwater do not have a high position inside the Act.[260] While the US has succeeded in cleaning many waterways by limiting water pollution from industries and establishing water treatment plants, the water quality is still in a poor state. Many of the rivers and lakes in the country are not clean, and they are not suitable for swimming and fishing.[261] Thus, integrating the IRBM into the TVA and enacting the CWA were significant steps, but the outcome of these initiatives has not been promising.

The main reason for the lack of progress is that enacting a law may not be sufficient if strong institutions do not parallel it. For supporting all the laws and regulations related to water management and environmental protection, US President Richard Nixon established the Environmental Protection Agency (EPA) in 1970. The EPA is considered the largest federal agency for the environment in the US, and it governs more than twenty statutes, including the CWA. The agency has a significant role in implementing the CWA and monitoring water management in all states in the US.[262] In addition to river basins, the EPA also monitors all lakes and reservoirs in the US. The CWA guides all states in the US to submit their reports every six months to the EPA regarding their water quality standards. Furthermore, the CWA requires all states to meet the federal standard of all waters. However, they could not reach the standards because states also have to apply Total Maximum Daily Loads (TMDLs) for their

[258] Federal Water Pollution Control Act Amendments sec 101(a).

[259] Keiser and Shapiro, above n 257, at 352.

[260] John A Hoornbeek "Policy-making institutions and water policy outputs in the European Union and the United States: a comparative analysis" (2004) 11(3) Journal of European Public Policy at 488.

[261] RW McDowell and others "A review of the policies and implementation of practices to decrease water quality impairment by phosphorus in New Zealand, the UK, and the US" (2016) 104(3) Nutrient cycling in agroecosystems at 292-293.

[262] Susan Hunter and Richard W Waterman *Enforcing the Law: Case of the Clean Water Acts: Case of the Clean Water Acts* (Routledge, 2016) at 23.

waters, but "agricultural nonpoint sources" are excluded from TMFLs under the CWA. According to the CWA, the TMDLs are the maximum standard permitted for polluted water. The states therefore have a responsibility to take action to restore their polluted water.[263]

Additionally, applying the TMDLs was not an ideal solution for minimizing environmental harm to the US waterways. States could not comply with these standards unless they invested considerably in water pollution. Since the Act's enactment, the US government and its agencies have spent more than a trillion US Dollars on water pollution.[264] Besides, there is no comprehensive evaluation to discover the Act's impact in changing the water status in the US.[265] The EPA's centralized water management and policy is one of the factors for hindering the CWA's objectives. The Act defined "Basin" as including "but is not limited to, rivers and their tributaries, streams, coastal waters, sounds, estuaries, bays, lakes, and portions thereof, as well as the lands, drained thereby."[266] As this definition is broad, the EPA has to leave the Act's implementation to state authorities because the federal agencies cannot manage all basins directly.

Moreover, as the federal authorities did not have the power to enforce states to follow the EPA instructions, and the states did not implement the CWA effectively.[267] For instance, water infrastructure, water supply and pipelines are critical in some states, but states authorities' responses to these issues were understated. This is a grave issue because the old infrastructure of the water supply can cause severe health problems.[268] In Flint city, Michigan, the city council did not apply erosion control effectively when they supplied water from the Flint River. This was an apparent breach of the CWA because this caused health issues for half of the residents in the city. This severe issue led to a lawsuit, and a court confirmed the responsibility of many officials from the

[263] McDowell and others, above n 261, at 293.

[264] David A Keiser and Joseph S Shapiro "Consequences of the Clean Water Act and the demand for water quality" (2018) 134(1) The Quarterly Journal of Economics at 350-351.

[265] Adler, Landman and Cameron, above n 255, at xi.

[266] Federal Water Pollution Control Act Amendments , s 103(3).

[267] Katherine K Grooms "Enforcing the Clean Water Act: The effect of state-level corruption on compliance" (2015) 73 Journal of Environmental Economics and Management at 51-52.

[268] Michael R Greenberg and Dona Schneider *Environmental Health and the US Federal System: Sustainably Managing Health Hazards* (Routledge, 2019) at 57-58.

EPA, Michigan state and Flint city for creating this health crisis.[269]

Finally, the CWA's effectiveness is generally still questionable in the US. For instance, more than twenty-five states have claimed to leave the Act. Thus, President Obama presented a Clean Water Rule proposal for reinstating the Act and related regulations in 2015.[270] With all critics, the establishment of the TVA and enacting the CWA are considered as a significant transformation of water resources management and river basins because they had a global impact, and the integrated approach has transferred to other jurisdictions. After the US experience, many countries attempted to follow this experience to develop their water resources. The UN and the World Bank also motivated developing countries in this regard.[271] The US is a notable case. Lessons can be taken from the US because it has a long history of legislation and implementation related to water management. Countries can follow this experience by taking positive points and avoiding negative ones despite the shortcomings noted above.

(b) European approach: Water Framework Directive

The European Water Framework Directive 2000/60/EC (EU WFD)[272], for managing water in the EU, was developed and adopted under the influence of the CWA in the US. Both the EU WFD and the CWA are advanced compared to laws and regulations in other countries to manage water resources.[273] The EU WFD was published in 2000 after approval by the European Parliament. The directive imposes several regulations and guidelines for EU member states to follow in managing their water policy. The EU WFD was intended to maintain all European river basins in a functional status by 2015.[274] For achieving its aims, the Directive adopted an integrated approach in managing water resources in the EU. As a result, the IRBM is highly discussed among scholars in the context of WFD in the European Union.[275]

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[269] At 58.

[270] Keiser and Shapiro, above n 264, at 351.

[271] See Vincent Lagendijk "Those Dam (n) Experts: The International Expertise of the Tennessee Valley Authority" (2017).

[272] Directive, above n 217.

[273] Hoornbeek, above n 260, at 488.

[274] Fred F Hattermann and Zbigniew W Kundzewicz *Water Framework Directive: Model supported Implementation* (Iwa Publishing, 2009) at 5.

[275] See: Joanne Scott and Jane Holder "Law and new environmental governance in the European Union" (2006)

The IRBM was designed to be a global approach for responding to the global water crisis, but its application remained in the US for decades. Adoption of the approach by the EU was a significant step because IRBM was transferred to the global level via a legal document.[276] The EU WFD implemented IRBM into the law of EU member states. These states had a diversified and fragmented water policy before they were unified under the Directive.[277] Thus, the EU WFD as a legal text can be considered as a successful example of applying IRBM to these factors. Firstly, the Directive applied a river basin management approach across various sovereign borders inside the EU. Secondly, "through the combination of chemical and ecological goals, it integrates the environmental regulation of industrial, household and agricultural water pollution."[278] Thirdly, the EU WFD demonstrates the significance of limiting sovereignty over transboundary river basins to establish cooperative and integrated management of these basins.

Fourthly, the EU WFD insists on pivotal principles in water management, including equitable utilization, minimization of environmental harm, protecting groundwater, analyzing and illustrating water utilization with cost recovery of these resources economically. Finally, the Directive has a strong urge to cover the social and economic aspects of water management. Despite concentrating on achieving a good status for EU waters, it encourages all EU members to involve the public in managing these resources. However, the success of the EU WFD depends on EU members to implement the principles and objectives of the Directive.[279]

Law and new governance in the EU and the US;

Brian Moss "The Water Framework Directive: total environment or political compromise?" (2008) 400(1-3) Science of the total environment;

Henrik Josefsson and Lasse Baaner "The Water framework directive—A directive for the twenty-first century?" (2011) 23(3) Journal of environmental law;

Theodoros Giakoumis and Nikolaos Voulvoulis "The Transition of EU Water Policy Towards the Water Framework Directive's Integrated River Basin Management Paradigm" (2018) Environmental management

[276] Snellen and Schrevel, above n 251, 4-6.

[277] Muhammad Mizanur Rahaman, Olli Varis and Tommi Kajander "EU water framework directive vs. integrated water resources management: The seven mismatches" (2004) 20(4) International Journal of Water Resources Development at 568-569.

[278] Marleen van Rijswick and Andrea Keessen "The EU Approach for Integrated Water Resource Management: Transposing the EU Water Framework Directive within a national context–key insights from experience" in *Routledge Handbook of Water Law and Policy* (Routledge, 2017) at 51.

[279] At 61.

Article 11 of the Directive encourages all state members to take appropriate measures within their borders for managing water resources of the country and states:[280]

> Each Member State shall ensure the establishment for each river basin district, or for the part of an international river basin district within its territory, of a programme of measures … Such programmes of measures may make reference to measures following from legislation adopted at national level and covering the whole of the territory of a Member State.

According to the article, the EU members are responsible for taking necessary measures to sustainably protect their waters. For achieving that, members require a program of measures. They have to evaluate their current water status and compare it to a good status required by the Directive. By finding the gap between the current and desired states, they can design their programs of measures for the future development of their waters.[281] This idea for protecting and restoring the quality and quantity of water resources dates back to the EU Ministerial Seminar in Frankfurt in 1988. Consequently, several Ministerial seminars during the 1990s led to revising the Council Directive 80/68/EEC, which covered groundwater only and proposed new legislation for the whole of Europe.[282] The EU WFD was adopted in 2000 to replace several other directives and establish clear rules and guidelines for EU members.[283]

The Directive has four main objectives, which were supposed to be achieved by 2015. First is the achievement of "good status" for all ground and surface water resources of the EU states. This is reaffirmed in several places of the preamble and the articles of the EU WFD. This means all waters should remain in a good chemical and ecological status, plus limiting the abstraction of groundwater.[284] The second involves adopting the river basin approach and dividing the whole EU territory into several unified river basin districts. These river basin districts are managed according to river basin

[280] Directive, above n 217, art 11.

[281] T Giakoumis and N Voulvoulis "Water Framework Directive programmes of measures: Lessons from the 1st planning cycle of a catchment in England" (2019) Science of The Total Environment at 904.

[282] Directive, above n 217.

[283] Jasper JH van Kempen "Countering the obscurity of obligations in European environmental law: an analysis of Article 4 of the European Water Framework Directive" (2012) 24(3) Journal of Environmental Law at 500.

[284] Directive, above n 217, art 8.

management plans designed by EU members.[285] The third is the development of an integrated system for river basin management and covering all aspects and issues of water policy. Finally, EU states must ensure public participation through the involvement of all actors in public consultation and sharing of information.[286]

Furthermore, the EU WFD has developed several essential and historical points in water resource management. Firstly, the role of sovereignty has weakened in the management of river basins, especially for international river basins. In Article 13, the Directive obliged member states to manage river basins according to a single river basin management plan. For basins that extend outside of the EU's territory, member states should also coordinate with other states to establish a single plan for the basin. If they cannot, they have to produce a plan for the basin area inside EU territory.[287] This is a significant step towards managing river basins according to river basin borders, rather than state borders.

Secondly, the EU WFD principles have been transposed into local legislation of EU members. This is an important step toward establishing a single and unified legal approach in water resource management for the whole of Europe. To achieve that, the Directive requires all member states to change the performance and procedures of water resource management to be consistent with the Directive's principles.[288] This is illustrated in the preamble of the EU WFD that states:[289]

> Full implementation and enforcement of existing environmental legislation for the protection of waters should be ensured. It is necessary to ensure the proper application of the provisions implementing this Directive throughout the Community by appropriate penalties provided for in Member States' legislation. Such penalties should be effective, proportionate and dissuasive

This paragraph obliges the member states in the EU to follow all of the Directive's principles, with penalties for members who do not comply. Even though the Directive put pressure on members to achieve the objectives of the EU WFD by 2015, compliance

[285] At 217, art 3.

[286] At 217, art 14.

[287] At 217, art 13.2.

[288] Dimitros Zikos and Konrad Hagedorn "Competition for water resources from the European perspective" in *Competition for water resources* (Elsevier, 2017) 19-35

[289] Directive, above n 217, Preamble (53).

was deferred to two other six-year cycles. Thus, these objectives are projected to be achieved in the second cycle by 2021 and the third cycle by 2027.[290] As the Directive is supervising more than 11,000 surface and 13,000 groundwater bodies, achieving all objectives on time is still challenging. Additionally, many delays were observed in the latest report of the EU Commission. Thus, the progress and achieving of the EU WFD goals on time is still questionable.[291]

Finally, public participation has been confirmed as a significant part of the EU WFD. According to article 14 of the Directive, all member states are responsible for informing the public regarding drafting and reviewing each river basin plan. For example, consultation with the public should start three years before producing the basin plans. Draft plans should also be available for the public at least one year before the plan becomes operative.[292] These timeframes in the Directive are quite significant because they allow the public to access all information related to their river basin management plans. This is also important to transfer the integrated approach of water management from theory to practice.

However, informing the public and communities is not adequate in IRBM if all society groups do not participate in decision-making. The integrated approach should have broader objectives that the EU WFD does not cover. The directive does not cover all aspects of IRBM because the EU WFD has dismissed many significant issues such as gender, poverty and building capacity. [293] While the EU WFD is considered one of the most comprehensive tools for governing water policy, maintaining a good ecological status in river basins is not an easy task. According to a recent study, the EU WFD has failed to achieve good ecological status for approximately sixty per cent of surface water in Europe.[294] Thus, the Directive had to delay the 2015 deadline for measuring

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[290] See European Community Commission "Commission Staff Working Document, European Overview (2/2) Accompanying the Document "Report From the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC) River Basin Management Plans". COM (2012) 670 Final" (2012).

[291] See European Community Commission *Commission Staff Working Document, European Overview - River Basin Management Plans, Accompanying the Document "Report From the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC), Second River Basin Management Plans, First Flood Risk Management Plans". SWD(2019) 30 Final* (2019).

[292] Directive, above n 217, art 14.1, 3.

[293] Heldt and others, above n 246, at 35.

[294] Annette Baattrup-Pedersen and others "The future of European water management: Demonstration of a new

programs related to achieving good ecological status to 2027 or later.[295]

Despite obstacles to achieving a good status in many basins in Europe, there is a potential to implement the Directive principles outside of the EU. However, the social and environmental conditions of many countries are not similar to Europe. These conditions are not even the same in all European countries. The Directive's principles can be implemented in environmentally friendly countries, but it will be difficult in some other states that do not have solid environmental institutions.[296] Efficiently implementing the EU WFD has already contributed to improving surface and groundwater in many parts of Europe. However, the environmental regulations of the EU WFD will face the challenges of climate change and human activities, but the Directive can meet these challenges based on current advancements.[297]

3.3 River basin management and sovereignty in both the CWA and EU WFD

The previous chapter discussed the role of sovereignty in managing transboundary resources but without linking it with river basin management. Thus, the current section illustrates their relationship and how they are implemented in both the CWA and the EU WFD. Since the emergence of the Harmon doctrine, the issue of sovereignty of natural resources has increased. According to the theory, which was expressed in the case of the Rio Grande River, states have the absolute right to use rivers within their territory without paying attention to downstream states.[298] This thought is still claimed in many regions globally and is a great challenge for river basin management because the theory dismisses all methods of cooperation among riparian states.

This observation can be considered as one of the main reasons for the absence of cooperation or agreement among riparian states in several river basins. For instance, the theory can still be seen in the TE-RB. According to the former president of Turkey,

WFD compliant framework to support sustainable management under multiple stress" (2019) 654 Science of the Total Environment at 54.

[295] Giakoumis and Voulvoulis, above n 281,

[296] Hattermann and Kundzewicz, above n 274.

[297] Stefan Ignar and Mateusz Grygoruk "Wetlands and Water Framework Directive: protection, management and climate change" in *Wetlands and Water Framework Directive* (Springer, 2015) at 5.

[298] Schwabach, above n 63.

Suleyman, the state has absolute power to use these two rives because they originate inside the Turkish border. He stated in 1992: "Neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. This is a matter of sovereignty." [299] According to his assertion, Turkey has the absolute right to use both Tigris and Euphrates waters because they are inside the Turkish sovereign borders. This claim of sovereignty over natural resources was the primary concern for Turkey not to sign the UN water convention in 1997, and Turkey is still not a party to the convention. It could be argued that this statement of the highest official position in Turkey is similar to Harmon's opinion in the case of the Rio Grande River.

Many states have raised or referred to the absolute sovereignty claim over natural resources. Stephen McCaffrey argues that this claim does not have a place in this area of developed international law. Still, Bolivia argues this issue in the most recent ICJ case. The case *Dispute over the Status and Use of the Waters of the Silala* (Chile v. Bolivia) was registered in the ICJ in June 2016. According to Chile, Silala is an international watercourse and should be managed between both countries under customary international law. [300] However, this argument was rejected by the Bolivian government because they believed the river originates in Bolivia and they have the absolute right to utilize it for their benefit. [301] Even though the claim of absolute sovereignty is contrary to IEL principles, several states still raise the claim in negotiation with other states.

Hence, promoting the CWA and EU WFD models in other regions is a significant step in avoiding absolute sovereignty claims over transboundary rivers and other transboundary issues. As the two models apply the IRBM, they are valuable for managing transboundary river basins based on basin boundaries, not administrative or political boundaries, particularly the EU WFD. Twenty-seven member states implement the WFD in Europe, and all of the states are obliged to implement the WFD's principles. The valuable point is that the IRBM and the EU WFD are implemented at

[299] Mitchell, above n 29.

[300] *Dispute over the Status and Use of the Waters of the Silala (Chile v. Bolivia)* [2016] application instituting proceedings .

[301] Roberta Greco "The Silala Dispute: Between International Water Law and the Human Right to Water" (2017) 39 Questions of International Law

national, river basins, and EU levels.[302]

Therefore, the heavy concentration on managing river basins at the sovereign and national level without paying attention to the basin or regional level will increase water crises and other global issues in the future. The CWA and US experience in managing river basins among various states can be a good lesson for federal and unitary states. The federal government can enact legislation and provide guidelines for the states and local authorities to implement at the local level. The supervisory role of the federal government is significant because it can monitor and evaluate the implementation process of rules and legislation. Here, the sovereignty of states is diminished so the federal government can manage the river basins based on river basin boundaries, not the state boundaries.

However, the federal institutions should avoid a centralized water policy and allow local people to participate effectively in managing river basins. In this regard, the EU model is more practicable at the grassroots level than the US model. The EU WFD is a valuable experience for transboundary water issues at the regional and international levels. Despite implementing IRBM at the regional level, the member states agreed to concede their sovereignty to the EU for managing transboundary river basins according to basin boundaries. IRBM has been implemented effectively by both US and EU models in managing transboundary river basins, but the approach requires further environmentally friendly solutions in the Anthropocene. One of the solutions is Nature-Based Solutions, which the UN water report suggested in 2018.[303]

3.4 Nature-Based Solutions (NBS) for water management

IRBM is growing in importance across the world, and it has achieved remarkable success in many river basins. However, this approach could be more effective if it involves Nature-Based Solutions (NBS). NBS include the utilisation of ecosystems for achieving goals and objectives of issues related to water.[304] The NBS for water

[302] See Jacques Ganoulis, Alice Aureli and Jean Fried *Transboundary water resources management: a multidisciplinary approach* (John Wiley & Sons, 2013).

[303] UNESCO, above n 1.

[304] See Stefan Uhlenbrook and others *The United Nations World Water Development Report: Nature-Based Solutions for Water* (2018).

management is not a new approach because they have existed for thousands of years. However, the emerging concept of NBS dates back to the 1970s with the growth of the environment and ecosystem's issues. The concept took a more systematic approach to recognise the strong relationship between people and nature at the beginning of the new century.[305]

For understanding the concept, it is best to quote the two definitions from both the International Union for Conservation of Nature (IUCN) and the European Commission. The IUCN defined the concept as the following:[306]

> Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

This definition illustrates the great ambition, not just moving away from the negative use of nature, but also requiring protection towards nature and ecosystems. Significantly, NBS can be used for responding to significant social challenges. For instance, "reforestation reduces landslides, ecosystems provide food sources during times of crisis."[307] This concept may also be used for responding to ethical, intellectual and rational challenges.[308] For example, promoting green infrastructure leads to resource efficiency, which will be added as a significant response to climate change issues.[309] However, using NBS in water resource management and, in particular, river basin management, is new. However, it could be a useful tool because it is an easy option and more efficient. However, water policymakers and managers still ignore the NBS because less than 1% of water resources investment's infrastructure is allocated for NBS.[310]

The second definition of NBS is the European Commission definition for the concept. They defined the term as the following:[311]

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[305] E Cohen-Shacham and others "Nature-based solutions to address global societal challenges" (2016) 97 IUCN, Gland, Switzerland at 10.

[306] At [5].

[307] UNESCO, above n 1, at 115.

[308] Hilde Eggermont and others "Nature-based solutions: new influence for environmental management and research in Europe" (2015) 24(4) GAIA-Ecological Perspectives for Science and Society at 246.

[309] UNESCO, above n 1, at 115.

[310] At 3.

[311] EC—European Commission "Towards an EU Research and Innovation policy agenda for nature-based

> Living solutions inspired by, continuously supported by and using Nature designed to address various societal challenges in a resource efficient and adaptable manner and to provide simultaneously economic, social and environmental benefits.

This definition illustrates the EU's ambition to achieve a double goal in utilizing natural resources: economic growth and sustainability.[312] Thus, NBS may be considered as a tool alongside IRBM for the proper management of the river basin. By combining the two approaches, river basins can be managed to meet economic, social, and environmental issues.

These definitions provoke a rethink about human impacts on nature, and natural resources in particular. Management of river basins is not only about the economic benefits of these resources, as believed in the last couple of centuries. The social and environmental outcomes of this management are far more significant than purely economic benefits. As Murray Bookchin explained, cognizing nature and the place of humanity and society within it leads us to determine effective tools to deal with nature and environmental issues. He stated:[313]

> Whatever nature may mean, we must determine in what way humanity "fits" into it and we must confront the complex and challenging question of the relationship of society — more specifically, the different social forms that appeared in the past, that exist today, and that may appear in the future — to nature. Unless we answer these questions with reasonable clarity — or at least fully discuss them — we will lack any ethical direction in dealing with our environmental problems. Unless we know what nature is and what humanity's and society's place in it is, we will be left with vague intuitions and visceral sentiments that neither cohere into clear views nor provide a guide for effective action.

The above quote illustrates the strong relationship between nature and humanity because understanding this relationship leads us to discover solutions for environmental issues. As one of the main elements in this relationship, water requires ethical direction

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solutions & re-naturing cities" (2015) 2020 Final report of the Horizon.

[312] Joachim Maes and Sander Jacobs "Nature-based solutions for Europe's sustainable development" (2017) 10(1) Conservation Letters at 121.

[313] Murray Bookchin *Philosophy of social ecology* (Black Rose Books, 2017) at 18.

for its management, and NBS could be the proper method in this ethical direction. Therefore, the application of NBS is quite significant for water management because it turns the antagonistic relation between humans and nature into a positive relationship.

Human beings are considered the main factor for increasing degradation of ecosystems and loss of wetlands. It is estimated that between 60% to 70% of the natural wetlands have been lost due to human activities since the beginning of the last century. In addition, around two-thirds of the global forests are facing degradation. Thus, this approach should be enhanced through a natural process for restoring and protecting our water resources via a number of methods such as reforestation and improving urban green spaces and natural and constructed wetlands.[314]

The application of NBS for water is quite valuable in this era because nature cannot handle all the pressure which human beings have created through the decades. The NBS solution assists us to rethink the strong relationship between water, nature and climate change.[315] Using NBS to protect water resources is essential because the approach utilizes ecosystem functions to benefit society and restore these resources simultaneously. Many forms of NBS, such as ecosystem-based adaptation, ecosystem-based mitigation, ecosystem restoration, or ecosystem protection, can have a critical role in managing and protecting water resources.[316] Therefore, IRBM will be more productive and valuable for managing the transboundary rivers if the approach adapts to NBS.

An effective method for adapting NBS in river management and transboundary management is granting legal personality to rivers. This is an inspiring method to effectively apply equitable utilization and minimization of environmental harm principles at international, federal, and local levels. Granting legal personality to rivers is not a new idea. It was proposed by legal scholar Christopher D. Stone in 1972.[317]

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[314] UNESCO, above n 1, at 4.

[315] WWAP (UNESCO World Water Assessment Programme) *United Nations World Water Development Report 2020: Water and Climate Change* (UESCO, Paris, 2020) at 34.

[316] Eulalia Gómez Martín, María Máñez Costa and Kathleen Schwerdtner Máñez "An operationalized classification of Nature Based Solutions for water-related hazards: From theory to practice" (2020) 167 Ecological Economics at 1-2.

[317] See Christopher D Stone "Should Trees Have Standing--Toward Legal Rights for Natural Objects" (1972) 45 S. CAl. l. rev..

However, implementing the idea and granting rivers legal personality to a specific river was introduced to the Whanganui River in New Zealand, the Ganges and Yamuna in India in 2017.[318] Adopting NBS and legal personality, particularly for rivers, assists in overcoming the classic and capitalist understanding for managing rivers locally and internationally. The negative impacts of capitalism on nature and our understanding can be expressed in the following paragraph:[319]

> The growth of capitalism spreading to every part of our planet was facilitated by the legal recognition of corporations as artificial persons capable of holding rights; whereas life-giving species and components of the Earth, such as lakes, rivers, forests and mountains have been systematically denied their inherent rights to be and to flourish.

Therefore, NBS and thinking of legal personality contribute to a better understanding of river management and return some rights to nature. This was the main reason for introducing NBS as one of the metrics to support the implementation of the two principles in the first part of the chapter. The following part of the chapter discusses and critically analyzes the two principles.

3.5 The principle of Equitable Utilization

Managing transboundary rivers is considered one of the controversial issues in IEL. More specifically, the water allocation of these rivers has been viewed as a significant part of the issue. Thus, the equitable utilization principle has been developed to respond to this challenge. In the 1960s, the principle gained acceptance among most states in the world. The IIL and ILA had a significant role in developing this principle.[320] It is claimed that managing transboundary rivers did not have a position in customary international law until the mid of the last century.[321]

However, the roots of the principle are found in the early 20th century. The Declaration on the International Regulations Regarding the Use of International Watercourses for Purposes other than Navigation in 1911 or the Madrid Declaration can be considered

[318] See Erin L O'Donnell and Julia Talbot-Jones "Creating legal rights for rivers" (2018) 23(1) Ecology and Society.

[319] Ngozi Finette Unuigbe "African Eco-Philosophy and Its Implications for Ecological Integrity in Africa" in *Ecological Integrity in Science and Law* (Springer, 2020) 99-109 at 100.

[320] See Charles B Bourne "The primacy of the principle of equitable utilization in the 1997 watercourses convention" (1998) 35 Canadian Yearbook of International Law/Annuaire canadien de droit international.

[321] At 215.

the first attempt toward codifying international water law. This declaration was then adopted by the IIL. According to the declaration, if water crosses more than one border, riparian states cannot damage or change the water stream. In addition, all industrial activities that significantly influence transboundary water flows are forbidden by the Madrid Declaration.[322] After the Declaration, the principle was mentioned in several judicial decisions: the *River Oder* in 1929[323], *Diversion of Water from the Meuse Case* in 1937[324] and *Lake Lanoux Arbitration* in 1957.[325]

The equitable utilization principle has various interpretations and meanings from the perspectives of states worldwide. For some, this principle means a fifty-fifty allocation of transboundary rivers. Others agree with this interpretation, but they believe that priority should be considered in water allocation. It means that the country that has more water needs among riparian states should be allowed to utilize more water than others. The interpretation of the principle also depends on the relationship among riparian states in different regions worldwide. The power and position of states influence various interpretations and understandings of the principle from different angles.[326]

All in all, the principle refers to the sharing of transboundary rivers equitably and reasonably. In other words, riparian states share their sovereignty over the river. This does not mean that all of these states require an equal share of the river because various factors affect each state's share.[327] These factors are explained in both article V section II of the Helsinki Rules and article 6 of the UN Watercourses Convention. These articles are explained in the following sections related to the Helsinki Rules and the UN Watercourses Convention.

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[322] Flavia Rocha Loures and Alistair Rieu-Clarke *The UN watercourses convention in force: strengthening international law for transboundary water management* (Routledge, 2013) at 11.

[323] *Territorial Jurisdiction of Int'l Comm'n of River Oder (United Kingdom V Poland)*, above n 11.

[324] *Diversion of Water from Meuse (Neth. v. Belg.)* [1937] (ser. A/B) No. 70 (June 28) .

[325] *Lake Lanoux Aribitration (France v. Spain)*, above n 157.

[326] Elli Louka *International environmental law: fairness, effectiveness, and world order* (Cambridge University Press, 2006) at 53.

[327] Muhammad Mizanur Rahaman "Principles of transboundary water resources management and Ganges treaties: an analysis" (2009) 25(1) International Journal of Water Resources Development at 162.

3.5.1 Equitable utilization and international law

While there is a significant number of transboundary rivers globally (exceeding 286 rivers), the efforts to manage these rivers did not start until the middle of the last century.[328] The management of these rivers is crucial because the amount of available freshwater is almost unchanged, but the demand for utilizing this water has increased significantly. In addition to the absence of international agreement and cooperation over the management of these river basins in the last century, global climate change added another pressure to motivate countries towards collaboration.[329]

One of the earliest attempts for enacting an international law for managing international rivers was the Bolivian government's proposal in 1959. The proposal was submitted to the UN General Assembly (UNGA) to codify the law related to the utilization of transboundary rivers at the international level.[330] However, the UNGA did not take action until 1970, when the UNGA asked the International Law Commission (ILC) to prepare a draft of an international convention related to transboundary rivers. The ILC, as the main legal body of the UN, started work on the project a year later, but it took more than two decades to prepare the draft.[331] Thus, to evaluate the principle at the international level, the following sections address the principle's development in both customary international law and international law.

3.5.2 The principle and the international rules

After significant efforts by the ILA and IIL from the mid-twentieth century, there was agreement among legal scholars on the principles of managing transboundary rivers in 1966. In the same year, the Helsinki Rules on the Uses of the Waters of International Rivers or Helsinki Rules were adopted by ILA.[332] However, the ILA took twelve years to produce the Rules. Development of the Rules started in 1954 when the Association established the River Committee to work on states' rights and obligations regarding

[328] UNEP *Transboundary Waters Systems – Status and Trends: Crosscutting Analysis* (Nairobi, Kenya, 2016) at 5.

[329] Stephen C McCaffrey, Christina Leb and Riley T Denoon *Research Handbook on International Water Law* (Edward Elgar Publishing, 2019) at 1.

[330] Alistair Rieu-Clarke "From treaty practice to the UN Watercourses Convention" in *Research Handbook on International Water Law* (Edward Elgar Publishing, 2019) at 11.

[331] Salman, above n 15, at 5.

[332] Salman, above n 13, at 629.

international rivers. Between 1954 and 1966, the Committee submitted six reports to the ILA. The committee produced four documents in the same period, but the essential document among them was the Helsinki Rules.[333]

Furthermore, the IIL had a considerable role in developing terms and principles related to transboundary waters. Before the Helsinki Rules, the IIL adopted three resolutions for managing these waters. These resolutions shaped the classic understanding of disputes related to transboundary rivers. The Madrid Declaration in 1911, the Salzburg Resolution in 1961, and the Athens Resolution on the Pollution of Rivers and Lakes and International Law in 1979 were developed and adopted by the IIL. These three resolutions had a significant impact on the formation of fundamental principles for using transboundary rivers.[334] The Madrid Declaration is the earliest international rule that limits riparian sovereignty over shared water resources. According to the declaration, riparian states are in a "permanent physical dependence," and they cannot utilise the river in a way that affects other states.[335]

The Salzburg Resolution also set guidelines and principles for sharing transboundary rivers without highlighting the equitable utilization principle. The resolution confirms limitations on the utilization of transboundary water by international law and the right of other riparian states.[336] Importantly, the Athens Resolution mentioned both principles of equitable utilization and minimization of environmental harm in the international watercourses. It concentrated on the "common interest" of riparian states in using transboundary rivers and not causing harm to each other. This resolution is more advanced than previous resolutions because it reflects the rapid development of laws related to international watercourses theoretically and practically.[337] Adopting all of these resolutions by the IIL created a common understanding of the principle. Still, the meaning of the equitable utilization principle was broad and not entirely clear until the adoption of the Helsinki Rules in 1966.

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[333] Slavko Bogdanović "The International Law Association Helsinki Rules: Contribution to International Water Law" (2019) 3(4) Brill Research Perspectives in International Water Law at 4.

[334] McCaffrey, above n 142, at 83-85.

[335] See International Regulation regarding the Use of International Watercourses for Purposes other than Navigation - Declaration of Madrid.

[336] See Resolution on the Use of International Non-Maritime Waters- Resolution of Salzburg.

[337] Flavia Rocha Loures and Alistair Rieu-Clarke above n 322, at 11.

The Helsinki Rules was a significant and pioneering attempt to comprehensively codify and regulate transboundary rivers and international river basins. The Rules did not just attempt to design legal solutions for transboundary water issues, but also discovered the vital role of underground water in future transboundary problems. For instance, the rules defined an international drainage basin as "a geographical area extending over two or more States determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus."[338] The Rules successfully link surface and underground water because governments usually dismiss this issue,[339] though the Rules do not provide details about transboundary groundwaters.

More importantly, the Rules advanced equitable utilization by illustrating the principle, and designing the factors and characteristics in determining the principle.[340] The Rules have attempted to discover procedures for sharing transboundary rivers and providing a tool for avoiding future conflicts among riparian states. They were successful in making a reasonable balance between upstream and downstream countries; this made the Rules a base for the UN Watercourses Convention a few decades later.[341]

Article IV of the Rules explicitly mentions that all riparian states have a right to the equitable and reasonable use of the international drainage basin. Furthermore, article V illustrates all the factors which can be considered for determining the principle, which include:[342]

1. The geography of the basin, including in particular the extent of the drainage area in the territory of each basin State;
2. The hydrology of the basin, including in particular the contribution of water by each basin State;
3. The climate affecting the basin;
4. The past utilization of the waters of the basin, including in particular

[338] The Helsinki Rules on the uses of the waters of international rivers, Art 2.

[339] Laurence Boisson de Chazournes and others *The UN Convention on the Law of the Non-Navigational Uses of International Watercourses: A Commentary* (Oxford Commentaries on Interna, 2019) at 83-84.

[340] At 84.

[341] McCaffrey, above n 142, at 87.

[342] The Helsinki Rules on the uses of the waters of international rivers art V.

existing utilization;

5. The economic and social needs of each basin State;

6. The population dependent on the waters of the basin in each basin State;

7. The comparative costs of alternative means of satisfying the economic and social needs of each basin State;

8. The availability of other resources;

9. The avoidance of unnecessary waste in the utilization of waters of the basin;

10. The practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses; and

11. The degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.

According to Article V, the principle of equitable utilization could be determined by the above factors. However, these factors may vary from case to case. For instance, a country's development level is a significant indicator of determining the application of the principle and the factors. Developed states have better technical and financial capabilities compared to developing or less developed countries. Thus, developed states should show more reconciliation toward other countries in sharing transboundary rivers.[343] These factors are broad and vary, and need a guideline or a tool for explanation. For instance, it is not clear which factors have more priority than others. Thus, providing more detail on these factors may better illustrate the significance of the factors.

In a similar approach to the Helsinki Rules, the UN Watercourses Convention attempted to define the principle and determine it based on similar factors. However, the Convention did not satisfy the ILA, and they came back with new rules, namely the Berlin Rules in 2004. These Rules defined equitable utilization comprehensively and linked it with sustainability and integrated management.[344] Significantly, the Berlin Rules linked water management principles at national and international levels and covered issues such as "the emergence of environmental concerns, integrated management, and sustainable development", which were ignored in the UN

[343] Alistair Rieu-Clarke *International law and sustainable development* (IWA Publishing, 2005) at 108.

[344] International Law Association ILA, Berlin Rules on water resources arts 3 10 12 and 13.

Watercourses Convention.[345] In addition to applying IEL principles to both surface and groundwater, the Rules introduced public participation in water management, which was not the focus of previous ILA and IIL work.[346]

3.5.3 The role of international courts and arbitrations in promoting the equitable utilization principle

The first appearance of the equitable utilization principle in international courts dates back to the beginning of the last century in the PCIJ case in 1929 concerning the *River Oder*, where Poland claimed that a part of the river which flows through the country should be under the jurisdiction of Poland.[347] This case is considered the first case about water issues and navigation.[348] The PCIJ responded to Poland's claim regarding sharing transboundary rivers noting the following:[349]

> … perfect equality of all riparian States in the user of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others.

Even though the court did not expressly mention equitable utilization, it referred to "perfect equality" for sharing the transboundary river. The court also illustrated the standards for sharing transboundary rivers, as the court prohibited any privileges among riparian states in sharing these natural resources. The statement of the court at that time was a significant step toward better managing transboundary rivers. The judgment opened a new view for transboundary issues because rivers previously were only examined within a country's national borders. With this in mind, how should we understand the term "equitable" or, more specifically, "equity" as a part of the equitable utilization principle?

It is better to illustrate the term 'equity' before explaining equitable utilization because equity as a general principle of law has historical roots. The issue of equity was

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[345] Joseph W Dellapenna The Berlin rules on water resources: The new paradigm for international water law at 4.

[346] Salman, above n 13, at 635.

[347] Malgosia Fitzmaurice "General Principles Governing the Cooperation between States in Relation to Non-Navigational Uses Of International Watercourses" (2004) 14(1) Yearbook of International Environmental Law at 33.

[348] Laurence Boisson de Chazournes "The Permanent Court of International Justice, The International Court of Justice and international water law: versatility in consistency" in *Research Handbook on International Water Law* (Edward Elgar Publishing, 2019) at 286.

[349] *Territorial Jurisdiction of Int'l Comm'n of River Oder (United Kingdom V Poland)*, above n at 11.

considered in the *Meuse River* case between the Netherlands and Belgium in front of the PCIJ in 1937. Both countries started to build several canals to benefit from the river for commercial purposes during the nineteenth century. They signed an agreement to withdraw water from the Meuse River in 1863. The countries then attempted to develop the river further and establish new canals. When a dispute was raised, both countries brought their claims to the PCIJ in the 1920s. They accused each other of violating the 1863 treaty. The court did not support either of the parties. Based on the treaty and idea of equity, the court believed that both parties had a right to build canals on the river.[350]

However, the interesting point of the above case is the importance of equity in international law, and water law in particular. According to the *River Meuse* judgment, equity is recognized as a principle of international law. This term has been used and accepted in many international tribunals even before the establishment of the PCIJ. As the court states that: [351]

> What are widely known as principles of equity have long been considered to constitute a part of international law, and as such they have often been applied by international tribunals. Merignhac, Traite theorique et pratique de l'Arbitrage international (1895), p. 295 ; Ralston, Law and Procedure of International Tribunals (new ed., 1926), pp. 53-57 … Some international tribunals are expressly directed by the compromis which control them to apply "law and equity". See the Cayuga Indians Case, Nielsen's Report of the United States– British Claims Arbitration (1926), p. 307.

According to the above judgment, equity is an essential part of international law. The ICJ defines it as a legal concept that "is a direct emanation of the idea of justice. The Court, whose task is by definition to administer justice, is bound to apply it".[352] Additionally, the ICJ has developed the term equity further via the principle of proportionality as an applied function of equity. Here equity, in using transboundary rivers, means that "any uses of an international watercourse would not be permitted where they would result in a grossly disproportionate adverse impact on other social, developmental or environmental values and objectives, irrespective of how beneficial

[350] de Chazournes, above n 339.

[351] *Diversion of Water from Meuse (Neth. v. Belg.)*, above n 324.

[352] *Tunisia-Libya Continental Shelf Case. Continental Shelf (Tunisia/Libyan Arab Jamahiriya)* [1982] ICJ Reports 18 at para 71.

these are in terms of certain socio-economic or other factors."[353]

By emphasizing equity as a principle of international law, the judgment prioritizes social and environmental values and objectives over the economic objectives of utilizing a transboundary river. Here, equity and equitable use of transboundary rivers mean that all riparian states should be concerned with resources' environmental and social needs, rather than solely economic objectives. This understanding of equitable utilization has been confirmed in various cases of ICJ.

The *Gabčíkovo–Nagymaros* case is one of the obvious applications of equitable utilization and minimizing transboundary river environmental harm. This case was between Hungary and Slovakia. The two states had a treaty between them to develop a dam project on the Danube River in 1977. Hungary postponed the project because of environmental issues in 1989, but Slovakia continued with the project on its side. However, both parties decided to bring the case to the ICJ for judgment.[354]

In the 1997 judgment, the court specifically mentioned equitable utilization as an essential principle for international law. The court made Slovakia as a successor for the former Czechoslovakia responsible for taking the unilateral decision and depriving Hungary of the Danube River. In its judgement, the Court stated:[355]

> The Court considers that Czechoslovakia, by unilaterally assuming control of a shared resource, and thereby depriving Hungary of its right to an equitable and reasonable share of the natural resources of the Danube with the continuing effects of the diversion of these waters on the ecology of the riparian area of the Szigetkoz - failed to respect the proportionality which is required by international law.

The main point of this quote is that the court emphasized equitable utilization as the main principle of international law. Even though, there was an agreement between former Czechoslovakia and Hungary for developing this part of the Danube River, the court prioritized environmental concerns rather than economic aspects of the project.

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[353] Owen McIntyre "Utilization of shared international freshwater resources–the meaning and role of "equity" in international water law" (2013) 38(2) Water international at 126.

[354] Erika L Preiss "The international obligation to conduct an environmental impact assessment: The ICJ case concerning the Gabcikovo-Nagymaros project" (1999) 7 NYU Envtl. LJ at 307-311.

[355] *Gabcikovo-Nagymaros Project (Hungary V Slovakia)*, above n 31, Para 85.

Therefore, equitable utilization has a broad meaning under customary international law, and it cannot be limited to sharing a certain amount of water. Environmental and social conditions of the transboundary river basin should be considered in applying the principle. Moreover, the equitable use principle and minimization of environmental harm are two main principles of international law that cannot be separated in sharing transboundary river basins. As illustrated by the cases cited above, these principles have a long list of applications in both international and customary international law.

3.5.4 The principle and international conventions

The international rules substantially impacted the creation of a shared understanding of transboundary river basin management and advancing its principles. However, these rules are not binding, and countries may not follow these rules of international law. Consequently, the UN attempted to draft an international convention for transboundary rivers a few years after the Helsinki Rules through its legal bodies. The codification of rules related to international watercourses was slow, but the outcomes are remarkable.

(a) The Convention on the Law of Non-Navigational Uses of International Watercourses 1997 (The UN Watercourses Convention)

The UN Watercourses Convention is one of the significant achievements of the UN in attempting to manage transboundary freshwater resources in the world. This achievement was accomplished after significant efforts of governmental and non-governmental organizations in the last century. The IIL and ILA (as noted below) were the two main organizations that prepared the international community for this convention.[356] Mainly, the IIL had for more than sixty years been discussing and adopting rules regulating transboundary rivers since the Madrid Declaration in 1911.[357]

Drafting the Convention was not an easy task because managing international watercourses is a very complex issue. Thus, the drafting process took approximately twenty-three years of discussion before reaching the final version of the Convention in 1997. The UN appointed the International Law Commission (ILC) for this mission. The

[356] de Chazournes and others, above n 339, at 1.

[357] See International Regulation regarding the Use of International Watercourses for Purposes other than Navigation - Declaration of Madrid.

ILC started work on the task in 1971 and submitted the final draft to the UN General Assembly in 1994.[358] After three years of negotiations among the UN members, the organization adopted the draft in May 1997. However, the Convention only entered into force in August 2014.[359]

One of the significant points of the Convention is the rejection of any notion of sovereignty in absolute form over transboundary rivers. Even though the ILC attempted to mention sovereignty during the drafting process, this was not adopted in the final draft because shared rivers cannot be restricted by sovereign borders under international law.[360] Article 5 of the convention explains the meaning of the principle of equitable utilization. The article puts states in a position to share their resources in an "equitable and reasonable" manner.[361] It means that international watercourses should be used and advanced to achieve the needs of states and protect these resources at the same time. Thus, the utilization and sustainability of these resources should be paralleled.[362]

Article 6 of the Convention identifies the factors for assessing the principle of equitable utilization:[363]

> (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
> (b) The social and economic needs of the watercourse states concerned;
> (c) The population dependent on the watercourse in each watercourse state;
> (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse states;
> (e) Existing and potential uses of the watercourse;
> (f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
> (g) The availability of alternatives, of comparable value, to a particular planned or existing use.

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[358] Salman, above n 15, at 3.

[359] McCaffrey, above n 142, at 437.

[360] McCaffrey, above n 142.

[361] Convention on the Law of the Non-navigational Uses of International Watercourses art 5(1).

[362] At art 5(1).

[363] At art 6.

The factors mentioned in this article are similar to or taken from article V of the Helsinki Rules. This confirms the considerable role of international rules in developing and advancing norms and principles of international law. According to article 6 of the Convention, all of these factors could be considered in implementing the principle. It is understood from this article that equitable utilization does not mean the equal right of sharing transboundary water resources, but instead refers to sharing them equitably. For instance, some countries may depend on a river basin considerably or have a larger population than other countries. Thus, they may require more water than another riparian state.

These factors can be determined case by case because each river basin has its own characteristic. If there is an agreement among riparian states in a basin, or states are member parties of the Convention, determining these factors and applying the equitable utilization principle is not complicated. However, the Convention will not present a significant solution, especially for river basins lacking a comprehensive agreement among riparian states. The Convention seems to be ineffective globally as most states have not yet joined it. Therefore, applying the principles is still questionable, particularly for countries that have yet to adopt the convention. It would only apply if its reflects existing customs.[364]

After more than twenty-four years of adopting the Convention, the UN has failed to transform it into an influential and global instrument. There are several factors behind this failure. Firstly, the Convention lacks any institutional body for monitoring or implementing the Convention effectively. Even though UN-Water exists as an international agency inside the United Nations to coordinate water resources, river basins management and regulation have been left for riparian states according to articles 24 and 25 of the convention.[365] Secondly, the Convention's scope is narrow because only ratified and signatory members are technically bound to the Convention.[366]

For instance, after more than two decades, only 36 countries are member parties, and

[364] Yonatan Lupu "International Law and the Waters of the Euphrates and Tigris" (2001) 14 Geo. Int'l Envtl. L. Rev. at 362.

[365] Convention on the Law of the Non-navigational Uses of International Watercourses art 24 and 25.

[366] Giordano and Wolf, above n 85, at 168.

another sixteen countries are signatory members of the Convention.[367] Notably, major powers such as the US, Russia, and China are not Convention parties. Arguably this was not expected to be the case because the convention's drafting, adoption, and enforcement were prolonged.[368]

Another issue for the convention is the mechanism and effectiveness of the dispute settlement process. According to article 33 of the convention, if there was an issue regarding interpreting or applying the Convention, the parties should use a peaceful mechanism, such as establishing good offices through negotiation, conciliation, or mediation by a third party. They can also establish basin institutions jointly. If they cannot reach an agreement by these mechanisms, they can take the issue to arbitration or the ICJ.[369] If negotiation among parties failed, a fact-finding commission is recommended by the Convention which states that:[370]

> A Fact-finding Commission shall be established, composed of one member nominated by each party concerned and in addition a member not having the nationality of any of the parties concerned chosen by the nominated members who shall serve as Chairman.

However, except for the negotiation and fact-finding commission, all of these mechanisms are optional and not compulsory. These two mechanisms are also viewed as weak solutions because their outcome is not binding.[371] In addition, the Convention is criticized for repeating previous norms and principles that were accepted prior to the Convention. It is believed that the Convention did not present any fundamental new mechanisms for solving the transboundary issues.[372] Finally, most of the Convention articles were criticized for ambiguity and providing a minimal guidelines for the riparian states. This critique is not new and was raised by the drafting community since discussing the first draft of the convention. Thus, it is not easy to implement many

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[367] UN United Nations "Treaty collection: Convention on the Law of the Non-Navigational Uses of International Watercourses" (2021) <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-12&chapter=27&clang=_en>.

[368] See Gabriel Eckstein "The status of the UN Watercourses Convention: does it still hold water?" (2020) International Journal of Water Resources Development.

[369] Convention on the Law of the Non-navigational Uses of International Watercourses art 33.

[370] At art 33(4).

[371] Ruth Lapidoth "Dispute Settlement under the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses" (2015) 75 International Studies at 242.

[372] Biswas, above n 174, at 15.

convention articles because they are broad and general with vague requirements.[373]

Among these articles of the Convention, those related to the equitable utilisation principle are general and require riparian states to consider all relevant factors. As there is not a meeting of the parties for the Convention, this generality needs clear instructions and guidelines for future development. Therefore, member parties of the Convention should take advantage of the UNECE Water Convention by convening a meeting the parties periodically.

(b) The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)

The UN created the UN Economic Commission for Europe (UNECE) in 1947. The establishment of the UNECE was part of the five regional commissions for developing economic and social conditions in the world. At the beginning, the UNECE worked on issues related to hydroelectric power and water pollution. The organization expanded its framework to cover all aspects of water management, including transboundary issues, groundwater and water quality in the 1970s and 1980s. After several conferences and recommendations, the UNECE succeeded in creating a mutual understanding of transboundary issues and adopted the UNECE Water Convention in 1992.[374] By mid-September 1994, twenty-seven states had signed the Convention and fourteen among them had ratified the Convention.[375]

The Convention refers to the principle of equitable utilization, but it does not provide details about it. By virtue of Article 2.1(c) of the Convention, member parties are obliged:[376]

> To ensure that transboundary waters are used in a reasonable and equitable way, taking into particular account their transboundary character, in the case of activities which cause or are likely to cause

[373] See John Waterbury "Between unilateralism and comprehensive accords: Modest steps toward cooperation in international river basins" (1997) 13(3) International Journal of Water Resources Development.

[374] Attila Tanzi and others *The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: Its Contribution to International Water Cooperation* (Hotei Publishing, 2015) at 3-5.

[375] Graham Bennett *Guidelines on the application of existing international instruments in developing the Pan-European Ecological Network* (Council of Europe, 2002) at 52.

[376] Convention on the Protection and Use of Transboundary Watercourses and International Lakes art 2.1(c).

transboundary impact;

This is a very shallow interpretation of the principle because the Convention does not assign the nature of these "transboundary characters." Nor does it explain the meaning of equitable and reasonable use of the transboundary waters. The community that drafted the Convention may have been satisfied with the details provided in the Helsinki Rules 1966 regarding the principle. Thus, they did not want to repeat details about the principle and the factors that determine equitable utilization. However, this is not a good reason for omitting these matters from the Convention because the Helsinki Rules are not binding under international law.

Despite that, the UNECE Water Convention and the UN Watercourses Convention are considered the most critical global and legal documents for management and creating an environment for cooperation on transboundary water issues.[377] Both conventions deal with the same subject, but the UNECE Water Convention may be considered a more effective and practicable legal document than the UN Watercourses Convention in several areas. Firstly, the scope of the UNECE Water Convention 1992 is broader than the UN Watercourses Convention 1997. According to the UNECE Water Convention, transboundary waters include "any surface or ground waters which mark, cross or are located on boundaries between two or more States."[378] This broad scope of the UNECE Water Convention can cover all kinds of water resources, including fossil waters or non-charging aquifers.[379] It means that the convention covers transboundary aquifers shared by two or more countries.

Secondly, monitoring the implementation articles of the UNECE Water Convention is worthy of mention. According to article 17 of the Convention, the parties should meet regularly and report on the convention's implementation every three years. The Convention urged the parties to conduct the first meeting less than a year after the Convention entered into force.[380] This is known as the Meeting Of the Parties (MOP) of the convention. However, this effective mechanism does not exist in the UN

[377] Baranyai, above n 133.

[378] Convention on the Protection and Use of Transboundary Watercourses and International Lakes art 1.1.

[379] See Stephen C McCaffrey "UN Watercourses Convention Implementation and Relationship to the UNECE Water Convention" (2016) 46(1) Environmental Policy and Law.

[380] Convention on the Protection and Use of Transboundary Watercourses and International Lakes art 17.

Watercourses Convention. Adding this mechanism could contribute significantly to the effectiveness and implementation of the UN Watercourses Convention.

The eighth MOP was held in Kazakhstan in 2018. The success of this MOP and other MOPs has attracted many countries outside Europe to join the UNECE Water Convention. About 88 parties and non-parties participated in the MOP8. Among all the participants, fifteen countries outside of Europe showed their interest in being Convention members.[381] The ninth and most recent MOP in 2021 was one of the most extensive meetings with the participation of more than 100 countries and 500 participants including Turkey, Iraq, Iran and Syria. This significant step occurred after amending articles 25 and 26 to allow other parties outside of Europe to be Convention members. Prior to this amendment, the Convention was designed to only cover the transboundary issues inside Europe. Thus, the Convention transferred from a regional agreement to a global tool with an effective mechanism for transboundary river governance.[382]

For instance, Jordan, Iraq, Tunisia and several other countries are interested in joining the Convention.[383] Meanwhile, Guinea-Bissau and Togo are the two African countries that recently joined the Convention. Therefore, the scope of the UNECE Water Convention is growing wider compared to the UN Watercourses Convention. Currently, forty-six members are party to the UNECE Water Convention, and twenty-six of them are signatories.[384] The UN Watercourses Convention has thirty-six members and sixteen signatory parties. Palestine was the last member that joined the convention in January 2015.[385] Surprisingly, no states have joined or signed the Convention since that time. Therefore, it would be better for the UN to take a practical step to motivate more countries to join the UN Watercourses Convention. Without accepting the convention

[381] The UNECE "Eighth session of the Meeting of the Parties to the Water Convention" (2020) <https://www.unece.org/env/water/MOP8/>.

[382] Iulia Trombitcaia and Sonja Koeppel "From a regional towards a global instrument–the 2003 amendment to the UNECE water convention" in *The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (Brill Nijhoff, 2015) at 15-31.

[383] See Raya Marina Stephan "International water law for transboundary aquifers–a global perspective" (2019) 4(2) Central Asian Journal of Water Research (CAJWR) Центральноазиатский журнал исследований водных ресурсов.

[384] The United Nations (UN) "Treaty collection, Convention on the Protection and Use of Transboundary Watercourses and International Lakes" (2021) <https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&clang=_en>

[385] United Nations, above n 367.

by a majority of UN members, the Convention would not be effective. However, the UN can take advantage of the UNECE Water Convention by adopting MOPs and creating a mutual understanding of transboundary water management principles, including equitable utilization.

3.6 The principle of minimization of environmental harm

This principle is considered another significant principle for all issues related to the management of transboundary rivers. It directly relates to the principle of equitable utilization, which is illustrated in section 3.5 above. The principle states that riparian states have a right to use transboundary waters equitably and reasonably, but they should not cause significant harm or injury to other states. The Madrid Declaration 1911 is the earliest international legal rule that pays attention to transboundary harm. According to the Declaration, "all alterations injurious to the water, the emptying therein of injurious matter (from factories, etc.) is forbidden."[386] The Declaration simply referred to preventing harm in transboundary water without deepening the definition, but it was an unprecedented step for that period.

However, the term's origin as a general principle in international environmental law is traced back to the *Trail Smelter Arbitration* in 1941.[387] The Smelter in Trail city, Canada, was emitting pollution into the air during the 1930s. The air pollution distressed US citizens and damaged forests in Washington state. Thus, the US and Canada went to arbitration. The court found Canada responsible for causing environmental harm to the US.[388] Since that case, the principle of minimization of environmental harm has become one of the vital principles of international environmental law. According to the principle, countries are responsible for activities within their jurisdiction without damaging the environment beyond their borders.[389]

This principle developed rapidly in the second half of the last century. Simultaneously,

[386] International Regulation regarding the Use of International Watercourses for Purposes other than Navigation - Declaration of Madrid at 2.

[387] David B Hunter "International environmental law: Sources, principles, and innovations" in *Routledge Handbook of Global Environmental Politics* (Routledge, 2013) at 131.

[388] See John E Read "The Trail smelter dispute" (1963) 1 Canadian Yearbook of International Law/Annuaire canadien de droit international.

[389] Hunter, above n 387, at 131.

growing environmental concerns impacted the development of this principle because there is a strong link between the principle and global environmental issues. The establishment of the ICJ contributed to the development of the principle internationally. This was illustrated in one of the earliest cases of the Court. In the *Corfu channel* case between the UK and Albania, the ICJ confirmed that states could be responsible under international law for damage to other states even if it occurs inside their territory.[390] Even though the case was not related to the transboundary river, it was significant to develop transboundary harm in international law.

The *Lake Lanoux Arbitration* is considered as another early case that mentioned the concept as a significant principle of international law. The award stated:[391]

> Thus, if it is admitted that there is a principle which prohibits the upstream State from altering the waters of a river in such a fashion as seriously to prejudice the downstream State, such a principle would have no application to the present case, because it has been admitted by the Tribunal, in connection with the first question examined above, that the French scheme will not alter the waters of the Carol.

Even though, the Spanish claim was rejected by the court, but the Arbitration Award confirmed that there is a principle in international law for not causing environmental harm to other countries. As discussed in the previous sections, this confirmation has influenced most international conventions and rules related to environmental issues. For instance, article 7 of the UN Watercourses Convention obliges riparian states not to cause significant harm to other states. Article 7 (2) requires the state that caused the harm to consult with the affected state to remedy this harm.[392] Thus, the principle is viewed as favouring downstream countries because it forces upstream countries to take the required measures to not cause damage to others.

In addition, the Berlin Rules concentrate on the minimization of environmental harm in both articles 8 and 16. Article 3(8) defined "environmental harm" in two main dimensions. These include first, the "injury to the environment and any other loss or damage caused by such harm", and second "the costs of reasonable measures to restore

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[390] See *Corfu Channel case (United Kingdom v. Albania)* [1949] ICJ Reports.

[391] *Lake Lanoux Aribitration (France v. Spain)*, above n 157, para 129.

[392] Convention on the Law of the Non-navigational Uses of International Watercourses art 7.2.

the environment actually undertaken or to be undertaken."[393] This method is the same as the one implemented by the UN Watercourses Convention to define the principle. However, the most substantial and novel point that distinguishes the Berlin Rules from other legal rules and conventions emphasizes environmental impact assessment (EIA) and its relationship with the no-harm principle.

Chapter IV of the Berlin Rules motivates states to undertake EIA for any project or activity that may influence water resources and surrounding areas or the suitability of these resources. Nevertheless, states are not only responsible for their activities, but they are also responsible for the activities of non-state actors inside their sovereign borders.[394] The EIA should be undertaken for any project that may influence the state's environment or other agencies inside the state. By virtue of article 29 on the EIA process, states should assess the "effects on human health and safety; the environment; existing or prospective economic activity; cultural or socio-economic conditions; the sustainability of the use of waters."[395] This was a significant development for the minimization of harm principle because a precautionary procedure was added to it.

This development of the principle was also reflected in one of the ICJ cases. In the *Pulp Mills on the River Uruguay case* between Argentina and Uruguay, the court emphasized the importance of the EIA for issues related to transboundary rivers.[396] The court stated that the parties:[397]

> … must, for the purposes of protecting and preserving the aquatic environment with respect to activities which may be liable to cause transboundary harm, carry out an environmental impact assessment.

This paragraph of the judgment obliges countries to undertake the EIA as the first step before building a water project, particularly in transboundary river basins. This requirement provides for all riparian states in any basin to have a clear idea of a project undertaken by one of the parties. It is quite significant and closely related to the

[393] Berlin Rules on water resources art 7.

[394] Owen McIntyre "Responsibility and liability in international law for damage to transboundary fresh water resources" in *Research Handbook on Freshwater Law and International Relations* (Edward Elgar Publishing, 2018) at 350.

[395] Berlin Rules on water resources art 29.

[396] See Cymie R Payne "Pulp Mills on the River Uruguay (Argentina v. Uruguay)" (2011) 105(1) American Journal of International Law.

[397] *Pulp Mills on the River Uruguay (Argentina v. Uruguay)* [2010].

principle of minimization of environmental harm because this element illustrates the impact of a project on the environment before implementation. Thus, it will be useful to explain this requirement in more detail.

3.6.1 Environmental Impact Assessment

EIA is a significant process that should be considered before operating a specific project or action. In this process, the impacts of the project will be evaluated on the environment and population. The EIA offers policymakers a clear idea about the project's effects on the environment and leads them to make an appropriate decision regarding it.[398] This tool directly links with the minimization of environmental harm because the EIA should identify all environmental concerns that may happen before implementing any water project.

This tool does not have a long history, though the assessment of projects and their influence on the environment increased in the 1960s. The US was the leading country that put EIA in its jurisdiction. The National Policy Act 1969 obliged major projects and activities to undertake EIA as a requirement before starting them. This movement and the Act had a rapid influence on other developed nations. The US and Canada adopted EIA in 1973, Australia in 1974, the Netherlands in 1981, Japan in 1984, and the EU Commission in 1985.[399] Meanwhile, New Zealand joined these countries by adapting the EIA into the RMA in 1991.[400] Thus, the EIA now has a significant position among developed countries. New Zealand, for instance, has introduced the EIA as a major tool for the assessment of any project.[401]

EIA assists in guaranteeing that "the importance of the predicted effects, and the scope for reducing them, are properly understood by the public and the relevant competent body before it makes its decision."[402] Significantly, this process informs the public about the impacts of any project on the environment. In this way, the public and

[398] See Christopher Wood *Environmental impact assessment: a comparative review* (Pearson Education, 2003).

[399] Peter Wathern *Environmental impact assessment: theory and practice* (Routledge, 2013) at 1.

[400] Jennifer Dixon and Burrell E Montz "From concept to practice: implementing cumulative impact assessment in New Zealand" (1995) 19(3) Environmental management at 445.

[401] C Wood *Environmental impact assessment: a comparative review* (Second ed, Routledge, 2014) at 80.

[402] Wathern, above n 399.

policymakers can decide on projects based on the assessment. The significance of EIA also encourages states to draft a convention for this tool - the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). This convention was signed in 1991 and entered into force in September 1997.[403]

The Espoo Convention defines EIA as a local assessment for any project that may have an impact on the environment.[404] The Espoo Convention then motivates states to take EIA seriously because it has a crucial influence at both national and regional levels. Domestically, it increases public participation and public awareness regarding future projects and activities.[405] Regionally, it gives assurance to riparian states because the transboundary impact of the project will be evaluated in the EIA process. However, the scope of the Espoo Convention is still narrow because the majority of signatory members are from the EU. Forty-five states are members of the Espoo Convention, and most of them are from the developed world.[406]

The significance of EIA encouraged global leaders to emphasize this tool in two principles of the Espoo Convention. Principle 17 defines EIA, but principle 19 urges states to undertake EIA in good faith by providing adequate information regarding projects and EIA for riparian states.[407] This means that EIA is not only necessary at the national level, but it is also significant for promoting cooperation on the transboundary issue at the regional and global levels. Nevertheless, the effectiveness of the Espoo Convention is still questionable in the developing world because none of the countries in Africa or Latin America are member parties of the Convention. Furthermore, less than five states outside Europe are a member of the Espoo Convention.

The UN Watercourses Convention also encourages riparian states to notify each other of any future projects on transboundary rivers, including providing EIA, if it was

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[403] Wiecher Schrage ". The Convention on Environmental Impact Assessment in a Transboundary Context" in *Theory and Practice of Transboundary Environmental Impact Assessment* (Brill Nijhoff, 2008) at 27-51.

[404] See UNECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).

[405] At art 2 and 3.

[406] United Nations "Treaty Collection: Convention on Environmental Impact Assessment in a Transboundary Context" (2020) <https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-4&chapter=27&lang=en>.

[407] Annex I *Report of the United Nations conference on environment and development* (26, 1992) principles 17-19.

available. According to article 12, "such notification shall be accompanied by available technical data and information, including the results of environmental impact assessment."[408] However, the language of the article is too soft and refers to EIA as an optional tool. The EIA has significantly influenced the minimization of environmental harm and has remarkably enhanced the principle, but this is not fully reflected in the current text of the Convention. The Berlin Rules is more comprehensive than the UN Watercourses Convention by emphasizing EIA and providing mechanisms for avoiding environmental harm in national and international watercourses.

3.6.2 Ramsar convention

Despite the above conventions, the Convention on Wetlands of International Importance, especially as Waterfowl Habitat known as the Ramsar Convention, is another convention related to transboundary water management. The role of the convention is quite significant because it was the first and earliest treaty for protecting water resources in the last century. This convention was adopted after several decades of discussion.[409] Eighteen countries signed the Ramsar Convention in February 1971.[410] The number of contracting parties increased to 170 members by September 2019. Equitable water allocation and avoiding environmental damage in transboundary watercourses are crucial for protecting wetland sites recognized under the Ramsar Convention. There are 2,370 sites listed as important international wetlands that equal 252,562,111 hectares of wetland areas.[411]

Notably, there is a direct link between transboundary rivers and wetlands, especially if the wetlands are located in downstream countries. Dams and water projects in upstream states affect water flow in downstream states if they are not managed efficiently. Also, if transboundary impacts of projects or activities near wetlands are not evaluated, they may significantly impact the quality and quantity of water resources. As defined in the Ramsar Convention, wetlands cover a large area of land and water, as stated in article

[408] Convention on the Law of the Non-navigational Uses of International Watercourses art 12.

[409] CM Finlayson and others "Managing freshwater protected areas in the global landscape" in *Freshwater Ecosystems in Protected Areas* (Routledge, 2018) at 224.

[410] Geoffrey Vernon Townsend Matthews The Ramsar Convention on Wetlands: its history and development at 4.

[411] The Ramsar Convention "The list of wetlands of international importance (the Ramsar list)" (2019) <https://www.ramsar.org/document/the-list-of-wetlands-of-international-importance-the-ramsar-list>.

1:[412]

> Areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.

The definition explores the vital role of wetlands in any country because they have considerable environmental, cultural, and economic value for countries and the whole world. For instance, marshlands in Iraq are considered the largest wetland in the Middle East. Since the Sumerian period, these marshlands were home to many people in the Middle and South in Iraq. Over half a million people lived in these wetlands before they faced drought in the 1990s.[413] These marshes covered large areas that accounted for between 10,500 km^2 and 20,000 km^2.[414] Significant threatened species such as smooth-coated otter, grey wolf and Indian crested porcupine, along with the Iraq babbler and the Basra reed warbler, existed in this area.[415] Despite the environmental and economic values, these wetlands have considerable cultural and historical values for Iraq and the whole world because they were home to the Sumerian civilization.[416] The Ramsar Convention should therefore act as a constraint, like minimizing harm, on the use of transboundary rivers.

3.7 The two principles and sovereignty

As explained in chapter two, sovereignty can be viewed as one of the main challenges for managing transboundary rivers because the nature of these rivers refutes any claim. Currently, all states in the world accept that riparian states have a right to transboundary rivers. It means if a river rises, crosses or goes through a country, this county has a right to use the river's water, this fact is accepted globally.[417] However, when states,

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[412] Convention on Wetlands of International Importance especially as Waterfowl Habitat (The Ramsar Convention) art 1.

[413] Mountjoy, above n 41, at 96.

[414] Reyadh Albarakat, Venkat Lakshmi and Compton Tucker "Using Satellite Remote Sensing to Study the Impact of Climate and Anthropogenic Changes in the Mesopotamian Marshlands, Iraq" (2018) 10(10) Remote Sensing at 2.

[415] Al-Zubaidi, above n 43.

[416] See Kadhim JL Al-Zaidy and others Classification of The Key Functional Diversity of the Marshes of Southern Iraq Marshes.

[417] Joseph W Dellapenna "Treaties as instruments for managing internationally-shared water resources: Restricted sovereignty vs. community of property" (1994) 26 Case W. Res. J. Int'l L. at 35.

particularly downstream states, desire an equitable and reasonable share of these rivers, other countries, often upstream states, sometimes claim absolute sovereignty over the river. Limiting sovereignty over international watercourses and managing them via natural boundaries within the support of NBS can create a better environment for implementing the two principles (equitable use and minimizing harm) and ensure the sustainability of the transboundary rivers.

Despite the claims, absolute sovereignty over natural resources has not been supported in international cases, including PCIJ or ICJ cases or international arbitrations.[418] Using these claims by states can be viewed as political or diplomatic pressure from upstream states on the downstream states, but it is not easy for a state to advance this theory, particularly under the new world system in this century. According to McCaffrey,[419] the theory of absolute sovereignty is an "anachronism" because it was used in a particular period, but it ought not to have a position in the present world with considerable environmental issues and water scarcity. As discussed previously, sovereignty and lack of legal agreement for managing many transboundary river basins are recognized as the two fundamental challenges for the appropriate management of these basins.[420] Even though the understanding of sovereignty has changed, it remains a challenge. Regarding the legal regime, the role of the two principles has enhanced various sources of international law (as noted above); and the possibility for cooperation in these rivers also increased.

The two principles are accepted and have a stronger position within international conventions related to water issues, including the UN Watercourses Convention, the UNECE Water Convention, and the Ramsar convention. Regarding the second source of international law, absolute sovereignty over transboundary rivers has been refuted by both the PCIJ and the ICJ. They did not support this theory in any of their cases.[421] In many ICJ cases, the two principles (equitable use and minimizing harm) are recognized as fundamental principles of international environmental law. Thus, sovereignty is acceptable in a version that takes into account the two principles under

[418] McIntyre, above n 139, at 62.

[419] McCaffrey, above n 142, at 100.

[420] Biswas, above n 174.

[421] McIntyre, above n 139.

the law. According to McCaffrey, all available evidence among states confirms that most states are now rejecting absolute sovereignty in actual practice. The majority of legal scholars and experts are also do not support this notion of sovereignty.[422]

3.8 From limited sovereignty to the NBS and sustainability

As absolute sovereignty over transboundary rivers is not harmonious with the principles and sources of international law, it is also rejected by most states in the world. Also, absolute territorial integrity does not offer an opportunity for cooperation among riparian states. This is because it prevents states from undertaking any projects that may affect the quality and the quantity of water in river basins or change the natural condition of the basin. This theory also complicates the negotiation process regarding the management of transboundary river basins and may cause significant delays. Thus, this theory does not present a solution to the issue.[423]

According to limited territory integrity, as a theory for managing transboundary river basins, riparian states have a right to utilise the transboundary river freely if they do not cause harm to other riparian states. It means that the freedom to use sovereignty over the river is limited by obligations to other riparian states. Sovereignty is limited because states have a responsibility to use water equitably and not prejudice other states. Thus, the theory is also known as the theory of sovereign equality and territorial integrity.[424] This theory is considered an intermediate approach between absolute territorial sovereignty and absolute territorial integrity because it imposes a balance between upper-stream and downstream countries. This is the reason that the theory enjoys strong support among international conventions, courts, rules and legal scholars.[425] However, applying the two principles will not be sufficient and will not achieve sustainability without a dramatic transformation in river management mechanisms and the imagination of sovereignty in the Anthropocene.

Firstly, a dramatic shift in mechanisms of river basin management is fundamental for

[422] McCaffrey, above n 142.

[423] Thomas Naff and Ruth C Matson "Water in the Middle East: conflict or cooperation?" (1984) at 165.

[424] Rahaman, above n 327, at 160.

[425] Kliot, Shmueli and Shamir, above n 25, 223.

sustainable management of international watercourses. This will be achieved if basins are governed as one integrated and united unit with the significant participation of the public at the bottom level. Active public participation is a deficiency in basin management because states largely ignore the role of local communities or the people who directly interact with the river basin. Heavy concentration on states to solve the transboundary issues has led to dismissal of the local community's and other actors' roles in the basin. Thus, limiting sovereignty over transboundary river basins and combining it with NBS can significantly solve the issue because local people generally know how to use NBS to benefit basins and themselves. As the most advanced document, the Berlin Rules has provided sufficient mechanisms for managing national and international waters in a sustainable and integrated way. The Berlin Rules also considers both top-down and bottom-up approaches in water management by balancing participation between persons and states.

In addition, focusing heavily on the role of states for water management and, in particular, river basins has ignored and dismissed the role of special groups inside society such as women, indigenous people and minorities. Many of these groups are suffering from inequality in their access to freshwater.[426] Thus, states have a responsibility to take the social dimension of water policy seriously by allowing individuals and communities to participate in decision-making. Importantly, emphasizing this issue in international conventions and local laws will enhance the role of these classes and improve water management policy at the national and international levels. Thus, both principles of equitable utilization and minimization of environmental harm should not apply only among states. They should be implemented in a broader context to include local people in general, and various classes in society in particular.

Secondly, the dramatic change in contemporary imagination toward the concept of sovereignty and the capitalist understanding of natural resources is fundamental. Sovereign states should be seen as guardians, not the owners of the natural resources. The UN should take a different approach from the approach that was taken in principle 21 of the Stockholm Declaration and principle 2 of the Rio Declaration 1992. Both principles grant nation-states sovereign rights to exploit natural resources if they do not

[426] See WWAP (UNESCO World Water Assessment Programme) *The United Nations World Water Development Report 2019: Leaving No One Behind* (UNESCO, Paris, 2019).

damage the environment outside their sovereign territories.[427] The language of these two principles is similar to property ownership, which comes from western legal scholarship. This classic perception of sovereignty allows sovereign states to exploit natural resources without carefully considering damage to the environment and the whole ecosystem. Even though the language of these articles urges countries to consider environmental damage, it does not make states responsible for damage within their territory. It means states are only responsible for the damages outside their sovereign territory.[428]

This classic understanding of the sovereignty concept and viewing sovereign states as the owners of their sovereign territory renders sustainability questionable. This is a crucial task in the Anthropocene, and there should be a new approach for providing equitable and clean water for all people in the world. The UN expressed this sentiment as the sixth goal in the Sustainable Development Goals (SDGs). However, many regions in the world still suffer from a lack of cooperation over transboundary rivers, especially in Asia and Africa. The sixth goal concentrates on implementing IRBM at all levels. IRBM should be a tool for cooperation among riparian states in transboundary river basins. The goal also encourages all states to participate in local communities in water management. All of these ambitions should be achieved by 2030.[429] IRBM can also have a more considerable influence if equitable utilization and minimization of environmental harm principles link to the approach in transboundary basins. In cooperation with state and non-state actors, the UN is responsible for changing this perception of the sovereign states from the owners to the guardians of their natural resources.

3.9 Anthropocene reality: From political boundaries to ecological boundaries

In the first sentence of the Stockholm Declaration, the UN states that in the new

[427] Stockholm Declaration "Declaration of the United Nations conference on the human environment" (1972) URL= http://www. unep. org/Documents. Multilingual/Default. asp Principle 21.

[428] Klaus Bosselmann "Environmental trusteeship and state sovereignty: can they be reconciled?" (2020) 11(1-2) Transnational Legal Theory at 49.

[429] See General Assembly "Sustainable Development Goals (SDGs)" (2015) Transforming our World: the 2030 Agenda for Sustainable Development.

emerging era, humans have substantial control over climate change. The Declaration starts with: "Man is both creature and molder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth."[430] This "physical sustenance" is growing continuously, but it is not consistent with humans' moral and spiritual growth toward the planet and the environment. Humans now have a significant effect on changing environments, and these effects are more than the whole of any natural effects. Thus, we are truly living in Anthropocene, and the Holocene has finished.[431]

This is a critical era for humanity and the whole ecosystem because the consequences of the Anthropocene would be catastrophic.[432] To avoid this catastrophe, planetary boundaries are proposed by Johan Rockstrom and his colleagues. According to them, planetary boundaries are defined as "the safe operating space for humanity with respect to the Earth system and are associated with the planet's biophysical subsystems or processes."[433] Global freshwater is one of the nine boundaries that are identified in their research proposal. The UN has also identified 17 SDGs to be achieved by 2030 including SDG6 - "Ensure availability and sustainable management of water and sanitation for all".[434] However, scientific evidence confirms that achieving the SDGs by 2030 will put further pressure on the planet and ecosystems.[435]

This evidence and scientific proof confirm that environmental issues, including water problems, cannot be solved based on sovereign boundaries and only by sovereign actors. However, the UN continuously repeats the same mistake made since the Stockholm Declaration in 1972, by granting sovereign states full ownership of their territories and natural resources. The state's right to exploit natural resources and avoiding environmental damage outside their territory was also confirmed in the Rio Declaration in 1992. These are the basic rights and responsibilities of states in

[430] See Declaration of the United Nations conference on the human environment 1972.

[431] Zalasiewicz and others, above n 124, 56.

[432] Johan Rockström and others "A safe operating space for humanity" (2009) 461(7263) nature at 472.

[433] At 472.

[434] See A Resolution "RES/70/1. Transforming our world: the 2030 agenda for sustainable development" (2015) 25 Seventieth United Nations General Assembly, New York.

[435] Jorgen Randers and others "Achieving the 17 Sustainable Development Goals within 9 planetary boundaries" (2019) 2 Global Sustainability at 10.

international environmental law.[436] The 2030 Agenda for Sustainable Development took a similar position by stating that "every State has, and shall freely exercise, full permanent sovereignty over all its wealth, natural resources and economic activity."[437] Thus, how can the seventeen SDGs, including the sixth goal, sustainable management of water resources for all, be achieved if all states exercise their full sovereignty over their resources?

Despite the contradiction between the SDGs and the environmental sustainability of natural resources, it is not possible to achieve these goals under the current international political and legal system for several reasons. Firstly, sovereign objectives are more significant than global objectives from most states' perspectives. Thus, the UN believes that most states are unable to implement IWRM by 2030.[438] Secondly, local communities that directly link river basins in the IWRM are not influential in the decision-making process in most regions worldwide. Finally, institutional management for water resources is weak internationally because the UN cannot monitor or solve water issues among riparian states. All these issues are left for states to find solutions among themselves.

Therefore, before applying the equitable utilization and minimization of environmental harm principles, it is crucial to change the role of states in both our imagination and reality from the owners to the guardians of natural resources. Contrary to the 2030 Agenda for Sustainable Development, states cannot freely exploit their water resources in the Anthropocene because they have to take the planetary boundaries instead of political boundaries into account for protecting the resources, including water resources. International watercourses should be managed according to ecological boundaries to facilitate applying principles of the IEL, and IRBM is a significant tool for managing these basins. In order to evaluate the two principles and how sovereignty can affect the management of transboundary river basins, this thesis will investigate three international, federal, and local case studies. There will be more discussion on this issue and in-depth investigation in the Tigris Euphrates River basin in chapter four.

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[436] Sands and Peel, above n 119.

[437] Resolution, above n 434.

[438] United Nations Economic and Social Council *Special edition: progress towards the Sustainable Development Goals* (2019)

3.10 Conclusion

IRBM is an essential tool for managing river basins, especially transboundary basins. Under this approach, the river basin will be managed broadly and comprehensively to protect water, land, and surrounding areas. In addition, for achieving the ultimate objectives of IRBM, the three major pillars that should be accounted for are the economic, social, and environmental. The IRBM is now a popular global tool for managing river basins, in particular transboundary river basins. The CWA and the EU WFD are among the major successful applications of the approach. Concerning transboundary basins, the EU WFD is a more useful example to follow, particularly in developing countries, because the EU WFD is designed for managing basins among sovereign states. Even so, transferring the EU WFD experience to developing countries requires special consideration of these countries' social and economic conditions. Poverty and gender capacity building are among the issues not included in the EU WFD but are still vital for these countries.

Equitable utilization and minimization of environmental harm are among the most significant principles in environmental law. However, establishing and developing these two principles would not be possible without the incredible efforts of the IIL and ILA. These two organizations have participated in creating norms and principles of environmental law by issuing important rules and resolutions for managing rivers and river basins. According to equitable utilization, countries should share transboundary rivers in an equitable and reasonable manner. Simultaneously, the countries have to avoid or minimize environmental harm to share the transboundary river. These two principles have a significant place in international law and customary international law. Many conventions, including UN Watercourses Convention, the UNECE Water Convention, and international cases, have emphasized the significance of these principles for water allocation. As an additional factor for the no-harm principle, EIA can offer an excellent opportunity to avoid and minimize harm in transboundary basins. Still, this tool is (mainly) omitted from international conventions.

However, managing river basins, particularly transboundary river basins, according to sovereign borders has not led to integrated and sustainable management. Instead, the river basins should be managed in the context of the basins' ecological boundaries through implementing IRBM, particularly in the Anthropocene. IRBM can cover this

management approach to social, environmental, and economic aspects and provide an effective solution for transboundary river basins because they will be managed according to basin borders and not state borders. IRBM is a comprehensive approach to implementing equitable utilization and minimization of environmental harm principles, but management should not be left solely to sovereign states. Basin institutions can effectively implement IRBM for managing transboundary basins instead of unilateral management by sovereign states.

Application of the principles at three levels: International, federal and national levels

The following chapters (four, five and six) of the thesis apply both equitable utilisation and minimisation of environmental harm principles at the international level, federal and local or domestic levels. From a global level, chapter four discusses applying the two principles into two major rivers in the Middle East, Tigris and Euphrates. Chapter five provides an example of applying the two principles at the federal level Murray–Darling basin. The last case in chapter six, the Waikato River, will examine applying the two principles at the national level.

As well as the two principles, the four metrics: sovereignty, Ramsar designations, Nature-Based Solutions (NBS) and indigenous or minority rights will be used in the three subsequent case studies. These metrics are crucial in clarifying the two principles' evaluation in each case and presenting a big picture in implementing them. The metrics directly relate to the principles, but not all are relevant to all three case studies at the same level. For instance, the Ramsar convention has a significant place in the case of MDB, but it does not have the same importance in the Waikato River. The importance of the metrics will be more illustrated in the following chapters.

Chapter Four: Application of the principles at the international level

4.1 Introduction

This chapter examines how the principles of equitable use and minimising harm work at the international level and how they apply to the Tigris and Euphrates Rivers. The first part of the chapter explains the current situation of the TE-RB and the allocation of water among three major riparian states in the basin, Turkey, Syria and Iraq. The impact of the South-eastern Anatolia Project (GAP) in Turkey will also be a significant part of the chapter. In addition, water management in Syria, Iraq, and the Kurdistan Region of Iraq will also be discussed.

By illustrating the water management and water policy in the three counties, the chapter explains these governments' vision for managing the TE-RB from the perspective of each riparian state. The attempts at cooperation and agreements among the riparian states will also be addressed. Based on the transboundary issues among the states and the level of cooperation, the principles of IEL will be evaluated as well. As transboundary waters in the region are highly politicised, the political analysis will follow the legal analysis in most parts of this chapter.

After evaluating the two principles and determining major issues in implementing them, the last sections of the chapter will briefly introduce the opportunities and solutions for the issues in the TE-RB. The establishment of basin institution, managing the basin according to basin boundary and engagement of local people are recommended as crucial steps for implementing the two principles and sustainable management of the TE-RB. However, there will be more discussion regarding the challenges and opportunities in implementing the two principles in chapter seven.

4.1.1 Geographical background of Tigris and Euphrates River basin

The journey of Tigris and Euphrates starts in the cold-mountain climate in the East of Turkey.[439] The Tigris' length is 1,800 km from its source in Turkey until it flows into the Persian Gulf. The total areas of the river basin shared among riparian states is as follows - Iraq 56.1%, Turkey 24.5%, Iran 19%, and Syria 0.4%. The total area of the

[439] Altinbilek, above n 27, at 16.

Tigris basin is estimated to be 221,000 km^2.[440] The annual flow of the river is approximately 52 Billion Cubic Meters (BCM).[441] The river is formed by linking two headwater tributaries - the Botan and Batman in Turkey. The Tigris is quite significant for Iraq because the country's capital depends mainly on the flow of the river. The river, alongside the Euphrates, creates the Mesopotamian Marshes, which have significant economic, ecological and environmental value for the middle and south of Iraq.[442]

The Euphrates River is the longest river in western Asia (2,786 km). This river also originates from eastern Turkey and flows to Syria and Iraq. The total area of the Euphrates River basin is (440,000 km^2). Iraq shares the largest area of the basin, 47% of the total basin area, then Turkey and Syria come second and third by sharing 28% and 22% of the basin's total area. Saudi Arabia and Jordan share a minimal area of the basin area, respectively 2.97% and 0.03%.[443] The river is formed by joining two major tributaries - the Karasu and Murat near Elazig city in Turkey. The Balikh and Khabur are another two tributaries that discharge into the river in Syria.[444]

Both the Euphrates and Tigris unite in Iraq and they compose the Shatt al-Arab river before entering the Persian Gulf. The Shatt al-Arab river that combines the two rivers inside Iraq is 192 km long, which river enters the Persian Gulf in the final stage.[445] After entering Iraq, several tributaries and sub-tributaries discharge into the Tigris River. The Khabur, Greater Zab, Lesser Zab, Adhaim, and Diyala (Sirwan) are major tributaries joining the Tigris River after entering Iraq.[446] These tributaries are formed by several sub-tributaries. For instance, Rawandooz and Shamdinan are major sub-tributaries of Greater Zab.[447]

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[440] UN-ESCWA and BGR *Inventory of shared water resources in Western asia* (Beirut, 2013) at 100-101.

[441] Aysegül Kibaroglu "State-of-the-art review of transboundary water governance in the Euphrates–Tigris river basin" (2019) 35(1) International Journal of Water Resources Development at 3.

[442] David P Forsythe "Water and Politics in the Tigris–Euphrates Basin: Hope for Negative Learning?" (2017) Water Security in the Middle East at 168.

[443] BGR, above n 440.

[444] Ammar Hatem Kamel, Sadeq Oleiwi Sulaiman and Ayad Sulaiby Mustaffa "Study of the effects of water level depression in Euphrates River on the water quality" (2013) 7(2) Journal of Civil Engineering and Architecture at 238.

[445] Luis Antonio Bittar Venturi and Caluan Rodrigues Capozzoli "Changes in the water quantity and quality of the Euphrates river are associated with natural aspects of the landscape" (2017) 19(2) Water Policy at 234.

[446] Nadhir Al-Ansari "Management of water resources in Iraq: perspectives and prognoses" (2013) 5(6) Engineering at 670.

[447] Varoujan Sissakian and others "Meandering of tributaries of the Tigris River due to mass movements within Iraq" (2014) 6(11)at Cited Pages at 726.

The Karun is the last river to join the Shatt al-Arab. The Karun and Karkha are two tributaries that emerge from Iran. The Karun contributes approximately 24.5 BCM and the Karkha about 5.8 BCM each year to the Shatt al-Arab river. However, these two tributaries do not actually contribute to the Shatt al-Arab river because Iran has changed the direction of these tributaries to flow back into that country.[448] Even though Iran contributes only 2% of the Tigris River flow, the Iranian government has constructed dams on most tributaries such as Karun, Karkheh and Dez.[449]

The Euphrates and Tigris have contributed greatly to developing civilisations throughout history. All ancient and magnificent civilisations raised in Southwest Asia were established between the two rivers and the surrounding area. The Sumerian and Akkadian civilisations (4500-2154 BC) occupied the lower part of the basin. The Assyrian culture (2025-608 BC), the Hattian culture (2000-1700BC), and the Hittite culture (1600-1350 BC) in the upper part of the basin. Meanwhile, Babylonian culture (1735-1499 BC) was situated in the middle of the basin. These major civilisations were raised in the basin as the result of the wealth of the two rivers.[450]

The two rivers also have a significant value for the Kurdish people, particularly those living in Turkey and Syria. The Tigris, Euphrates, and their streams and their sources originate in the Kurdish area in Turkey. The Euphrates also enters Syria through its Kurdish areas. Additionally, the Tigris enters Iraq via the Kurdistan Region of Iraq. Despite political and ethnic conflicts between the Kurdish people and the riparian states in the TE-RB, there is a strong environmental movement among the Kurdish people, particularly against dam constructions and the GAP.[451] Thus, the Kurdish people have a strong voice in this area, that will be addressed in the following sections.

This dynamic is not unusual for the people who have lived in the basin since ancient times. The basin is home to the oldest known farming villages in the world, such as Zawi-Chemi and Jarmo. An ancient city such as Kirkuk (Arapkha) was mentioned in

[448] Nadhir Al-Ansari, Ammar Ali and Sven Knutsson "Present conditions and future challenges of water resources problems in Iraq" (2014) 6(12) Journal of Water Resource and Protection at 1086.

[449] Issa E Issa and others "Expected future of water resources within Tigris–Euphrates rivers basin, Iraq"at Cited Pages(5) at 432.

[450] Adamo, Al-Ansari and Sissakian, above n 88, at 21.

[451] See Simin Fadaee and Camilla Brancolini "From national liberation to radical democracy: Exploring the shift in the Kurdish liberation movement in Turkey" (2019) 19(5) Ethnicities.

Sumerian, Babylonian, and Assyrian documents more than 5,000 years ago.[452] The basin is also home to the most ancient living city in the world, Hasnkeyf. The city is 12,000 years old, and it has strong cultural and spiritual ties with the Kurdish people who live in the area.[453] The American journalist Tim Arango described the local people's feelings during the Ilisu Dam construction in 2016 - "They are dejected. They love their town and are proud of the history of Hasankeyf. It's where their grandparents and great-grandparents are buried."[454] Thus, the TE-RB has a great heritage, cultural, and spiritual values for the world and the Kurdish people in particular.

Turkey is the main contributor to the flow of the two rivers because 90% of the water of the Euphrates and 53% of the water of the Tigris comes from Turkey. However, Iraq is most in need of the river flows because approximately 98% of Iraq's local water supplies comes from the two rivers. Syria also relies heavily on the Euphrates because 86% of its local water supply comes from that river.[455] This dependence on the Euphrates River encouraged Syria to construct many dams on the river since the 1970s for electricity generation and irrigation. The storage capacity of these dams exceeds 16 km^3 in some instances.[456] However, the construction of these Syrian dams did not stop Turkey from putting pressure on Syria by using the water of the Euphrates as a threat. Turkey used the river as a weapon against Syria, pressuring them not to support Turkey's Kurdish secession and freedom movement in the 1980s and 1990s.

As a result, water is politicised, securitised, and militarised in this region.[457] Iraq was also active in building dams in the last century until the 1990s. There were also plans to construct several other dams, such as the Bekhma, Badoush, and Baghdadi, but they have not been constructed because of the second Gulf war and the UN sanctions.[458] Thus, Iraq is in a critical situation because the three neighbouring countries of Turkey, Syria, and Iran, are all working strategically to maximise water utilisation of the Tigris

[452] See Thamer Khazal Al-Ameri, Sahar Y Jasim and Amer JS Al-Khafaji "Middle paleolithic to neolithic cultural history of North Iraq" (2011) 4(5-6) Arabian Journal of Geosciences.

[453] Peter Boyle "Turkish dam project threatens 12,000-year-old heritage" (2019)(1238) Green Left Weekly at 12.

[454] Tim Arango "Turkish Dam Project Threatens to Submerge Thousands of Years of History" (2016) The New York Times <https://www.nytimes.com/2016/09/02/world/europe/turkey-hasankeyf-ilisu-dam.html>.

[455] Neda A Zawahri "Adapting to climatic variability along international river basins in the Middle East" (2017) 1 Water Security in the Middle East: Essays in Scientific and Social Cooperation at 159.

[456] Al-Ansari, Ali and Knutsson, above n 448, at 1086.

[457] Forsythe, above n 442.

[458] Nadhir Al-Ansari and Sven Knutsson "Toward prudent management of water resources in Iraq" (2011) 2011(1) Journal of Advanced Science and Engineering Research 448.

and Euphrates and their tributaries. In addition, these countries have not signed most of the international agreements related to water, which makes the situation even worse compared to other transboundary cases.

4.2 Dams and projects on the TE-RB

4.2.1 Southeastern Anatolia Project (GAP)

The GAP in Turkey is considered one of the largest projects for hydropower generation, development and irrigation in the World. The project includes approximately three million hectares of land for agriculture, which is more than 10% of the cultivable area in Turkey. This will increase by more than 50% the irrigated land in the country.[459] The GAP contains 22 dams and 19 hydropower generation plants on the Tigris and Euphrates and their tributaries. It is a major project or energy generation because it is estimated to produce 27 billion kWh of energy.[460] The total budget of the GAP was estimated at US$32 billion because it's enormous project scale, covering nine provinces in Turkey.[461] The GAP-RDA is the main institutional body to supervise and manage the GAP, and is part of the Ministry of Industry and Technology in Turkey.

Before starting the GAP project, Turkey applied for funds from Word Bank to construct the Karakaya dam in 1975, the World Bank agreed with one condition. They required Turkey to guarantee the downstream countries 500 m^3/sec of the Euphrates water flow at the Syrian border. When the Bank and Turkey agreed on that stipulation, Turkey notified Iraq and Syria, but they refused to agree to the project. Turkey then started the project by using its own finance because the Bank delayed funding.[462] Thus, the first attempt to prepare a trilateral agreement among the riparian states failed. Since then, all riparian states have constructed dams and projects on the river without coordination. Even though the riparian states created a joint committee in the 1980s, the committee could not draft an agreement among them.

The GAP projects on the TE-RB significantly influenced Iraq's water resources

[459] Ibrahim Yuksel "South-eastern Anatolia Project (GAP) factor and energy management in Turkey" (2015) 1 Energy Reports at 154.

[460] Ibrahim Yüksel "Energy production and sustainable energy policies in Turkey" (2010) 35(7) Renewable Energy at 1473.

[461] IH Olcay Unver "Southeastern Anatolia Project (GAP)" (1997) 13(4) International Journal of Water Resources Development at 191.

[462] George E Gruen "Turkish waters: Source of regional conflict or catalyst for peace?" in *Environmental Challenges* (Springer, 2000) at 567.

because both rivers originate outside of Iraq. Approximately fifty per cent of Iraq's surface water flows in from outside of the country. The country has a small amount of undergrown water, and it only accounts for 14%.[463] However, Turkey does not depend on the two rivers for water supply compared to Iraq and Syria. From the very beginning, providing hydropower was the main reason for building these dams in the GAP. Project.[464] The objectives of the GAP changed to cover domestic issues such as politics and socio-economic goals, particularly with the growing conflict between the Turkish government and Kurdish people in the east of Turkey [465]. Notwithstanding these issues, the GAP also increases instability in the region, and it may create tensions with Syria and Iraq.

Despite the poor management of water resources in Iraq and Syria, the GAP has influenced the available water resources in both countries. Table (1) calculations show that the total capacity of all dams constructed until 2008 in GAP is approximately 100 BCM. This means that the enormous amount of the Tigris and Euphrates' water will be reserved in Turkey before flowing to Syria and Iraq. This amount is even greater than the average annual flow of the two rivers because the average annual flow of the Tigris is 52 BCM and for the Euphrates is 32 BCM.[466] Thus, the negative impacts of the GAP on the downstream countries will be inevitable in the near future.

Iraq, for example, mainly depends on the Tigris and Euphrates to provide fresh water for drinking and agriculture.[467] The GAP, as well as external and internal factors such as poor water management in Iraq, threaten water security in the country and directly affects other sectors such as public health and agriculture.[468] Both Iraq and Syria have observed a significant reduction of water flow from the Tigris and Euphrates Rivers due to the GAP. The reduction is estimated at 40% and 80% for Syria and Iraq.[469] Thus, downstream countries, especially Iraq, have to cooperate with other riparian

[463] Mahmood Yousuf, Nada Rapantova and Jalal Younis "Sustainable water management in Iraq (Kurdistan) as a challenge for governmental responsibility" (2018) 10(11) Water at 1.

[464] Zawahri, above n 445, at 159.

[465] See Ali Carkoglu and Mine Eder "Domestic concerns and the water conflict over the Euphrates-Tigris river basin" (2001) 37(1) Middle Eastern Studies.

[466] Kibaroglu, above n 441, at 6.

[467] Zawahri, above n 445.

[468] Sameh W Al-Muqdadi and others "Dispute over Water Resource Management Iraq and Turkey" (2016) 7(08) Journal of Environmental Protection at 1096-1097.

[469] Harriet Bigas *The global water crisis: Addressing an urgent security issue* (United Nations University-Institute for Water, Environment and Health, Hamilton, Canada, 2012) at 51.

neighbouring countries to better manage the two rivers basin. In this way, Iraq can reduce environmental and economic issues related to water resources in the future.

In addition, ignorance of transboundary EIA in major projects on the Tigris and Euphrates in Turkey as an upstream state contributed to significant harm towards wetlands in Iraq as a downstream country. It is argued that if the GAP is accomplished successfully, the marshlands will disappear forever. The issue is not just about the water quantity, but also the water quality.[470] The Euphrates' flow into Iraq decreases dramatically because of the GAP. In addition, using the Euphrates River for irrigation in Turkey makes the water more polluted, particularly if Turkey is not willing to clean it. This negatively influences the survival of the remaining marshes in Iraq. Therefore, the riparian's responsibility is to take collaborative action to preserve these marshes and minimize environmental harm.[471]

The GAP was designed to provide a better irrigation system and more hydropower energy. From the Turkish state's perspective, the GAP can irrigate more land for agriculture in the Southeast region of Turkey. Despite that, the Turkish government and many scholars claim that the development of Southeast Turkey is another key driver for the GAP project. Reducing the gap between the most undeveloped area, the Southeast and the rest of Turkey, is the socio-economic aim of the GAP.[472] However, the argument that a hidden objective of the GAP is to make Kurdish society more subordinate and dependent on the Turkish government is unquestionable.[473] In the following section, this critical issue will be explained in more detail.

Table (1) Major dams in the Euphrates-Tigris Basin – Turkey [474]

Dams	Nearest city	River	Year	Hight (m)	Capacity (million m3)
Keban	Elazig	Euphrates	1975	210	31 000

[470] Curtis J Richardson "The status of Mesopotamian Marsh restoration in Iraq: A case study of transboundary water issues and internal water allocation problems" (2009) Towards new Solutions in Managing Environmental Crisis, Haikko, Finland at 59-61.

[471] See Thomas Naff and George Hanna "The marshes of Southern Iraq: A hydro-engineering and political profile" (2003) The Iraqi marshlands: a human and environmental study.

[472] Carkoglu and Eder, above n 465.

[473] See Lena Hommes, Rutgerd Boelens and Harro Maat "Contested hydrosocial territories and disputed water governance: Struggles and competing claims over the Ilisu Dam development in southeastern Turkey" (2016) 71 Geoforum.

[474] FAO *Irrigation in the Middle East region in figures: AQUASTAT Survey–2008* (2008) at 69.

Karakaya	Diyarbakir	Euphrates	1987	173	9 580
Ataturk	Sanliurfa	Euphrates	1992	169	48 700
Ozluce	Bingol	Peri	2000	144	1 075
Kralkizi	Diyarbakir	Maden	1997	126	1 919
Kuzgun	Erzurum	SerCeme	1996	110	312
Dicle	Diyarbakir	Tigris	1997	87	595
Batman	Batman	Batman	1999	85	1 175
Erzincan	Erzincan	Goyne	1997	81	8
Zernek	Van	Hosap	1988	80	104
Kockopru	Van	Zilan	1992	74	86
Kayalikoy	Kirklareli	Kaya	1986	72	150
Demirdoven	Erzurum	Timar	1996	67	34
Tercan	Erzincan	Tuzla	1988	65	178
Birecik	Sanliurfa	Euphrates	2000	63	1 220
Sarimehmet	Van	Karasu	1991	62	134
Sultansuyu	Malatya	Sultansuyu	1992	60	53
Mursal	Sivas	Nih	1992	59	15
Surgu	Malatya	Surgu	1990	55	71
Polat	Malatya	Findik	1990	54	12
Goksu	Diyarbakir	Goksu	1991	52	62
Kayacik	Karaburun		2002	50	117
Hancagiz	Gaziantep	Nizip	1989	45	100
Camgazi	Adiyaman	Doyran	1999	45	56
Medik	Malatya	Tohma	1975	43	22
Hacihidir	sanliurfa	sehir	1989	42	68
K. Kalecik	Elazig	Kalecik	1974	39	13
Gayt	Bingol	Gayt	1998	36	23
Devegecidi	Diyarbakir	DevegeCidi	1972	33	202
Dumluca	Mardin	Bugur	1991	30	22
Karkamis	Kahramanmaras	Euphrates	2000	29	157
Cip	Elazig	Cip	1965	23	7
Palandoken	Erzurum	GedikCayiri	1997	19	1 558
Porsuk	Erzurum	Masat	1994	17	770
				Total	**99 98**

4.2.2 The GAP, the Kurdish question and environmental harm

Many governments deliberately link dams and water projects with development because this assists them in hiding the negative impacts of these projects from the

public.[475] In terms of transboundary water resources, the upstream countries' language of development helps them ignore claims and conflicts about these resources with other riparian states. However, the actual meaning of development is not the same in the developing and developed world. The language and logic of development have changed in the West particularly in this century. It is now more concerned about the social and environmental impacts of these water projects, but some developing countries are currently following the Western path for development in the last century.

China and Turkey are among the countries that have used the language of development for water projects ignoring the significant impact of these projects on people and the environment.[476] These two countries, along with Burundi were the only three countries that voted against the UN Watercourses Convention in 1997.[477] For instance, water projects and dams on the Yangtze river in China displaced more than a million people from their homeland, flooding hundreds of villages and inundating significant archaeological sites.[478] The Ilisu Dam is the most controversial dam and hydroelectric project on the Tigris River, a part of the GAP project in Turkey. After completing the dam, approximately 200 Kurdish villages and towns will disappear, and 78,000 people will lose their homes.[479] Notably, the Ilisu Dam and all of the GAP projects are located in the Kurdish region in the Southeast of Turkey.

This region is one of the most impoverished regions in Turkey and the majority of the population are Kurdish. Turkey has struggled with the Kurdish secession and freedom movement for many decades.[480] Kurdistan Workers' Party, known as (*Partiya Karkerên Kurdistan*) (PKK), was founded in the late 1970s. The PKK started fighting against Turkey to achieve independence of the Kurdish area in Turkey in 1984. Since that time, the fighting has continued for more than three decades as one of the most prolonged domestic conflicts in recent history.[481] However, since the abduction of

[475] Hommes, Boelens and Maat, above n 473.

[476] Maria Kaika "Dams as symbols of modernization: The urbanization of nature between geographical imagination and materiality" (2006) 96(2) Annals of the Association of American Geographers at 297.

[477] Aaron Schwabach "United nations convention on the law of non-navigational uses of international watercourses, customary international law, and the interests of developing upper Riparians" (1998) 33 Tex. Int'l LJ at 261.

[478] Kaika, above n 476.

[479] See Maggie Ronayne *The cultural and environmental impact of large dams in southeast Turkey* (National University of Ireland, Galway and Kurdish Human Rights Project, 2005).

[480] Forsythe, above n 442, at 172-173.

[481] Güneş Murat Tezcür "Violence and nationalist mobilization: the onset of the Kurdish insurgency in Turkey"

Abdullah Öcalan, the leader of PKK, in 1999, the Kurdish people in Turkey have been seeking cultural and legal rights inside a democratic Turkey.[482]

Therefore, these dams were used to weaken the Kurdish people and end the fighting with PKK in the Southeast of the country. Turkey has two main strategic and long-term political objectives in constructing the GAP project at both the domestic and regional levels. From the domestic level, the Turkish government believes that developing the Kurdish region in the Southeast would turn the Kurdish population from supporters of the PKK to supporters and subordinators of the Turkish government. It also believed that the Kurdish would forget their identity.[483] From the regional level, Turkey attempts to pressure both downstream countries, Iraq and Syria, using water as an effective weapon to gain political will. For instance, Syria was the leading supporter of the PKK during the 1980s and 1990s. In response, Turkey used the water of the Euphrates and threatened Syria by not providing enough water. The main condition for Turkey to guarantee the water flow of the Euphrates River to Syria was stopping their support of the PKK. Both countries agreed to this condition in the protocol between the two countries in 1987.[484]

4.2.2.I De-development at Anthropocene

The exaggeration of the socio-economic objectives of GAP has led many Turkish scholars to underestimate the real intentions of Turkey in these projects.[485] Surprisingly, some of them claim that GAP is consistent with the SDGs.[486] The GAP and the Ilisu dam, in particular, is an obvious example for ignoring IRBM, EIA, and environmental and cultural damage to local people and neighbouring countries.[487] Thus, the Kurdish people were strongly opposed to the GAP. Before constructing the Ilisu dam in 2006, Turkey faced remarkable pressure from local people, NGOs and

(2015) 43(2) Nationalities Papers at 248.

[482] See Radha D'Souza and others *Building Free Life: Dialogues with Öcalan* (PM Press, 2020).

[483] Joost Jongerden "Dams and politics in Turkey: utilizing water, developing conflict" (2010) 17(1) Middle East Policy at 141-142.

[484] Carkoglu and Eder, above n 465, at 60.

[485] See Ibrahim Yuksel "Southeastern Anatolia Project (GAP) for irrigation and hydroelectric power in Turkey" (2006) 24(4) Energy exploration & exploitation.

[486] See Mustafa Balat "Southeastern Anatolia Project (GAP) of Turkey and regional development applications" (2003) 21(5)at Cited Pages.

[487] See Itzchak E Kornfeld *Mega-Dams and Indigenous Human Rights* (Edward Elgar Publishing, 2020).

environmental organisations. The Kurdish Human Rights Project, which is based in London, had a key role in criticising the dam and its negative environmental, cultural and social impacts of the project.[488] The campaigns and criticism of the project led Germany, Switzerland and Austria to withdraw their funds to the project, but Turkey continued constructing the dam.[489]

In addition to the environmental damage to Southeast Turkey and Iraq downstream, the dam destroyed the 12,000 year-old city of Hasankeyf, flooding 199 villages and covering 136 km^2 of the Tigris River valley with water. Hasankeyf was considered an unrivalled open museum because it presented twenty historical cultures with more than 550 monuments.[490] Most of these archaeological and cultural sites are now underwater because of this dam constructed on the Tigris River. The river and the dam area are fortunate with a high biodiversity-ecosystem, but it will decline in the following years.[491] The dam was completed in late 2019 and the reservoir was filled with water in March 2020.[492] Even though the Turkish government was criticised and warned by the EU and UNEP for not considering the negative impacts on local people and the neighbours, they ignored these critics.[493]

This is not the first time Turkey has ignored local and international pressure by exploiting the language of development to construct more dams. Before completing the Keban Dam in 1974, Turkey physically displaced between 30,000 and 40,000 people, and they were forced to leave their previous social and cultural lifestyles. They received compensation, but it was not enough for them to provide for the basic needs of life.[494] The Ataturk Dam, which was constructed in the 1980s, resulted in the displacement of more than 55,000 people by flooding a couple of towns and 135 villages. In the 1990s, the Birecik Dam also led to the displacement of around 30,000 people with the

[488] See Ilısu Dam Campaign "Kurdish Human Rights Project, Cornerhouse" (2001) World Economy Ecology and Development, Eye on SACE Campaign and Pacific Environment Research Centre.

[489] Jongerden, above n 483.

[490] Boyle, above n 453, at 12.

[491] At 12.

[492] Save the Tigris *Damming the Kurdistan Region of Iraq: Structural gaps in the KRG dam construction policies* (2020) at 13.

[493] Jongerden, above n 483.

[494] See Kerem Öktem "When Dams Are Built on Shaky Grounds: Policy Choice and Social Performance of Hydro-Project Based Development in Turkey (Dämme auf unsicherem Grund. Politische Strategien und soziale Auswirkungen von Wasserprojekten in der Südost-Türkei)" (2002) Erdkunde.

submergence of many villages.[495] In 2009, Turkey launched another project to construct eleven dams in the Hakkari and Sirnak provinces on the Iraqi-Turkish border. These dams were not built for irrigation or producing hydropower. The main purpose of constructing these dams was to displace the local people and cut the connection between them and the PKK guerrilla fighters. Therefore, Turkey used the language of development to deceive[496] the international community about the GAP's actual objectives.

As a result, the GAP cannot be considered a development project because the whole project lacks the required EIA. It has hugely negative social and cultural impacts on the people who live around TE-RB. Veli Yadirgi, in his book *The Political Economy of the Kurds of Turkey,* describes the Turkish policy in the Southeast as a "de-development" instead of the development process.[497] According to him, the roots of this de-development dated back to the middle of the nineteenth century, when the Ottoman empire ended the local Kurdish administration. The Republic of Turkey, which was established in 1923, continued on the same policy. This was a part of Turkification of the Southeast of the country, and Turkey continues this policy today.[498] Thus, the Ilisu Dam is an evident example of negative social and cultural impacts.

Finally, the Ilisu Dam and other dams in the GAP significantly influence the water quality and quantity of the Tigris and Euphrates Rivers inside the Syrian and Iraqi borders. According to UNDP's report in 2013, it is expected that by 2050 the water of the two rivers will be reduced by fifty per cent.[499] Other scholars believe that the share of both Iraq and Syria will be reduced even more than this as the result of the GAP. They estimate that Iraq's share of the two river's water would be reduced by 80% and Syria's share by 40%.[500] According to the Iraqi parliament, the GAP considerably decreased Iraqi spring water reserves from 40 BCM in 2006 to 11 BCM in 2009. All of the dams, particularly those constructed on the Euphrates river, will create an environmental disaster for Iraq due to a shortage of water. Displacement of people in

[495] Arda Bilgen "The Southeastern Anatolia Project (GAP) revisited: The evolution of GAP over forty years" (2018) 58 New Perspectives on Turkey 139-141.

[496] Jongerden, above n 483.

[497] Yadirgi, above n 188, 5.

[498] At 6.

[499] UNDP *Drought Impact Assessment, Recovery and Mitigation Framework and Regional Project Design in Kurdistan Region (KR)* (2011) at 7-10.

[500] Bigas, above n 469.

the South of Iraq, salination and drainage of the marshes are expected to be significant negative impacts of GAP on Iraq.[501]

4.2.3 Dams and water projects in Iraq

With two of the most significant regional rivers flowing into the country, Iraq was considered a wealthy country regarding water resources compared to its neighbours until the 1970s.[502] Since then, Syria and Turkey, as upstream countries, have started construction of major dams and water projects on the Tigris, Euphrates and their tributaries.[503] Constructing the GAP and Syrian projects reduced the flow of the two rivers, particularly the Euphrates River.[504] For instance, Iraq was receiving 33 × 109 m^3 of water per Hit yearly during the 1970s. However, this rate was reduced by 8 × 109 m^3 per annual Hit in the following decade. Building these dams affected not only the quantity of water but also decreased the quality. The Euphrates is suffering considerably from a high level of salinity now.[505]

Table (2) Major dams in the Euphrates-Tigris Basin – Iraq[506]

Dams	Nearest city	River	Year	Hight (m)	Capacity (million m3)
Mosul	Mosul	Tigris	1983	131	12 500
Derbendikhan	Sulaymaniyah	Sirwan (Diyala)	1962	128	3 000
Dokan	Sulaymaniyah	Lesser Zab	1958	116	6 800
Haditha	Haditha	Euphrates	1984	57	8 200
Hamrin	Ba'qubah	Diyala	1980	40	4 000
Dibbis	Lesser Zab		1965	15	3 000
Samarra-Tharthar system	Samarra	Tigris	195	--	72 800
				Total	**110 300**

In the mid-twentieth century, Iraq also started constructing dams. The above **Table 2**

[501] Jongerden, above n 483.

[502] Al-Ansari and Knutsson, above n 448.

[503] Altinbilek, above n 27, at 20.

[504] Al-Ansari and Knutsson, above n 448.

[505] Kamel, Sulaiman and Mustaffa, above n 444, at 238.

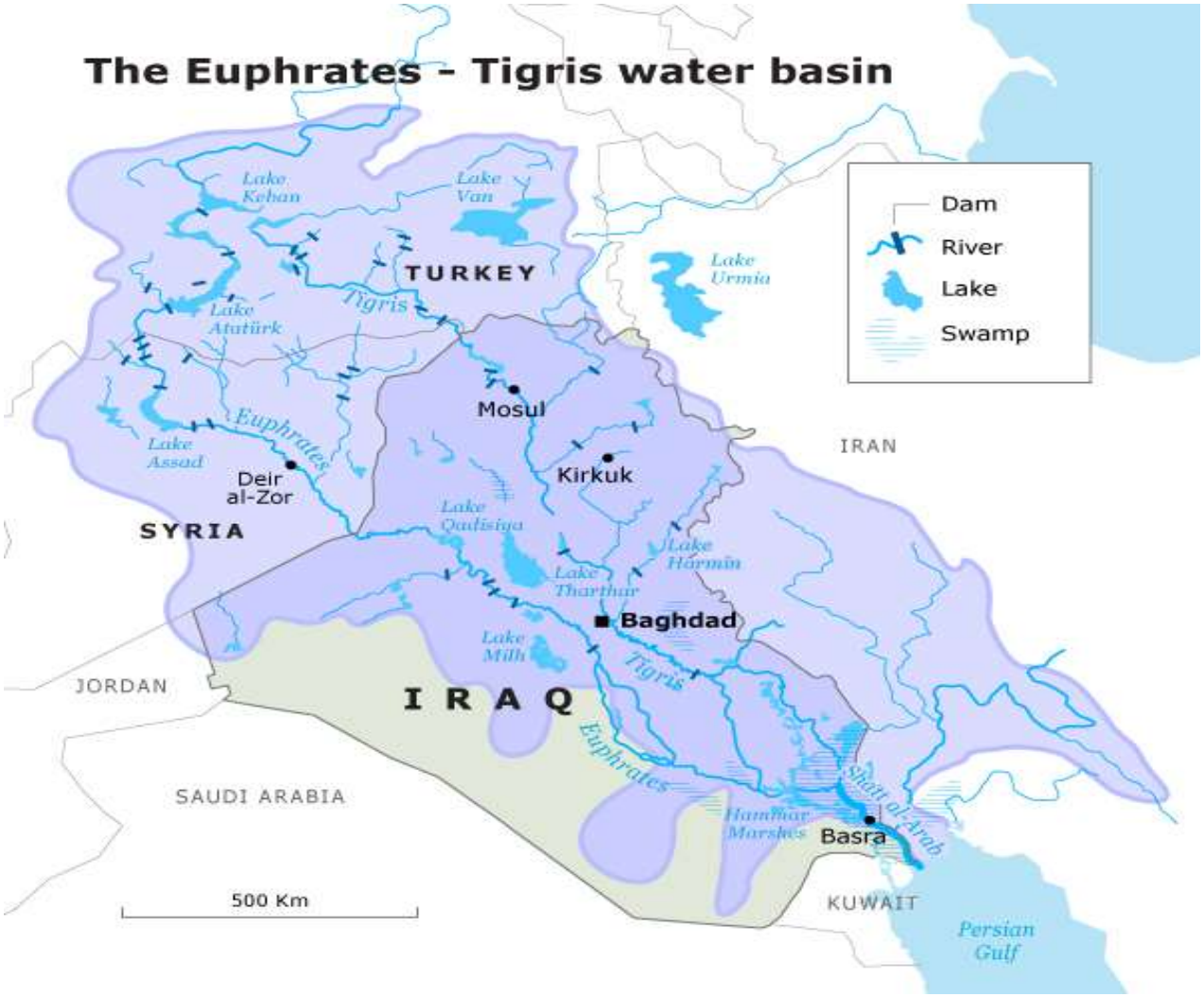
[506] Issa and others, above n 449, at 423.

illustrates major dams constructed in Iraq on TE-RB and their capacities. The Dokan was the first dam was built in 1959. The pressure of flooding was the main reason for the construction of dams, especially to protect the capital of Baghdad.[507] After the construction of many dams in both Turkey and Syria, Iraq sped up the process of building dams, particularly during the 1980s. However, the UN sanctions and the Second Gulf War did not allow Iraq to complete the dams which were planned to be constructed. The Bekhma and Badoush were among the significant dams supposed to be built, but they have not yet been constructed. The storage capacity of the two dams will, if constructed, be more than 26 km^3 and they could respond to considerable water demand in the country.[508]

From the above section, it can be understood that the Iraqi water policy was mostly focused on two issues in the last century. Firstly, the protection of the capital Baghdad and the middle of Iraq from flooding. Secondly, providing water supply for irrigation and domestic needs. In addition, locating all of the dams in the Kurdistan Region in the north and middle of Iraq confirms the politicised nature of water policy in Iraq until 2003. **Map 1** locates all of the dams which were built on TE-RB, including the position of the dams in Iraq. Therefore, the internal politics of Iraq has a critical role in water policy and management in the country. Iraq is divided into three major areas in terms of ethnic and religious division. Kurds live in the north, Sunni Arabs in the middle, and Shia Arabs in the country's south. Since the establishment of Iraq, the Sunnis were in power until the invasion of Iraq in 2003. Thus, water policy was designed mostly to exploit water resources to protect and meet the demand of the Sunnis in the middle of the country.

[507] Al-Ansari, above n 446, at 671.

[508] Al-Ansari and Knutsson, above n 448.



Map 1 dams on the TE-RB: source The Iraqi Civil Society Solidarity Initiative (ICSSI) (https://www.iraqicivilsociety.org/archives/3383)

Even though the GAP has a remarkable impact on reducing the water flow of the Tigris and Euphrates, external and internal political factors contributed to decreasing water quality and quantity in Iraq. Internally, the Iraqi government is responsible for neglecting the management of its water resources. For instance, the previous Iraq regime deliberately dried up most of the marshes in the middle and south Iraq under the rule of Saddam Hussein during the 1990s. After the invasion of Kuwait, the Iraqi regime was weak; and people took the opportunity to rise up against the regime. The uprising started against Saddam's regime in early 1991.[509] The marshland had a critical role in rebellions fighting against the regime. The marshlands were used for guerrilla fighting

[509] Peter Hough "Trying to end the war on the world: the campaign to proscribe military ecocide" (2016) 1(1) Global Security: Health, Science and Policy at 12.

against the regime. Thus, the process of drying up the marshes started in the 1980s, was accelerated after the uprisings.[510] To take revenge on these people, Saddam decided to dry up the marshes in comprehensive water projects.[511] However, this is not the main cause for destroying these valuable wetlands because the construction of new irrigation projects and channels during the 1960s and 1970s also contributed to the destruction of these national ecological treasures. [512]

Externally, Iraq's political and economic instability and the wars with its neighbours greatly influenced water management in the country. Iraq faced several wars in the last quarter of the twentieth century and into the new century, including the Iran-Iraq war between 1980 and 1988, the First Gulf War 1990-1991 and the Second Gulf War 2003.[513] These wars had a negative impact on Iraq and the Middle East region. Notably, according to some scholars, the First Gulf War is considered the first environmental war in modern history.[514] All of these wars affected the water infrastructure of the country. For instance, the Kurdistan Region of Iraq faced blackouts because Iran bombed hydrochloric satiation during the war in July 1981. The attack destroyed about 50% of turbines and 70% of transformers. Moreover, the invasion of Iraq in 2003 destroyed 40% of the water networks in Baghdad. As a result of the bombing, 50% of the city suffered from a lack of water supply. After the invasion, most of the water pipelines and treatment equipment were looted, and the water system was virtually destroyed.[515]

In addition, water regulation in Iraq is not effective, and the laws and regulations for water are quite old. The most comprehensive law related to water policy was the Irrigation Law 1962, that was in force for several decades.[516] However, the Iraqi parliament approved a new irrigation law in late 2017 for managing and protecting water resources in the county.[517] Even so, this law only contains sixteen articles, and it

[510] Juan Cole "Marsh Arab rebellion: grievance, mafias and militias in Iraq" (2008) at 4-6.

[511] Hough, above n 509, at 12.

[512] Edward L Ochsenschlager *Iraq's Marsh Arabs in the Garden of Eden* (University of Pennsylvania Press, 2014) at 11.

[513] See Stephan Schmid *Gulf War II (1990/91)-Iraq between United Nations' Diplomacy and United States' Policy* (GRIN Verlag, 2007).

[514] Farouk El-Baz and RM Makharita *The Gulf War and the environment* (Routledge, 2016) at 1-24.

[515] See League of Arab States *World Water Forum 2018: Arab Regional Report: Pre-Forum Version* (2018).

[516] Shilan Aziz Salih and Razhan Aso Ali *Environmental Legislation Guides in Kurdistan Region - Iraq,* (Nature Iraq) at 3.

[517] See Irrigation Law No.83 of 2017. available from: http://www.fao.org/faolex/results/details/en/c/LEX-

is not compressive. Article 1 determines all public water resources in Iraq without mentioning groundwater as a part of these resources.[518] The Ministry of Water Resources (MoWR) is responsible for the management, restoration and maintenance of rivers and dams. The new law also lacks details regarding water management and water policy. Finally, while the law does not mention the principles of equitable use and minimisation of environmental harm, but it does impose fines for those who pollute water resources in the county.[519]

Fundamentally, the regulatory and institutional frameworks for water management are weak in Iraq because water resources were not prioritised in the last four decades. The country's political instability was the main reason for this issue. Even though, Iraq signed most of the international conventions related to water, in particular transboundary waters, the state failed to transfer the principles of these international conventions into local jurisdictions. For example, the recent irrigation law does not include the most significant principles for water management, such as IWRM, IRBM, and EIA. The law mentions the equitable utilisation and minimisation of environmental harm principles, but without details, because the transboundary issues are left for the MoWR to address.

The Minister of Water Resources has the greatest power for managing water resources and formulating water policy according to the ministry's law. The ministry's law was issued in 2008 and amended in 2010 and 2012.[520] The ministry's law is drafted similarly to all water issues, and policies are left for the ministry and its directorates according to the law.[521] However, this classic centralised institutional arrangement of water resources in Iraq cannot meet all the considerable water quality and quantity issues that Iraq is now facing. Therefore, the Iraqi government should change the country's water management structure and establish independent and effective water institutions because the Minister cannot realistically supervise the whole water sector.

As observed above in **Map 1**, both Turkey and Syria have constructed many dams and

FAOC100214 (3 July 2017).

[518] At art 1 Fourth.

[519] At art 13.

[520] See The Ministry of Water Resources (MoWR) The law of the Ministry of Water Resources, No. 50 2008, amended by Law No. 4 (2010) and Law No.1 (2012).

[521] At art three(first).

water projects on the TE-RB. Both upstream countries have attempted to maximise their usage of water in the basin for their benefit. All of these dams also have been built in the absence of cooperation among riparian states. Thus, starting negotiations and cooperation with the neighbouring countries is vital for Iraq. This should (as already noted) be combined with reforming the water management system in the country. The federal government of Iraq needs to cooperate with its only federal region (Kurdistan) in reforming the water system because internal water resources should be managed with regional authorities according to the constitution. The status of water resource management in the Kurdistan Region will be addressed in the following section.

4.2.3.1 Kurdistan Regional of Iraq and water resource management

It would not be appropriate to discuss water resource management in Iraq without mentioning Kurdistan Regional Government (KRG). As the only federal region in Iraq, the KRG has a different view and policy from the federal government in Baghdad.[522] The federal constitution of Iraq in 2005 grants many significant rights to the KRG in relation to the management of water resources inside the region.[523] According to the constitution, the federal government has exclusive power regarding water resources management outside the region.[524] However, the management of internal water resources and water policy inside the Kurdistan Region is shared between federal and regional authorities. This is stipulated in article 114 of the constitution.[525]

The region's climate and geography, located in the north of Iraq, are quite different from the middle and south of Iraq. Kurdistan is a mountainous region with many rivers, and tributaries with a high level of precipitation compared to the rest of Iraq. The region is composed of three provinces which are Duhok, Erbil, and Sulaymaniyah.[526] The KRG is also seeking to control other areas with a majority Kurdish population, but are currently under the federal government's control. These areas are known as disputed

[522] Qaraman Mohammed Hasan and Karwan Ali Perot "Production sharing contracts and rentierism: Reforming transparency gaps in Kurdistan's oil and gas contracts" (2021) 8(2) The Extractive Industries and Society at 100901.

[523] Qaraman Mohammed Hasan "The power of constitution for enacting energy law and managing natural resources: The case of the Kurdistan Regional Government's oil contracts" (2019) 128 Energy Policy at 476.

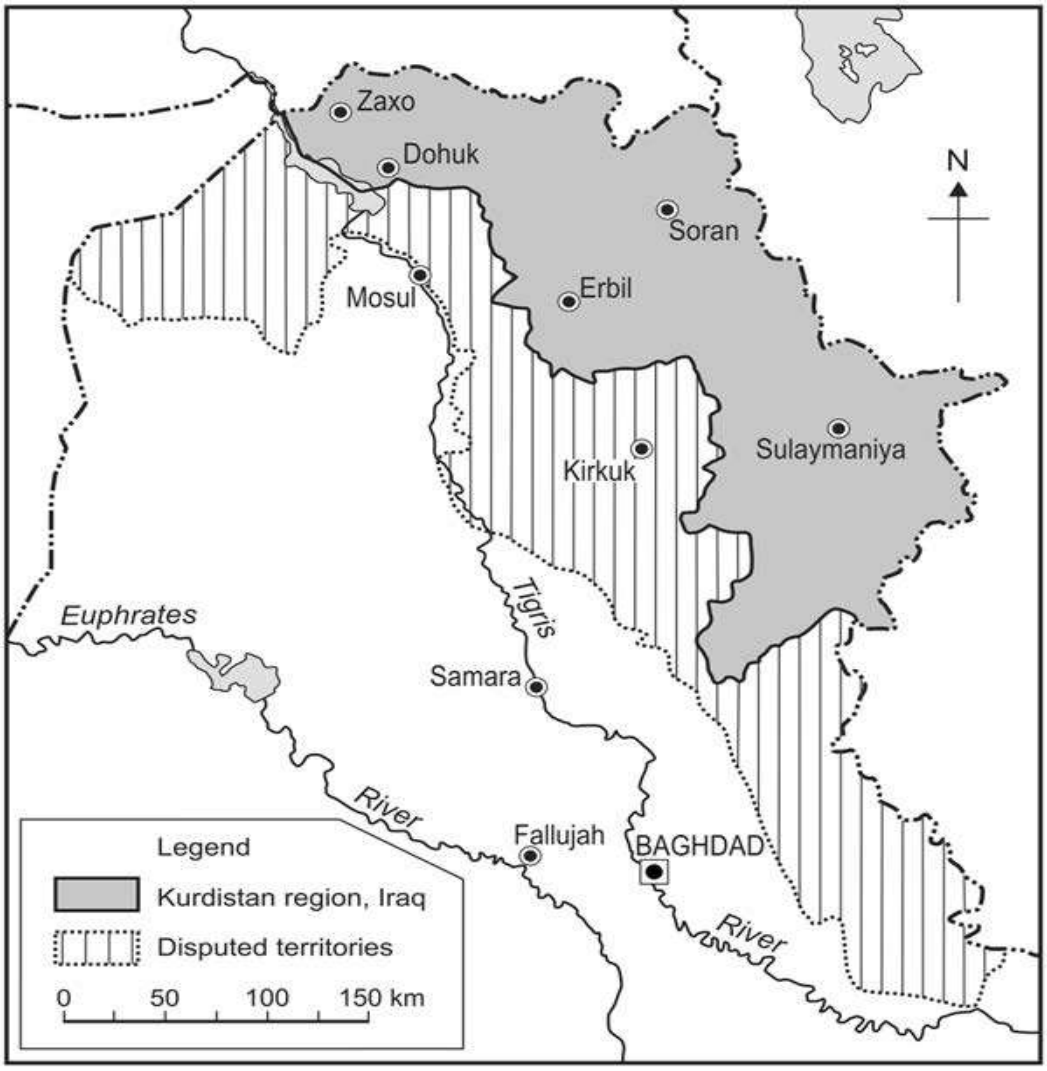
[524] The Constitution of the Republic of Iraq. available from: http://www.refworld.org/docid/454f50804.html (accessed 25 November 2017) art 110 (Eighth).

[525] At art 114 (Seventh).

[526] UNDP, above n 499, p. 14.

territories, including Kirkuk province, part of Nineveh, Salah al-den, Diyala, and Wasit. This issue is stipulated in article 140 of the Constitution.[527] **Map 2** shows the location of the Kurdistan Region and disputed territories inside Iraq. Regarding water quality, approximately 70% of the population has access to a treated water supply.[528] The Tigris River enters Iraq from the Region and most of its tributaries are from the region, such as the Lesser Zab, Greater Zab, Sirwan, Khabur and Awaspi. Approximately 60% of these tributaries originate from the region. Despite the region's wealth in water resources, there has been no significant study of them in the region, and no accurate estimation for groundwater.[529]

Map 2 Kurdistan Region, Disputed Territories the two rivers[530]



[527] The Constitution of the Republic of Iraq. available from: http://www.refworld.org/docid/454f50804.html (accessed 25 November 2017) Art 140.

[528] UNDP, above n 499, at 14.

[529] KRG Ministry of Planning "Kurdistan Region of Iraq 2020: A Vision for the Future" (2013) Ministry of Planning <http://www.mop.gov.krd/index.jsp?sid=1&id=381&pid=98>.

[530] Till F Paasche and James D Sidaway "Transecting security and space in Kurdistan, Iraq" (2015) 47(10)

In addition, environmental legislation in general and water law in particular, have many issues in Kurdistan and Iraq. Most of the laws and legislation dated back to thirty and forty years ago and cannot regulate all accumulated issues from this era. Further, these regulations are not clear and are confusing because stakeholders do not know which law is applicable.[531] Indeed, the regulation of water resources is feeble in the region because it does not have its own law, while federal laws and regulations are not effective in the region. The draft law project of Management and Protection of Water in the Kurdistan Region (MPW) was prepared and discussed in parliament, but the draft has not yet been approved. In this legal vacuum, water resources are not regulated, and there is overconsumption, exploitation and illegal drilling in both the Kurdistan Region and the rest of Iraq.[532]

The MPW was prepared by the Ministry of Agriculture and Water Resources in 2014. This draft law of the Kurdistan Region is more comprehensive and more developed compared to the Iraqi irrigation law which is too thin and shallow. The MPW confirms the sustainability of water resources in that utilisation of water should be equal to or less than the amount received by the region annually.[533] The draft is aware of the significant groundwater issues which are dismissed by federal irrigation law. This awareness of these issues and the concentration on groundwater can be understood as a response to overexploitation of these resources. The statistics illustrate that there are around 44,000 to 46,000 wells in the region and half of them are illegal or unauthorised wells.[534] Importantly, the draft MPW is aware of the principle of equitable utilisation and attempts to apply it inside the region. However, the draft cannot deal with receiving an equitable and reasonable amount of water from outside of the region because this is an exclusive right of the federal government. Moreover, one of the significant aims of the MPW is the minimisation of environmental harm, and protecting water resources in the region.[535]

Environment and Planning A at 2121.

[531] Salih and Ali, above n 516.

[532] Alessandro Tinti "Water Resources Management in the Kurdistan Region of Iraq" (2017) The Institute for Regional and International Studies (IRIS) at 5.

[533] The draft law of Management and Protection of Water in the Kurdistan Region. 2014. available from: http://www.perlemanikurdistan.com/Default.aspx?page=byyear_comments&c=projayasa2013&id=2014 (15 July 2019) art first, eleventh.

[534] Tinti, above n 532, at 5.

[535] The draft law of Management and Protection of Water in the Kurdistan Region. 2014. available from: http://www.perlemanikurdistan.com/Default.aspx?page=byyear_comments&c=projayasa2013&id=2014 (15 July 2019) art Two, Second.

Finally, the Kurdistan Region's draft law has many characteristics that put the law at the forefront of modern legislation for promoting water resources' sustainability. For example, the MPW confirms that the region's water policy should be constructed based on research and scientific methods to meet sustainability and climate change issues.[536] Furthermore, the draft confirms the region's public ownership of water resources that cannot be privately owned.[537] This is different from federal irrigation law, which divides the resource into public and private waters.[538] Lastly, article 9 of the draft MPW is worthy of note because it concentrates on the role of women in management and providing water resources to promote gender equality in water resources.

However, six years after its submission to parliament, the draft has not been approved. Under this circumstance, the earnestness of the KRG about water resources in the region is debatable. Suppose the region's authorities cannot approve a draft policy for managing water resources in the region in six years, how can they implement the law effectively in the following years? The authorities in the region should take urgent action to manage water resources properly in the region because the region has experienced extreme weather in recent decades.[539] They have a responsibility to work with the federal government in Baghdad to find a mechanism to negotiate and cooperate with upstream neighbouring countries. The Kurdistan region is under pressure because Turkey has constructed, and will continue to construct, several dams on the Tigris River and the Greater Zab River. The Greater Zab River is one of the major tributaries of the Tigris and it joins Tigris in the south of Mosul city in the North of Iraq.[540]

In addition to the actions of Turkey, Iran has also constructed several dams in its Western provinces that are neighbours of the Kurdistan Region. The Daryan Dam is the largest and was opened in 2019.[541] The Daryan Dam was constructed on the Sirwa River (one of the Tigris tributaries), which is also known as the Diala river in Iraq. The dam is located in the Kermanshah Province in Iranian Kurdistan, and is projected to

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[536] At art sixteen.

[537] At art three.

[538] Irrigation Law No.83 of 2017. available from: http://www.fao.org/faolex/results/details/en/c/LEX-FAOC100214 (3 July 2017) art 1 fourth and art 2.

[539] Tigris, above n 492.

[540] See Varoujan K Sissakian "Geomorphology and morphometry of the Greater Zab River Basin, north of Iraq" (2013) 9(3) Iraqi Bulletin of Geology and Mining.

[541] Tigris, above n 492.

produce 230 MW of electricity.[542] Iran has also built a tunnel near the Daryan dam that severely influences the Sirwan River's water flow to the Kurdistan Region. As the tunnel diverts water from the river to the Iranian side, it is expected to cut the water flow of the Sirwan River to the Kurdistan Region.[543] In the last decades, Iran built two other dams: the Gheshlagh Dam in 1979 and the Gavoshan dam in 2004. Both dams were constructed on the Sirwan River.[544] As well as the water flow issues, the water quality of the Sirwan River has also considerably decreased. Results show that the water quality of the Gheshlagh Dam is poor, and it is below standards that are acceptable by the World Health Organization.[545] The Sardasht Dam is another major dam and water project which was opened in 2019. The dam was constructed on the Little Zab, one of the tributaries of the Tigris River.[546]

Therefore, both the KRG and the federal government will face significant water quality and quantity challenges in the following years. They have to improve water quality and modernise water legislation and institutions. This should be consistent with their requirements towards Turkey regarding equitable use and minimisation of environmental harm. In this way, Iraq's argument is stronger and Turkey cannot criticise the poor water management in the lower part of the basin. Both upstream countries, Turkey and Iran, have developed water projects that significantly affect the available water in Iraq. Therefore, the federal government is responsible for negotiating and cooperating with upstream countries for protecting Iraq's equitable share of water in the two rivers.

This is stipulated in the Iraqi constitution because the management of transboundary rivers are left for the federal government.[547] This is reaffirmed in Article 4 of KRG's water law draft.[548] The federal government should put transboundary water issues at

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[542] Kamal Chomani and Toon Bijnens "The impact of the Daryan Dam on the Kurdistan Region of Iraq" (2016) Save the Tigris and Iraqi Marches Campaign at 3.

[543] At 4.

[544] Tigris, above n 492.

[545] Fariba Rezaei and others "Water quality in the Gheshlagh reservoir (Iran) and downstream the dam" (2013) 12(12) Environmental Engineering & Management Journal (EEMJ) at 2267-2268.

[546] Tigris, above n 492.

[547] The Constitution of the Republic of Iraq. available from: http://www.refworld.org/docid/454f50804.html (accessed 25 November 2017) art 110 (Eight).

[548] The draft law of Management and Protection of Water in the Kurdistan Region. 2014. available from: http://www.perlemanikurdistan.com/Default.aspx?page=byyear_comments&c=projayasa2013&id=2014 (15 July 2019) art 4.

the top of government proprieties and discuss the issue seriously with the neighbours. The government should require its equitable share while minimising harm to the transboundary rivers. The principles of IEL provide significant support for such a claim. Simultaneously, designing internal water policy and reforming water governance inside Kurdistan and Iraq is the most fundamental step toward proper water resource management. If the KRG and the federal government cannot adopt principles of international environmental law, how can they require the neighbouring countries to do so?

4.2.4 Dams and projects in the basin in Syria

Managing water resources in Syria dates back five decades. A change of regime in 1963 altered water policy in the country because the new regime had a strong tendency to exploit surface water for agriculture. There were not any dams in Syrian before that period.[549] To establish a central and united water policy, the Ministry of Irrigation was created in 1982. The main purpose for creating the Ministry was to study and research water resource conditions in Syria, prepare water projects by suggesting and designing dam projects, and supervise the maintenance of water and wastewater projects. Later, in 1986, a law was issued to divide all Syrian water resources into seven major basins and establish general directives to manage these basins.[550]

However, all of these policies could not meet the enormous water demand in Syria, because the demand for water resources was far higher than the limited availability of water resources. The regular available water in Syria accounted for 14,218 MCM annually in 2005, but water demand was estimated at 17,566 MCM at the same time. Hence, the water shortage was about 3,348 MCM.[551] Despite this challenge, the population experienced continuous growth until 2011. It increased from 19 million in 2005 to 21 million in 2011.[552] In comparison, in 1981 the Syrian population was approximately 9 million.[553] Substantially, Syria faced an exceptional drought in 2006,

[549] Jessica Barnes "Managing the waters of ba'th country: the politics of water scarcity in Syria" (2009) 14(3) Geopolitics at 521.

[550] A Kaisi, M Yasser and Y Mahrouseh "Irrigation system performance: Syrian country report" (2005) 52(2) Irrigation systems performance. Bari: CIHEAM, Options Méditerranéennes: Série B. Etudes et Recherches at 188.

[551] At 191.

[552] See Colin P Kelley and others "Climate change in the Fertile Crescent and implications of the recent Syrian drought" (2015) 112(11) Proceedings of the national Academy of Sciences.

[553] Kaisi, Yasser and Mahrouseh, above n 550.

and it continued uninterrupted between the years 2007 to 2010.[554]

Following the Arab Spring, the Syrian government was one of the countries that faced demonstrations and people called for democratic reforms. In March 2011, the demonstrations shifted to civil war.[555] The government lost control of most parts of the country, millions of people migrated as refugees to neighbouring countries. During the civil war, many water infrastructure systems were destroyed.[556] The Islamic State of Iraq and Syria (ISIS) controlled most of the Euphrates basin at the end of 2014.[557] The Syrian regime still does not have control over the whole county because most North and East parts of the country are under the control of the majority Kurdish self-administration (Rojava).[558] Syrian rebel forces who started the armed conflict with the regime also gained control over the Idlib province and small areas in the North West of Syria.[559]

Therefore, instability and civil war did not allow the government to develop a water policy in the last decade. The main priority for the Syrian government is still to end the civil war and retake the areas that were lost during the war. As a result, water policy is not a primary and fundamental concern for the government. Syria's land is now divided among internal and external forces. The Euphrates River serves as a border between the Syrian government in Damascus and Rojava under the control of the Syrian Democratic Forces (SDF).[560] The following **Map 3** illustrates the division of forces in Syria.

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[554] Kelley and others, above n 552.

[555] Peter H Gleick "Water as a weapon and casualty of armed conflict: A review of recent water-related violence in Iraq, Syria, and Yemen" (2019) 6(4) Wiley Interdisciplinary Reviews: Water at 2.

[556] At 6.

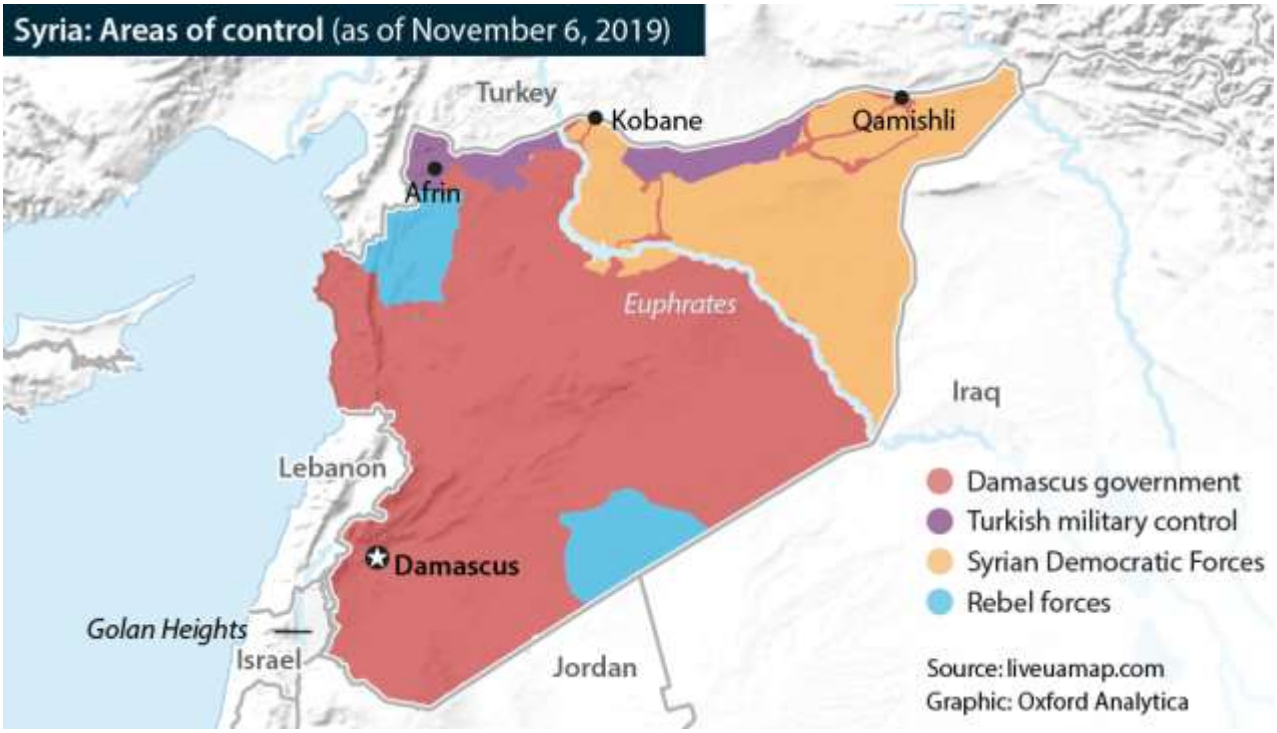
[557] Arnon Karnieli and others "Was drought really the trigger behind the syrian civil war in 2011?" (2019) 11(8) Water at 3.

[558] See Stephen E Hunt "Prospects for Kurdish ecology initiatives in Syria and Turkey: Democratic confederalism and social ecology" (2019) 30(3) Capitalism Nature Socialism.

[559] See CJO PHILLIPS "International actors in the Syrian conflict" (2019) Orient.

[560] Oxford Analytica "Prospects for Syria in 2020" (2019) <https://dailybrief.oxan.com/Analysis/DB247564/Prospects-for-Syria-in-2020>.

Map (3) location of the Euphrates River and division of forces in Syria[561]



However, both the Syrian government and Rojava cannot neglect the importance of the Euphrates as a vital resource for the country. Syria is heavily dependent on the Euphrates for water use and agriculture because 50% of Syrian water use comes from the Euphrates. Agriculture consumes 87% of water use in Syria, it is the largest sector for the utilisation of water. Increasing demand for water from various sectors and the rapid growth of the population have put the Syrian government under enormous pressure.[562] Thus, the Syrian government has built many dams on the Euphrates River, Tabqa is the largest among them. In addition, there are about eighty-four other small and medium dams on the river. The smallest dam has a 30,000m^3 storage capacity.[563]

As well as using the Euphrates River as a political weapon, Turkey has also been involved in the Syrian civil war. Turkey launched a couple of military operations inside Syria and controlled some parts of northern Syria in 2018 and 2019.[564] **Map 3** illustrates the areas occupied by Turkey. The two countries have also disputed control of the

[561] At 2.

[562] Maher Salman and Wael Mualla "Water demand management in Syria: Centralized and decentralized views" (2008) 10(6) Water Policy at 551.

[563] Al-Ansari, Ali and Knutsson, above n 448.

[564] PHILLIPS, above n 559.

Euphrates River for many decades. Construction of the Ataturk Dam and decreasing rain during the late 1980s and 1990s dramatically reduced the river's water flow.[565] A comparison of the average annual water flow at the Syrian border illustrates this argument. The Euphrates River was around 1,000 Cubic Meters per second (M^3/s) from 1937 to 1989; but this amount reduced to around 700 m3/s from 1990 to 2010.[566]

Table 3 Major dams in the Euphrates-Tigris Basin – Syria[567]

Dams	Nearest city	River	Year	High (m)	Capacity (km^3)
Tabaqa	Ar Raqqah	Euphrates	1975	60	11.7
Baath	Ar Raqqah	Euphrates	1988	--	0.09
Upper Khabur	Al Hasakah	Khabur	1992	--	0.99
Tishrine	Aleppo	Euphrates	1999	40	1.9
				Total	**14.68**

As a result, the GAP project has negatively impacted the Euphrates River flow inside Syria. As well as Iraq, Syria will face significant water challenges in the coming years. The Syrian government and Rojava can potentially work together to develop a sustainable method for managing available water in Syria. Rojava's radical environmental change and ecological movement are promising. The self-administration in the region is working to promote environmental principles and increase public participation in all areas, including water management and enhancing women's role in society.[568] This social and ecological movement is significant for applying NBS for water and IEL principles at the bottom level. This was discussed in chapter three, and will be discussed further in the last chapter.

4.3 Agreements and protocols in the TE-RB

As discussed in the above sections, water disputes between Turkey, Syria and Iraq have a long history. The disputes date back to the First World War and the collapse of the Ottoman Empire. New independent states emerged in the 1920s.[569] In the Treaty of

[565] Peter H Gleick "Water, drought, climate change, and conflict in Syria" (2014) 6(3) Weather, Climate, and Society at 332.

[566] BGR, above n 440.

[567] Issa and others, above n 449, at 423.

[568] Hunt, above n 558.

[569] Al-Muqdadi and others, above n 468, at 1097.

Lausanne between Turkey and the Allies, Turkey promised to consult with Iraq before initiating any water projects in 1923.[570] Turkey also signed its first agreement with Syria in 1926. The Good Neighbourliness Agreement mentioned that the Syrian water rights were assigned between Turkey and Syria under the French mandate. In the treaty, Turkey agreed not to change the water flow of the Euphrates or build any project on it without consultation with Syria. However, Turkey did not act according to the agreements in the following decades.[571]

Iraq and Turkey signed the Treaty of Friendship and Neighbourly Relations in 1946. According to the treaty, both countries agreed to exchange data and information between them. They agreed on sharing the water resources of the Tigris and Euphrates and their tributaries. They referred the implementation of the treaty to a committee, but the committee was not established.[572] With starting the construction of the Keban Dam in 1964, Turkey indirectly ignored its responsibility under the 1946 treaty. During that time, Turkey again promised both Iraq and Syria that it would discharge 350 m3/s from the Euphrates water flow to the two countries, but this amount was not sufficient for them.[573] **Table 4** explains the agreements and protocols chronologically among the riparian states in the basin.

Table 4 Agreements among riparian states

Year	Agreement or Protocol	Impact
1923	Treaty of Lausanne	Turkey agreed to consulate with Iraq before any water projects
1926	Good Neighbourliness Agreement	Syrian water rights were assigned between Turkey and Syria under the French mandate.
1946	Treaty of Friendship and Neighbourly Relations	Agreement to share transboundary water resources and exchange data.

[570] Gruen, above n 462, at 567.

[571] See Ryan Wilson "Water-shortage crisis escalating in the Tigris-Euphrates basin" (2012) Strategic Analysis Paper. Tech. Rep., Future Directions International.

[572] See Ibrahim Kaya "The Euphrates-Tigris basin: An overview and opportunities for cooperation under international law" (1998) 44 Arid Lands Newsletter.

[573] Yousuf, Rapantova and Younis, above n 463.

1980	The Joint Technical Committee (JTC) was created between Iraq and Turkey	The committee was very active during 1980s.
1983	Syria jointed to the JTC	The committee had sixteen meetings until 1993.
1987	Syria and Turkey signed 'Protocol on matters pertaining to economic cooperation'	They agreed on sharing 500 cubic m^3/second. But have struggled to meet this because of the Kurdish issue.
1990	Iraq and Syrian bilateral agreement	They agreed on sharing water of the Euphrates River.
1993	JTC had sixteen meetings	The meetings were suspended.
2019	There is not an effective agreement among the three riparian countries	Absence of cooperation for water allocation.

As indicated in **Table 4**, several agreements and protocols were signed among the different states, but the states did not implement them because there was no real intention for cooperation. In addition, there were no regular meetings among basin states until the 1980s. This contributed to the absence of mutual understanding regarding managing the basin among the states. However, creating a committee for cooperation in the early 1980s was a significant step in the history of the basin's management.

4.3.1 The Joint Technical Committee

In the meeting between Iraq and Turkey in Ankara, the Joint Committee for Economic and Technical Cooperation was created in 1980. Both countries agreed on solving their water issues, including transboundary issues. They reached a mutual understanding of reducing and minimising environmental harm on the two rivers. Importantly, they agreed to establish a technical committee for issues related to transboundary rivers. According to the agreement, the committee was responsible for preparing reports and submitting them to TE-RB's governments.[574] This step was significant towards cooperation, and it had international support. For example, the UN Watercourses Convention confirms the significance of this step in the management of transboundary basins. Article 24(1) states that: "Watercourse States shall, at the request of any them,

[574] At 10.

enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism".[575]

After Turkey initiated the GAP, Iraq suggested creating a committee for negotiation regarding the allocation of water of TE-RB. The Joint Technical Committee (JTC) was created in 1980 between Iraq and Turkey, with Syria also joining the committee in 1983. The JTC was created for achieving short and long term goals. It was very active during the 1980s and held about sixteen meetings until 1993.[576] The committee was successful regarding short term objectives, which were about exchanging information and updating member states regarding projects and dams on the two rivers' basin. However, the JTC failed to fulfil the long-term goal of drafting the final agreement for water allocation among the riparian states. [577]

Despite this failure, the JTC played an active role in creating a communication bridge among the three riparian countries. The committee's role cannot be ignored because one of the issues that was discussed during the meetings was water allocation among the riparian. The main obstacle for the JTC members was a disagreement on determining the river basin system. Iraq and Syria believed the Euphrates River should be considered an international river.[578] However, the Turkish views were utterly different because they believed that the term international rivers refers to rivers that create borders among the counties.[579] In addition, Turkey viewed the Tigris and Euphrates basin as one basin that crosses different countries. Also, for them, sharing the sovereignty of the basin among riparian countries was not acceptable.[580]

The JTC meetings continued until 1993. After the sixteenth meeting in the same year, the JTC did not meet again. It is argued that the political circumstances during the end of the Cold War contributed to suspending the meetings and not reaching any

[575] Convention on the Law of the Non-navigational Uses of International Watercourses art 24(1).

[576] Ayşegül Kibaroğlu *Building a regime for the waters of the Euphrates-Tigris river basin* (Martinus Nijhoff Publishers, 2002) at 227.

[577] Zawahri, above n 455, at 160.

[578] Aysegül Kibaroglu and IH Olcay Ünver "An institutional framework for facilitating cooperation in the Euphrates-Tigris river basin" (2000) 5(2) International Negotiation at 9.

[579] See Jouejati Murhaf "Water Politics as High Politics: The Case of Syria and Iraq" (1996) Reluctant Neighbour: Turkey's Role In the Middle East, United States Institute of Peace Press, Washington DC.

[580] Kibaroglu and Ünver, above n 578, at 9.

agreement among riparian states.[581] The main reason for the failure of the JTC could be the absence of the real intention of the parties for mutual understanding and cooperation. Thus, the transboundary issue in the basin is still unsolved because there is not any agreement or water institution among the parties.

4.4 Tigris and Euphrates basin; the absence of cooperation and the IEL

The two rivers have great political, economic and environmental value for these states and the region. Each state of the Tigris and Euphrates basin has attempted to maximise its use of the shared water by building dams for the benefit of their county. However, Turkey's GAP project has affected the water flow of these two rivers and caused significant environmental harm to downstream countries. While, the TE-RB is considered the birthplace of most ancient civilisations, IEL has not developed adequately in the region. The principles of IEL, particularly the equitable utilisation and minimisation of environmental harm, are still not applicable in the region. There are some attempts to transfer these principles into the local jurisdiction, but the attempts are not productive in reality. Thus, IEL and its principles relating to transboundary waters are weak and almost absent. States and states' national security are given greater priority than local voices and environmental issues.

Turkey has a great responsibility because the state has constructed many dams without consultation of the downstream countries. The GAP lacks EIA, and all water projects of the GAP have negatively influenced the social, cultural and environmental condition of the basin. The dams have a considerable impact on reducing the quality and quantity of the two rivers, particularly on the Euphrates River. For example, the volume of the river was once quite considerable, and it was estimated at 29 km^3/year when it entered Iraq before the 1990s.[582] However, this amount has decreased by 90 per cent and it was only 4.4 km^3/year in 2011.[583] This created significant water issues for both Iraq and Syria, and these issues became more serious and turned to disaster in the following years. As well as Turkey, Iraq and Syria are responsible for ignoring the management of the two rivers inside their territory. The Iraqi regime, in particular, destroyed most

[581] Kibaroglu, above n 441, at 19.

[582] Y Majeed "The Central Regions: Problems and Perspectives" (1993) Water in the Arab Word: Perspectives and Prognoses, Harvard University, Cambridge.

[583] Al-Ansari and Knutsson, above n 448, at 62.

of the natural wetlands in the lower part of the TE-RB in the 1990s.

Even though there were significant efforts to establish a guideline for cooperation among basin states, all of them failed to create a common understanding for managing the basin. The establishment of the JTC was an obvious example in this regard, but politicised water policy in the basin suspended the meetings after thirteen years. As a result, there is no effective agreement between the three states; there is no mechanism for equitable utilisation or minimising the basin's environmental damage. In addition, Turkey, as the upstream country, has not signed the most important conventions related to international and transboundary rivers. Thus, applying these principles is impossible under the current circumstances because Turkey still believes in absolute territorial sovereignty rather than the theory of limited territorial integrity for these two rivers.

After the regime change in Iraq in 2003, the new Iraqi government started negotiations with Turkey to find a mechanism for cooperation. The international organisations supported the step and assisted Iraq in the negotiation. Under the supervision of UNDP-Iraq, and the riparian states of the TE-RB met in Istanbul in 2008 for dialogue and to establish cooperation mechanisms. It was predicted that the meeting and dialogue among the basin states could lead to cooperation if the political situation favoured it. According to claims, instability and security issues in both Iraq and Syria ended these efforts and failed to achieve cooperation.[584] However, the absence of true intention for cooperation among the riparian states is still the main obstacle, particularly from the Turkish side.

Finally, to understand the application of the principles of IEL in the TE-RB, analysing the socio-political situation of basin states is critical. For the Turkish state, issues such as sovereignty, territorial integrity and security are fundamental. According to a neorealist understanding, cooperation would be dismissed if these issues were fundamental for a state. Here, the Turkish state's maximizing of power over transboundary water is the opposite of the principles of IEL and neo-institutionalism theory, which is the driving thought behind the IEL.[585] However, there are opportunities for promoting and applying the IEL principles in the region. Among the opportunities,

[584] Bigas, above n 469.

[585] See Jeremy Allouche "Nationalism, Legitimacy and Hegemony in Transboundary Water Interactions" (2020) 13(2) Water Alternatives.

supporting environmental and ecological movements inside Turkey is fundamental for applying the principles of IEL from bottom to top level.

4.5 From environmental and heritage loss to sustainability

The UN and its institutions, including UN-Water, emphasize providing water for all, based on SDG 6. If countries follow the goal and its indicators, UN-Water believes there will be a sustainability of water resources and water for all.[586] The goal should be paralleled with IEL principles, including equitable utilization and minimizing environmental harm in transboundary watercourses. IRBM and public participation are among the most fundamental indicators to achieve SDG 6, but for Turkey, management of the two rivers inside its sovereign territory is important, and IRBM in TE-RB is dismissed.

The management of the two rivers, not only for downstream countries, but also inside Turkey is very problematic. The GAP was used as a weapon to weaken the Kurdish population by forcing them to leave their homelands and settle in places away from any sources for living. For instance, more than 100,000 Kurdish people were displaced in the construction of both the Ataturk and Karakaya Dams.[587] In most cases, including the Ilisu Dam, the displaced people were forced to live and work far away, not from their villages and cities, but forced to live outside their provinces. For instance, Hasankeyf is located in the Batman province, but 80% of the fund allocated for building houses was invested outside the Batman province. Thus, despite rejecting the whole idea of dam construction, many Kurdish people refused to accept the compensation because it was insufficient and inappropriate.[588]

In IRBM, a river basins' social, environmental and economic aspects should be accounted for, but in Turkey, social, cultural and environmental values were dismissed deliberately for economic and security goals. The Turkish government claimed that it built houses for displaced people in the GAP area as compensation. Despite the bad quality of the apartments, less than 5% of displaced people were able to use the

[586] WWAP (UNESCO World Water Assessment Programme) “Sustainable Development Goal 6 on water and sanitation (SDG 6)” (2021) <https://www.sdg6data.org/>.

[587] Kornfeld, above n 487, at 133.

[588] Initiative to Keep Hasankeyf Alive “Report on the current status of the Ilisu Dam and Hydroelectric Power Plant Project and the counter campaigns” (2020) <https://www.hasankeyfgirisimi.net/turkce-new-report-destruction-and-resistance-in-hasankeyf-and-at-tigris/>.

compensation fund to buy the new apartments at once.[589] These actions are against basic human rights principles, but the government is granted legal power from the Turkish Constitution of 1982. Regarding expropriation, the constitution states that:[590]

> The State and public corporations shall be entitled, where the public interest requires it, to expropriate privately owned real estate wholly or in part or impose administrative servitude on it in accordance with the principles and procedures prescribed by law, provided that compensation is paid in advance.

This article granted broad power to the Turkish government to take over any land or buildings for the benefit of the government. If the compensation is paid in advance, it also does not allow people to reject or refuse state decisions. Despite that, the government did not follow this procedure prescribed by the constitution and Turkish law in the GAP. In many cases, insufficient compensation was paid to displaced people after expropriation and not in advance.[591] All of these actions confirm that the GAP was designed to achieve several economic and security objectives, which are the projects' true intentions. People, cultural heritage, and the environment were victims of these economic and security goals.

The flooding of Hasankeyf is against all efforts to protect the universal heritage efforts that started almost a century ago. The Athens Charter for the Restoration of Historic Monuments was adopted in the First International Congress of Architects and Technicians of Historic Monuments in Athens in 1931.[592] The Athens Charter was the first and significant step to make a common understanding of historical sites. This was important to intensify efforts for protecting universal heritage values in the second half of the last century. The Convention concerning the Protection of World Cultural and Natural Heritage (The World Heritage Convention) was adopted in 1972. [593] Importantly, Turkey, Iraq and Syria are members of the World Heritage Convention.[594]

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[589] At [19].

[590] Constitution of the Republic of Turkey art 46.

[591] Kornfeld, above n 487, at 134.

[592] See Athens Charter The Athens Charter for the restoration of historic monuments.

[593] Christina Cameron and Mechtild Rössler *Many voices, one vision: The early years of the World Heritage Convention* (Routledge, 2016) at 1-2.

[594] UNESCO "The World Heritage Convention" (2021) <https://whc.unesco.org/en/convention/>.

For protecting universal cultural and natural heritage, the World Heritage Committee was established. The Committee is responsible for implementing the Convention, and it meets annually.[595] Even though Turkey did not apply for Hasankeyf to be considered a world heritage site, the Committee included the marshlands of Southern Iraq (Ahwar) in the world heritage list in 2016. The Iraqi marshlands are fed by both the Tigris and Euphrates Rivers. They are recognised as "unique" and "one of the world's largest inland delta systems, in an extremely hot and arid environment."[596] However, the Committee recognised that dam projects in upstream and climate change issues are major challenges for the sustainability of these valuable wetlands.[597]

Therefore, as well as the two principles, Iraq can depend on other conventions to require an equitable share of the two rivers to protect this universal natural heritage. UNESCO also has an important role in putting more pressure on Turkey to comply with the World Heritage Convention provisions because Turkey is a member of the Convention. Granting an equitable share for Iraq and Syria would lead to minimising environmental damage in these two countries. Iraq and Syria can also use the Ramsar Convention to support their claims because all riparian states are members of the convention. The Convention clearly refers to states' responsibility for protecting listed and non-listed wetlands. According to the Ramsar Convention, "Each Contracting Party shall promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands."[598] Hence, applying the two principles affectively is fundamental in this region and the TE-RB because it is vital for the sustainability of the basin and achieving SDG 6. If Iraq receives an equitable and reasonable share of water, it will assist the country for the restoration of marshes and wetlands in the middle and south Iraq.

The restoration of Iraqi marshlands is one effective method for applying NBS in the basin. According to the UN-Water report on NBS, "natural wetlands, improvements in soil moisture and more efficient recharge of groundwater, could be more sustainable and cost-effective than traditional grey infrastructure such as dams."[599] As well as the

[595] See Convention Concerning the Protection of the World Cultural and Natural Heritage .

[596] UNESCO "The Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities" (2021) <https://whc.unesco.org/en/list/1481>.

[597] At [35].

[598] Convention on Wetlands of International Importance especially as Waterfowl Habitat (The Ramsar Convention) art 4.1.

[599] WWAP (United Nations World Water Assessment Programme)/UN-Water *The United Nations World Water*

significant role of marshlands in increasing surface and groundwater, they have a critical role in improving water quality. For example, marshlands can be used "to mitigate the impact of polluted stormwater runoff and wastewater."[600] In some cases, natural wetlands are considered the only solution to immobilise certain chemicals in polluted water.[601]

Therefore, applying equitable utilisation and minimisation of environmental harm in the TE-RB have a critical role in the sustainability of water resources and achieving SDG6 in this region. NBS can provide an optimal solution because the water projects on the TE-RB confirm the dangers of grey projects that lack green and natural solutions. The GAP, and the Ilisu Dam in particular, is an evident example of the urgent need for IRBM and NBS to be applied for the sustainability of freshwater resources. Any development or construction projects should be consistent with nature and the ecosystem of river basins. This will be achieved if EIA is undertaken as the precondition for water projects to avoid these projects' negative environmental and social impacts.

Finally, achieving sustainability and implementing IEL principles in transboundary basins cannot be achieved without consistency between the top-down and bottom-up approaches in the management of these basins. The top-down approach requires strong cooperation among riparian states and implementing international conventions and agreements at the national level. The bottom-up approach requires strong community participation in consultation, management and decision-making of transboundary river basins. The two approaches should be paralleled because dismissing one of the approaches creates more problems to another approach. Then, it would be impossible to achieve sustainability of water resources.

In the TE-RB, Iraq and Syria have concentrated on the top-down approach and implementing international watercourses rules without considering the bottom-up approach. However, Turkey's approach to managing the basin is very problematic because Turkey focuses on the top-down approach without considering international conventions or cooperating with its two downstream neighbours. Security, self-pride

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Development Report 2018: Nature-Based Solutions for Water (UNESCO, Paris, 2018) at 4.

[600] At 5.

[601] At 4-5.

and economic goals are major drivers for constructing all of the mega-dams in the GAP. For instance, the largest dam of the GAP is named Ataturk or (father of the Turks), which refers to the founder of modern Turkey, Mustafa Kemal Atatürk. This classic understanding of natural resources requires dramatic change toward sustainability, particularly in the Anthropocene. Amendment of the Constitution of Turkey will be the first and most influential step in this regard. In addition, the Kurdish ecology movement and environmentally-friendly culture in the upper part of the TE-RB will have a fundamental role in changing this classic understanding. This will be important for strengthening the bottom-up approach in the basin and achieving sustainability in the basin. The section presents more detailed discussion in the TE-RB case.

4.6 Implementing the principles: Multi-lane roads to Single-lane road

Many scholars have discussed the management of the TE-RB, but none of them succeeded in providing a comprehensive solution under Anthropocene reality. Dellapenna was among the earliest scholars to provide legal analysis of the two rivers basin in 1995. He evaluated the two principles and suggested integrated management for cooperation without a definite mechanism for implementing the principles.[602] Ibrahim Kaya, mainly addressed equitable utilisation under the UN Watercourses Convention.[603] Scholars such as Burleson mainly concentrate on Article six of the UN Watercourses Convention.[604] Hilal Elver addressed the TE-RB and believed that regional powers and international organisations could contribute to a peaceful political solution.[605]

However, combining existing agreements among riparian states, engaging with internal actors, and depending on natural solutions such as NBS will effectively influence implementing the IEL principles. There is still an opportunity to take advantage of previous bilateral agreements among riparian states and produce a multilateral agreement among them under IEL principles. Turkey guaranteed 500 M^3/second minimum water flow of Euphrates River into the Syrian border according to article 6

[602] Joseph W Dellapenna "The two rivers and the lands between: Mesopotamia and the international law of transboundary waters" (1996) 10 BYU J. Pub. L. at 213-262.

[603] Kaya, above n 71.

[604] See Elizabeth Burleson "Equitable and reasonable use of water in the Euphrates-Tigris river basin" (2005).

[605] See Hilal Elver *Peaceful uses of international rivers: The Euphrates and Tigris Rivers dispute* (Brill-Nijhoff, 2002).

of the Protocol on Matters Pertaining to Economic Cooperation.[606] As explained in **Table (4)**, Syria also promised Iraq they would release 58% of Euphrates water to Iraq in 1990.[607] Thus, there were agreements between Syria and Turkey, and between Iraq and Syria, but there is no trilateral agreement among the three riparian states. However, it does show that the riparian states had a mutual understanding to allocate the Euphrates approximately in an equitable manner.

Therefore, despite the challenges and complexity of the case, riparian states can widen their agreements from bilateral to trilateral and cover not the only the Euphrates but also the Tigris. Iraq should agree with Turkey and Syria to manage the two rivers as one single and united basin. Even though Iraq claimed that the two rivers belong to two separate basins during JTC meetings, the Iraqi government is now convinced that the two rivers can be managed in one single basin. This is a crucial step toward approaching IRBM and creating basin institutions to manage the basin according to its boundaries rather than sovereign boundaries. Here, drafting a comprehensive agreement among all riparian states and establishing a basin institution would lead to implementing the two principles effectively.

As well as the above steps, the Ramsar Convention can be one of the valuable tools in promoting cooperation among riparian countries. All three countries are member parties of the Convention. Iraq and Turkey joined the convention by accession in 2007 and 1994, while Syria joined by ratification in 1998.[608] In addition, all riparian states have sites listed as important international wetlands. Iraq has four sites, all of which are part of the TE-RB. Turkey and Syria also each have a site in the basin that is listed as international wetlands. Thus, all three states have common elements related to the Ramsar Convention. These should motivate them to work together to implement principles and articles of the Convention. Restoring and protecting the Ramsar sites in the TE-RB require collective work from the riparian states to reduce the environmental harm of these sites and the TE-RB. Thus, there is a common legal obligation for the

[606] See Syrian Arab Republic and Turkey "Protocol on Matters Pertaining to Economic Cooperation" (1987) <https://www.un-ilibrary.org/content/books/9789210596435s002-c001/read>.

[607] See "Law No. 14 of 1990, Ratifying the joint minutes concerning the provisional division of the waters of the Euphrates River" <https://www.informea.org/en/legislation/law-no-14-1990-ratifying-joint-minutes-concerning-provisional-division-waters-euphrates>.

[608] See Ramsar Convention "Country Profiles" (2019) The Ramsar Convention Secretariat <https://www.ramsar.org/country-profiles>.

states to manage the basin in a sustainable and integrated manner.

As the US has a strong political and military existence in Iraq, it can cooperate with the UN agencies to pressure Turkey to provide an equitable share of water to Iraq and Syria. The UN agencies have a critical role in convincing Turkey for achieving SDGs in the downstream countries. The United Nations Assistance Mission for Iraq (UNAMI), which was founded in 2003 after the invasion of Iraq, has a great responsibility to motivate riparian states toward cooperation.[609] The Food and Agriculture Organisation (FAO), The International Fund for Agricultural Development (IFAD) and the United Nations World Food Programme (WFP) can have a role in creating an environment for cooperation among the riparian states.

4.6 Conclusion

The TE-RB is one of the most significant areas in the world for freshwater resources. The basin is important for riparian states or nations in the Middle East, but it is also a valuable basin for the whole world. The basin is the birthplace of many early civilizations and historical innovations, from innovations in the agricultural sector to the establishment of the first city-states. The basin was home to civilizations that invented writing, enacted laws, and drafted treaties for the first time in history. However, the modern states in the basin are still struggling to draft a treaty for the water resources of the two rivers in the twenty-first century.

Both the Tigris and Euphrates originate in the Kurdish area in Turkey. The Euphrates enters Syria and then flow into Iraq, but the Tigris enters Iraq from the Kurdistan Region in the North of Iraq. During their long journey, the two rivers and their tributaries face many mega-dams in Turkey, Syria, and Iraq. However, the Turkish GAP project has more negative impacts than the dams in both Syria and Iraq because the GAP is located in the upper basin and near the two rivers' sources. The GAP is harmful to the downstream countries and the Kurdish people in the Southeast of Turkey. The Ilisu Dam, which was completed recently, flooded twelve thousand years old cultural and historical sites. It is expected that the water flow of the Euphrates will be cut in the following years, and the water flow of the Tigris River will reduce by more than a half.

[609] See The UN "United Nations in Iraq" (2021) <https://iraq.un.org/>.

Both Iraq and Syria are also responsible because they failed to design a proper water policy benefiting from NBS inside their territories.

As water policy in the basin is highly politicized, regulating transboundary issues in the basin require political solutions in the first place. Legal solutions should be paralleled and supported by political initiatives. Environmental change and the ecological movement of the Kurdish society in both Turkey and Syria can enhance political and legal solutions in the basin. In this method, principles of IEL, including equitable utilization and minimization of environmental harm, can be applied in the basin and the region in both and top and bottom levels. Then, there will be a sustainability of water resources and stability in this region which would positively influence the global environmental issues in the Anthropocene.

Chapter Five: Application of equitable utilization and minimisation principles at the federal level

5.1 Introduction

This chapter evaluates the two principles of equitable use and minimising harm at a federal level. In Australia, the Murray–Darling Basin (MDB) provides a significant case study for illustrating the two principles among various regions and territories in a federal state. The chapter will concentrate on the role of the Water Act 2007 in Australia in managing the basin among various states. As Australia has a strong institution for managing the basin, the legislative influences and the institutions for promoting equitable use and avoiding environmental damage will be central to the discussion in the second part of the chapter.

Australia is a compelling case for managing water resources at the federal level for several reasons. Firstly, Australia is an arid country and vulnerable to climate change issues. Thus, it will be interesting to know how various actors perceive and adopt the principles of IEL under stressed circumstances. Secondly, the states and territories were historically responsible for water management inside their territories, until the federal government took responsibility in the late 20th century. Thus, how this shift happened and how it affected water resources management in the MDB is an important focus. Finally, this chapter will question what impacts this shift has had on the adaptation of the principles of IEL in the basin.

Applying the two principles at the federal level, especially equitable utilisation, needs to be addressed profoundly. This means that equitable water allocation will not just be addressed among states and territories, but how it is equitably shared inside states and territories is also fundamental. Thus, indigenous Australian water rights will be a critical issue in this chapter. The first part of the chapter provides an overview of the transboundary water issue at the federal level. It starts with the US experience and compares it with Australia as the main thesis of the chapter. Following this section, is the Australian water policy. In the later sections of the chapter, the management, regulation, and institutions of the MDB are analysed. Lastly, an evaluation of the two principles, and instrumental and institutional gaps in the MDB, will be addressed in the last part of the chapter.

5.2 Transboundary water disputes at the federal level

The issue of water allocation among different states, provinces, and regions inside a federal state has a long history. In the US, the case of *Kansas v. Colorado* over the Arkansas River in 1902 can be considered one of the earliest disputes related to water allocation inside a federal system. The two states brought the case to the US Supreme Court for judgment because Kansas claimed that Colorado had overused the river and reduced the river's water flow.[610] The Court used the term "equitable relief" in 1902 in reference to the case.[611] Significantly, the Supreme Court referred to the principle of equitable utilisation and minimisation of environmental harm in its decision in 1907. According to the court, the reduction of water flow caused harm to the state of Kansas. The court also stated that:[612]

> … when we compare the amount of this detriment with the great benefit which has obviously resulted to the counties in Colorado, it would seem that equality of right and equity between the two States forbids any interference with the present withdrawal of water in Colorado for purposes of irrigation.

Hence, the Court refers to "the equality of right and equity between the states" as the foundation for solving the transboundary issues between states. This judgment can be considered the earliest attempt by the judiciary toward forming and shaping the two principles of environmental law at the domestic level. The Court illustrates the significance of the principle of equitable and reasonable water use, even among various states inside one jurisdiction. As quoted above, it is not appropriate and not fair for upstream states to exploit the river without consideration of downstream states. Therefore, the application of the two principles has a long history inside federal states. Notably, the two principles' characteristics and criteria are also developed at the federal or national level, then transferred to international law. In particular, the characteristics for determining equitable utilisation or "equitable apportionment" is illustrated in another US case.

Nebraska v. Wyoming 1945 is a significant case that provides clarification to support the above argument. In determining water allocation between the two states, the US

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[610] See *Kansas v. Colorado* [1902] US 185 [125].

[611] At [185].

[612] *Kansas v. Colorado* [1907] US 206 46 at [114].

Supreme Court expanded the principle of equitable use by taking into account the following characteristics. The judgment stated:[613]

> … physical and climatic conditions; the consumptive use of water in the several sections of the river; the character and rate of return flows; the extent of established uses; the availability of storage water; the practical effect of wasteful uses on downstream areas; the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former

Even though the exact terms of "equitable utilisation" and "minimisation of environmental harm" were not used in the two above cases, similar terms were used to guide states in managing shared water resources. Defining equitable utilisation by determining these above characteristics was significant at the national level, but the influence of the judgment extended to the international level. Two decades later, the Helsinki Rules in 1966 took inspiration from the judgment and adapted similar characteristics for determining the principle.[614] The UN Watercourses Convention also took a similar path to determine the principle in 1997.[615] As a result, this judgment is considered an "embryonic articulation" to advance the principle to solve transboundary matters in national and international law.[616]

Despite that, the equitable utilisation principle at the international level, found in the UN Watercourses Convention is more comprehensive and advanced compared to the above judgment. The significance of population, future consumption and social aspects of water are significant characteristics for determining the principle at the international level, but were dismissed in the US experience at a national level.[617] This reflects the development of IEL, especially in the last three decades. Thus, the principles and their characteristics are advanced, but the influence of the US legal system for that development is undeniable.

However, the Australian case study is different from the US experience because

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[613] *Nebraska v. Wyoming* [1945] US 325 589 at [618].

[614] See Rhett B Larson "Inter-state water law in the United States of America: what lessons for international water law?" (2017) 2(3) Brill Research Perspectives in International Water Law.

[615] Rhett Larson and A Dan Tarlock "Inter-jurisdictional water allocation in federal systems: lessons for international water law" in *Research Handbook on International Water Law* (Edward Elgar Publishing, 2019) at 59-63.

[616] Larson, above n 614, at 9.

[617] At 10.

Australia's transboundary water issues are resolved mainly through inter-state agreements rather than through litigation and court disputes.[618] This does not mean that states cannot sue each other in front of the High Court of Australia. Many Australian scholars have addressed the possibility of inter-state litigation for transboundary issues among Australian local governments. Ian Renard is one of the early scholars that predicted litigation between Australian federal states in front of the High Court, similar to the US, Switzerland, and Germany experiences. He thought that the Dartmouth and Chowilla Dams between New South Wales and Victoria could lead to an inter-state water dispute in 1970.[619] Enid Campbell, another Australian scholar, predicted inter-state water disputes between states and territories in Australia a year after him. She believed that these states and territories might enter into litigation like sovereign states.[620] Sandford Clark also addressed the issue in his PhD thesis around the same period.[621]

Among the above scholars, Renard profoundly worked on the issue and addressed the equitable utilisation and minimisation of environmental harm principles at the federal level, but under a different name and scope. Renard rejected the possibility of applying "equitable apportionment" and the US experience in Australia.[622] He suggested another doctrine, and believed that "the doctrine of reasonable sharing", if recognized by the High Court, would play its part in turning inter-state river disputes to a rational agreement.[623] Based on the equality of states, Renard claimed that the Commonwealth and state legislation were not solving transboundary water issues. Thus, common law could fill the gap and solve the problem based on his "doctrine of reasonable sharing."[624]

However, this doctrine is criticized because Renard rejects the US experience, though he depends on the same foundation for his doctrine: equality between states. Also, as mentioned above, Australia is a different case study from the US because there is only

[618] See Adam Webster "Sharing Water from Transboundary Rivers in Australia—An Interstate Common Law?'(2015)" (2017) 39 Melbourne University Law Review.

[619] Ian Renard "Australian Inter-State Common Law" (1970) 4(1) Federal Law Review at 96.

[620] See Enid Campbell "Suits Between the Governments of a Federation'(1971)" 6 Sydney Law Review.

[621] Sandford Delbridge Clark "Australian water law: an historical and analytical background" (1971)

[622] See Ian A Renard "The River Murray Question: Part II-New Doctrines for Old Problems" (1971) 8 Melb. UL Rev..

[623] At 684.

[624] At 645.

one common law in Australia, while there are various common law traditions in the US. For example, the doctrine of "first in time, first in right" was applicable in Colorado, but "common law riparian rights principles" that concentrates on preserving the natural flow was applicable in Kansas.[625] Brewer J explained that in Kansas v. Colorado case. He stated that:[626]

> ... Each state may determine for itself whether the common law rule in respect to riparian rights or that doctrine which obtains in the arid regions of the West of the appropriation of waters for the purposes of irrigation shall control.

This confirms that transboundary water regulation is different between Australia and the US. According to the High Court, if the common law will be developed in Australia, this development should be consistent with the Commonwealth constitution.[627]

Lastly, according to Renard, if there will be transboundary litigation in the High Court of Australia, the Court faces two main challenges. Firstly, the Court should accept that there is a gap in the Australian legal system. Secondly, the Court should evolve a body of legal rules a part of common law to solve the issue.[628] Even if the principle of equality between Australian states is assumed to be driven from the Constitution, it will be hard to implement it as a mechanism for solving transboundary water issues between Australian states.[629] Section 100 of the Constitution is the only provision that mentions water resource management in Australia, but the section mostly limits the Commonwealth government's power in the related area. Therefore, section 100 will be addressed in the following part of this chapter, but the thesis does not enter into a general constitutional discussion. The following section illustrates Australian water policy in general and the MDB in particular. It explains how the Australian government took responsibility and changed its position from a mediator or coordinator to the main supervisor and implementer of water policy in the continent.

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[625] Webster, above n 618, at 271.

[626] *Kansas v. Colorado*, above n 612, at [94].

[627] Webster, above n 618, at 280-281.

[628] Renard, above n 619.

[629] Webster, above n 618, at 282.

5.3 Australian Water Policy

Australia is considered the driest continent on the planet.[630] Despite limited available freshwater, considerable areas of groundwater are suffering from hypersaline.[631] These water problems have contributed to continuing the environmental issues and droughts. The continent faced several droughts and environmental challenges in the last century.[632] As a federal state, Australia contains two territories and six states. The ownership of water resources belongs to the Crown, but water management is left for states and territories.[633] Interestingly, the Aboriginals of Australia are considered the traditional owners of water resources in the country,[634] but their role in water management has not been considered significantly.[635] This is different from the indigenous people's role in New Zealand because they actively participate in water management, and their rights are protected by law. Australia has several transboundary river basins that are shared by various states and territories. The MDB is the biggest and most economically valuable basin in Australia. Four states and the Capital Territory share the basin. These parties cooperated to manage the basin under the Commonwealth government's coordination without significant intervention for more than a century.[636]

In addition to the long history of cooperation among states and territories, the Commonwealth government has dramatically increased its managerial powers. The federal government's policy was to increase storage capacity and provide fresh water for urban areas in all of Australia during the last century. The total storage capacity of all big dams in the country was around 240 GL at the beginning of the last century. This capacity was increased to 7,200 GL by the mid-century and reached 84,800 GL by 2005.[637] This policy placed Australia among the countries with high levels of water

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[630] Nick Apostolidis, Chris Hertle and Ross Young "Water recycling in Australia" (2011) 3(3) Water at 870.

[631] See WF Humphreys "Stygofai in semi-arid tropical western australia: A tethyan connection?" (1993) 10 Memoires de Biospeologie.

[632] Neville Nicholls "The changing nature of Australian droughts" (2004) 63(3) Climatic change at 324.

[633] Barry Hart and Jane Doolan *Decision Making in Water Resources Policy and Management: An Australian Perspective* (Academic Press, 2017) at 3.

[634] Weir, above n 194.

[635] Bradley J Moggridge, Lyndal Betterridge and Ross M Thompson "Integrating Aboriginal cultural values into water planning: a case study from New South Wales, Australia" (2019) 26(3) Australasian Journal of Environmental Management at 274-277.

[636] Hart and Doolan, above n 633, at 4.

[637] Australian Bureau of Statistics "Water storage" (2010) <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Water%20storage%20(6.3.6.2)>.

storage capacity per person. Australia also has more than 5,000 big dams and thousands of small dams.[638] This policy was useful for the country in case of facing environmental challenges such as droughts and floods in the short term. However, the sustainable management of water resources is more fundamental for the long term, and this will be addressed in the following sections.

Australia is not a strong federal state because the states and territories have significant power to manage their resources. In Section 100 of the Commonwealth Constitution, the utilisation of reasonable water is identified as a right of states which the Commonwealth government cannot abridge. This is the only section of the Constitution that covers water resource management.[639] Section 100 states that:[640]

> The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

The above section grants exclusive rights of states and territories of Australia to manage water resources without the intervention of the federal government. However, the situation changed with the beginning of the 20th century because of the absence of equitable utilisation in sharing water resources. The Commonwealth has a role to play because there is no clear direction in the constitution. For instance, in the absence of federal supervision, many water allocation and environmental issues arose in the MDB. There was also a significant withdrawal from the upstream part of the basin, which created an enormous environmental issue.[641] The Commonwealth was a part of the water management in the basin, but its role has changed from coordinator in the last century to the new century's supervisor.

5.4 The nature of the MDB

The MDB is an enormous basin in Australia's southeast, covering more than one million square kilometres. The basin is part of four states: Queensland, New South Wales,

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[638] At 2.

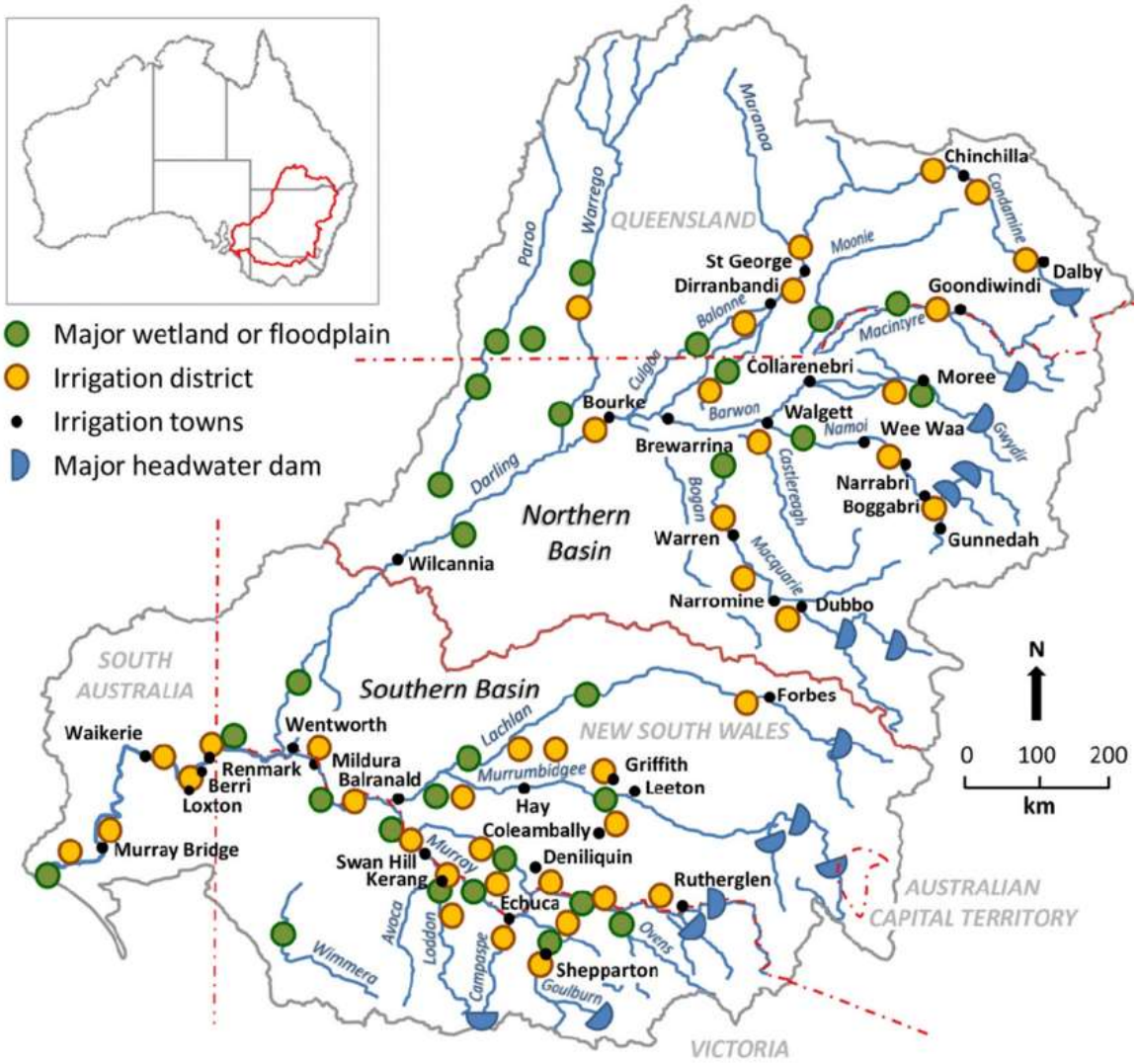
[639] See Murray-Darling Basin Agreement . available from: https://www.legislation.gov.au/Details/C2005C00722 (3 August 2019).

[640] See Commonwealth of Australia Constitution Act (The Constitution). 1901. available from: https://www.legislation.gov.au/Details/C2013Q00005 (accessed 19 July 2019).

[641] Larson and Tarlock, above n 615, at 78.

Victoria, and South Australia, with the whole of the Australian Capital Territory.[642] The MDB provides water for agriculture, and more than two million people who live in the basin. The people in the basin depend significantly on the Murry-Darling Rivers to access freshwater.[643] Approximately one million more people also rely on the basin's water resources. Most available water in the basin (as already noted) is used for irrigation and agriculture. As a result, forty per cent of Australian total agricultural production is based in the basin.[644] **Map 4** illustrates the location of the basin, river and tributaries.

Map 4 the Murray-Darling Basin[645]



[642] Lyster and others, above n 33.

[643] S Wheeler and others "Reviewing the adoption and impact of water markets in the Murray–Darling Basin, Australia" (2014) 518 Journal of Hydrology at 29.

[644] Blomquist and others, above n 45, at 8.

[645] Quentin Grafton and others "Confronting a'post-truth water world'in the Murray-Darling Basin, Australia" (2020) at 3.

The basin is considered one of the flattest catchments in the world. It is the greatest basin system in Australia by covering 14% of the total land. The MDB is a considerable resource for groundwater. The basin is also a significant area of cultural diversity because more than forty aboriginal nations live there. In addition, among all 30,000 wetlands, sixteen of them are listed in the Ramsar Convention for their important ecological and biodiversity values.[646] These wetlands and the whole basin is home to more than 120 diversified waterbirds. In addition to the basin's significance, more than 2.5 million Australians consider the MDB as home.[647]

Moreover, MDB has a significant economic value for Australia in terms of food and agricultural productivity, and tourism. The agricultural industry in the basin accounts for AU$24 billion, with an addition of AU$8 billion from tourism per annum. The basin is also privileged with a large amount of fresh and groundwater. The basin provides clean drinking water to more than three million Australians.[648] However, the quality of the groundwater differs from place to place. It is like freshwater in some places, but the water has a higher salinity than seawater in some areas. Over-extraction has changed the overall quality of the water because it declined over the decades. The developments and irrigation projects in the basin have negatively influenced the quality of both surface and groundwater.[649]

Though it is the largest basin in Australia, the MDB was not dealt with separately from Australian water policy in the last century. From the federation until the 1980s, water management in all of Australia, including the MDB, was restricted to construction and water supply.[650] Victoria was the leading state for pushing irrigation and dam projects before and after the federation. Then, other states followed Victoria's path.[651] According to the Australian National Committee on Large Dams (ANCOLD), Lake Parramatta Dam is the first large dam recorded in Australia, which was constructed in

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[646] Murray–Darling Basin Authority *Murray–Darling Basin Authority Annual Report* (2018) at p.5.

[647] Murray–Darling Basin Authority "Discover the Basin" (2020) <https://www.mdba.gov.au/discover-basin>.

[648] At 4.

[649] See Malcolm Cooper, Abhik Chakraborty and Shamik Chakraborty *Rivers and Society: Landscapes, Governance and Livelihoods* (Routledge, 2017).

[650] Jane Doolan and others *The Australian water reform journey: An overview of three decades of policy, management and institutional transformation* (eWater Limited, 2016) at 5.

[651] B Walker "Murray–Darling Basin Royal Commission report" (2019) Government of South Australia, Adelaide, SA, Australia at 13.

1857.[652] Dartmouth Dam, Hume Dam, Lake Victoria, and Menindee Lakes are major dams and reservoirs in the basin. There are another fourteen weirs and locks, most of which were constructed for navigation and water supply purposes.[653] All of these dams and reservoirs have increased water storage dramatically in the basin since the last century. Thus, Australian water storage (as noted above) increased from 240 GL in the early period of the federation to 84,800 GL in 2005.[654]

One of the main factors for reserving this considerable amount of water was the droughts that Australia and the MDB have experienced since the time of the federation. Australia has faced three major and long droughts. The three droughts are: the Federation Drought from 1895 to 1902, the Second World War Drought from 1937 to 1945, and the Millennium Drought from 2001 to 2009. These droughts had a major impact on increasing tension among the different governments in Australia.[655] However, the last drought is considered the longest which has been recorded in Australia. According to the Basin's authority, the drought lasted almost thirteen years, from 1997 to 2010.[656] This long term drought had a great impact on water quality and quantity in the basin.

Despite the droughts and critical situation of the basin, human intervention is another major factor that has negatively influenced water availability and the quality in the MDB. This includes over-extraction of water, constructing water projects and dewatering downstream parts of the basin. For example, thousands of fish were killed in the lower part of the basin in 2018 and 2019. It was considered a natural disaster because there was not enough oxygen in the water for the fish. However, according to the Australian Academy of Science, water diversion in the Darling River and insufficient water were the main reasons for the disaster.[657] This will be discussed further below.

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[652] Australian National Committee on Large Dams "Register of Large Dams in Australia" (2020) Australian National Committee on Large Dams Sydney <https://www.ancold.org.au/?page_id=24>.

[653] Murray–Darling Basin Authority "Joint management of the River Murray" (2020) <https://www.mdba.gov.au/river-murray-system/river-murray-operations/joint-management-river-murray>.

[654] Authority, above n 645, at 11.

[655] R Quentin Grafton and Sarah Ann Wheeler "Economics of water recovery in the Murray-Darling Basin, Australia" (2018) 10 Annual Review of Resource Economics at 401-420.

[656] Murray–Darling Basin Authority "Our history" (2019) <https://www.mdba.gov.au/annual-reports/annual-report-2014-15/about-mdba/our-history>.

[657] Australian Academy of Science "Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019" (2019) at 5-14.

Reducing water quality and quantity during the last long-term drought pushed the Commonwealth and the state governments to take more practical and effective steps to respond to the basin's environmental issues. The enactment of the Water Act 2007 and the Murray-Darling Basin Authority's establishment were among these significant steps. Thus, the new century's Australian water policy and onward is described as the water saved phase.[658]

5.5 Water management in the Murray–Darling Basin: form inter-state toward federal management

The basin is located among different states, and the pressure of droughts have encouraged these states to work together to manage the basin since the last century. Thus, developing a basin plan has a long history which dates back to the beginning of the Australian federation. The Corowa Water Conference in 1902 could be considered as a first step toward regulating water in the basin.[659] A community in the basin organised the conference, but the leaders of New South Wales, South Australia, Victoria and Australian governments attended. The conference resulted in creating the Royal Commission for the protection and distribution of river water, mainly for water supply and irrigation.[660]

These attempts motivated the parties to cooperate further and enter into the first transboundary agreement. The River Murray Waters Agreement was signed by New South Wales, South Australia, Victoria and the Commonwealth in 1914 and entered into force in 1915.[661] However, this agreement did not include the upper part of the basin which the Darling River covers. Thus, the agreement was limited to the Murray River. These states agreed on several issues, and one of them was sharing water in the river. Both New South Wales and Victoria agreed to share the water equally with South Australia with exclusive rights on their tributaries. More importantly, they appointed four commissioners from the parties to monitor management and share water among

[658] Sue Jackson and Lesley Head "Australia's mass fish kills as a crisis of modern water: Understanding hydrosocial change in the Murray-Darling Basin" (2020) 109 Geoforum at 44-56.

[659] See DR Eastburn *The River Murray: History at a Glance: Murray-Darling Basin Heritage* (Murray-Darling Basin Commission, 1990).

[660] At 7.

[661] Daniel Connell and R Quentin Grafton "Water reform in the Murray‐Darling Basin" (2011) 47(12) Water Resources Research at 2.

them.[662] The parties also agreed on the establishment of the River Murray Commission in 1917. The plans that were provided for in the agreement were supposed to be implemented in subsequent decades.[663] This was a considerable step for the management of the basin's water at that time toward proper sharing and setting up a mechanism for implementation.

However, the River Murray Commission's establishment was not enough because the Commission's power was limited, and it was unable to regulate the basin effectively. The Commission was not able to evaluate the water status in the basin directly because it had to receive figures and statistics from the states in the basin.[664] Besides, the states were responsible for the design and construction of water projects. Even though several amendments were made to the basin agreement during the mid-20th century, the Commission remained ineffective. Significantly, the Commission was not successful in designing rules and regulations for managing the basin.[665] Therefore, the Commonwealth and state governments signed new agreements at the end of the last century towards better and more comprehensive management of the basin. The states of the basin agreed to the Murray-Darling Basin Agreement in 1992, which was similar agreements among independent states on transboundary issues.[666] Later, another Murray-Darling Basin Agreement was signed in 1993.[667]

These two significant agreements were signed by the federal government of Australia and the three states of the basin - New South Wales, Victoria and South Australia. In the introduction of the two agreements, the management of the basin's water resources equitably and effectively was emphasised among the parties.[668] The primary point in the basin agreement of 1992 was establishing the Murray–Darling Basin Commission under part IV of the agreement.[669] This Commission superseded the River Murray

[662] Daniel Connell *Water politics in the Murray-Darling basin* (Federation Press, 2007) at 95.

[663] Murray–Darling Basin Authority "Developing the Basin Plan" (2019) <https://www.mdba.gov.au/basin-plan-roll-out/basin-plan/developing-basin-plan>.

[664] Sandford D Clark "The River Murray question: Part II-federation, agreement and future alternatives" (1971) 8 Melb. UL Rev at 241-243.

[665] At 243.

[666] Lyster and others, above n 33, at 288.

[667] See Murray-Darling Basin Agreement . available from: https://www.legislation.gov.au/Details/C2005C00722 (3 August 2019).

[668] At Part I.

[669] Murray-Darling Basin Agreement . available from: http://extwprlegs1.fao.org/docs/pdf/aus47335.pdf (3 August 2019). Part IV.

Commission, which was previously responsible for supervising the basin.[670] However, the Water Act's enactment in 2007 collected all of these agreements and other acts into a single legal document. This step completed the Commonwealth government's efforts to take the leading role in basin management since the 1990s. This role of the federal government and the Water Act 2007 will be addressed in the later sections. Prior to these analyses, it is necessary to provide an overview of the basin and nature to assist examining the issue.

5.6 New era of federal water management

5.6.1 The Water Act 2007 and adopting principles of IEL

Because of unsustainable water management and various quantity and quality issues related to the water industry, the Australian government started water reform in 1994. The Council of Australian Governments (COAG) that designed these reforms was composed of the federal government, states and territories. They designed the National Framework for Water Reform in the same year.[671] Reform was a ten-year plan to meet the challenges of the basin. However, the reforms were mostly about the water market and sharing responsibility among various actors. Environmental issues were not the main priority of these reforms. Further, these reforms were slow and could not meet water scarcity in this region. The Millennium Drought added more pressure on the COAG to approve the National Water Initiative (NWI) in 2004.[672]

The most important point of the NWI was concentrating on water allocation among various actors and the establishment of the National Water Commission (NWC). Under the pressure of drought and other environmental issues of the basin, the Prime Minister announced a National Plan on Water Security in 2007.[673] This plan was introduced as *Water for Our Future*. The main objective of this plan was to make water allocation more efficient and protect the environment of the basin. For achieving these goals, the Prime Minister announced an AU$10 billion water reform project in 2007.[674] Prime Minister Howard declared that Australia should make a balance between the demand

[670] Authority, above n 656.

[671] See The Council of Australian Governments *Water Reform Framework* (1994).

[672] Rupert Quentin Grafton "Policy review of water reform in the Murray–Darling Basin, Australia: the "do's" and "do'nots"" (2019) 63(1) Australian Journal of Agricultural and Resource Economics at 118.

[673] At 119.

[674] Cameron Holley and Darren Sinclair *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer, 2018) at 8.

for water and water for the environment.[675] This reform project concentrated heavily on technical issues rather than the institutional and cultural perspectives of the issue. These two perspectives are fundamental for reforming MDB and crucial for any water projects worldwide. This need for balance was observed in the early stage of the project and the reforms in the MDB.[676] These issues will be addressed in later sections.

However, the most important step in Australian water policy was the enactment of the Water Act 2007 by the Australian Parliament. The Act granted the power to the Commonwealth to manage the MDB through the federal institutions and in coordination with states.[677] The Act is quite significant for the management of water resources in Australia and the MDB in particular because it has adopted the major principles of IEL. If these principles can be implemented practically, they can create mutual understanding among various actors and provide better water management outcomes in the MDB. In the preliminary section of the Act, five principles were introduced for "ecologically sustainable development."[678] The first two principles are interesting as recognition of the international perspective of environmental law state:[679]

> (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
>
> (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;

In principle (a), the legislator has attempted to put integrated river basin management equitability in the decision-making process. This was a significant shift in the management of water resources in Australia because the river basin's economic value was more important compared to the environmental and social values of the basin previously. For instance, the NWI, which was approved three years prior to the enactment of the Water Act, was an attempt to increase economic benefits and then protect the basin's environment. The NWI was not successful because it was not easy

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[675] Katherine A Daniell and Trevor M Daniell "What's next for Australia's water management?" (2019) 23(2) Australasian Journal of Water Resources at 71.

[676] Connell, above n 662, at 217.

[677] Grafton and others, above n 645, at 4.

[678] Water Act 2007 Act No. 137 of 2007 as amended s 4(2).

[679] At s 4(2)(a) and (b).

to achieve these two goals simultaneously.[680]

Additionally, the principle of equitable utilisation is confirmed as one of the duties of MDBA for the management of the basins' water resources among various actors.[681] Minimisation of environmental harm is strongly emphasised in principle (b) because the scientific proof is not necessary for avoiding the damage in case of serious environmental harm. As quoted above, avoiding environmental degradation is a serious issue in the Act. Thus, immediate action is required without waiting for scientific evidence. In addition, the Act grants courts the power to issue a prohibitory injunction against any person who engages in damaging water resources.[682] The Act takes a stronger position in section 142 because the injunction will be mandatory if a person failed or has an intention to damage water resources.[683] These sections are quite significant for implementing the Act and avoiding environmental damage in the basin and the whole of Australia.

Despite adopting these principles, the Act depends considerably on international conventions such as the Convention of Biological Diversity and Ramsar Convention to transfer water management power from states to the Commonwealth government.[684] As mentioned above, the power for managing water resources is left to states according to Section 100 of the Australian Constitution. In addition, the government of the State of Victoria refused to transfer its power to the Commonwealth, but the Commonwealth used its international obligations under the two above conventions to pass the legislation in Parliament. This was the primary reason why the Act was mainly considered as environmental legislation.[685]

For example, the Act urges that regard should be given to the Ramsar Convention articles in preparing and developing the basin plan. Section 21 of the Act emphasises promoting "the conservation of declared Ramsar wetlands in the Murray-Darling

[680] Daniel Connell "Water reform and the federal system in the Murray-Darling Basin" (2011) 25(15) Water Resources Management at 3996.

[681] Water Act 2007 Act No. 137 of 2007 as amended at pt 9 (1)(d)(i).

[682] At s 142 (1)(iii).

[683] At s 142 (2)(iii).

[684] Dominic Skinner and John Langford "Legislating for sustainable basin management: the story of Australia's Water Act (2007)" (2013) 15(6) Water Policy at 880.

[685] At 879-880.

Basin."[686] Concentration on protecting biodiversity in the MDB and relying on the Biodiversity Convention for developing the basin plan is another example of adopting the principles of IEL.[687] These significant principles are reconfirmed in sections 28 and 86AA of the Act as a part of the basin plan and objectives.[688] Therefore, the Act is a good piece of legislation for the management of the MDB. It adopted the fundamental principles of IEL, but how they are implemented is the primary question. In addition, are they implemented effectively or not, and why? These are questions that the following sections attempt to answer.

5.6.2 The long road to reform

Water reform in Australia dates back to the early 20th century, after the federation of Australia. Since that time, eight major reforms have been introduced in Australian water management and the MDB in particular.[689] The purpose of these reforms was different from managing the parties' interest in the basin to covering environmental and social aspects of water management.[690] For instance, one of the main drivers for the reforms in the 1990s was fair consumption or water equitability because upstream states were taking too much water. This was a major issue for the downstream states at that time.[691] The reforms were more intensive in the past three decades, particularly in the final years of the Millennium Drought.

After working on reforms for a decade, the COAG agreed on new reforms and the NWI in 2004. According to the NWI, the states and Commonwealth agreed to share responsibility regarding the basin's water management.[692] In this initiative, all parties emphasised "the continuing national imperative to increase Australia's water use productivity and efficiency."[693] However, these ambitions were not enough because the process of implementing the NWI was not sufficient, particularly under the pressure of the longest drought in Australia. There was not enough coordination among the parties

[686] Water Act 2007 at s 21(3).

[687] At s 21(2).

[688] At ss 28(1) and 86AA(1).

[689] Connell, above n 662.

[690] Daniell and Daniell, above n 675.

[691] Ross M Thompson "Is the Murray-Darling basin plan broken?" (2017)(1149) Green Left Weekly at 12.

[692] See Council of Australian Governments Canberra. Intergovernmental Agreement on a National Water Initiative.

[693] At art 5.

and they could not agree on the basin's significant issues: over-allocation of water and achievement of environmental goals in the MDB.[694]

Therefore, the Commonwealth government took a leading role by enacting the Water Act 2007. This Act shifted the MDB management power from the COAG to a federal institution – the Murray-Darling Basin Authority (MDBA).[695] Therefore, the primary purpose of enacting the Water Act was to centralise decision-making and manage the whole basin through a national institution.[696] Significantly, the basin states agreed to the Intergovernmental Agreement on Murray–Darling Basin Reform in 2008 which transfer significant power to the Commonwealth. Later, the first amendment was inserted into the Water Act in 2008.[697] Two further important amendments were inserted into the Act in 2012 and 2013. The first one was the Water Amendment Bill 2012. This amendment, which was discussed in Parliament in 2012, added both sections 23A and 23B to the Act. The second one was the Water Amendment Act 2013, which inserted sections 86AA-86AJ.[698] According to these reforms, an additional 450 GL/year of water was supposed to be saved for the environment. However, the language of these sections indicates that the target would not be achieved because they are "sufficiently flexible and non-binding".[699]

Even though many reforms have been brought to the Act since its enactment in 2007, reforming the Act should continue to achieve better environmental and economic outcomes. The basin is an excellent market for water, and people pay a considerable amount of tax. Approximately AU$13 billion has been paid as a tax in the ten years after enacting the Water Act reforms. The state governments of the basin can spend this money to implement a basin plan sustainably, but there are doubts due to considerable allegations regarding illegal water extraction in the basin. This negatively influences the effectiveness of the basin plan and the environment of the region.[700]

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[694] Connell and Grafton, above n 661.

[695] R Quentin Grafton and others "The Water Governance Reform Framework: Overview and Applications to Australia, Mexico, Tanzania, USA and Vietnam" (2019) 11(1) Water at 5.

[696] Skinner and Langford, above n 684.

[697] Paul Kildea and George Williams "The Constitution and the management of water in Australia's rivers" (2010) 32 Sydney L. Rev. at 605.

[698] Emma Carmody "The unwinding of water reform in the Murray-Darling Basin: A cautionary tale for transboundary river systems" in *Reforming water law and governance* (Springer, 2018) 35-55

[699] Holley and Sinclair, above n 674, at 43.

[700] Thompson, above n 691, at 12.

5.6.3 The basin plan and implementation

The basin plan is the primary blueprint for water reallocation, returning water to the environment and reducing water for irrigation. The plan was prepared by the MDBA in 2012.[701] It starts with acknowledging the rights, values and customs of Australian Indigenous people towards the water. It begins with Ngarrindjeri elder Tom Trevorrow's words: “our traditional management plan was don’t be greedy, don’t take any more than you need and respect everything around you. That’s the management plan—it’s such a simple management plan, but so hard for people to carry out.”[702] This section and the following sections discuss how the decision-makers in the basin follow this simple management plan.

Preparing the basin plan was one of the aims of the Water Act 2007. This was emphasised in part 2 of the Act.[703] According to the Water Act, the basin plan should implement IRBM to achieve the Act's objectives. The purpose of the plan is outlined in the Act as following:[704]

> (a) giving effect to relevant international agreements (to the extent to which those agreements are relevant to the use and management of the Basin water resources); and
>
> (b) the establishment and enforcement of environmentally sustainable limits on the quantities of surface water and ground water that may be taken from the Basin water resources (including by interception activities); and
>
> (c) Basin-wide environmental objectives for water-dependent ecosystems of the Murray-Darling Basin and water quality and salinity objectives; and
>
> (d) the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes; and
>
> (e) water to reach its most productive use through the development of an

[701] See Commonwealth of Australia *Water Act 2007–Basin Plan 2012, Extract for the Federal Register of Legislative Instruments (as introroduced in 28 November 2012)* (2012).

[702] At Acknowledgement.

[703] Water Act 2007 Act No. 137 of 2007 as amended at s 19.

[704] Water Act 2007 s 20.

efficient water trading regime across the Murray-Darling Basin; and

(f) requirements that a water resource plan for a water resource plan area must meet if it is to be accredited or adopted under Division 2; and

(g) improved water security for all uses of Basin water resources.

The first and most interesting point among these purposes is to emphasise international conventions when designing or reforming the basin plan. This is a great step to put international principles such as equitable utilisation and minimisation of environmental harm into national or local legislation. These principles are also confirmed in point (b) of the purposes, by limiting the basin's resources' utilisation and managing them in a sustainable method. Focusing on the basin's economic value is shown in point (d), because without sustainable and environmental management of the basin, the basin's optimal economic benefits will not be achieved.

To achieve the above objectives, the Act introduced the Sustainable Diversion Limit (SDL), illustrated in section 23, and the Environmentally Sustainable Level of Take (ESLT).[705] The SDL yearly measures the amount of water extracted from both surface and groundwater to determine them at both catchment and basin areas.[706] The ESLT is explained as "the level at which water can be taken from that water resource."[707] To meet the SDL, the MDBA has to recover 2,750 GL water from the basin. Thus, the government worked on two main issues to recover this amount of water and meet the SDL. Firstly, it has recovered water rights and purchased water from the irrigators and sellers, for which the government paid AU$2.5 billion out of the AU$3.1 billion budget. Secondly, it invested a considerable amount of money in developing water infrastructure and enhancing water efficiency in the basin. For this purpose, the government has spent more than AU$4 billion out of AU$8 billion dollars, which is provided for this purpose.[708]

According to the Royal Commission Report in 2019, adopting the whole basin plan and

[705] At s 23.

[706] John Williams and R Quentin Grafton "Missing in action: possible effects of water recovery on stream and river flows in the Murray–Darling Basin, Australia" (2019) Australasian Journal of Water Resources at 553.

[707] Water Act 2007 s 4.

[708] QJ Wang, Glen Walker and Avril Horne "Potential impacts of groundwater sustainable diversion limits and irrigation efficiency projects on river flow volume under the Murray-Darling Basin Plan" (2018) Report written for the Murray-Darling Basin Authority at 1-3.

applying both SDL/ESLT is questionable and perhaps "unlawful." [709] The Commissioner believes that achieving environmental, social and economic objectives in the basin is "incommensurate." According to him, decision-makers do not have the foundations to meet the recovery target in the MDB. Thus, considering and balancing the three bottom-line objectives, which are environmental, social and economic without making trade-offs, is not logical.[710] Despite the legal uncertainty of the basin plan, there is no long-term and intensive monitoring in the basin for achieving the targets.[711]

Enacting law and setting principles may not be effective without a strong implementation of the law and its underlying principles. For instance, the Murray–Darling Basin Plan set significant principles for managing water in the basin in a sustainable manner. Equitable utilisation, minimisation of environmental harm and transparency are considered as the main principles for the basin plan. However, it is doubtful whether these principles are implemented effectively and if the basin Authority's is effective at implementing them with transparency. Water theft and illegal extraction are still major issues that the Authority cannot control. Recent allegations of water theft and illegal extraction of the Barwon-Darling River make the basin plan's effectiveness questionable. The river is one of the tributaries of the Murray River and reports have mentioned the theft of billions of litres of water in the river.[712]

In addition, a lack of transparency in implementing the plan is the primary concern for locals, small businesses and indigenous people in Australia. Many of them argue that they have not been consulted during the design and implementation of the basin plan.[713] Despite this issue, there is an imbalance in providing funds to large corporations rather than small farmers and businesses, mainly in the lower part of the basin. According to the Australian Institute's report in 2018, the basin's decision-maker provided a considerable amount of money for large corporations compared to a small amount for the locals. Webster Limited is one of the large companies that received AU$40 million, while all of the communities and small businesses were cumulatively granted AU$36

[709] Bret Walker *Murray–Darling Basin Royal Commission report* (2019) at 25.

[710] At 20-21.

[711] Matthew J Colloff and Jamie Pittock "Why we disagree about the Murray–Darling Basin Plan: water reform, environmental knowledge and the science-policy decision context" (2019) 23(2) Australasian Journal of Water Resources at 91-92.

[712] Thompson, above n 691.

[713] Australia Institute *Trickle Out Effect: Drying Up Money and Water in the Lower Darling* (Canberra, 2018) at 4-5.

million for water buy-backs in the MDB.[714] All of these issues accrued while there was a robust institutional arrangement in the basin led by the MDBA. The next section addresses the role of the MDBA in the management of water resources in the basin.

5.6.4 The MDBA and its efficiency

The MDBA is an independent institution which was created under the Water Act in 2008. The MDBA is responsible for implementing basin plans and the SDLs.[715] The MDBA and the Commonwealth Minister for Water Issues have a primary role and absolute authority for water management in the basin. There is also the Commonwealth Environmental Water Holder (CEWH) for supervising water recovery from stakeholders. The MDBA is responsible for the implementation and monitoring the whole basin plan.[716]

In addition to the management of the basin's water resources, the MDBA has a wide range of functions outlined in Part 9 of the Act. The Act encourages the MDBA to investigate and undertake research on basin water resources regarding water utilisation, both equitably and sustainably.[717] Economically, the Authority is responsible for ensuring all basin users support infrastructure development and developing agriculture in the basin. It is also the MDBA's function to share the water resources of the basin fairly and equitably among various actors in the basin. Finally, integrated river basin management is the Authority's approach for the basin's sustainability.[718]

The MDBA has an independent structure that is supervised by the Chief Executive of the Authority. It also has a Chair and four part-time members who are appointed by the Governor-General of Australia. These members typically have considerable experience related to the basin's management, such as water resource management, ecology, hydrology, financial and agricultural management.[719] However, there is no legal expert among the members of the Authority. This is a significant oversight as monitoring the

[714] At 25.

[715] Grafton, above n at 119.

[716] Colloff and Pittock, above n 711.

[717] Authority, above nat Part 9 (1)(d)(i).

[718] At 6.

[719] See Murray–Darling Basin Authority "The Authority" (2015) <https://www.mdba.gov.au/annual-reports/annual-report-2014-15/about-mdba/authority>.

implementation of the Water Act 2007 and applying the rule of law in face of the politics surrounding water resource management in the basin plays a significant role.

The role of politics is considerable in water security in general, but especially in the MDBA. It directly impacts the water management of the basin and the efficiency of the MDBA. It is argued that the vagaries of politics in Australia have more influence than scientific reviews and shreds of evidence.[720] For instance, the Guide to the Proposed Basin Plan determined both "high uncertainty" and "low uncertainty" regarding water diversions in the basin. The Guide recommended that decreasing water diversion to 3,856 GL is considered "high uncertainty" and 6,983 GL as "low uncertainty" for achieving the objectives of the Water Act 2007.[721] However, the MDBA changed the reduction of water diversion from 3,856 GL to 2,800 GL resulting from "high uncertainty", after less than a year of publishing the Guide. This action is questionable because the MDBA changed significant targets for water scarcity without depending on scientific evidence. Hence, the rule of law appears to be weak in the absence of carefully considering water resource management issues.[722]

Another crucial point dismissed by the MDBA is that the Authority failed to use the best available scientific knowledge to determine the SDL/ESLT and water recovery in preparing and implementing the basin plan, particularly in the Northern area of the basin.[723] According to section 21(4) of the Water Act, these measures are essential for developing the basin plan. This section insists that both the MDBA and the relevant Minister should "act on the basis of the best available scientific knowledge and socio-economic analysis" for developing the plan and determining the SDL/ESLT.[724] In their report last year, the MDBA rejected claims that they failed to apply the best available science[725], but the available evidence tells a different story. The MDBA and the Minister use "the best available scientific knowledge" when it is in favour of their position and policy. For instance, the Minister of Water and Agriculture rejected

[720] Katherine Owens *Environmental water markets and regulation: A comparative legal approach* (Routledge, 2016) at 7.

[721] Murray–Darling Basin Authority *Guide to the proposed Basin Plan, Murray–Darling Basin Authority: Technical background* (2010) at 114.

[722] Owens, above n 720, at 7.

[723] Walker, above n 651, at 52-63.

[724] Water Act 2007 s 21(4).

[725] See MDBA *MDBA Response to the South Australian Royal Commission. Canberra: Murray-Darling Basin Authority* (Canberra, 2019).

evidence and findings of the peer-reviewed article co-authored by Williams and Grafton.[726] Instead of that, he supported an un-peer-reviewed consultation report commissioned by the MDBA itself.[727]

Finally, the MDBA has been criticised for not taking the impacts of climate change into account in implementing the basin plan. While the issue has a tight relationship to the basin's water resource sustainability, the work of the MDBA has been piecemeal in this regard.[728] In addition to these above-mentioned negative signs, many implemented policies from the government have decreased the anticipated results from adopting the full basin plan, including the ESLT objectives.[729] The above evidence makes the MDBA's ability questionable regarding water allocation and minimisation of environmental harm in the basin. It also makes the effectiveness of the basin plan and the implementation of the IEL principles questionable. These issues are discussed further in the following section, which evaluates the possibility of implementing the full basin plan.

5.7 The role of instrumental and institutional arrangements in developing basin plans and sustainability

Having a basin plan and foundation for assessing any water governance or implementing a water plan is fundamental. According to the OECD, three main dimensions are crucial in water governance and evaluating the management of particular water plan outcomes. These three dimensions are: effectiveness, efficiency with trust, and engagement.[730] Effectiveness includes a method for managing water resources sustainably that determines clear objectives and targets of water policy at various levels. Efficiency refers more to implementing and achieving water policy sustainably at lower cost and maximum benefits for society. The last dimension deals with enhancing public trust in water management with consultation and engagement of all actors in water governance via democratic legitimacy and justice for all of society.[731]

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[726] Williams and Grafton, above n 553.

[727] Colloff and Pittock, above n 711.

[728] Walker, above n 651

[729] See MDBA *Submission to Murray-Darling Basin Royal Commission* (2018).

[730] See OECD "OECD Principles on Water Governance, Adopted by the OECD Regional Development Policy Committee on 11 May 2015" (2015).

[731] At 3.

Each of these three dimensions is explained and identified in twelve main principles for water governance. The twelve principles can be listed as the following: Principle 1: Clear roles and responsibilities; Principle 2: Appropriate scales within basin systems; Principle 3: Policy coherence; Principle 4: Capacity; Principle 5: Data and information; Principle 6: Financing; Principle 7: Regulatory frameworks; Principle 8: Innovative governance; Principle 9: Integrity and transparency; Principle 10: Stakeholder engagement; Principle 11: Trade-offs across users, rural and urban areas, and generations; and Principle 12: Monitoring and evaluation.[732] These principles for water governance are applied to different regions and case studies worldwide. Australia and New Zealand are among the six cases used for applying these principles.[733] In Australia and the MDB, all of the above principles are consistent with the NWC and the Australian Productivity Commission recommendations.[734] However, there is the question over whether the consistency is enough to complete all necessary reforms in the basin?

The reform process for proper management in the MDB has been continuing since the enactment of the Water Act 2007. It is expected that all reforms are going to be completed by 2024. The aim of these reforms can be summarised in these three points. They are setting the SDLs to know the amount of water extracted in the basin, continuing subsidies for water infrastructure to improve water use efficiently and establishing the water market with water rights for environmental objectives.[735] According to the Productivity Commission report, all of the reforms and the basin plan can be fulfilled if trust is rebuilt among the state governments, and between the governments and the community.[736] This means that the third dimension and Principles 9 to 12 outlined by the OECD should be appropriately applied to implement the basin plan on time.

However, the MDBA has not yet met these principles and dimensions of water

[732] OECD Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices, OECD Studies on Water at 19-29.

[733] Susana Neto and others "OECD principles on water governance in practice: an assessment of existing frameworks in Europe, Asia-Pacific, Africa and South America" (2018) 43(1) Water International at 76.

[734] Grafton and others, above n 645, at 17-19.

[735] Williams and Grafton, above n 553.

[736] Productivity Commission "Murray-Darling Basin Plan: Five-year Assessment" (2018) Draft Report August 2018 at 18.

governance. These principles are recommended by both the NWC and the Productivity Commission report.[737] The significance of the water market and trade-offs is one of the twelve OECD principles, but the Australian government has concentrated too much on the water market and considered it the master tool in managing the basin. Instead of providing equitable water use for the riparian states and individuals inside the states, the water market was exploited by big corporations. "Unless communities have a big role in creating and governing water markets, trading can foster individualistic connections to water that can crowd out the civic duty to cooperate and contribute to the river's sustainability."[738]

Transparency and public consultation are not utilised in implementing the plan in many areas in the basin. This was mentioned in the previous sections of this chapter, but further evidence and examples present a better picture of the basin plan. For example, the government emphasises the concept of water for the environment, on the one hand, but on the other hand, the private sector has constructed many dams without public consultation. [739] According to the Australian Institute report, in late 2018, approximately twenty to thirty large dams have been constructed in the last few years. Most of these dams were built based on the interest of large businesses and irrigators. They have negative impacts on the environment, indigenous people, small towns and the majority of the farmers in the basin.[740]

These private dams are not subject to public consultation, but the investor has to undertake EIA. Yet, the EIA may not be impartial or reliable as consultants conduct it in support of the private sector. These dams negatively influence the overall SDL and result in more evaporation in the basin.[741] It means that water is still not allocated equally among various stakeholders in the basin, and there is still not enough water for the environment. The death of millions of fish in the Menindee region at the South of MDB was a great wake-up call three years ago. According to the Australian Academy of Science's report, the lack of oxygen was the immediate cause for killing this

[737] Grafton and others, above n 645, at 17-19.

[738] See Dustin Garrick and Erin O'Donnell "Australia's water woes offer a preview for Arizona. Will we avoid their mistakes?" (2021) University of Waterloo <https://uwaterloo.ca/water-institute/news/op-ed-australias-water-woes-offer-preview-arizona-will-we>.

[739] See M Slattery, R Campbell and A Quicke *Dam shame. The hidden new dams in Australia. The Australia Institute* (2019).

[740] At 7-8.

[741] At 17.

considerable amount of introduced fish and native fish because of decreased flow and not having enough water. Simultaneously, they confirmed that over-extraction and mismanagement of the water resources in the basin were the long term causes of this national disaster.[742]

Despite that disaster, the provisions of the Water Act have not been fully implemented due to highly politicised water resource management in the basin and the basin plan. The MDBA has not successfully adopted scientific warnings and evidence or responded to reduced water availability in the basin.[743] All of the above issues relating to the MDB plan and the effectiveness of MDBA were summarized by the Commissioner. He stated that:[744]

> When crimes such as water theft or meter tampering, and related offences of deception and corruption, are suspected, adequate investigations and prosecutions will be critical to the integrity, effectiveness and morale of the system. Admittedly, this aspect of the system has not uniformly been as it should have been.

Therefore, many issues hinder the full implementation of the basin plan, and the MDBA is not effective enough to tackle these serious issues in the basin. Despite the lack of effectiveness and efficiency, the government and the MDBA have been criticized for not engaging Australian indigenous people decision making process in the basin plan. This is addressed in the following section.

5.8 Indigenous water rights in the MDB

In chapter three, equitable utilisation and minimisation of environmental harm are discussed in light of international rules and conventions. However, when talking about the two principles, particularly equitable utilisation at the local and federal levels, we should evaluate them comprehensively. Implementing the equitable utilisation principle thoroughly at the federal level will be effective if various actors inside the state have a role in the management and decision-making process. Participation by indigenous people and acknowledging their water rights are fundamental in this regard.

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[742] Craig Moritz and others "Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019" (2019) at 43

[743] See Jason Alexandra "The science and politics of climate risk assessment in Australia's Murray Darling Basin" (2020) 112 Environmental Science & Policy.

[744] Walker, above n 651, at 34.

However, both the UN Watercourses Convention and Helsinki Rules omitted this significant issue in determining the principle. Article 6 of the Convention and V of the Rules mentioned various factors for determining equitable utilisation, but indigenous water rights are not among these factors.[745] Both articles refer to considering the social needs in the basin states, but without specific meaning or further explanation of the social needs. Therefore, indigenous water rights should be covered under the broader meaning of equitable utilisation. This right should be one of the factors for determining the principle among riparian states and countries. How indigenous rights are practised as part of equitable utilisation in MDB is crucial in this section. Also, how these rights should be adopted in water resource management will be answered in both this section and the following.

In Australia, including the MDB, indigenous rights are introduced and provided for in the Native Title Act (NTA) 1993.[746] The Act confirms in its preamble that Aboriginal and Torres Strait Islander people (ATSI), as native people of Australia, have faced dispossession since European settlement. According to the Act, the ATSI people are "the most disadvantaged in Australian society."[747] Prior to enacting the NTA, the High Court of Australia recognised the native title for the indigenous people in Australia for the first time in the *Mabo* case. The court rejected the concept of *terra nullius* (land of no one) in Australia in this case, though it was restricted to the land only.[748] The *Mabo* case and the NTA have significantly transformed indigenous rights in the last three decades because they have transformed Australia's view of social and cultural change.[749] However, this recognition not only brings benefits for ATSI people, but it may also bring several problems.[750]

The ATSI people recovered a large area of the land, which accounts for more than thirty per cent, especially after the case and enactment of the NTA. However, this recognition has not extended to water resources because ATSI people hold only 0.01% of the total

[745] Convention on the Law of the Non-navigational Uses of International Watercourses art 6.

[746] See Native Title Act 1993.

[747] At Preamble.

[748] See *Mabo and Others v. The State of Queensland [No. 2] 175 CLR 1* [1992] .

[749] Manuhuia Barcham (ed) *The limits of recognition* (The Social Effects of Native Title: Recognition, Translation, Coexistence, 2007) at 203-214.

[750] At 209.

Australian water.[751] The main factor for this consequence and dismissal of indigenous rights in water is that NTA limited ATSI people's rights around cultural and traditional objectives. [752] Furthermore, the social and economic conditions of indigenous Australians is primarily dismissed in water resource management. Historically, their role was also ignored in decision making about these resources in various regions in Australia. [753] However, recently some Australian state institutions, particularly in Western Australia and the Northern Territory, have considered indigenous peoples' interests in water management and decision making.[754] Introducing the ATSI people's water rights and interests outside the native title provides a greater solution because the ATSI people's water right is ignored considerably in the NTA.[755]

The Aboriginals groups organised themselves under the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) which was established in 1998.[756] They are seeking Aboriginal water rights, including participation in various levels of water management and decision making. The enactment of the Native Title Act in 1993 had a significant impact on the establishment of this organisation.[757] As well as the MLDRIN, Northern Basin Aboriginal Nations (NBAN) are also working to protect indigenous water rights in the MDB.[758] Thus, there is a growing desire to include water rights and cultural values of the indigenous people in water management in MDB. The Commonwealth government should recognise these rights and values because the indigenous people had water management approaches prior to the federation. It is argued that indigenous Australians constructed dams before European settlement in Australia. They used dams for diverting water to irrigate more land and increase food production, especially during

[751] Jon Altman and Francis Markham "Burgeoning Indigenous land ownership: Diverse values and strategic potentialities" (2015) Native title from Mabo to Akiba: A vehicle for change and empowerment at 126.

[752] Elizabeth Jane Macpherson *Indigenous Water Rights in Law and Regulation* (Cambridge University Press, 2019) at 216.

[753] See Kim Barber and Hilary Rumley "Gunanurang (Kununurra) big river, Aboriginal cultural values of the Ord River and wetlands" (2003) Western Australian Water and Rivers Commission, Perth.

[754] Marcus Barber and Sue Jackson "Indigenous water values and water planning in the upper Roper River, Northern Territory" (2011) Darwin: CSIRO at 13.

[755] Macpherson, above n 752.

[756] Weir, above n 194.

[757] Jessica Weir and Steven Ross (eds) *Beyond native title: the Murray Lower Darling Rivers Indigenous Nations* (ANU E Press, The Social Effects of Native Title: Recognition, Translation, Coexistence, 2007) at 185-202.

[758] Sue Jackson, Rene Woods and Fred Hooper "Empowering First Nations in the governance and management of the Murray–Darling Basin" in *Murray-Darling Basin, Australia* (Elsevier, 2021) 313-338.

dry seasons.[759] However, a new approach is required outside of the native title.[760] This approach should not separate the land rights (including rights to water) from the land because is more complicated than has been observed so far.

5.9 The two principles and MDB

International law and national laws are interacting and influencing each other. For instance, Article 6 of the UN Watercourses convention sets several criteria for determining equitable utilisation, such as considering the river basin's geographical and climate conditions.[761] As discussed previously, the meaning of these principles is similar in the US and in the international experience. The US Supreme Court mentioned the factors for determining the principles, but not profoundly like the international instruments, because the UN Watercourses Convention included many factors that the US Supreme Court missed.[762]

As a federal state, Australia has also adopted the IEL principles, but in a different approach compared to the American experience, because Australia adopted them via national legislation, such the Water Act 2007. In the MDB case, the principle of equitable utilisation has a significant position in many provisions of the Water Act, but in a different way to the UN Watercourses Convention. The principle is mentioned as the "equitable, efficient and sustainable" use of water resources. This term is repeated in sections 172 (d) and (e), Part 1.1, Part VII 43(1), 56(1).[763] The Act omits the criteria for determining the concept, which is outlined in Article 6 of the UN Watercourses Convention. However, it provides a number of examples for measurement and monitoring of the basin in an "equitable, efficient and sustainable" manner which are:[764]

(a) the conservation and regulation of river water;

(b) the protection and improvement of the quality of river water;

(c) the conservation, protection and management of aquatic and riverine

[759] Barber and Jackson, above n 754.

[760] Macpherson, above n 752.

[761] Convention on the Law of the Non-navigational Uses of International Watercourses art 6.

[762] Larson and Tarlock, above n 615, at 61.

[763] Water Act 2007 ss 172 (d) (e), 43(1) and 56(1).

[764] Water Act 2007 Act No. 137 of 2007 as amended s 43(1).

environments; and

(d) the control and management of groundwater which may affect the quality or quantity of river water.

All of the above elements are significant for the management of any basin, but implementing them is more significant. The decision-makers in the basin claim that they have implemented these elements in the basin plan. According to the latest annual report on the basin, the MDBA was successful in reaching the target of water recovery, which was about 77% of the target. The Authority confirms that the basin plan is on track and most of the objectives that were set in 2012 have been implemented already. They are satisfied with the five-year evaluation.[765] Even though the Authority successfully improved the basin's environment, they have not succeeded in achieving all five objectives of the MDBA.[766]

However, the shreds of evidence present a different picture than what the MDBA claimed. As discussed previously, equitable utilisation has not been fully implemented among states and territories, neither among stakeholders inside one state. In addition, it can be argued that the whole water reform in MDB and the basin plan were not successful for the following reasons summarized by Professor Grafton:[767]

> (i) regulatory capture in relation to water recovery; (ii) a failure to respond and adapt to peer-reviewed scientific evidence of reform failures; (iii) insufficient consideration of Basin-scale risks; (iv) inadequate participatory processes to engage with all relevant stakeholders, not just some irrigators; (v) failures in monitoring and compliance in the northern Basin; and, perhaps most importantly, (vi) a critical absence of comprehensive Basin-scale water accounting and an auditing process, based on primary data, to identify effects of reform on water flows, including return flows.

These points note the areas that MDBA failed to achieve in the basin and were important factors for enacting Water Act in 2007. Equitable utilisation has not been implemented properly in the basin because the MDBA could not limit over-allocation in the northern basin, contributing to the southern basin's environmental damage. Despite not implementing equitable allocation among basin states, equitable utilisation

[765] Authority, above n 646, at 3.

[766] Grafton and Wheeler, above n 655.

[767] Grafton, above n 672, at 135-136.

was dismissed among stakeholders inside each basin state. Supporting large corporations and ignoring the role of Australian Aboriginals in management and decision-making is clear proof of that. Therefore, the objectives of the Water Act should be achieved via different mechanisms. These mechanisms should be comprehensive and not only concentrated around the water market in the basin.

5.10 Australian example: missing natural and social solution

As discussed in the above sections, the MDB has a solid instrumental and institutional foundation. However, why the institution and legislation did not lead to sustainability is questionable. According to some scholars, the main issues were missing actions in the MDB. For them, there is strong legal support for managing the basin, but the MDBA did not implement them properly.[768] There is a compliance gap because the Water Act was not properly implemented, and its objectives have not been achieved. According to other scholars, the main factor for not achieving the Water Act's objectives is that the Act was enacted in a crisis when Australia was in a deep and long drought. In addition, the Australian government and the policy-makers attempted to solve all of the problems through the water market.[769]

These are significant points, but they do not clarify the broad picture comprehensively. The main problem of managing the MDB is the omission of natural and social solutions which are critical for the sustainability of the basin. The mass killing of fish, water theft and construction of dams without public transparency by the private sector demonstrates how the MDBA and policymakers in the basin prioritize economic aspects of water and economic solutions rather than natural (environmental) and social solutions. The MDBA should prioritize the environmental objectives of the Water Act and take a more democratic and comprehensive approach by involving all relevant stakeholders, including Aboriginals Australian groups.[770]

Moreover, the future reforms of the Water Act should empower the traditional owners of the MDB and provide comprehensive social solutions. The Act's current provisions do not support indigenous involvement or adopt their values in water management. The

[768] See Williams and Grafton, above n 653.

[769] See Garrick and O'Donnell, above n 738.

[770] Grafton and others, above n 645, at 20.

Act requires the MDBA to establish the Basin Community Advice with a membership of "at least 2 Indigenous persons with expertise in Indigenous matters relevant to the Basin's water resources."[771] But having only two indigenous members out of seventeen indicates that there is not a strong interest in the involvement of indigenous people in water management.[772] It also shows that the Water Act did not succeed in taking an integrated and comprehensive approach to involve the traditional owners of the MDB and adapting their values and customs in water management. Thus, there is no equitable participation of indigenous people in water management in the instruments and institutions for the MDB.

The MDBA also failed to adopt environmental solutions and NBS in improving the ecological status of the MDB. The MDB is home to thousands of wetlands with significant biodiversity and ecological values, but only sixteen are recognized in the Ramsar list.[773] The Commonwealth took advantage of being a member of the Ramsar Convention to transfer the basin's management power from states to a federal institution, but it has done little to protect the Ramsar sites. Improving wetlands and Ramsar sites under the basin plan is one of the Act's objectives for meeting international obligations. Thus, the Water Act should confirm protecting the wetlands in the MDB according to the requirements of the Ramsar Convention.[774] However, recent analysis shows that the Commonwealth and state laws, regulations, and policies do not support the sustainability of the MDB Ramsar sites. As well as the low ecological status of many sites, the lack of cooperation and transparency among basin states remains a major challenge for the sustainability of these sites.[775]

Therefore, the focus of the reforms in the basin should be transformed from the water market and economic solutions toward natural and social solutions. The comprehensive participation of traditional owners in the basin and recognising their sovereignty over the water resources is crucial to achieving social and environmental outcomes of water management in the basin. Instead of allocating funds for large corporations to construct

[771] Water Act 2007 Act No. 137 of 2007 as amended at s 202(5)(c).

[772] Katie O'Bryan *Indigenous rights and water resource management: Not just another stakeholder* (Routledge, 2018) at 93.

[773] Authority, above n 646, at 5.

[774] Water Act 2007 Act No. 137 of 2007 as amended S 21(3).

[775] See Erin Kirsch, Matthew J Colloff and Jamie Pittock "Lacking character? A policy analysis of environmental watering of Ramsar wetlands in the Murray–Darling Basin, Australia" (2021) Marine and Freshwater Research.

dams that lack EIA, the MDBA should invest in NBS and improve the ecological status of natural wetlands. This is an optimal solution for reserving water for the environment, meeting international obligations and the sustainable and integrated management of the basin.

The MDBA and the Commonwealth have the opportunity to take advantage of the state of Victoria's experience in water management by prioritising environmental goals. The Victorian Environmental Water Holder (VEWH) is an independent statutory body established by the state of Victoria in 2010. The VEWH works to ensure sufficient water for the environment (environmental water) by maintaining water quality and quantity in the rivers, wetlands and reservoirs.[776] This is an effective method in applying NBS because environmental water has a crucial role, particularly in the dry seasons. For achieving these objectives, the VEWH has the power to take measures and decisions about water management in the state without political interference.[777]

As the VEWH is a corporate body, it has the legal right to speak on behalf of the Victorian rivers and allocate environmental water when and where required. However, the rivers in Victoria do not enjoy legal personality like the Whanganui River in New Zealand.[778] In 2017, the Victorian Parliament passed the Yarra River Protection (Wilip-gin Birrarung murron) Act 2017. The Act was a significant step to recognise the traditional owners' water rights in the state of Victoria. One of the main aims of the Act was to protect the Yarra River as "one living and integrated natural entity."[779] This is a clear reflection and recognition of the cultural importance of the river to Aboriginal peoples in Victoria. The strategic plan for the river is also more comprehensive than the MDB plan, because the plan covers "biodiversity, amenity, and cultural values" which are not addressed properly in the MDB.[780]

Therefore, the Commonwealth and the MDBA can take lessons from the experience of

[776] VEWH "About the Victorian Environmental Water Holder" (2021) <https://www.vewh.vic.gov.au/about-vewh>.

[777] ERIN O'DONNELL "Institutional reform in environmental water management: the new Victorian environmental water holder" (2011) 2(181) Environmental Law at 73–84.

[778] Erin O'Donnell and Elizabeth Macpherson "Voice, power and legitimacy: the role of the legal person in river management in New Zealand, Chile and Australia" (2019) 23(1) Australasian Journal of Water Resources at 38.

[779] Yarra River Protection (Wilip-Gin Birrarung Murron) Act 2017 s 1(a).

[780] Rebecca Nelson "Challenges to improved integrated management of the Murray–Darling Basin" in *Murray-Darling Basin, Australia* (Elsevier, 2021) 339-361.

the state of Victoria in responding to water issues via natural and social solutions. Australia can also follow its neighbour New Zealand in the possibility of granting legal personality to the rivers which have significant value for Aboriginals in Australia. Granting legal personality to rivers can contribute to achieving social, cultural and environmental objectives of water management. It is also an important tool for promoting IEL principles from the bottom and the broad participation of indigenous people in water management and decision-making. The next chapter discusses these issues further when addressing the case of the Waikato River in New Zealand.

5.11 Conclusion

The chapter addressed the two principles of equitable use and minimising harm at the federal level. The evidence from the US Supreme Court confirms the influential role of the court and national jurisdiction in the foundation and development of the two principles at the international level. Thus, these principles were introduced at the federal level in the US. Then, the international conventions and rules borrowed these two principles and presented them as the IEL principles, but in a higher and more advanced position in the second half of the 20th century. Other federal jurisdictions, such as Australia, have used these principles to solve the transboundary water issues among federal states. Contrary to the US experience in water allocation among federal states through the Supreme Court, Australia has taken a notably different path. The Australian government has attempted to solve transboundary water issues among states and territories via intergovernmental agreements.

The MDB in Australia is a compelling case to evaluate the IEL principles at the federal level. The basin provides remarkable resources for Australia in general, for four states and the Capital Territory in particular. Despite that, Australia is an arid continent, and the states and territories have not succeeded in managing the basin sustainably in the last century. Hence, the Commonwealth government has taken the supervision role to manage the basin in the last two decades. The enactment of the Water Act 2007, the establishment of the MDBA in 2008 and drafting the basin plan in 2012 are significant steps toward correcting the previous mistakes in basin management. However, the MDBA has not successfully implemented the Water Act and basin plan provisions, including SDL.

Equitable utilisation and minimisation of environmental harm are mentioned in both the Water Act and basin plan. This is a positive step, but the MDBA and the relevant Minister have failed to turn these provisions into reality. Over allocation of water, unbalanced support to large corporations, lack of transparency, not engaging locals, and omitting indigenous water rights are significant issues in the basin's management. All of these issues have a close link with two principles. Furthermore, the SDL as the basin plan's core element was occasionally determined based on political bias rather than scientific evidence. Finally, the MDBA failed to enforce the Water Act and other regulations in the Northern basin. This is crucial because non-compliance in the Northern basin led to significant environmental harm in the Sothern basin, such as the mass killing of fish across 2018 and 2019. Therefore, monitoring the implementation of the basin plan and compliance with the provisions of the Water Act is essential for the sustainability of the basin and avoiding future disasters. However, reforming the Water Act and the basin plan should concentrate more on natural and social solutions rather than solutions based on the water market only.

Chapter Six: Equitable utilisation and minimisation of environmental harm principles at the local level

6.1 Introduction

The chapter evaluates equitable utilisation and minimisation of environmental harm from the domestic level. The Waikato River in New Zealand is the main case for applying the two principles from the national perspective. The role of the RMA on freshwater management will be a significant part of this chapter. While the RMA is the main national legislation for New Zealand resources, other laws and regulations related to the Waikato River are also addressed. As well as the two above principles, other metrics such as IRBM, indigenous values, NBS and the Ramsar Convention will be used to support the evaluation of the two principles in the Waikato River catchment.

Based on river catchments, New Zealand is divided into sixteen regions. Regional councils administrate these regions and have the primary responsibility to manage water resources inside their regions. Under section 30 of the RMA, regional councils are responsible for preparing regional plans, policies and rules for managing water resources sustainably.[781] In the case of the Waikato River, the Waikato Regional Council (WRC) has the function and power to manage the river and administrate the resource consents. There are also Māori members in WRC who participate in the management of the River based on a co-management approach.

Thus, for evaluating the principles at the lower level, the actors' role at the bottom should be demonstrated. The role of Māori as the indigenous people in New Zealand is addressed profoundly in this chapter. How the domestic laws acknowledge these two principles is the central question of chapter six. Are the IEL principles, including equitable utilisation and minimisation of environmental harm, effective enough at the lower level or not? Drawing lessons from the Waikato River in New Zealand, the chapter argues that developing and fostering national principles has a crucial role in the effectiveness of the principles at the regional and global levels.

The Waikato River is a fascinating case because it illustrates how two different world views and legal systems can cooperate for managing the River and its catchment in an

[781] Resource Management Act 1991 at s 30.

integrated and sustainable manner. Under the New Zealand legal system, both common law and Tikanga principles are adopted to manage the rivers. More significantly, this approach contributed to considering the environmental and cultural aspects of the river. Besides, it has a positive role in the comprehensive participation of Māori in all stages of the decision-making process. The chapter introduces the Waikato River and confirms its transboundary nature inside New Zealand. The chapter then addresses the regulation of water resources and the significant role of the RMA in this regard. The evaluation of the principles under the RMA and the role of Māori will be discussed later.

6.2 Waikato River basin

The Waikato Region is one of sixteen regions in New Zealand. The Region is worthy regarding water resources because rivers and streams exceed 16,000 km and the Waikato River is one of them.[782] With a 14,260 km^2 catchment area and 425 km^2 long, the Waikato River is listed as the longest river in New Zealand. This area is equal to 12% of the total land of the North Island. The river begins in the middle of North Island near Mount Ruapehu, which is 2797 m higher than the sea level. The River then flows to Lake Taupo. Eight major dams were built from the source of the River to Hamilton city. The River then leaves the city and flows north eventually entering the Tasman Sea.[783] Map (5) illustrates the River's long journey from the mountain to the sea.

The Waikato River basin has an interesting condition from a topographic perspective because the basin contains small tributaries. All of these tributaries form small watersheds or catchments that compose a large Waikato watershed.[784] The landscape of the basin has been changed through the decades due to developing agriculture and urbanization. These changes and the dams participated in losing the great culture and heritage of the River basin.[785] The changes have negatively influenced the cultural, social, and spiritual circumstances of many iwi (tribes) and hapū (subtribes) in the basin. As the Waikato River basin covers large areas and connects many iwi and hapū,

[782] See Waikato Regional Council *Overview of River and Catchment Services – Waikato Region* (River & Catchment Services Group, 2011).

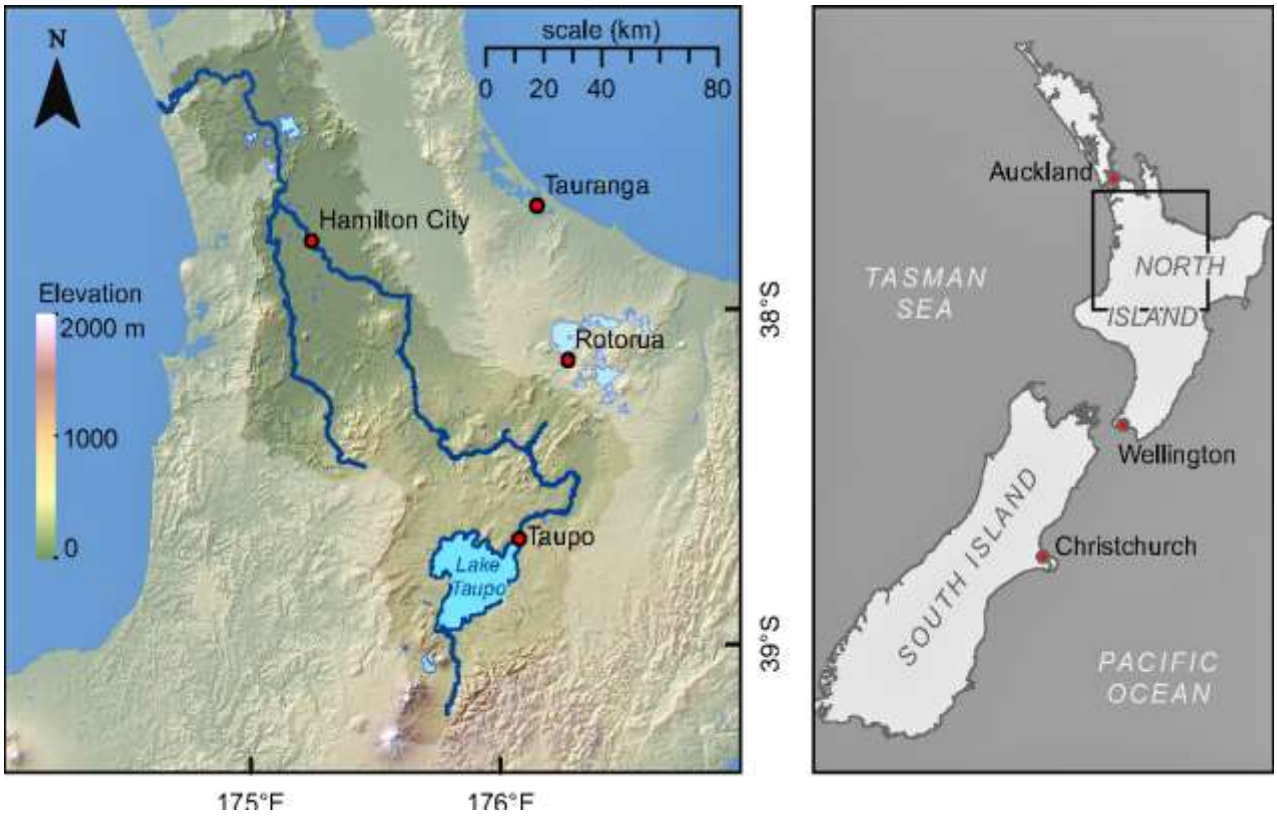
[783] Waikato Regional Council, above n 47.

[784] Karrie Lynn Pennington and Thomas V Cech *Introduction to water resources and environmental issues* (Cambridge University Press, 2021) at 12.

[785] Coleen A Fox and others "The river is us; the river is in our veins": re-defining river restoration in three Indigenous communities" (2017) 12(4) Sustainability Science at 224.

any change of the River influences many of them.[786]

The map (5) shows the Waikato River basin in New Zealand[787]



The River has a very special cultural and spiritual significance for Waikato-Tainui, one of the tribes of indigenous Māori people in New Zealand. Māori, as the natives in the country, comprised 875,300 people among the five million New Zealand population in June 2021.[788] It means they are about 17.1 per cent of the total population. The Waikato River is considered as a tūpuna (ancestor) for the Waikato-Tainui tribe 'which has mana (prestige) and in turn, represents the mana and mauri (life force)' for them.[789] The River has considerable cultural value for Māori. Therefore, any proposal or legal legislation for managing the river without considering the Māori vision will be insufficient.[790] However, Māori have been excluded from water resource management, including the

[786] See Paul Moon *The Waikato: A History of New Zealand's Greatest River* (Atuanui Press, New Zealand, 2018).

[787] Fox and others, above n 785.

[788] Stats NZ Tatauranga Aotearoa "Māori population estimates: At 30 June 2021" (2021) <https://www.stats.govt.nz/information-releases/maori-population-estimates-at-30-june-2021>.

[789] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 at Preamble.

[790] Te Aho, above n 213.

Waikato River, since colonization until the last decade.[791]

Despite the exclusion of Māori from management, the River's water quality has decreased notably in the last several decades. Thus, the government started monitoring the Waikato River's water quality in the 1980s. This process was done routinely for only a few sites of the River at that time, though monitoring of many sites of the River and the streams started in 1990 on a monthly basis. The River's monthly monitoring continues for ten sites, and all information is collected and published in a yearly report.[792] However, all of these monitoring processes did not lead to an increase in water quality in the basin. A recent study was conducted between 2009 to 2019 which evaluated the water quality of New Zealand waterways in the last decade. The study confirms that waters of the Waikato River and other New Zealand rivers are not safe for drinking. The River has all four microbes Campylobacter spp., Escherichia coli, Cryptosporidium spp. and Giardia spp.[793]

To restore the Waikato River's water quality, WRC, as the Waikato Region's highest authority in the region, prepared the Proposed Waikato Regional Plan Change 1 (PC1). The PC1 was developed in 2018 for an 80-year timeframe, and it will be operated after the appeals[794] The PC1 aims to reduce the level of "four contaminants: nitrogen, phosphorus, sediment and microbial pathogens (with E. coli as the proxy for microbial pathogens)."[795] After reducing the level of the four main contaminants in the Waikato River by 2096, the aim of the PC1, which is "Long-term restoration and protection of water quality", will be achieved.[796]

As well as preparing and implementing plans, the WRC has a vital role in managing the River among various stakeholders inside and outside the region, both equitably and

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[791] Makere W Stewart-Harawira "Troubled waters: Maori values and ethics for freshwater management and New Zealand's fresh water crisis" (2020) 7(5) Wiley Interdisciplinary Reviews: Water at 2.

[792] WN Vant *Trends in river water quality in the Waikato Region, 1987-2007* (2008) at 1-3.

[793] See Bernard J Phiri and others "Does land use affect pathogen presence in New Zealand drinking water supplies?" (2020) 185 Water Research.

[794] Waikato Regional Council "Proposed Waikato Regional: Plan Change 1" (2021) <https://www.waikatoregion.govt.nz/council/policy-and-plans/healthy-rivers-plan-for-change>.

[795] WRC Waikato Regional Council *Proposed Waikato Regional Plan Change 1: Waikato and Waipā River Catchments* (2021) at 7.

[796] At 173.

reasonably.[797] It is responsible for approving resource consents that are submitted to them according to available laws and regulations.[798] After the Crown and Māori agreement and under the Settlement Act 2010, the Waikato River Authority (WRA) was also established "to achieve the restoration and protection of the health and well-being of the Waikato River."[799] The WRA has a clear vision and strategy to achieve its aims.[800] As a statutory body, the WRA can provide advice for the WRC and other agencies regarding the health and well-being of the River.

Finally, another critical issue that directly links the Waikato River with the two principles of the IEL is the River's water allocation to Auckland. The city requires more water from the River more than before. From the national perspective, the WRC are required to provide an equitable share of water for Auckland. Simultaneously, they are responsible for the minimization of environmental harm of the River. The following section addresses the issue.

6.3 Waikato as a transboundary river

It was mentioned in the introduction of the chapter that New Zealand administrative regions are divided based on river catchments. Despite this fact, this section proves that the Waikato River has a transboundary nature inside New Zealand. As it is the longest river in New Zealand and is near Auckland, the Waikato River is one of Auckland's major drinking water sources. Currently, the River provides 33.3% of Auckland's total water supply.[801] Thus, the River delivers substantial water to New Zealand's largest city, particularly during drought seasons. Auckland faced a critical drought in 2019. Thus, Watercare (the organization that supplies water for Auckland) applied to take more water from the Waikato River. Previously, they asked to take 200 Million Liter per Day (MLD) in their application to meet Auckland's water demand.

However, this massive demand was challenged by Māori as they are kaitiaki (guardians) of the River.[802] In September 2020, Auckland was granted resource consent

[797] Council, above n 782, at 1.

[798] Waikato Regional Council *Waikato Regional Council – Review of Consent Conditions* (2015) at 18.

[799] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 s 22(a).

[800] See Restoring and protecting the health and wellbeing of the Waikato River. Vision and strategy for the Waikato River.

[801] See Watercare "Waikato River water" (2021) <https://www.watercare.co.nz/Water-and-wastewater/Where-your-water-comes-from/Rivers>.

[802] See Jordan Bond "Agreement to take more water from Waikato River reached" (2020) Radio New Zealand <https://www.rnz.co.nz/news/national/420271/agreement-to-take-more-water-from-waikato-river-reached>.

to take an extra 100 MLD and another 25 MLD from WRC's share water. Thus, Auckland is now able to take 175 MLD from the Waikato River.[803] Even though, the water is taken from the top of the Waikato River before discharge to the sea, there are still concerns about this resource consent as WRC's chair Russ Rimmington pointed out that the health of the River must be preserved.[804] Overallocation of water is risky for the health and well-being of the River. It leaves negative impacts on the environmental and ecological situation of the River. Even though the WRC was blamed for not cooperating with its neighbour region, the WRC's concern was in place because they did not want to repeat the MDB experience in Australia. In the MDB, which was discussed in chapter five, overallocation resulted in ecological disaster, with a loss of biodiversity and the mass killing of fish.

As well as granting water take to Auckland, from the South and near its source, the Waikato River is replenished via the Tongariro Diversion from the Manawatu-Wanganui region. The Tongariro Power Diversion scheme (TPD) was initiated in 1974 to divert water from many streams and tributaries into Lake Taupo, the main Waikato River source. The TPD diverts water from the sources of the Whanganui River to the headwaters of the Waikato River.[805] Despite transferring a significant amount of Waikato River's water to the Auckland Region, the River is also filled by several streams from the Manawatu-Wanganui region in the south of the Waikato region.

Thus, the Waikato River as a transboundary river inside New Zealand is shared by three regions in New Zealand: Waikato, Auckland, and Manawatu-Wanganui region. It is the ancestral river for many powerful iwi groups, particularly Waikato-Tainui in the lower and central Waikato, and with Ngāti Tūwharetoa around Lake Taupo.[806] The sharing of the River by different regions and iwi groups may lead to conflict over the utilization and management of the River. For example, when the resource consents were extended for another 35 years for Genesis Power Limited in 2011, the iwi Ngāti Rangi opposed the consent.[807] Ngāti Rangi lives in the TPD area and upper part of the Whanganui

[803] See New Zealand Herald "Watercare granted consent to take extra 100m litres a day from Waikato River" (2020) <https://www.nzherald.co.nz/nz/watercare-granted-consent-to-take-extra-100m-litres-a-day-from-waikato-river/347ZCE3XP4YBWTPT4COVNL6SF4/>.

[804] Bond, above n 802.

[805] Charles Dawson "learning with the River" in Nicholas and Taffel Holm, Sy (ed) *Ecological Entanglements in the Anthropocene* (Lexington Books, 2016) 35

[806] MARAMA MURU-LANNING "'At Every Bend a Chief, At Every Bend a Chief, Waikato of One Hundred Chiefs': Mapping the Socio-Political Life of the Waikato River" in Jerry K. Jacka John R. Wagner (ed) *Island Rivers: Fresh Water and Place in Oceania* (ANU Press, Australia, 2018) 137 at 141.

[807] *Ngati Rangi Trust V Manawatu-Wanganui Regional Council* [2004] A67/2004 .

River in the Manawatu-Wanganui region. The Māori tribe claimed that their cultural traditions and the water quality of Whanganui River sources were affected by the TPD. Thus, the Environment Court restricted the resource consent from 35 years to 10 years.[808]

The High Court overruled the Environment Court's decision regarding reducing the term of resource consent.[809] The Court of Appeal's judgment also confirmed that the Environment Court's decision was not in place by reducing the resource consent's term to 10 years.[810] However, the granting of legal personality to the Whanganui River in 2017 might challenge the resource consents related to the TPD in the future. It is also possible that the Waikato River catchment's great indigenous culture contributes to cooperation and sustainable management instead of conflict.

6.4 Regulation of water resources in New Zealand

In recent decades, New Zealand's waterways were considered clean and unpolluted, but recent research and reports prove that this image is inaccurate. The current study *our freshwater 2020,* provides data and numbers that threaten the image of water quality in New Zealand. According to the study, more than 95% of the rivers' whole lengths in urban, farming and exotic forest areas are primarily polluted. The wetlands are also very critical because 95% of them are destroyed or drained due to human intervention.[811]

New Zealand is quite an interesting case concerning natural resource management because indigenous rights have a significant role in managing these resources, including water. The New Zealand legal system is a combination of a common law system with Māori traditional customs (Tikanga Māori).[812] Māori people commonly managed and allocated water resources based on Tikanga before the imposition of British sovereignty after signing the Treaty of Waitangi.[813] The Treaty was signed in 1840 between the

[808] At per Whiting J.

[809] *Genesis Power Limited v. Manawatu-Wanganui Regional Council* [2007] CIV-2004 [485-1139] .

[810] *Ngati Rangi Trust v Genesis Power Ltd* [2009] NZRMA 312

[811] Ministry for the Environment & Stats NZ *New Zealand's Environmental Reporting Series: Our freshwater 2020* (2020) at 33.

[812] Carwyn Jones *New treaty, new tradition: Reconciling New Zealand and Maori law* (UBC Press, 2016) at 5-7.

[813] Macpherson, above n 752, at 99.

British Crown and more than 500 Māori tribe chiefs.[814] Since that time, Māori have been excluded from water management and their cultural and spiritual relationship with the river's waterways.[815] This is a considerable issue and directly relates to the two principles. The issue will be deeply addressed in the following section.

The Treaty of Waitangi is an important legal, political, and historical document for all New Zealanders. It establishes debate on New Zealand public life "related to constitutional powers and limitations, race relations, justice, identity and reconciliation."[816] It is also accepted as a guideline to define the Crown's relationship in the country and Māori. The Treaty protects Māori cultural rights, but governing the country is left to the Crown on behalf of all New Zealanders. According to the Treaty of Waitangi, natural resources, including water, should be managed for all New Zealanders' interests.[817] However, the legal framework of the Treaty has not been settled yet and for issues related to the Treaty, Māori should bring a claim to the Waitangi Tribunal.[818]

Thus, it is essential for any person or institution who wants to use water in the country to be aware of both the Treaty of Waitangi and the RMA. Based on the Treaty, Maori and the crown agreed on 'co-management approach for managing the Waikato River in the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.[819] As well as the importance of the Treaty for bringing claims to the Waitangi Tribunal, the Treaty is the basis for provisions related to Māori in the RMA. For example, the WRC should consider "the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga" in preparing variations and plan changes for the Waikato River.[820] To achieve the RMA's objectives, the WRC should consider the Treaty and other matters relating to Māori, such as kaitiakitanga (guardianship) and the stewardship ethic in preparation for the variations and planned

[814] Claudia Orange *The treaty of Waitangi* (Bridget Williams Books, 2015) at 48-50.

[815] Stewart-Harawira, above n 791, at 2-3.

[816] Jones, above n 783.

[817] Orange, above n 814.

[818] See New Zealand Ministry of Justice "Treaty of Waitangi" (2019) <https://www.justice.govt.nz/about/learn-about-the-justice-system/how-the-justice-system-works/the-basis-for-all-law/treaty-of-waitangi/>.

[819] See Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.

[820] Resource Management Act 1991 s 6(e).

changes in the Waikato River catchment.[821]

As well as the importance of rivers for basic human needs, for Māori, the rivers have critical spiritual values. Rivers have a spiritual connection with Tangata Whenua (people of the land). The word "Awa" in Māori means river or 'life-blood'. For them, rivers cannot be distinguished from their surrounding areas, such as land, bank, resorts, streams, and wetlands.[822] This fact was also confirmed in the Waitangi Tribunal Report in 1999.[823] The Report mentioned that river has a broad meaning according to Māori and states that: [824] "For Māori, it included all things related to the river: the tributaries, the land catchment area, or the silt once deposited on what is now dry land." Interestingly, the Māori's view for river and river management is parallel with the holistic approach for river basin management, which manages rivers with the whole river basins. This broad and holistic approach of the IRBM mentioned in the Report is also confirmed in the Settlement Act 2010. According to the Act, IRBM is "to the management of aquatic life, habitats, and natural resources within the Waikato River consistent with the overarching purpose of the settlement."[825]

However, the attempts to manage water resources in an integrated method have been proposed since the 1940s (as discussed on pages 53-54 above). In the sixties, 'catchment control plans' were initiated as a response for controlling rivers and soil. After developing water allocation plans during the 1970s, water pollution was introduced as a significant issue in these plans.[826] The enactment of the Water and Soil Conservation Act 1967 (WSCA) was a good step to allow the public to access water and utilize it with responsibility.[827] The Act took a balanced approach between demands for water utilization and achieving "economic and social wellbeing while safeguarding "instream" values and Māori cultural values."[828] Then, during the late eighties, significant steps were taken toward protecting the environment, including

[821] At s 7 and 8.

[822] Catherine Knight "The meaning of rivers in Aotearoa New Zealand—Past and future" (2019) 35(10) River Research and Applications at 1622.

[823] *The Whanganui River Report* [1999] Wai 167 343 at [39].

[824] At 39.

[825] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 s 35(2).

[826] Pyar Ali Memon "Freshwater management policies in New Zealand" (1997) 7(4) Aquatic Conservation: Marine and Freshwater Ecosystems at 306.

[827] See Water and Soil Conservation Act 1967.

[828] *Electricity Corporation of New Zealand Ltd v Manawatu-Wanganui Regional Council* [1990] W70/90 at [199].

water resources, such as establishing both the Ministry for the Environment (MfE), and the Parliamentary Commissioner for the Environment. These steps led to the enactment of the Resource Management Act 1991 (RMA).[829]

The Act is the most important legislation for resource management in New Zealand because the RMA collected all these legislations into one single document. Water, air, and land are the main subjects for regulation according to the principles of the RMA.[830] The Act empowered regional councils for managing resources, including water. They are responsible for preparing regional plans and setting regional rules for the sustainable management of water. The regional council's functions are described in s 30 of the RMA.[831] Before addressing the power and function of the regional councils, the RMA introduced many restrictions related to utilizing water or discharging into the water in part 3 of the Act. Restrictions on water and rules for taking water are outlined in s 14 of the RMA, but s 15 addresses water discharge.[832] The Act extensively explained the resources consents, types of the consents and the process in Part 6. The process starts with an application, and any person has a right to ask for a water permit.[833]

As well as the RMA, the Regional Councils should follow the National Environmental Standards for Freshwater (NES-F) 2020 and the National Policy Statements for Freshwater Management (NPSFM) in preparing their regional rules and plan variations. The MfE is responsible for guiding regional councils by issuing these policies and standards.[834] The following section addresses the national direction and central government guide to prepare plans or revise them under NPSFM and NES-F.

6.5 The National direction

Since its enactment, the Resource Management Act was criticized for not containing clear guidelines, standards, and policies for regional and local authorities. The regional plans for water resources management were weak, and the RMA did not provide a clear direction.[835] Thus, attempts were started to prepare the NPSFM at the beginning of the

[829] See David R Towns and others "The thirty-year conservation revolution in New Zealand: an introduction" (2019) 49(3) Journal of the Royal Society of New Zealand.

[830] See Derek Nolan *Environmental and resource management law* (LexisNexis NZ Limited, 2020).

[831] Resource Management Act 1991 s 30.

[832] At s 14 and 15.

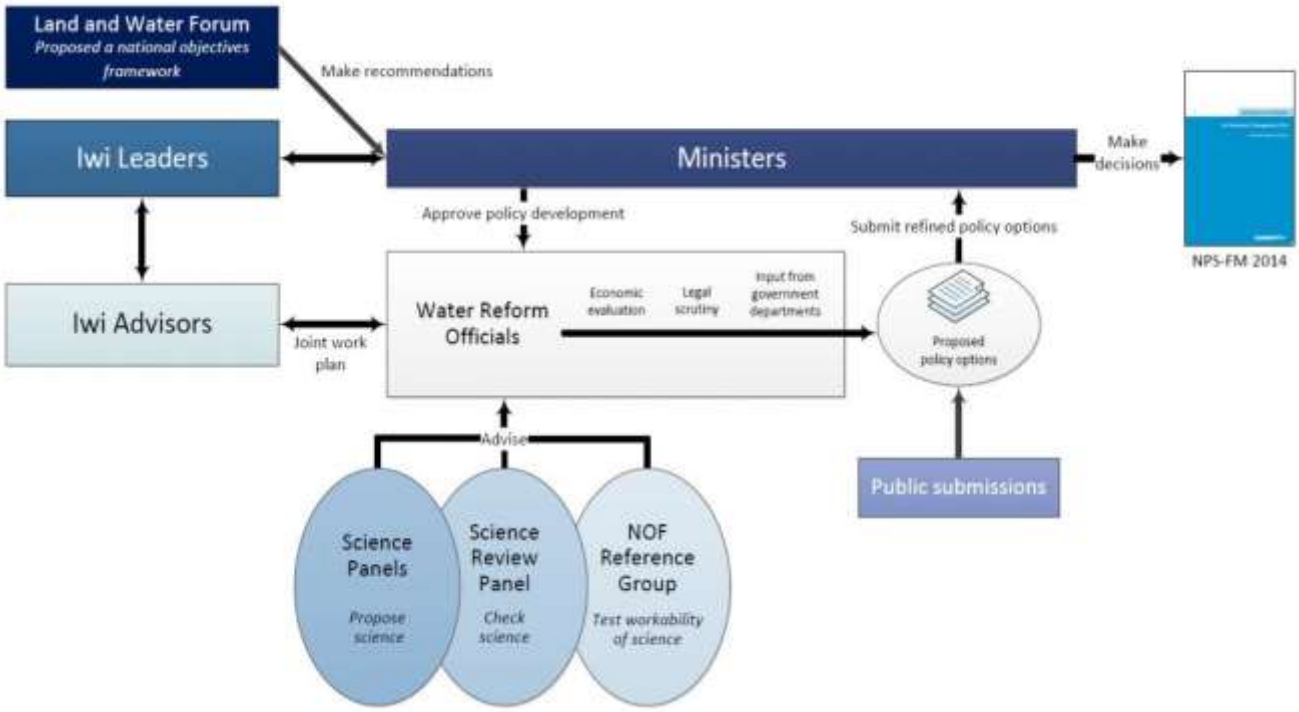
[833] At s 88.

[834] At ss 24, 29A, 43 and 58A.

[835] Memon, above n 826.

new century. At that time, some regional authorities were preparing their plans to respond to water pollution challenges. On the other side, the MfE was concentrating on reports for understanding challenges and policies for better freshwater management.[836] As explained in the following table, the government took a comprehensive approach based on the NPSFM by involving iwi and the larger public in decision making.

Table (5) decision-making based on NPSFM



The RMA has brought significant change to the New Zealand legal system by setting the fundamental principles for protecting natural resources and water resources. The Act was a great step toward establishing policies for better water management, but there was a need for simplifying and clarifying the RMA provisions. Issuing the NPSFM in 2014 and amending them again in 2017 was a part of policy enhancements.[837] According to the RMA, the MfE is responsible for recommendations and issuing the NPSFM. The monitoring and implementation of the NPSFM are also considered as the function of the Minister.[838]

[836] Helen L Rouse and Ned Norton "Challenges for freshwater science in policy development: reflections from the science–policy interface in New Zealand" (2017) 51(1) New Zealand journal of marine and freshwater research at 8.

[837] Jacinta Ruru "Listening to Papatūānuku: a call to reform water law" (2018) 48(2-3) Journal of the Royal Society of New Zealand at 221.

[838] Resource Management Act 1991 at s 24.

The first version of NPSFM was issued in 2014 and amended in 2017. *Te Mana o te Wai* as the core concept was introduced in the amendment. The concept reflects "the integrated and holistic well-being of the water."[839] According to the new NPSFM, which was issued in April 2020. *Te Mana o te Wai* means "restoring and preserving the balance between the water, the wider environment, and the community."[840] The concept gives priority to protecting and preserving rivers and water bodies in the first place. With these resources' social, economic, and cultural values, came second and third.[841]

This is a historic shift in water management in New Zealand because healthy basins and waterways are the first steps toward the sustainability of these resources. In clause 3.15, the NPSFM requires regional councils to prepare plans and set timeframes to achieve environmental objectives in their water bodies.[842] More importantly, "the regional council must consult with communities and tangata whenua" before preparing the plans or revising them.[843] According to the NPSFM, New Zealand has two timeline targets for freshwater management: the 2030 and 2040 targets. The government plans to improve water resources and quality, including rivers and lakes, to make 80% of them safe by 2030. This target is higher for 2040, which is to make 90% of them safe for human contacts.[844] Minimizing environmental harm in the new NPSFM addresses, but it is not sufficient to meet, the 2030 and 2040 targets. For instance, tables in Appendix 2A of the NPSFM, particularly C and D targets of the national bottom line, allow for minor degradation. Thus, *Te Mana o te Wai*'s application and increasing freshwater standards are still questionable in the new NPSFM.

According to the first objective of the NPSFM, the regional councils are responsible for linking all of their regional plans and statements with '*Te Mana o te Wai*' as a

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[839] Ministry for the Environment (MfE) "History of the National Policy Statement for Freshwater Management" (2020) <https://www.mfe.govt.nz/fresh-water/freshwater-acts-and-regulations/national-policy-statement-freshwater-management/history>.

[840] National Policy Statement for Freshwater Management 2020, cl 1.3(1).

[841] At cl 3.1(5).

[842] At cl 3.15.

[843] At cl 3.15(5).

[844] Ministry for the Environment "National Policy Statement for Freshwater Management 2014 (amended 2017)" (2017) <https://www.mfe.govt.nz/publications/fresh-water/national-policy-statement-freshwater-management-2014-amended-2017>.

fundamental principle related to all aspects of decision-making.[845] *Te Mana o te Wai* has a significant place in the new NPSFM, particularly for involving all stakeholders. Regarding decision making transparently and the involvement of Māori, which is directly related to the equitable utilization principle, clause 3.4(3) of the NPSFM is relevant. The clause states that:[846]

> Every regional council must work with tangata whenua to investigate the use of mechanisms available under the Act, to involve tangata whenua in freshwater management, such as:
>
> (a) transfers or delegations of power under section 33 of the Act
>
> (b) joint management agreements under section 36B of the Act
>
> (c) mana whakahono a rohe (iwi participation arrangements) under subpart 2 of Part 5 of the Act.

However, subpart 2 of Part 5 of the RMA has not provided a clear mechanism for Māori participation at the bottom level. Additionally, it has not mentioned adopting the Māori model in decision-making, as illustrated in the previous section. While iwi leaders made recommendations, and iwi advisors contributed to preparing the NPSFM (Table (5)), Māori participation in the decision-making process, comprehensively based on the Māori model, is required.

6.5 RMA, resource consents and the two principles

The enactment of the RMA in 1991 was a great achievement for New Zealand's environmental law. The Act's main aim was to 'promote the sustainable management of natural and physical resources in the country.[847] This legislation was enacted through a radical transformation of law reform. To achieve this purpose, the RMA took a comprehensive approach and replaced 59 statutes.[848] The Act was enacted after serious efforts by the government and parliament of New Zealand. All of these efforts have motivated the country to enact comprehensive legislation for protecting resources on the negative impacts of human activities.[849] Prior to the RMA, several legislations were

[845] At Objective AA1.

[846] National Policy Statement for Freshwater Management 2020 1.3(1).

[847] Resource Management Act 1991 s 5(1).

[848] Daya-Winterbottom, above n 58, 710.

[849] QC Palmer "Protecting New Zealand's environment: an analysis of the government's proposed freshwater

passed to simplify resource consent by the National government, but environmentalists refused them. Thus, there was a need for a comprehensive law to cover all environmental concerns in New Zealand.[850]

Three crucial factors contributed to the enactment of the RMA. Firstly, all pieces of legislation related to the management of resources before the Act were not effective enough to meet the challenges. They were complicated and divided into various small pieces of legislation. Secondly, many New Zealanders were concerned about the cost of the projects named "Think Big" in the 1970s and 1980s. Finally, growing a sustainable development concept at the international level before enacting the Act encouraged the country to issue the legislation in 1991.[851] Therefore, the New Zealand government was quite confident in participating in the Rio conference in 1992, because it had comprehensive and contemporary environmental legislation at that time.[852] Besides, the IEL principles have a significant place in the RMA, particularly the two principles. Equitable utilization is expressed as water takes or permits in s 14 and minimization of environmental harm illustrated as discharges into the water in s 15 of the Act.

However, equitable utilization and minimization of environmental harm had existed in both previous legislations and the judicial decisions before the RMA. This is not because of the influence of the IEL, but it was a part of common law. As a part of the common law system, reasonable water rights' in common law were applicable in New Zealand prior to the RMA. For example, WSCA 1967 refers to that water can be taken for reasonable purposes. Section 21 (1) stated that:[853]

> … it shall be lawful for any person to take or use any natural water that is reasonably required for his domestic needs and the needs of animals for which he has any responsibility and for or in connection with fire-fighting purposes.

Despite the above section, it is logical to mention that the WSCA "suspended common

management and Resource Management Act 1991 reforms" (2013) New Zealand Fish & Game at 5-7.

[850] Geoffrey WR Palmer *Environment: The International Challenge: Essays* (Victoria University Press, 1995) at 151.

[851] Palmer, above n 849.

[852] Palmer, above n 850, at 147.

[853] Water and Soil Conservation Act 1967 s 21(1).

law rights and vested access to freshwater in the Crown".[854] Under provisions of WSCA, water utilisation was allowed for reasonable purposes and domestic needs, but consent or a permit is required from regional councils for using water in unforeseen or extraordinary circumstances. In these circumstances, resource consent is required because the regional councils are responsible for keeping the minimum flow of the rivers and water resources. This situation and interpretation of s 21 of WSCA was well illustrated in the *Electricity Corporation of New Zealand v Manawatu-Wanganui Regional Council* as stated:[855]

> We hold that the purpose of fixing a minimum acceptable flow of the natural water of a river is the conservation of resources of natural water so that they are protected against harm and waste, and are available to meet as many demands as possible, so that their benefits can be enjoyed and shared by all interests to the best advantage of the nation and of the region in which they exist in the course of nature. The essence of it is the conservation of valuable resources. The demands, benefits, and interests which are relevant will vary from one case to another; but they will generally include instream values, and the cultural values of the tangata whenua.

Therefore, any person who would like to utilise water for extraordinary purposes should apply for resource consent based on s 21 of the WSCA and the above judgment because taking water in these circumstances affects the minimum flow of rivers and water resources. Significantly, the RMA took a similar approach to s 21 of the WSCA by allowing water utilisation in "reasonable domestic needs", but resource consent is required in using water for extraordinary purposes. Section 14(3) allows persons to utilise water if:[856]

> (a) the taking, using, damming, or diverting is expressly allowed by a national environmental standard, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent; or
>
> (b) in the case of fresh water, the water, heat, or energy is required to be

[854] Daya-Winterbottom, above n 58, at 708.

[855] *Electricity Corporation of New Zealand Ltd v Manawatu-Wanganui Regional Council, Planning Tribunal W70/90* [29 October 1990] at 40.

[856] Resource Management Act 1991 s 14(3) (a) and (b).

taken or used for—

(i) an individual's reasonable domestic needs; or

(ii) the reasonable needs of a person's animals for drinking water,—

and the taking or use does not, or is not likely to, have an adverse effect on the environment;

Thus, resource consent is essential and should be granted by the regional or local authority. The water permit is considered as one of the types of resource consent under the Act.[857] There are three steps in the process of granting resource consent in any region of New Zealand. Firstly, the person should know if consent is required or not. This can be discussed with regional staff. If the regional authority believes that resource consent is required, the application should be prepared. The regional council will consider the application in the second stage. Finally, the council decides on the application by granting or declining the application. This decision will be based on the RMA provisions, NPSFM and regional plan.[858]

Granting resource consent is considered the first and most significant step to utilizing water in New Zealand. According to the RMA, no one has a right to use or discharge water in the country without the local authorities' resource consent. This is stipulated in the Act as states:[859]

> No person may take, use, dam, or divert any open coastal water, or take or use any heat or energy from any open coastal water, in a manner that contravenes a national environmental standard or a regional rule unless the activity—
>
> (a) is expressly allowed by a resource consent; or
>
> (b) is an activity allowed by section 20A.

Thus, there are clear rules for the utilization of water resources and avoiding environmental damage in the RMA. However, regional policies and plans in each river catchment should be considered for the utilization of these water resources. This will be addressed in the following section.

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[857] At s 87.

[858] Ministry for the Environment "Making an application for resource consent" (2018) 12 September 2019 <https://www.mfe.govt.nz/rma/rma-processes-and-how-get-involved/making-application-resource-consent>.

[859] Resource Management Act 1991 at s 14(1).

6.6 Resource consents in the Waikato River

Granting resource consent for water permits is not easy for local councils because some New Zealand areas lack regional plans. This is one of the reasons that resource consent for water takes longer than other types of natural resources.[860] However, this is different in the Waikato River because the WRC has regional plans, but many applicants compete for resource consent. In the Waikato River, two plans have a crucial role in management and resource consents related to the river. The first regional plan is Variation No. 6 (Water Allocation). This can be linked with the equitable utilization principle in the IEL. Variation 6 has been applicable since 2012.[861] The second regional plan is the PC1 which is related to the minimization of the environmental harm principle. The main objective of the PCI is to reduce "four contaminants: nitrogen, phosphorus, sediment and microbial pathogens (with E. coli as the proxy for microbial pathogens)."[862]

Thus, the WRC, as the consent authority in the region, should be more careful in granting these consents because the demand to utilize River's water has increased dramatically in the last decades. As well as the river being the source of drinking water for both Auckland and Hamilton cities, there is a growing demand for geothermal and irrigation.[863] Here, the WRC is deciding on the resource applications based on 'first-in, first-served.' This approach has been used since the decision of the Court of Appeal in *Fleetwing Farms Ltd v Marlborough District Council*.[864] However, this approach created a serious issue between the WRC and Watercare in 2020 because they required more water and accepted their application quickly.[865] The WRC has provided freshwater for Auckland Region since 2002. Approximately, one-third of Auckland's water supply comes from the river now.[866] According to Watercare, the Waikato River's water contribution increased from 30% to 33.3% from 2019 to 2020.[867]

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[860] Trevor Daya-Winterbotham "RMA Deja Vu: Reviewing the Resource Management Act 1991" (2004) 8 NZJ Envtl. L. at 230.

[861] Waikato Regional Council "Water allocation variation" (2021) <https://www.waikatoregion.govt.nz/council/policy-and-plans/rules-and-regulation/water-allocation-variation>.

[862] Waikato Regional Council, above n at 7.

[863] Edmund Brown Water Allocation Policy and its Implications in the Waikato Region at 11.

[864] See *Fleetwing Farms Ltd v Marlborough District Council* [1997] .

[865] Bond, above n 802.

[866] Watercare, above n 801, at 3.

[867] Watercare, above n 196, at 17.

The Waikato River's water volume to Auckland was 20,210,713 m^3 (13% of Auckland's total water supply) in 2017/2018, but this volume increased to 50,812,241 m^3 (30% of Auckland's total water supply) in 2019/2020.[868] This increase in demand for water from Auckland may negatively influence on health and well-being of the river as a 'life-blood' for Māori. This was the main concern of WRC and Māori members in particular. Therefore, granting more water for the long-term will not be easy if Auckland does not improve the River's quality, health, and well-being. The WRC's concern was in place because overutilization of the River's water leads to environmental damage of the River.

This was not the first time for Māori to express their concern about the resource consent related to the River. Māori has raised their objections in several resource consents. For example, *Mahuta v Waikato Regional Council*'s case refers to the importance of minimization of environmental harm. When the Council granted a dairy industry resource consent, the consent was appealed by Robert Mahuta, Waikato-Tainui and others in the Environment Court. They asked the Court to cancel the consent because of the proposed project's negative environmental and cultural impacts. The Court did not accept the thought, but it discovered an interesting point regarding restoring and protecting quality water resources which states that:[869]

> if the total load has an adverse effect on the environment, then even a relatively small contribution to the phosphorus load of the river should not be ignored.

Hence, the Court obliged the regional councils not to ignore any type discharged to river and water resources while considering either a large or small amount of resource consents. Even though the appeal was unsuccessful, this case and other efforts by Māori led to a radical change in water management with the support of legal reform. As a result, the Settlement Act was enacted, and a new institution was established to protect the River's health and well-being.

[868] At 17.

6.7 Co-management in Waikato River

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, also known as the Settlement Act, was passed into law in 2010. This Act and the RMA are the primary legislation for the Waikato River's management.[870] The Settlement Act was significant for developing the new approach for the river's management between the Crown and Māori, the co-management approach. The Settlement Act defined the approach as:[871]

> a) the highest level of good faith engagement; and
>
> (b) consensus decision-making as a general rule;—
>
> while having regard to statutory frameworks and the mana whakahaere of Waikato-Tainui and other Waikato River iwi.

The same definition of co-management, but in more detail, is expressed in the Variation 6 plan of the WRC.[872] Thus, the Settlement Act sets bases for institutionalizing long-term co-management of the Waikato River between the Crown and Māori in four main points. Firstly, the Waikato River Authority (WRA) was established "to achieve the restoration and protection of the health and wellbeing" of the River.[873] Secondly, it institutes the Waikato River Clean-up Trust for cleanup and restoration of the River.[874] Thirdly, the Vision and Strategy for the Waikato River (V&S) was issued as the main guideline in protecting and restoring the Waikato River catchment activities.[875] Finally, the Settlement Act promotes an integrated management plan for the River.[876] Thus, the Act concentrates on co-management as the base for the restoration of the River's health and well-being with integrated river basin management.

The Settlement Act's most significant turning point was changing the status of the Māori people and their relationship with the Waikato River. Even though the RMA did

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[870] Environment Foundation "Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act" (2017) <http://www.environmentguide.org.nz/regional/waikato-tainui-raupatu-claims-waikato-river/>.

[872] Waikato Regional Council *Proposed Waikato Regional Plan: Variation No.6 – Water Allocation* (2012) at 73.

[873] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 at s 22.

[874] At 32.

[875] See Restoring and protecting the health and wellbeing of the Waikato River. Vision and strategy for the Waikato River.

[876] Karen Fisher and Meg Parsons "River Co-governance and Co-management in Aotearoa New Zealand: Enabling Indigenous Ways of Knowing and Being" (2020) 9(3) Transnational Environmental Law at 473.

not literally mention them as a stakeholder, Māori achieved their role as a stakeholder in the RMA later. Thus, the Parliament gave them a greater role in the 2008 settlement when Waikato-Tainui was recognized as the 'Guardian' of the Waikato River.[877] This role was enhanced and changed considerably when the Settlement Act 2010 recognized Waikato-Tainui in the co-management for governing the Waikato River. In the principles described in the Kingitanga Accord, both the Crown and Waikato-Tainui accepted the River's co-management as part of the Settlement Act. It means they are agreed on consent in the decision-making process related to the River in good faith.[878]

Furthermore, the Settlement Act confirms the effectiveness of co-management, and this must be applied to various methods as states:[879]

(i) the development, amendment and implementation of strategies, policy, legislation and regulations that may potentially impact on the health and wellbeing of the Waikato River; and

As a result, the role of local communities' has changed from stakeholders to Guardians and then to the Waikato River's co-managers in the last couple of decades. This is an incredible shift of governments' thinking and solving environmental issues by granting a greater role to local communities. Thus, Māori have a great role in all aspects of the Waikato River management, from planning and resource consent to implementing, monitoring, and reviewing the management process. To make the co-management effective, the WRC cooperated with the iwi in the Waikato River to participate in all stages in preparing PC1. The WRC created the Joint Working Party with all iwi in the catchment to make recommendations and participate in all stages for preparing, reviewing and changing the PC1.[880]

Interestingly, the Māori legal fight to acknowledge their cultural and spiritual relationship to water significantly impacted EIL principles in New Zealand. This was demonstrated in the first environmental law case that addressed the Māori relationship to water.[881] *Huakina Development Trust v Waikato Valley Authority* was the earliest

[877] See Marama Muru-Lanning *Tupuna awa: People and politics of the Waikato River* (Auckland University Press, 2016).

[878] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 at Schedule 1, s (4)1.

[879] At s (4)2.

[880] Waikato Regional Council, above n 795, at 23.

[881] Daya-Winterbottom, above n 58, at 711.

case that Māori attempted to prevent environmental harm to the Waikato River in the High Court of New Zealand in 1987.[882] The Trust appealed granting water rights to the Authority in the Planning Tribunal under s 21 of WSCA. They argued that discharging the treated waste from the dairy farm into one of the Waikato Rivers' tributary would negatively influence the river's environment and spiritual relation to Māori.[883]

Even though the appeal was unsuccessful, the High Court later discovered that Māori spiritual and cultural relationship with water could be demonstrated under s 24(4).[884] Later in the RMA, the Māori cultural and spiritual relationship to water was recognized as a matter of national significance. The Act also obliged the regional councils to consider it in exercising their power and functions.[885] This means if the WRC granted a resource consent and this consent led to environmental damage to the River, it would negatively affect Māori interests and their relationship to the River. Here, protecting Māori interests in the Waikato River is consistent with the minimization of environmental harm principle in the case of the Waikato River. More importantly, promoting and practicing the co-management approach in the Settlement Act and WRC's plans are directly related to implementing equitable utilization. Equitable participation is a fundamental part of equitable utilization, and the co-management approach provides an opportunity to participate equitably in managing and protecting the Waikato River.

Therefore, in the above cases and legislation, Māori defended their strong relationship with the water bodies in New Zealand. Simultaneously they indirectly defended the IEL principles, including equitable utilization and minimization of environmental harm. Thus, the legal fight to protect Māori water rights was paralleled with enhancing the IEL principles. Māori have achieved significant success because protecting these rights and principles that started from appealing legal cases is supported by legislations and ended with the institutional arrangement.

6.7.1 Waikato River Authority (WRA) and the V&S

Over the last five decades, Māori, mainly those who live around the Waikato River,

[882] *Huakina Development Trust v Waikato Valley Authority*, above n 206.

[883] At 15.

[884] Daya-Winterbottom, above n 58.

[885] Resource Management Act 1991 s 6(e).

started their legal fight to regain their rights and prove their strong link with the River. Sir Robert Te Kotahi Mahuta was one of the influential leaders in this regard. He started appealing resource grants in the 1970s and defending Māori water rights against privatization in the 1980s. Significantly, both the Crown and Māori agreed on the co-management framework in 2008, which was confirmed in the Waikato River Deed of Settlement.[886]

The co-management framework between the Crown and five River iwi in the Waikato River's basin was accepted and developed in the Ngati Tuwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010, Waikato Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and Nga Wai o Maniapoto (Waipā River) Act 2012.[887] The Waipā River Act mainly concentrates on protecting and restoring the Waipā River's health, one of the Waikato River's tributaries. The Act adopts both co-management arrangements with the co-governance framework to achieve this purpose, but the Waikato River Act only mentions co-management.[888] However, all of the above Acts confirm an institution's establishment to supervise Waikato River's management and represent all stakeholders.

Thus, the WRA was established in late 2010, based on the Settlement Act provisions. The Authority comprises of equal members of the Crown and Māori.[889] The WRA have ten members now, and each side contributes five members.[890] This is a crucial point for comprehensive participation and engaging the public in water management. It is also an effective democratic institution for protecting the river because the management should not be about the majority and minority, but about equitable participation in water management and decision-making. This equitable participation at the bottom level is fundamental for IEL's principle equitable utilization at the international level, but how the WRA have taken advantage of this privilege and engaged all stakeholders in the river is a critical question.

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[886] See Marama Muru-Lanning "The key actors of Waikato River co-governance: situational analysis at work" (2012) 8(2) AlterNative: An International Journal of Indigenous Peoples.

[887] Hester Den Ouden "River Co-management and Planning in the Waikato: An Analysis of Regional and District Plans and Regional Policy Statement Compliance, and a New Approach to Plan Preparation" (University of Waikato, 2017) at 2.

[888] Fisher and Parsons, above n 876, at 472.

[889] Linda Te Aho "Ngā Whakataunga Waimāori: Freshwater Settlements" (2012) Treaty of Waitangi settlements at 111.

[890] Fisher and Parsons, above n 876.

The WRA has broad powers to fulfil its function under the provisions of the Waikato River Settlement Act. The WRA is responsible for supervising the implementation of the V&S in the whole Waikato River basin. This means the implementation of the V&S in the large area, which accounts for 11,000 km^2.[891] However, interpretation of the V&S as part of RMA s 104(1)(b) and as the guideline for managing the river is questionable. On the one hand, this section obliges the consent authority or decision-makers to "have to regard" the V&S as a part of the Waikato Regional Policy Statement.[892] On the other hand, The RMA obliges decision-makers to consider the V&S in a "particular regard" as mentioned in section 17.

Thus, according to Te Aho, "these obligations do not equate to requirements for applicants to show that their applications will help restore or enhance the river catchment."[893] Therefore, V&S is a vital tool, according to section 104, but it cannot be understood as the primary guide as it was the legislators' intention.[894] In this situation, it is not clear how the WRA oversees the implementation of the V&S under the RMA provisions. However, the Settlement Act is quite clear about the significant position of the V&S, granting the V&S primacy over other rules and policies related to the Waikato River. As stated:[895]

"The vision and strategy are intended by Parliament to be the primary direction-setting document for the Waikato River and activities within its catchment affecting the Waikato River." Finally, the Settlement Act not just gave primacy to the V&S over the regional rules, but it confirmed that V&S "prevails over any inconsistent provision" of NPSFM and NES-F.[896] The significant role of V&S and its primacy over regional rules and national standards is also confirmed in the PC1.[897] Thus, it is expected that implementing the PC1 in the following year will contribute significantly in avoiding environmental harm to the Waikato River.

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[891] At 475.

[892] Linda Te Aho "Te Mana o te Wai: An indigenous perspective on rivers and river management" (2019) 35(10) River Research and Applications at 1620.

[893] At 1620.

[894] At 1620.

[895] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 s5(1).

[896] At s 12(1).

[897] Waikato Regional Council, above n at 54-55.

6.8 IEL principles and sustainability under the RMA

The application of the principle is not the same at both national and international levels because the nature of water law is different at the two levels. Water law is more concerned about water rights in the country at the national level. Even though the sources of law regulating water issues are distinctive among various nations, international water law has a significant impact on local jurisdictions worldwide. International law principles are in the process of transforming from international to national levels in many states.[898]

In New Zealand, the status of quality and quantity has changed dramatically since colonization. Several reasons have led to this dramatic change. Despite the building of several dams, the Waikato River faced diverting, extracting, and discharging waste into it. This was paralleled with clearing native vegetation from the basin for agriculture and urbanization through the decades. The significant modification of the basin has negatively influenced erosion and increased flooding.[899] Hence, minimizing environmental harm is the River's great challenge because the major problem comes from land use. Increasing the Nitrogen level in the River, which comes from farmlands around the catchment, is one of the primary water pollution sources. Adding to that, the RMA legislators were also indulgent toward land users, which restricted regional councils from acting effectively in this regard.[900] However, preparing PC1 for the Waikato River and implementing it in the coming years will have a significant role in minimizing the river's environmental damage.

As well as the issue of equitable utilization among various actors to get resource consent in the Waikato River, equitable participation is also a major issue. Thus, the MfE in New Zealand has concentrated on participating communities and people along the Waikato River in decision-making. As well as the efforts mentioned in the previous sections, the MfE focuses on developing a collaborative process as the best practice of

[898] Patricia Wouters "National and international water law: achieving equitable and sustainable use of water resources" (2000) 25(5) Water International

[899] Council, above n 48.

[900] Catherine Knight "A Potted History of Freshwater Management in New Zealand" (2019) 15(3) Policy Quarterly at 6.

water management in the Healthy Rivers Wai Ora (HRWO) project. Both Waikato Regional Council and Waipa River Iwi started work improving the water quality of the River. This collaborative work is significant in water management's decision-making because councils and iwi can inform and participate in communication to manage the Waikato River better.[901] This type of collaboration that concentrates on developing cooperation from the bottom level will achieve excellent long-term and short-term sustainability outcomes. This method is much better to meet the environmental challenges of water management.[902]

This all accrued after the enactment of the Settlement Act in 2010 and the establishment of the WRA. The changes in the vision regarding the management of the Waikato River is stipulated in the Act, as states: [903]

> … participation by engagement at an early stage in statutory and management processes, and other actions, that may affect the health and wellbeing of the Waikato River, including the planning and development of new and amended policies or management initiatives or decisions affecting or relating to the Waikato River. This is a positive obligation to provide for early and effective input from Waikato-Tainui, rather than simply an obligation to consult.

This paragraph illustrates that the role of local communities of Waikato River has changed from consultant to decision-makers. This was part of the governments' new strategy to understand the water management issue from different angles after announcing the *New Start for Fresh Water* in 2009. The government started a program for understanding significant issues of freshwater in New Zealand in 2011. A part of the program, officials of the MfE, were introduced to the technology related to freshwater and the application of the RMA. A summary of the analysis and available options for solving these issues were provided.[904] However, the government, and others, discovered that technological solutions do not achieve sustainable management

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[901] The Ministry for the Environment *Collaboration in the Waikato catchment: A description of the establishment phases of the Healthy Rivers Wai Ora project from a council practitioner's perspective* (2015) at 6-7.

[902] See Waikato Regional Council *Final report The benefits and challenges of farmer-led, collaborative, sub-catchment policy methods and plans for consideration in the Waikato Catchment: A literature review* (2019).

[903] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 at Schedule 1, s (4)(2)(B).

[904] See Simpson Grierson "Case law on limits for freshwater quality and environmental flows" (2010) Prepared for the Ministry for the Environment. Wellington: Simpson Grierson.

without social and environmental solutions. Thus, the government emphasized adopting Tikanga principles more intensively in the last decade. Concentration on *Te Mana o Te Wai* in the recent NPSFM is an obvious example in this regard.

6.9 Toward a new approach for water management based on Tikanga

As mentioned in the previous sections, the High Court's judgment in *Huakina Development Trust V Waikato Valley Authority* had a significant role in demonstrating the Māori relationship to water.[905] A few years later, the RMA recognised "the relationship of Māori and their culture and traditions" to water as a matter of national significance.[906] The enactment of the Settlement Act 2010, approving the V&S and recognising Māori as the co-managers in the Waikato River were crucial steps for protecting their interests and recognising them as defenders of the environment and water resources. Māori also introduced the integrated approach *Te Mana o Te Wai* in the recent NPSFM in New Zealand.

Thus, as well as other indigenous people worldwide, Māori have a distinctive link to Mother Earth, but it now has a significant position in the New Zealand legal system. This cultural relationship is quite different from the Western perspective. Based on their customs and values, all the natural resources are alive and cannot be used just for short term economic goals. All the parts of Papatūānuku 'Mother Earth', including rivers, have special meaning for Māori and they are responsible for protecting them.[907] For example, the previous Māori generation was taught that they were not allowed to eat small eels during fishing. Also, because of great respect to the Waikato River, they were used to not eating in front of the river. This practice prevented them from polluting the river or mistreating it.[908]

Here, despite the known, economic, and social advantages of waterways, rivers and other natural resources hold a significant spiritual meaning for Māori.[909] Māori, like

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[905] See *Huakina Development Trust v Waikato Valley Authority*, above n 206.

[906] Resource Management Act 1991 s 6(e).

[907] Linda Te Aho "Indigenous laws and aspirations for a sustainable world" (2014) The Earth Charter, Ecological Integrity and Social Movements at 170.

[908] Te Aho, above n 213, at 286.

[909] Catherine Heather Knight *New Zealand's rivers: An environmental history* (Canterbury University Press, 2016) at 28.

other indigenous people, share values and principles that can provide solutions for current environmental issues globally. There are four main principles that Māori share with other indigenous people, and they are reflected in Tikanga. Being in a part of an animate world, the interrelationship between nature and human beings, sticking to a place against relocation and acknowledging the future generations' significance are the core principles. [910] These principles provide an alternative approach for managing natural resources, including rivers.

The above principles have a strong position in Mātauranga Māori or the knowledge that Māori collected over generations based on their worldview. In this worldview, humans and non-humans are connected physically and spiritually.[911] Passing this knowledge to the future generation plays a critical role in acknowledgement and practicing, both Tikanga Māori and IEL principles. Developing Tikanga-based principles for water allocation and reducing environmental harm is crucial for making a balance between the Māori and Western models of water management. There is strong and ambiguous legal support to make this balance occur in the Waikato River. However, good practice in the implementation of this legal support is required. WRC and WRA can take lessons from other successful projects in the region.

Among these initiatives and innovations related to equitable allocation and reducing environmental harm is the Lake Taupō Protection Project (LTPP). The Lake is a major part of the basin (Map 5). The government provided around $80 million for the LTPP to clean up and protect the Lake.[912] This is a promising project, but the government is criticized because it does not take care of all the waterways like Lake Taupō. The priority was given to Lake Taupō because of its economic and tourism benefits. Other lakes in New Zealand, such as Horowhenua near Levin, suffer from critical conditions, but the government has not provided such funds and attention.[913] Therefore, reducing harm to the river and cleaning it up should be extended to all the parts of the Waikato River from its source until discharging it to the sea.

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[910] Te Aho, above n 907, at 170.

[911] See Joanne Clapcott and others "Mātauranga Māori: shaping marine and freshwater futures" (2018) 52(4) New Zealand Journal of Marine and Freshwater Research.

[912] Ministry for the Environment "Lake Taupō Protection Project" (2017) <https://www.mfe.govt.nz/fresh-water/clean-projects/lake-taup%C5%8D>.

[913] Knight, above n 909, at 6.

Concentrating solely on one part of the river is not consistent with *Te Mana o Te Wai* which is one of the significant values of the Tikanga and the central element for the new NPSFM. *Te Mana o Te Wai* emphasizes "that protecting the health of freshwater protects the health and well-being of the wider environment."[914] *Te Mana o Te Wai* was previously introduced and expressed as *Te Mana o Te Awa* in the Settlement Act 2010. It refers to that the managing and protecting Waikato River should be in a comprehensive and integrated approach to include the whole River, tributaries, streams, lakes, wetlands, and the whole catchment.[915] This holistic approach should be considered in managing all Waikato River sites because all parts of the basin have special meaning for Tangata Whenua and the whole of New Zealand.

In implementing *Te Mana o Te Awa* and the integrated approach effectively, the WRC also adopts Tikanga values and international obligations simultaneously, particularly for the wetlands in the Waikato River. New Zealand has been a part of the Ramsar Convention since 1976. Six important sites have been listed among the Ramsar list, but only Whangamarino wetland is recognized as a Ramsar site inside the Waikato River catchment.[916] Even though the Whangamarino has a significant cultural value for Māori, there is little evidence of the acknowledgement of Tikanga in the restoration plan of the wetland.[917] Thus, restoring Whangamarino wetland under *Te Mana o Te Awa* should be one of the main tasks of the WRA and WRC to meet New Zealand obligations under the Ramsar Convention and implement *Te Mana o Te Awa* as one of the fundamental principles of Tikanga.

The new NES-F has provided essential guidelines for all regional councils in New Zealand regarding the protection and restoration of the wetlands. The Parliament approved the NES-F in August 2020. The NES-F was enacted based on Section 43 of the RMA, and the MfE is responsible for administrating them.[918] The NES-F determined many requirements for protecting natural wetlands, particularly the wetlands that have a significant value for Māori. According to Section 25 of the NES-F, "livestock must be kept at least 5 m away from the bed of any river, lake, wetland,

[914] National Policy Statement for Freshwater Management 2020 clause 1.3.

[915] Te Aho, above n 892, at 1619.

[916] Conservation, above n 199.

[917] Nicholas Magnolfi "Ecosystem restoration and community involvement in the Whangamarino Wetlands of New Zealand" (2020) at 33-34.

[918] See Resource Management (National Environmental Standards for Freshwater) Regulations 2020.

or drain (regardless of whether there is any water in it at the time)."[919]

As the agricultural sector is the main source of carbon emissions,[920] and agricultural land is the main contributor to pollution of groundwater and surface water, natural and constructed wetlands can reduce pollution fundamentally. The role of wetlands is crucial in reducing nitrogen and phosphorus in the Waikato River catchment because it is the intensified catchment with farms in New Zealand.[921] Thus, natural and environmental solutions are significant for the sustainability of the Waikato River catchment, but these solutions should adopt the values and principles of Tikanga for freshwater management, including recognizing the interconnection between nature and humans. The following section addresses this issue further.

6.10 Legal personality and Tongariro diversion

Adapting Tikanga and Māori environmentally friendly culture has contributed to a radical change of institutional and instrumental change in the New Zealand legal system. This is not a new phenomenon because Māori attempts for recognizing Tikanga principles have existed since 1840.[922] This change is reflected in the RMA, but it is more obvious in the legislations and institutions related to the Waikato River. Michael King described the strong and interdependent relationship between Māori and the River. He stated that "the life of the river became inseparable from the life of the people, and each to the name of other".[923] This interrelationship has a great place in Māori stories and their worldview.

According to one of the stories, mountain Taupiri, located around 20^{km} north of Hamilton City, was sick a thousand years ago. The Mountain Tongariro, which is her relative, sent healing water to assist her. The Mountain Tongariro took the healing water from snow, ice and geothermal fields, which became the Tongariro National Park near the Waikato River's source and the centre of North Island. The healing water became the Waikato River. This is a story of the creation of the Waikato River, and it emphasizes the strong relationship between the people who belong to these two

[919] At s 26(4)(d).

[920] See Magnus C Abraham-Dukuma and others "The limits of the offshore oil exploration ban and agricultural sector deal to reduce emissions in New Zealand" (2020) CCLR.

[921] See CC Tanner, M Long Nguyen and JPS Sukias "Using constructed wetlands to treat subsurface drainage from intensively grazed dairy pastures in New Zealand" (2003) 48(5) Water Science and Technology.

[922] Te Aho, above n 892, at 1617.

[923] Michael King *Te Puea, a biography* (Auckland: Hodder and Stoughton, 1977) at 50.

mountains.[924] The Mountain Tongariro is the source of Whanganui River, which was recognized as a legal person under Te Awa Tupua (Whanganui River Claims Settlement) Act 2017.[925]

As well as the close and strong relationship between iwi in the Waikato River catchment and iwi in the Tongariro, their waters are joined through Tongariro Diversion. Thus, the sources of the Waikato River are mixed with the sources of the Whanganui River because the water of the Diversion discharges into the Taupo Lake. This opens the possibility for recognizing the Waikato River as an independent legal person, just like the Whanganui River. The Waikato River is "the mana and mauri (life force)" and an ancestral river for Waikato-Tainui. [926] Even though the Waikato River is not recognized as a legal person, the Act confirms the spiritual relationship between the people and the River. Thus, the significant voice of the River is mentioned in the Act, but it is not recognized as an independent legal person clearly like the Whanganui River.

As well as the transboundary nature of the Waikato River, because water is diverted from the Manawatu-Wanganui region to Waikato Region, the Tongariro Diversion can be seen as a positive sign for strengthening the relationship between people in Waikato with Manawatu-Wanganui and the spiritual connection between the two rivers. Even though the Waikato River is not recognized as an independent legal persona, the cultural and spiritual relationship between the River and people is recognized. In that case, many principles in Tikanga will contribute significantly to managing the river in a sustainable and integrated with engaging the wider public in the management process. Te mana o te awa (the spiritual authority, protective power, and prestige of the Waikato River)[927] is crucial to managing the whole Waikato River catchment integrated and sustainably. It is crucial for comprehensive public participation and enhancing a bottom-up approach parallelly with a top-down approach.

Some ambitious projects are working on developing this understanding in New Zealand, but they need to be expanded to cover the whole country.[928] Therefore, in amending any legislation and designing policy, principles and values of the Tikanga

[924] Te Aho, above n 892, at 1616.

[925] Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 s 14.

[926] Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 s 1(1).

[927] At preamble (1).

[928] See Phyllis Callaghan and others "Tuākana/Teina Water Warriors Project: A collaborative learning model integrating mātauranga Māori and science" (2018) 52(4) New Zealand Journal of Marine and Freshwater Research.

Māori should be accounted for. More significantly, for enhancing good practice in implementing legislation, Ngā Puna Aroha could make a suitable solution.[929] It means demonstrating love and respect toward all waterways by continuing the relationship between them and future generations.[930]

6.11 Conclusion

The Waikato River in New Zealand, like other rivers in the world, faced intensive human intervention. This intervention occurred via various methods, including discharging waste into rivers from factories and farms, dam construction and over-allocation of water, particularly after colonization. These factors have contributed to a dramatic change in river water quality and quantity. Furthermore, the factors led to an ignorance of the main actors and stakeholders to participate in decision-making and receive their equitable share and increased environmental damage to the river. Finally, the river was managed centrally and based on the Western model from the colonization era until the late the last century.

However, the New Zealand governments' reforms and changes in the vision for water resources management were remarkable, which started with enacting the RMA in 1991. The voice of many rivers are heard, and their spiritual relationship with the people is now acknowledged. The Whanganui River has been granted legal personality, which is unusual, even in advanced jurisdictions. The basins' communities and local people have a more significant role, especially in the Waikato River basin. In enacting the RMA, Māori were introduced as stakeholders, though their role was limited to just a consultation. Māori's role has since changed from stakeholders to co-manager and guardians, particularly in the Waikato River. They are participating in all stages of decision-making, but this is still inadequate. New Zealand's social circumstance has a great possibility for adopting Tikanga Māori and IEL principles simultaneously.

Incorporating principles and values of Tikanga Māori and such as *Te Mana o te Wai* was a dramatic change toward equitable share and reducing environmental harm. The concept gives authority to rivers themselves, but it can be supported and reinforced with

[929] See Lara Bernadette Taylor and others "Ngā Puna Aroha: towards an indigenous-centred freshwater allocation framework for Aotearoa New Zealand" (2020) Australasian Journal of Water Resources.

[930] At 34.

other values. Ngā Puna Aroha can provide a comprehensive framework to implement the Tikanga Māori by adapting these principles at schools and in daily life. This will be crucial for filling the gaps of transparency and consultation based on in marae meetings. In this way, Māori will participate more comprehensively in water management.

As a result, good practice in the implementation values and principles of Tikanga Māori will play a crucial role in adopting IEL in the Waikato River and New Zealand. Finally, adopting indigenous values and principles is crucial for public participation in water management and enhancing the bottom-up approach in implementing IEL principles. New Zealand's approach in water management, particularly the Waikato River's case, is rich and valuable. It has important lessons and provides opportunities for other counties that have indigenous people and minorities. These lessons and opportunists will be addressed in the following chapter.

Chapter Seven: The IEL principles at triple-level; Challenges and opportunities for implementing them at different levels

7.1 Introduction

Following the evaluation of both equitable utilisation and minimisation of environmental harm principles at the three levels, this chapter answers the last two questions of the thesis. Firstly, it asks what the challenges and opportunities in implementing equitable utilisation and minimisation of environmental harm are in the Tigris-Euphrates River basin, Murray–Darling river basin and Waikato River basin. Secondly, it examines what lessons can be learned regarding implementing the two principles at these three levels. As a trans-national analysis, these questions are significant because the IEL and its principles are not created only for states. States decide whether or not to cooperate and apply these principles. All the while, local communities and people at the lower level are affected by these state decisions.

The first part of the chapter discusses the main challenges in implementing the two principles at the three levels. As the legal instruments and institutions are not the same at each level, the challenges are not exactly the same, though similar challenges can be discovered in the following sections. A major challenge, particularly at the international level, is a strong sense of sovereignty. Sovereignty will also be addressed at both federal and local levels, as the state's absolute and unguarded power to manage river basins ignores the internal actor's role inside states. In most cases, this approach has caused overallocation and led to environmental harm to neighbouring states and regions. The chapter will then discuss weak or the lack of local people’s voices in the three case studies and how their role changed, for example in the Waikato River. Finally, while the lack of transparency in decision making remains a significant challenge in implementing the IEL principles in the TE-RB and MDB, it has improved in the case of Waikato River. This challenge will be discussed at the end of the first part of the chapter.

In the second part of the chapter, opportunities and solutions are provided to address the challenges noted in the previous section. It also provides details regarding how these opportunities should be addressed. Shared sovereignty is crucial for managing transboundary rivers because absolute sovereignty weakens equitable utilisation, in many cases leading to environmental harm to the river. In addition, equitable utilisation

and minimisation of environmental harm as substantive principles should be combined with a procedural principle: cooperation. These principles can be implemented effectively in any river basin, but designing a legal framework for the implementation is fundamental. Thus, the last two sections in this part of the chapter emphasise the establishment of basin institutions to implement the principles in an integrated and sustainable manner.

The last part of the chapter provides the lessons that can be learned regarding implementing the two principles at these three levels. With acknowledging the differences in implementing the IEL principles in the three levels, the last part concludes with common lessons from quite different case studies.

7.2 Challenges in promoting and enhancing the principles

7.2.1 The two principles and narrow understanding

As mentioned in chapters two and three of the thesis, the two principles are discussed in a narrow context in many international rules and conventions. They concentrate mainly on states taking all responsibility for the river basin's management. The increasing role of the state is at the expense of international organisations, non-governmental organisations, non-state actors and the public. I recognise the significant role of states in all areas, including river management. I also believe that we are not in the post sovereign era, but without allowing non-state actors in water and river management, it would not be possible to face significant environmental issues in the Anthropocene and find optimal solutions for them.

Equitable utilisation and minimisation of environmental harm as two significant international environmental law principles have a significant place at international, federal and local (unitary) levels. However, growing and developing the principles are faster and easier at the local level than at the federal and international levels. The complexity of the international system at the international level is potentially a reason why the principles could not cover parts of the world. In addition, the general public has a greater voice at the local level. Thus, they are more active in participation in water management and river basin management in particular. They are aware of and develop the equitable use of water and avoid environmental damage. Thus, the focus of implementing the IEL principles should start inside states and with local stakeholders,

then transfer them to the international level.

At the international level, material understanding of the value of water and viewing water as a tool for security and economic interests is a major obstacle. With the increasing role of capitalism in the last century, the influence of states over water also increased. The capitalist system has an enormous negative impact on available water resources because everything has a material value in this system, including water.[931] Thus, the ecological, cultural, and environmental value of river basins is dismissed under the capitalist system. Everything is prepared to be a part of the state's commodities. The states have the absolute and final word in the management of all resources, including water resources.[932] Thus, transferring power and control over water and river basin management to local people and non-state actors is crucial toward the ecological and cultural understanding of river values. This is also significant for growing the bottom-up approach in river basin management and promoting IEL principles locally and internationally.

7.2.2 Sovereignty and absolute sovereignty

Chapter two discussed the concept of sovereignty and its intellectual development. Even though the practice of sovereignty dates back to the Sumerian city-state era, the modern meaning of sovereignty dates back to the sixteenth century. Jean Bodin and Thomas Hobbes believed that sovereignty should remain unlimited. Hobbes, in particular, had a strong belief in "Divine Sovereignty." According to him, humans obey the sovereign by the law of nature, and this sovereignty is absolute.[933] Bodin had a similar view for the absoluteness of sovereignty. When Harmon emphasised the US's absolute territorial sovereignty over the Rio Grande water, he was perhaps under these scholars' influence. A few decades later, sovereignty over natural resources gained significant attention.

The role of nation-states increased dramatically in the twentieth century, especially following the two World Wars. The majority of previously subjugated nations were

[931] Unuigbe, above n 319, at 99-109.

[932] Klaus Bosselmann *Earth governance: trusteeship of the global commons* (Edward Elgar Publishing, 2015) at 107.

[933] Thomas Hobbes *Leviathan, or, the Matter, Form and Power of a Common-Wealth Ecclesiasticall and Civil* (Printed for Andrew Crooke, at the Green Dragon, in St. Paul's Churchyard, London, 2004) at 554.

granted independence, and are now members of the UN as sovereign states. Equal sovereignty among the UN members is an essential principle of the organisation because it is established on the members' equal sovereignty.[934] Thus, the increasing number of sovereign states has led to an increase in shared and transboundary rivers globally. There are 286 rivers transboundary rivers that are shared between multiple states.[935] However, there is no appropriate mechanism to manage most of these rivers.[936] The main issue for managing these rivers is enforcing absolute sovereignty over these rivers, particularly by upstream countries.

However, most scholars rejected the absolute sovereignty that Bodin and Hobbes claimed, such as John Locke, Jean Jacques Rousseau, and Jeremy Bentham. Modern international law scholars and international legal institutions such as ILA and IIL reject absolute sovereignty and support limited sovereignty over shared resources. The role of the ILA and IIL is remarkable in developing values and principles for managing transboundary rivers based on shared or limited sovereignty. For example, The Helsinki Rules explain that international watercourses should be shared equitably and reasonably.[937] It means that sovereignty should be shared over these resources. Similar statements were repeated in later rules and international conventions. States and regions should share water resources fairly and equitably at the international level, and inside federal and unitary systems. Thus, both internal and external sovereignty is limited. They cannot be absolute, especially under IEL.

Conspicuously, the concept of sovereignty has changed in the last three decades. The UN and other states have interfered in states' internal matters in the cases related to humanitarian intervention. Intervention in Kosovo, Rwanda, and East Timor are significant cases of interfering in a states' domestic affairs to protect human life. Thus, sovereignty over territorial borders is no longer protected, and it can be broken for a legitimate reason under international law.[938] Therefore, it may be possible to see intervention in a states' internal issues and internal sovereignty for protecting the

[934] United Nations, Charter of the United Nations, 1 UNTS XVI.

[935] Marloes HN Bakker and James A Duncan "Future bottlenecks in international river basins: where transboundary institutions, population growth and hydrological variability intersect" (2017) 42(4) Water International at 401.

[936] Arjen Y Hoekstra "Sustainable, efficient, and equitable water use: the three pillars under wise freshwater allocation" (2014) 1(1) Wiley Interdisciplinary Reviews: Water at 36-37.

[937] The Helsinki Rules on the uses of the waters of international rivers art IV.

[938] Kofi Annan "Two concepts of sovereignty" (1999) 18(9) The economist at 1-2.

environment in the future. As humanity and the planet enters the Anthropocene, shared sovereignty over transboundary rivers is unquestionable. However, the claim of absolute sovereignty is still used to negotiate by some upstream countries.

7.2.2.A Sovereignty at TE-RB

With all international politics and international law changes, sovereignty is still used as a legitimate tool by many upstream countries in exploiting transboundary rivers. The US, China, India, Ethiopia, and Turkey are major upstream countries that manipulate the concept of sovereignty over their transboundary rivers. These upstream countries create water insecurity in the downstream countries: Mexico, Cambodia, Egypt, Bangladesh, and Iraq.[939] Among the upstream counties, Turkey's action is more evident for claiming sovereignty over TE-RB, such as the construction of dams in the GAP project, explained in chapter four. All of these dams and water projects were built without consultation and proper communication with the downstream countries of Iraq and Syria.

The role of sovereignty over transboundary rivers in the international system is fundamental because many states have linked water resources with national concerns, including Turkey. For instance, the idea of exploiting water resources in Turkey dates to the 1930s after the establishment of the modern Turkish state.[940] Since that time, Turkey has believed that all the transboundary rivers are a significant part of national security. Thus, the state should exploit water, including the transboundary rivers, to meet their national interest. This nation-centric thinking was the main barrier for Turkey not to sign or ratify all the international conventions related to sharing transboundary waters, including the UN Watercourses Convention.

The Turkish government's strong notion of sovereignty and the importance of water for state security led Turkey to complete the GAP over the last four decades. The GAP negatively influenced the available surface and groundwater in both Iraq and Syria. Based on some models, Turkish scholars expected that the two rivers' flow would be reduced by 25–55% at the end of the century.[941] However, the water flow into Iraq

[939] Zeitoun, Goulden and Tickner, above n 128.

[940] Victor Roy Squires, Hugh Martin Milner and Katherine Anne Daniell *River basin management in the twenty-first century: understanding people and place* (CRC Press, 2014) at 166.

[941] Deniz Bozkurt and Omer Lutfi Sen "Climate change impacts in the Euphrates–Tigris Basin based on different

decreased by 90% for the Euphrates River and 47% for the Tigris River comparing 1990 and 2011.[942] The absence of equitable utilisation of surface water also negatively impacted the available groundwater in the region. People in Iraq and Syria had to look for groundwater as an alternative for the loss of surface water. As a result, the lower part of TE-RB suffers from over-abstraction, and satellite measurements confirm these results.[943]

Thus, the application of equitable utilisation and minimising environmental harm in TE-RB is still weak because IEL and water law have not significantly impacted riparian management in the basin. Significantly, Turkey has also not signed most international conventions related to the issues. However, as discussed in chapter four, though Turkey's action and GAP are the main factors, they are not the only ones for not implementing IEL principles. Despite climate change issues and reducing precipitation in the basin, the nature of the political system in the TE-RB has had a negative influence on the application of IEL principles.

War and internal conflicts among and within riparian states have had a significant role in ignoring water resources management in both Iraq and Syria. Turkey exploited both downstream countries' instability and vulnerable geopolitical situation to complete the GAP without considering the environmental damage. The Iraq-Iran War 1980-1988, the Gulf War 1990-1991, the US invasion of Iraq in 2003 and the violence after the invasion until 2011 are major conflicts in the last four decades.[944] Furthermore, there is an imbalance of power between Turkey on one side, and Iraq and Syria on the other side. Turkey is one of the major economic and military powers in the Middle East and the world. It also enjoys membership of the North Atlantic Treaty Organization (NATO).[945] All of these factors assisted Turkey's construction of dams without paying attention to downstream concerns and international law.

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model and scenario simulations" (2013) 480 Journal of hydrology at 158.

[942] Al-Ansari and Knutsson, above n 31 at 62.

[943] Katalyn A Voss and others "Groundwater depletion in the Middle East from GRACE with implications for transboundary water management in the Tigris-Euphrates-Western Iran region" (2013) 49(2) Water resources research at 910.

[944] Mejs Hasan and others "How war, drought, and dam management impact water supply in the Tigris and Euphrates Rivers" (2019) 48(3) Ambio at 265.

[945] Merdith W Temple *The Southeast Anatolian Project and Middle East Water: Implications for NATO* (1998) at 15-16.

As a result, Turkey's unilateral projects in the basin, particularly the dams on the Euphrates, led to the collapse of the agriculture sector in Syria. These factors as well as drought and climate change issues, were the main causes of public uprising and civil war in Syria in 2011. Then, ISIS took over most of the Euphrates basin inside Syria.[946] As Iraq and Syria were not politically stable over the last few decades, Turkey took advantage and violated these two important principles of the IEL: equitable utilisation and minimisation of environmental harm. As a result of the absence of equitable sharing of water among the riparian states, significant environmental damage accrued in both Iraq and Syria, including significant reduction of water flow, destruction of the agriculture sector, and the rapid drying up of the marshes in Iraq.

7.2.2.B Sovereignty at the Murray-Darling basin

The states in Australia had great power and even sovereignty at the early stages of the federation. The states were considered sovereign because the term "governor" was used instead of 'Lieutenant-governor' in the constitution.[947] According to Sir Samuel Griffith, this was a clear indication that the states were sovereign and directly linked with the UK, not the Commonwealth.[948] Thus, sovereignty was shared among the states and the Commonwealth in the federation's early decades. Despite the enactment of the Statute of Westminster in 1931, the states maintained their sovereignty.[949] This situation continued until the enactment of the Australia Act 1986. The Statute of Westminster was significant for diminishing the UK's legislative supremacy, but the Australia Act terminated this supremacy. Thus "sovereignty in Australia remains vested collectively in the Commonwealth and the states."[950]

As a colonised country, addressing the issue of sovereignty in a narrow context and only among Australian states and territories will not provide a clear understanding of sovereignty over water resources in MDB. Besides, it would not be correct to discuss implementing IEL principles without the sovereignty and water rights of traditional owners or Aboriginals in Australia. As discussed in the previous chapters, equitable

[946] Karnieli and others, above n 557.

[947] Samuel Griffith Official Record of Debates of the Australasian Federal Convention at 1301.

[948] At 1301.

[949] Anne Twomey "The States, the Commonwealth and the Crown—the Battle for Sovereignty" (2008)(48) Papers on Parliament at 21.

[950] At 22-28.

utilization should be extended to provide an equitable share of management and decision making of water resources. The Aboriginals peoples, particularly the Yorta Yorta people, in MDB have practiced sovereignty over the basin. The MDB has significant spiritual and cultural value for them, but they are ignored in water management.[951]

A similar sentiment to the Māori expression "Ko au te Awa, ko te Awa ko au: I am the River and the River is me,"[952] can be discovered among Yorta Yorta people's tradition. A Yorta Yorta author and activist expressed this situation as being a part of the river as "I am the river, softly singing, Chanting our songs on my way to the sea."[953] In addition, under their tradition and law, "not to destroy the natural and cultural history of a place in which humans and nature have interacted to create an organic process" is considered as the responsibility of individuals to practice and pass it to new generations.[954] Thus, incorporating their values into the current regulations and institutions in MDB is fundamental for equitable utilization, minimization of environmental harm and sustainability in the basin.

However, the concept of sovereignty is quite different from both Western and indigenous perspectives. The law of nature is the primary tool for the most positive legal scholars to determine property rights, including water rights. However, indigenous people have a different view of water because it is not just a property but also a significant part of their cultural and spiritual values.[955] In the case of Murray-Darling, this issue is a part of the formation of internal sovereignty, but it affects Australian external sovereignty. The main issue is that Australian Aboriginal sovereignty was never placed "as central to shaping the terms and conditions of the very making of the nation."[956] Sovereignty for them is a "decentralised, grass-roots concept, providing the capacity to exercise autonomy at both the individual and

[951] Amanda H Lynch and others "The role of the Yorta Yorta people in clarifying the common interest in sustainable management of the Murray–Darling Basin, Australia" (2013) 46(2) Policy Sciences at 114.

[952] Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 s 13(c).

[953] Ron Hampton and Maree Toombs "Indigenous Australians and health: the wombat in the room" (2013) at 115.

[954] Bryan Norton "The ignorance argument: what must we know to be fair to the future?" (2002) Economics, ethics, and environmental policy: Contested choices at 44.

[955] Sarah Maddison "Indigenous peoples and colonial borders: sovereignty, nationhood, identity, and activism" in *Border Politics* (New York University Press, 2014) at 153-176.

[956] Aileen Moreton-Robinson *The white possessive: Property, power, and indigenous sovereignty* (U of Minnesota Press, 2015) at 152.

collective levels."[957]

In this way, they will be able to restructure their relationship with non-indigenous people in Australia. Australian Aboriginal sovereignty does not mean self-determination and establishing an independent political entity. In their claim of sovereignty, they require recognition of their identity and participation in the decision-making and self-rule.[958] Therefore, the Australian first nations' involvement is crucial for implementing equitable utilisation and minimising environmental harm. Unfortunately, these significant issues were largely dismissed in water reform in Australia. Neither the Water Act 2007 nor the basin plan refer to them.[959] Thus, there are two types of challenges in implementing the two principles in the MDB: the water issues between indigenous Australia and the Crown; and the water issues among the states in the Commonwealth.

As confirmed in chapter five, the upstream states are still accused of not implementing the Water Act 2007 effectively in the Murray-Darling Basin. Equitable water allocation is weak among the basin states because illegal extraction and water theft allegations are still ongoing. Many private dams and water projects were constructed for benefiting large corporations without consultation. In these water projects, EIA was largely dismissed. As a result, significant environmental damage occurred in the basin. In many areas of the basin, mass killing of fish occurred because there was not enough water left in these areas. All of these water and environmental issues make the MDBA's control over the basin questionable.

Therefore, equitable allocation and avoiding environmental damage in the case of MDB in Australia is still weak. The use of the term *terra nullius* since the colonisation of Australia led to the imposition of absolute sovereignty over the land and water resources and dismissing Australian indigenous sovereignty. Thus, it would not be possible to adapt the two principles and implement them without restoring Aboriginal sovereignty. The High Court's judgment was a good step in the *Mabo* case, but it is not enough. The Commonwealth of Australia should understand the customary law and

[957] Steve Larkin "Locating Indigenous sovereignty: race and research in Indigenous health policy-making" (2007) Sovereign Subjects at 168-178.

[958] See Sarah Maddison *Black politics: Inside the complexity of Aboriginal political culture* (Allen & Unwin, 2009).

[959] Walker, above n 651.

values of the Australian indigenous people and reconcile with them similar to other common law jurisdictions. New Zealand is a worthy example in this regard, and will be discussed below.

7.2.2.C Sovereignty and Waikato River

Sovereignty has been a significant issue in New Zealand since the date of signing the Treaty of Waitangi on 6 February 1840. The treaty composes of three written articles. It has been written in both English and Māori languages, but the two versions' meanings are different.[960] According to Article 1 of the English version, Māori ceded absolute sovereignty for the Crown, but Māori ceded only governorship (Kawanatanga) in the Māori version of the Treaty.[961] In Article 2 of the English version, the Crown guarantee Māori the "full exclusive and undisturbed possession of their Lands and Estates Forests Fisheries and other properties" as long as they wish to keep them, but Māori gives the Crown "the exclusive right of Preemption" over their lands.[962] Again, the language and intention of the versions differ in Article 2 of the Treaty. The Crown confirms the absolute sovereignty "Tino Rangatiratanga" of Māori over their land and treasures.[963]

As discussed in chapter six, the Māori legal fight significantly impacted changing the New Zealand government's view of sovereignty. The acknowledgement of Māori sovereign rights by the government has increased in the last five decades. This has been reflected in both legal instruments and institutional frameworks. The government took significant steps toward reconciliation, particularly after the establishment of the Waitangi Tribunal in 1975. Through this tribunal, the New Zealand government acknowledged breaches of the Treaty. The Crown also apologised for the violations of the Treaty and its actions in the last decades.[964] Significantly, the Waitangi Tribunal confirmed that Māori did not cede sovereignty by signing the treaty in 1840.[965]

The Waitangi Tribunal's reports are quite significant regarding sovereignty over

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[960] JF Burrows and RI Carter *Statute Law in New Zealand* (Lexis Nexis, Wellington, 2015) at ch 15.

[961] Treaty of Waitangi Act art 1.

[962] At art 2.

[963] At art 2.

[964] Ann Sullivan "The politics of reconciliation in New Zealand" (2016) 68(2) Political Science at 139.

[965] Waitangi Tribunal *The Declaration and the Treaty: The Report on Stage 1 of the Te Paparahi o Te Raki Inquiry* (Lower Hutt, New Zealand, 2014) at 6.

resources in New Zealand, including water resources. The Tribunal released the Stage 1 Te Raki Report after four years of dissection in February 2014. According to the Tribunal, Māori chiefs "did not cede their authority to make and enforce law over their people or their territories. Rather, they agreed to share power and authority with the Governor."[966] This is a clear indication that imposing absolute sovereignty over the resources in New Zealand was not justified under the Treaty of Waitangi.

However, Māori and the Crown agreed on a co-management approach to the Waikato River, as discussed in chapter six. Both the Crown and Māori are now participating in all stages of managing the River equally. However, Māori requires more sovereign rights to reflect *Tino rangatiratanga*. This is expressed clearly in "He Puapua: The Report of the Working Group on a Plan to Realise the UN Declaration on the Rights of Indigenous Peoples in Aotearoa/New Zealand." One of the major steps the He Puapua Report suggested is the establishment of a Māori Parliament.[967]

7.2.3 The absence of local voice

The main factor for concentrating on sovereignty in the above cases is that this issue has an impact and strong relationship with other river management challenges nationally and globally. It does not mean sharing sovereignty among states only, but it should lead to discussing internal sovereignty as well. Equitable utilisation and minimisation of environmental harm should not be understood in a narrow context. The two principles should be implemented among states, but they should also be extended to the local level inside each state. Thus, providing an equitable share of water among the people in the basin and avoiding environmental damage in all areas of the basin is fundamental for implementing the IEL principles.

According to the UNDP, participation by all actors in decision-making, such as governments, the private sector, and civil society, is crucial for water resources' best use.[968] This method of broad participation by all actors in river basin management should be part of the IEL principles. People should receive equitable water access and participate in the management process equally. However, none of the international

[966] At xxii.

[967] See the Ministry of Māori Development Te Puni Kōkiri *He Puapua: The Report of the Working Group on a Plan to Realise the UN Declaration on the Rights of Indigenous Peoples in Aotearoa/New Zealand* (2019).

[968] UNDP, above n 225, at 75.

conventions related to watercourses addresses this issue comprehensively. The UN Watercourses Convention and UNECE Water Convention are more concerned with equitable utilisation and avoiding environmental damage among states, but they do not encourage states to involve people in different stages in water management. This is an obvious contradiction between the aim of IEL principles and SDGs because community participation is of the crucial indicators for achieving SDGs.

In all of the cases, local people who live within the basin are excluded from water management. However, this exclusion differs between cases. For instance, local people are largely ignored in all stages of management and decision-making in the TE-RB. In addition, the water resource is not allocated equitably among the people inside Turkey, Syria, and Iraq. In the MDB, public participation is better than in TE-RB, but it is not sufficient because if there is a conflict between the public and large corporations, the people's voices will be ignored. The situation is better in the Waikato River than in MDB and TE-RB. As well as implementing the co-management approach, the WRC demonstrated solid public participation in preparing and reviewing the PC1 by allowing the public to have their voice in all stages of preparation.[969] This is a part of the MfE's strategy to allow public submission and participation related to legislation policies and plans.[970] For example, the MfE received 7,000 public submissions for preparing its National Policy Statement for Indigenous Biodiversity in 2019 and 2020.[971]

In TE-RB, implementing equitable participation is weak at the regional legal, but it is even weaker at the local level inside each riparian state. As analysed in chapter three, several factors should be considered to determine equitable utilisation, and public participation is among the significant factors. In Turkey, local people who live in the TE-RB are largely dismissed in consultation, decision-making and managing the basin. The GAP-RDA supervises the GAP, and it is linked directly to the Minister of Industry and Technology. The GAP-RDA manages the projects in the TE-RB centrally and without strong public participation. This was the main factor for the growing Mesopotamian Ecology Movement (MEM) in the South East of Turkey, consisting of most Kurdish people. The MEM believe that GAP damaged the environment of Southeast Turkey significantly.

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[969] Council, above n 794.

[970] Ministry for the Environment *Annual report 2020/21* (2021) at 51-53.

[971] At 58.

The role of local and indigenous people is also weak in managing MDB. There is no equitable allocation between indigenous and non-indigenous stakeholders in the basin. Over allocation of water in the basin led to environmental damage. Indigenous rights are recognized in the NTA, but the NTA excluded water from the land. Thus, it is not possible to require equitable water allocation under the NTA. The issue is not only the NTA, but also the Water Act 2007 which limited indigenous participation and representation. In section 177, the Act requires only one indigenous person to be a member of MDBA.[972] It is also required to have at least two indigenous members of the Basin Community Committee out of seventeen members.[973] Thus, there is an imbalance and low participation of indigenous Australians in law, regulation and institutions in the MDB.

The voice of local people is stronger in the Waikato River compared to both the TE-RB and MDB. Developing the co-management approach in the Settlement Act 2010 was significant for improving Māori participation in decision-making. Also, the V&S allowed Māori to have a great voice for protecting and restoring the Waikato River. As addressed above, WRC concentrated significantly in participation by all relevant actors in preparing the recent PC1 to avoid previous mistakes. Previously, Māori complained about not a lack of participation and consultation in managing the river because, in the management meetings, their voices were dismissed. For instance, many iwi members complained that they were not made aware of negotiations and the revising of the Settlement Deed in 2009. As the iwi representatives did not provide sufficient details regarding the co-management framework and implementation, there were many questions and uncertainties about these issues.[974]

7.2.4 Lack of transparency and data exchange

In all three cases, a lack of transparency and data exchange is a major challenge because local people are not aware of decisions that critically impact their resources and themselves. Again, this challenge is not the same in the three cases because transparency has improved significantly in the Waikato River. Implementing and assessing equitable utilisation and minimisation of environmental harm cannot be

[972] Water Act 2007 s 177

[973] At s 202.

[974] Muru-Lanning, above n 877, at 8.

achieved without a good level of transparency and data exchange among actors in the river basin. First of all, an equitable share of water requires equity in receiving transparent and reliable data for all relevant actors in the basin. Without transparent and reliable data available, it would be impossible to implement the IEL at a different level.

In the case of TE-RB, the cooperation and exchange date do not exist among riparian states.[975] Before the GAP project, both Turkey and Iraq were supposed to consult each other for future development projects according to the Treaty of Friendship and Neighbourly Relations. Protocol No. 1 of the Treaty covered the issues related to the exchange of information and cooperation for TE-RB's management between the two countries.[976] However, the Treaty was not implemented, and Turkey ignored it, particularly after constructing the Keban Dam in 1964.[977]

In the negotiations and discussions among riparian states, the sharing of data and information was a major concern for downstream countries. This issue was linked indirectly with the equitable utilisation and minimisation of environmental harm. After establishing JTC for increasing transparency and data exchange between Iraq and Turkey in 1980, with Syria joining in 1983, all the countries were aware of the projects and data in the basin. After the JTC meetings were suspended in 1993, the cooperation between Iraq and Turkey reduced significantly, and no longer exists between Syria and Turkey. Thus, it would be hard to implement the two principles without having data and transparency in managing the basin. Finally, the EIA is a crucial element to evaluate the minimisation of environmental harm, but it has not been implemented effectively in the construction of the many dams in Turkey.

Lack of transparency is also a considerable challenge in all of MDB's water management stages, including consultation, decision-making, fund allocation, and using the best available science. Principle 7 of the basin plan emphasises that "Priorities for applying environmental water are to be determined using robust, transparent and documented decision-making processes."[978] However, the MDBA failed to implement this principle effectively. For example, constructing several private dams by private and

[975] Nadhir Al-Ansari and others "Water Scarcity: Problems and Possible solutions" (2021) 11(2) Journal of Earth Sciences and Geotechnical Engineering at 274.

[976] United Nation Treaty of Friendship and Neighborly Relations between Iraq and Turkey, Collection of Treaties

[977] Yousuf, Rapantova and Younis, above n 463.

[978] Australia, above n 701, prin 7.

large corporations was mentioned in chapter five. Most of these dams were constructed secretly and without undertaking or providing EIA. These actions prove that the MDBA failed to achieve the basin plan's objectives regarding transparency and credibility in determining the basin's main issues and finding a solution for them.

Even though there is regular data exchange among the states and the Commonwealth government related to technical issues, the MDBA failed to use the best available science. The Authority depended on regular reports (reports that were prepared by MDBA itself) rather than peer-reviewed research papers in managing the basin. This issue, hiding the actual number of dams in the basin, and not providing reliable data to the public are still major obstacles. Finally, the lack of transparency in decision making among states and territories negatively influences providing transparent information to the indigenous groups in the MDB. As Australia is a dry continent and vulnerable to climate change, there is also uncertainty among the public, including the Aboriginal people, about the lack of consultation, particularly during dry seasons.[979]

Compared to the two above cases, the process of consultation, decision-making and implementation of regulations and plans are more transparent in the Waikato River basin. The RMA encouraged the relevant actors to "communicate with each other in an open, transparent, and honest manner."[980] In Variation 6 , the WRC also confirmed that "The council will develop means of making water allocation information readily available to the public"[981] The WRC provided the opportunity to all the actors and stakeholders in the Waikato River to participate in preparing and reviewing the PC1 or have their submission in this regard. All of these steps are significant to overcome the previous mistake of lack of transparency and consultation.

Previously, some Māori iwi members complained of being ignored in the revised Settlement Deed in 2009. Most of the relevant Māori groups knew about the Settlement Deed via media, and they were surprised about the agreement.[982] Several Māori also complained about the approach for managing the Waipa River, one of the main

[979] Amanda H Lynch, Carolina E Adler and Nicholas C Howard "Policy diffusion in arid Basin water management: a Q method approach in the Murray–Darling Basin, Australia" (2014) 14(4) Regional Environmental Change at 1611.

[980] Resource Management Act s 58N(e).

[981] Council, above n 872, at 30.

[982] Muru-Lanning, above n 877, at 10-12.

tributaries of the Waikato River, because they were expecting consultation and discussion on marae, not only among their representatives. Therefore, they were not satisfied because the people's voices at the bottom level were ignored.

7.3 Opportunities

7.3.1 Shared or limited sovereignty and multilateralism

Sovereignty can be restricted and penetrated. The Nuremberg Tribunals were the first significant step that destroyed the ideal image of sovereignty. The Tokyo Tribunal followed this. In these Tribunals, national sovereignty was not only restricted theoretically, but it was restricted in practice too.[983] The Tribunals motivated experts in international law to codify a law for war crimes in the early 1990s. However, the Tribunals covered the issues related to international war crimes by dismissing the internal wars and armed conflicts. The unprecedented step was achieved when these rules extended to civil wars and internal conflicts inside the state.[984] This was a fundamental step for limiting both internal and external sovereignty in international law. In both the International Criminal Tribunal for the Former Yugoslavia (ICTY) in 1993 and the International Criminal Tribunal for Rwanda in 1993, the concept of sovereignty was limited to a large extent.[985] In these Tribunals, sovereignty is significantly restricted for protecting human rights. Then, it might be restricted for protecting the environment and allocating transboundary rivers.

Here, redefining the concept of territorial sovereignty is a fundamental task in the Anthropocene because all sovereign territories are part of the global environment.[986] This crucial point was explained in the previous chapters, and chapter two in particular. Water management and transboundary river basins require a "post sovereign" understanding but not establishing a "post sovereign world". This means that we can benefit from "post sovereign" thinking and simultaneously acknowledge the sovereign state system. Sovereign states are the main actors globally and in the IEL, but sovereign

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[983] Henry T King Jr "Nuremberg and sovereignty" (1996) 28 Case W. Res. J. Int'l L. at 136.

[984] See William A Schabas *The UN international criminal tribunals: the former Yugoslavia, Rwanda and Sierra Leone* (Cambridge university press, 2006).

[985] At 229.

[986] See Klaus Bosselmann *The principle of sustainability: transforming law and governance* (Taylor & Francis, 2016).

states and the concept of sovereignty require compromise on global, federal and local levels.

The three characteristics of the post sovereign government are raised in chapter two. Nonexclusive, non-hierarchical, and post-territorial are significant characteristics for promoting shared sovereignty. It means sovereign states have a significant role in river management, but they are not the exclusive actors. Non-state actors and people at the bottom level should be included in the basin plans' consultation, decision-making, and implications. The participation of people who live in the basin contributes significantly to the sustainable management of rivers and enhances the decision-making process non-hierarchically. Finally, river basins should be managed beyond states' and regions' territorial boundaries. They should be managed naturally and according to their basin's boundary, not the political boundary.

As I discussed and confirmed in the previous chapters, customary international law is quite clear about the limitation of sovereignty over natural resources. The Lake Lanoux Arbitration between France and Spain refers to states having sovereignty over natural resources if they do not cause harm to the neighbours.[987] However, the concept of sovereignty is more variable in the new century. Both IEL and customary international law in later cases reduced the broad scope of sovereignty over natural resources. In the case of transboundary rivers, external sovereignty is considerably limited, but internal sovereignty is also restricted. The ICJ's *Gabcíkovo-Nagymaros* decision was crucial for limiting internal sovereignty by imposing not causing harm principle and sharing equitable water with the neighbours.[988]

The Middle East is one of the regions where the application of IEL principles is weak. Upstream countries in the region are still not following the principles of the IEL and customary international law. There is not a suitable mechanism to share the water of the most transboundary rivers in the region. The Nile River basin and TE-RB are examples which lack a suitable mechanism for sharing their waters.[989] The issue extends to other countries in Asia that lack democratic institutions. For example,

[987] *Lake Lanoux Aribitration (France v. Spain)*, above n 157.

[988] Stephen McCaffrey "The contribution of the UN Convention on the law of the non-navigational uses of international watercourses" (2001) 1(3-4) International Journal of Global Environmental Issues at 260.

[989] De Stefano and others, above n at 37.

Afghanistan, Iran and Turkmenistan share the Harirud river basin, but Afghanistan has unilaterally constructed dams on the river and caused environmental damage to the downstream countries.[990] Still, there is an opportunity for these countries to share sovereignty over the transboundary rivers similarly to the EU counties. The significance of the EU WFD was also addressed in chapter three for shared sovereignty among the members and implementing the IRBM successfully. Riparian states in TE-RB can take advantage of the EU WFD to share sovereignty over the basin and manage it according to basin borders instead of state borders.

As mentioned in chapter two, internal sovereignty greatly influences external sovereignty, because the cooperation and shared sovereignty over transboundary rivers depend on riparian states' internal sovereignty. Democratic governments and elected elites are more cooperative than autocratic governments over transboundary watercourses. They are in favour of long term cooperation and establishing a mechanism for sharing these resources.[991] Thus, promoting democratic institutions in TE-RB states will have a fundamental role in promoting the IEL principles, avoiding future conflicts, and sharing sovereignty over the basin. Iraq's political situation has changed dramatically in the last two decades.[992] The majority of people accepted the Iraqi federal constitution in 2005.[993] The constitution changed the political system, reframed internal sovereignty, and referred to fundamental tools for establishing democratic institutions, including water management.

After ten years of internal conflict and civil war, the Syrian government intends to recognise the eastern Euphrates self-governance and decentralise the political system. Therefore, there is a possibility for promoting democratic institutions in Syria as well. As the US has a significant political influence on Iraq, the KRG and Kurdish self-governance in the Northeast of Syria, they can positively influence Turkey towards cooperation. Turkey and the US are strategic partners, and both are a member of NATO. Downstream actors in TE-RB can also take advantage of these diplomatic connections

[990] See Mohsen Nagheeby, Mehdi Piri and Michael Faure "The Legitimacy of Dam Development in International Watercourses: A Case Study of the Harirud River Basin" (2019) 8(2) Transnational Environmental Law.

[991] Ashok Swain "Diffusion of Environmental Peace?: International rivers and Bilateral relations in South Asia" (2004) at 248-265.

[992] Qaraman Mohammed Hasan and Hemin Mohammed Ismael "International Trade Rules and Natural Gas Export: Trends and Challenges in National Markets" in *The Palgrave Handbook of Natural Gas and Global Energy Transitions* (2022) at 489.

[993] Qaraman Mohammed Hasan "The possibility to apply the democratic peace theory as a solution for disputes between the KRG and Iraq" (2018) 3(2) QALAAI ZANIST SCIENTIFIC JOURNAL at 816.

to change Turkish water policy, establish democratic water institutions and basin institutions with the support of the US.

As previously emphasised, sovereignty over transboundary rivers could be shared among riparian states. There are many successful examples globally. Shared sovereignty of EU members over the transboundary rivers in the EU is a good example in this regard. The Danube River basin in Europe is another excellent example of cooperation over the transboundary river. Riparian states in many regions established suitable mechanisms to share the transboundary river and shared sovereignty over these rivers. Internationally, the Nile Basin Initiative is considered a significant case for utilising Nile's river water among ten major states in Africa. The river is the longest in the world. The Nile basin covers 3,000,000 $km^{2,}$ and more than 300 million people are alive within the basin.[994] Even though there is still a dispute between Egypt and Sudan with Ethiopia to construct Grand Ethiopian Renaissance Dam, the Initiative is a great channel for cooperation among riparian states.

In Australia, water management and managing MDB were fragmented until the Commonwealth government intervened. The enactment of the Water Act in 2007 was a significant step for sharing sovereignty among states, territories and the Commonwealth over MDB. Even though the MDBA as an independent basin authority was created, the organisation was not quite successful regarding equitable water allocation and minimisation of environmental harm. The MDBA should move toward environment-centric solutions and provide sufficient water for the ecosystem, benefiting from Aboriginal traditions. This would be a significant step for sharing sovereignty over the basin. More details will be provided in the following paragraph covering how the Commonwealth can share sovereignty with Australian indigenous groups in the basin.

The importance of the *Mabo* case and rejecting the concept of *terra nullius* (land of no one) in Australia was discussed in chapter five. I also mentioned the role of the NTA in recognizing indigenous rights. However, these steps are not sufficient because indigenous water rights are excluded from the NTA. Therefore, constitutional reform is the most fundamental and effective step for shared sovereignty between the Crown

[994] Patricia G Kameri-Mbote *Water, ConfliCt, and Cooperation: lessons from the nile river Basin* (Woodrow Wilson International Center for Scholars, 2007) at 1-4.

and the indigenous peoples. Constitutional recognition is crucial to restoring indigenous water rights and interests because this recognition impacts all the powers in the Australian state including: the government, parliament and judiciary.

In New Zealand and particularly the Waikato River basin, sovereignty is still a controversial issue. However, Māori are in a better situation than other indigenous groups in Australia. Thus, the potential for shared sovereignty over natural resources is very high between the Crown and Māori. As previously explained in chapter six, the Treaty of Waitangi in 1840 has a crucial role as the basis for the shared sovereignty in New Zealand. Significantly, the Waitangi Tribunal Stage 1 Te Raki Report in 2014 confirmed that the Māori chiefs did not cede the sovereignty in signing the Treaty. The Tribunal believes that "sovereignty can be understood in general terms as the power to make and enforce the law."[995]

Māori now participates in making the law in general and for the Waikato River in particular. Under the Settlement Act and the co-management approach, they are participating in managing the Waikato River. They are supervising in protecting and restoring the River with the Crown based on the V&S and the WRA. However, Māori are still not satisfied because sovereignty has a broad meaning in tikanga. "*Rangatiratanga* endures within its own cultural and social context and aligns to sovereignty and self-determination."[996] This understanding is also reflected in the latest He Puapua Report. They believe that other indigenous people in the US, Canada and Europe have more rights and sovereignty than Māori in New Zealand. Thus, they suggest the establishment of the Māori Parliament to comply with the Treaty of Waitangi and international obligations.[997] This may impact the co-management approach in the future, but the impact may not be substantial.

7.3.2 Cooperation as an optimal solution

In all three cases, implementation and strengthening of the two principles would not be successful without cooperation among the actors in various river basins. The procedural principle, cooperation, should support both equitable utilisation and minimisation of

[995] Tribunal, above n 965, at 9.

[996] Betsan Martin and Linda Te Aho *Ka Māpuna: Towards a rangatiratanga framework for the governance of waterways* (2021) at iii.

[997] Te Puni Kōkiri, above n 968, at 30-32.

environmental harm as a substantive principle of the IEL.[998] If all of these principles are integrated and fulfilled in any river basin, the basin can be managed sustainably in the long term. This is why the UN Watercourse Convention in Articles 5, 6 and 7 address the equitable utilisation and minimisation principles. Subsequently, the convention encouraged the riparian actors to treat each other based on "sovereign equality, territorial integrity, mutual benefit, and good faith" to implement the two principles.[999]

Cooperation has a crucial role in attaining fair utilisation and avoiding environmental harm in transboundary river basins. In the TE-RB, Turkey has not signed international conventions related to transboundary rivers. Thus, Iraq and Syria should convince Turkey to cooperate and to reach bilateral or trilateral agreements over the basin. The issue of equitable utilisation and minimisation of environmental harm should be discussed and mixed with the common interests of the neighbouring countries. Both Iraq and Syria are the major destinations for Turkish exports. Trade between Turkey and Iraq reached US$15.8 billion in 2019. The two countries have "contactless trade" and Iraq is the second-largest exporting neighbour country for Turkey.[1000] Both Iraq and the KRG are currently exporting oil via Turkey, and they will export natural gas in the future. Thus, the strong trade relationship can convince Turkey to guarantee an equitable and reasonable share of water from TE-RB.

TE-RB states can take advantage of basin agreements and institutions to discover a mechanism for cooperation. The Nile is one of the complex transboundary rivers and similar to the Tigris and Euphrates Rivers. Even though the cooperation is not perfect, there is a common understanding for managing the river. The Cooperative Framework Agreement (CFA) on the Nile River basin is an interesting tool for cooperation between riparian states because these countries have worked on developing the CFA for more than twenty years. Even though not all the countries have signed or ratified the agreement, particularly Egypt and Sudan, the CFA has established legal guidelines for cooperation among riparian states.[1001] The Nile Basin Initiative is considered an

[998] Patricia Wouters and Christina Leb The Duty to Cooperation in International Water Law–Examining the Contribution of the UN Water Conventions to Facilitating Transboundary Water Cooperation at 283–295.

[999] Convention on the Law of the Non-navigational Uses of International Watercourses art 8.

[1000] Shafaq News "The Turkish exports to Iraq reached 4 billion and 800 million dollars in 2020" (2020) <https://shafaq.com/en/Economy/The-Turkish-exports-to-Iraq-reached-4-billion-and-800-million-dollars-in-2020>.

[1001] See Dereje Zeleke Mekonnen "The Nile Basin cooperative framework agreement negotiations and the adoption

obvious example of cooperation. In this partnership, ten African basin states agreed on cooperation and management of the Nile basin system.[1002]

In MDB, the Commonwealth government, states, territories and the MDBA have a responsibility to cooperate with the traditional owners of the basin. The indigenous people of the basin should be engaged in all stages of water management. This requires adopting collaborative and co-management approaches for managing the basin.[1003] The Commonwealth government of Australia should look at its neighbour and close partner, New Zealand, for methods adopting the co-management approach and involving the Aboriginal people in the governing and decision making of the MDB. This approach is important for sharing sovereignty with the traditional owners, promoting IEL principles and meeting Australia's obligation under the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

As well as Australia, cooperation with indigenous people in the Waikato River is crucial for New Zealand to achieve the objectives of UNDRIP and meet the Declaration's obligations by 2040. According to UNDRIP, "States shall take effective measures, in consultation and cooperation with the indigenous peoples ... understanding and good relations among indigenous peoples and all other segments of society."[1004] In addition, UNDRIP requires states to allow indigenous participation and consultation for all issues related to them. States should act in good faith in cooperation and consultation with the indigenous "in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them."[1005]

Therefore, cooperation with indigenous peoples in both MDB and the Waikato River catchment is crucial for prompting IEL principles, sustainability, and meeting international obligations under UNDRIP. This important issue is also confirmed and supported in one of the Waitangi Tribunal cases.[1006] As well as emphasising the

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of a 'water security'paradigm: flight into obscurity or a logical cul-de-sac?" (2010) 21(2) European Journal of International Law.

[1002] Ashok Swain "Managing the Nile River: the role of sub-basin co-operation" in *Conflict Management of Water Resources* (Routledge, 2017) 145-160.

[1003] Zachary Bischoff-Mattson, Amanda H Lynch and Lee Joachim "Justice, science, or collaboration: divergent perspectives on indigenous cultural water in Australia's Murray–Darling Basin" (2018) 20(2) Water Policy at 244.

[1004] "United Nations declaration on the rights of indigenous peoples" at art 15.2.

[1005] At art 19.

[1006] *Whāia te Mana Motuhake* [2015] Report on the Māori Development Act Claim Wai 2417 at 41-43.

importance of Articles 18 and 19 of UNDRIP for cooperation and partnership, the Tribunal confirmed that "Māori should enjoy substantially autonomous self-government in their internal affairs." As the issue was accepted by national jurisdiction, there is a great possibility to strengthen cooperation between the Crown and Māori for sustainability and better management of the Waikato River.

7.3.3 The IRBM and basin institution

As discussed in the previous chapters, water management is not just about providing clean water or quality and quantity of water. River management plans should be interpreted widely to include water, land, and the river's ecosystem[1007] Besides, in governing river basins, there should be participation by different private and public sectors and includes various aspects of the river. This is clearly mentioned in the UNDP's definition of water governance that is defined as: [1008]

> the political, economic and social processes and institutions by which governments, civil society, and the private sector make decisions about how to best use, develop and manage water resources.

This definition refers to integrated and comprehensive water management. To achieve the objectives of integrated approach, river basins should be managed by basin institutions and according to basin boundaries, not based on political boundaries. The role of basin organisations is crucial in this area because these organisations can cross political boundaries. These institutions have key roles in river basin management at national and international levels.[1009] The international river basin institutions have been examined and defined by several scholars.[1010] The effectiveness of basin institutions has been evaluated at the international level.[1011] The roles of water institutions, their role, and performance have also been examined deeply in various regions worldwide by several scholars.[1012] These institutions have a positive influence on creating an environment for cooperation between riparian states. They are also participating in

[1007] Brack and others, above n 214,at 8.

[1008] UNDP, above n 225, at 10.

[1009] Neil S Grigg *Integrated Water Resource Management: An Interdisciplinary Approach* (Springer, 2016) at 84-86.

[1010] Susanne Schmeier, Andrea K Gerlak and Sabine Blumstein "Clearing the muddy waters of shared watercourses governance: conceptualizing international River Basin Organizations" (2016) 16(4) International Environmental Agreements: Politics, Law and Economics at 597-619.

[1011] Helga Haftendorn "Water and international conflict" (2000) 21(1) Third World Quarterly at 65 - 68.

[1012] See Chennat Gopalakrishnan, Cecilia Tortajada and Asit K Biswas *Water institutions: policies, performance and prospects* (Springer, 2005).

drafting treaties among riparian states.[1013]

Chapter three introduced river basin management and the historical development of the IRBM. As a holistic approach, IRBM requires considering all aspects of the river, including the management's social, environmental, economic, cultural, and even spiritual aspects. Introducing this approach was a dramatic shift because providing clean water and the economic aspects of rivers were fundamental to the classic approach of river management. With the remarkable efforts of the UN and its organisations, the integrated approach was recognised internationally in both the Dublin Conference and the Earth Summit in 1992.

IRBM is an optimal solution to implement equitable utilisation and minimisation of environmental harm effectively in different parts of the world. The IRBM includes various aspects of the basin, from the river's source to the sea and all relevant stakeholders participating in the management, from local people at the bottom to those in the highest positions in the state. This broad view in managing rivers is crucial for the effective implementation of the two principles. It is the main factor for implementing this approach widely around the globe.

More significantly, effective implementation of the IEL principles through IRBM and basin institutions require institutional sustainability. This would not be achieved without the willingness of the leaders and public pressure. As the two elements exist in both MDB and Waikato River basins, the two basins have independent basin authorities to manage them. The MDBA and WRC have a crucial role in managing these two significant basins, and there are laws and regulations to guide them. However, the main gap for all legislation and institutions is insufficient public participation and not robust law enforcement in the case of MDB. In the case of the Waikato River and WRC, the level of Māori and public participation has been advanced significantly, particularly after developing the co-management approach in the basin. As discussed previously, preparing the PC1 for the Waikato River proves this argument.

The issue of basin institutions is quite different in the case of TE-RB because the basin states have failed to create a joint basin institution. This is one of the fundamental issues

[1013] Douglas M Stinnett and Jaroslav Tir "The institutionalization of river treaties" (2009) 14(2) International Negotiation at 229-251.

among riparian states. Hence, establishing joint basin institutions is vital to promoting IEL principles, and it is the first step toward creating shared sovereignty over the basin. Having an institution for managing the basin among riparian states is also crucial for sustainable and integrated management, cooperation and exchanging data. Turkey, Iraq, and Syria should establish TE-RB institutions for the effective implementation of the two principles.

However, this joint institution should be independent and without the political influence of any of the riparian states. The joint basin institution should concentrate only on sustainable management, equitable water allocation for people within the basin and water for the environment. Other political and security issues among the basin states can be discussed outside the scope of this joint basin institution. This is a very significant issue because one of the main points that led to the failure of the JTC between 1980-1993 was that the JTC discussed more political issues than technical issues related to basin management. Therefore, the members of the joint institution should be experts in different aspects of water management. Finally, the institution can take advantage of the environmental-friendly culture of the Kurdish people, who are the traditional owners of the two rivers and their tributaries. In this approach, people in the basin can be involved in basin management, and the TE-RB can be managed integrally and sustainably.

7.4 Common lessons

As demonstrated in the above chapters and sections, implementing the equitable utilisation and minimisation of environmental harm is different at national, federal and international levels. The legal instruments and institutions are also different, but all rivers share one common significant element. They all have a transboundary nature. Thus, common lessons can be extracted from these different case studies. These lessons can also contribute to providing legal solutions nationally and globally.

7.4.1 Water for all means involving all (Equitable utilization)

I addressed the narrow understanding of equitable utilisation as the first challenge in implementing the principle because equitable utilisation among different states and actors is not sufficient for sustainability if there is not equitable share and participation among people in the basin. The UN Watercourses Convention concentrated merely on equitable utilisation among states. The equitable utilisation among people within each

state and equitable participation of the public is ignored totally. "The population dependent on the watercourse in each watercourse State" is one of the factors for determining the principle.[1014] However, there is no guarantee if the state received an equitable share; the state can only allocate water equitably or allows the public to participate equitably.

The UN Watercourses Convention should follow the Berlin Rules to fill this gap in the Convention. The Berlin Rules are comprehensive because the Rules cover equitable participation among people within each state. Here, the issue of transboundary rivers should not be addressed as merely an issue among states, the issue is about receiving an equitable share for the people and participating in the decision making equitably. The Berlin Rules stated that:[1015]

> ... States shall assure that persons subject to the State's jurisdiction and likely to be affected by water management decisions are able to participate ... have a reasonable opportunity to express their views on plans, programs, projects, or activities relating to waters.

Thus, the UN Watercourses Convention requires revision and amendment. The convention requires an article that obliges states to provide an equitable share for people within the state and allow them to participate equitably. This is a fundamental task for implementing the principle broadly and achieving sustainability in the Anthropocene. The Convention can take a similar approach to the UNECE Water Conversion by adopting the Meeting Of the Parties (MOP) in the future. Having the MOPs regularly every three or four years can enhance the implementation of the principles and the Convention. The MOPs can also revise or amend the articles and principles of the convention.

As I examined and discussed in the earlier section, involving all the actors are fundamental in river basin management. However, more importantly, local people cannot be ignored for a long time. For instance, Māori and their cultural traditions related to water were ignored for more than a century, but they came back strongly to participate in protecting and restoring the Waikato River. It can be the same in the TE-RB and MDB. The participation of traditional owners of these two basins is crucial for equitable utilisation and sustainability.

[1014] Convention on the Law of the Non-navigational Uses of International Watercourses art 6(c).

[1015] Berlin Rules on water resources art 18.1.

States in the TE-RB and MDBA can take lessons in adopting a collaborative approach from New Zealand. Māori and the Crown participate equally in all stages of management of the Waikato River. The Commonwealth, states and the MDBA should therefore provide more room for Australian indigenous to participate in all management stages. Equitable utilisation and minimisation of environmental harm will not be achieved if local people and indigenous groups do not participate in the MDB management. Having the MDBA as the basin institution is not sufficient for integrated and sustainable management of the MDB without the active participation of the traditional owners of the basin. Increasing indigenous members in the MDBA and the Advisory Council will have a crucial role in adopting indigenous cultural values, promoting IEL principle and sustainable management of the basin.

7.4.2 EIA and minimum flow (minimization of environmental harm)

In all cases, undertaking EIA is fundamental for avoiding environmental damage at national and international levels. The EIA has a robust link with the minimisation of the environmental harm principle. However, determining a minimum flow for each river is crucial before undertaking the EIA. Keeping the 500 m^3/sec as the minimum flow of the Euphrates in the Syrian border was the main condition for the World Bank to provide funds for Turkey.[1016] Turkey and Syria also agreed on this flow in their agreement in 1987, but it was later not implemented. The Australian Water Act and MDB plan also consider minimum water flow or water for the environment.[1017] However, as discussed in chapter six, the MDBA did not successfully keep the minimum flow, which caused environmental damage to the basin. Variation 6 also confirmed the significance of minimum flow in "assessing authorised water takes and resource consent applications in the Waikato River."[1018]

Thus, determining the minimum flow and the EIA are crucial for implementing the environmental harm principle. The UN Watercourses Convention addressed the EIA, but maintaining the minimum flow is ignored under the convention.[1019] This is another gap in the Convention. It is possible to add this to the convention as an independent

[1016] Gruen, above n at 567. at 565-579.

[1017] Water Act 2007 at Part 2AA.

[1018] Council, above n 872.

[1019] Convention on the Law of the Non-navigational Uses of International Watercourses art 12.

article or address it with the EIA. Additionally, while the UNECE Water Convention has also dismissed the minimum flow, the parties of the Convention can address it in the next MOP and adopt it in the future.

Maintaining the minimum flow of water for the environment will contribute to the ecological sustainability of rivers and basins. Ecological sustainability means the existence of minimum requirements for the good status of water quality. This is the main point for most jurisdictions and plans to concentrate on maintaining and improving ecological sustainability. This issue is covered in chapters three, four, five and six of the thesis. The CWA in the US, EU WFD in the EU, Water Act in Australia and RMA in New Zealand all determine a minimum level of water quality. Determining and maintaining the minimum flow significantly avoids environmental harm at national, federal and international levels. Thus, international conventions, national legislations and plans should consider the minimum flow as a crucial element for sustainability and minimising environmental harm to rivers.

7.5 Conclusion

This chapter has discussed applying the IEL principles related to transboundary rivers at international, federal and local levels. Equitable utilisation and minimisation of the environmental harm were evaluated at these levels. The chapter was divided into three main parts which addressed the challenges and opportunities in implementing the two principles. Then, extracting the common lessons in implementing the two principles at the three levels. As the nature and scope of each level are different, the challenges of adapting the two principles are different, but there are common challenges that can be extracted in the three cases.

The first part of the chapter introduces three main challenges for river management at these three levels: narrow understanding of the IEL principles, sovereignty, absence of local voices, and lack of transparency. Narrow understanding and interpretation of the IEL principles, particularly the equitable utilisation, were discussed as the first challenge. In the broad context, absolute sovereignty was identified as the main challenge to the river; water would not be allocated equitably and reasonably if sovereignty is not shared over the rivers. The imposition of sovereignty over shared and transboundary rivers by one of the actors leads to environmental damage. Furthermore,

the absence of local people's voices and lack of transparency are two other challenges for managing river basins at different levels.

The second part of the chapter concentrated on mechanisms for responding to these challenges at international, federal and local levels. In this part, several opportunities and solutions are provided to implement the IEL principles effectively. Shared sovereignty over rivers is a significant step to managing river basins, but this would not be achieved if the involved actors did not cooperate with the traditional owners of the river basins. It is not logical to expect sustainable management while ignoring and dismissing these people in river basin management. The basin institutions also have a crucial role in equitably allocating water, but the management should be in an integrated approach. Finally, the chapter concluded by providing two common lessons for utilisation of rivers equitably and minimising environmental harm.

Chapter Eight: Conclusion

"Water, then (urbanisation) civilisation."

A Kurdish proverb

8.1 River basin management at Anthropocene

The above Kurdish proverb is ancient, though still used by Kurdish people. It indicates the remarkable value of water. It means humans and their civilisation cannot survive without water. It is a simple and common proverb, but it has been extracted from extensive experience and is deeply rooted in history. This understanding is sensible and logical for people living in Mesopotamia (the land between the two rivers) because the rivers were the main factor for ancient civilisations growing and surviving in the region. Thus, the value of water was the main motivation for the two Sumerian city-states to sign the first known agreement between states in history.

From this ancient history, I discussed the issue of sovereignty and its strong connection with transboundary river management in chapter two. As the first recorded conflict and agreement over the transboundary river returned to the dispute between Lagash and Umma, the origin of sovereignty should be traced back to Sumerian civilisation. From here, the sovereignty concept over transboundary rivers has persisted since 2500 BC. However, the philosophical discussion on the concept started in the sixteen and seventeen centuries in an absolute version by legal scholars such as Jean Bodin and Thomas Hobbes. This version was later rejected by John Locke and, Jean Jacques Rousseau and other scholars, but after centuries of discussion, sovereignty is still a challenge for managing transboundary rivers.

One of the main factors contributing to this challenge is the increasing number of sovereign states in the twenty century. From a few states at the early stages of the industrial period to almost two hundred states in the twenty-first century, transboundary rivers increased to 286 globally. In the lack of solid international institutions and conventions for managing these transboundary rivers, strong states exploited these resources and imposed this sovereignty over these rivers. On the one hand, sovereignty and exploitation of these resources increased disputes among riparian states at the regional and international levels. On the other hand, it granted states legitimacy to manage these resources without significant attention to the ecosystem and ignoring people in the basin, its traditional owners and their cultures. The ILA and IIL worked

remarkably to find suitable legal solutions for these challenges in the last century. The two organisations work promoted IEL principles and resulted in adapting the UN Watercourses Convention in 1997.

Equitable utilisation and minimisation of environmental harm are now accepted as two substantive principles of the IEL. They are vital for managing transboundary rivers. The principles grew in customary international law, and have been adopted by major international conventions related to water management. However, the implementation of the principles are still weak, and there is a significant gap between theory and practice at various levels. Hence, this thesis demonstrates the main issues and challenges for implementing the two principles at three levels: international, federal, and local. The Tigris and Euphrates River basin as an international case, the Murray Darling River basin as a federal case and the Waikato River basin as a local case were the central three case studies of the thesis.

After evaluating the two principles in each case study, the thesis attempted to answer two main research questions:

1. What are the challenges and opportunities in implementing equitable utilisation and minimisation of environmental harm in the Tigris-Euphrates River basin, Murray–Darling River basin and Waikato River basin?
2. What kind of lessons can be learned in implementing the two principles at these levels?

The answers to these two fundamental questions were extracted in the above case studies and provided in their discussion chapters. In this conclusion and final chapter of the thesis, a summary of the challenges and opportunities for transboundary water issues will be presented. Before addressing the challenges and providing opportunities, identifying the limitation of the current approach of international law is fundamental.

The current system of international law recognises states as the only and final actors for implementing the IEL principles. Since the adoption of the Helsinki Rules in 1966 to the UN Watercourses Convention in 1997, the international community took a top-down approach implementing the principles. States are the only actors and have the final word in implementing the IEL principles. The heavy concentration on states led to ignorance of the other actors, particularly at the bottom level. As I discussed through the chapters, states used the sovereignty concept to legitimise their actions, exploit

natural resources, damage the environment, and ignore the public and indigenous communities in decision-making. Continuing with this approach will not lead to sustainability and preservation of our natural resources, particularly at Anthropocene.

Therefore, all river basins should be managed according to basin boundaries, not sovereign political borders. This management should be integrated and concentrate heavily on the river basins' environmental, social, and cultural aspects. At Anthropocene, there should be a special consideration toward indigenous and minority groups that have strong ties with nature and the ecosystem because the role of these cultures is significant for protecting the environment and river basins. In the preamble of the Paris Agreement, states confirmed the importance of local cultures and their understanding for managing natural resources and responding to climate change issues. However, state-centric thinking, in reality, is applicable in all areas. In the preamble, it was said that:[1020]

> Noting the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth, and noting the importance for some of the concept of "climate justice", when taking action to address climate change.

This acknowledgement is important to support a people and environment-based approach and avoid the state-centric approach as the only approach for managing the earth at the Anthropocene. As I confirmed, a state's role is important and cannot be dismissed, but states should not be the final voice and actor. Thus, we need a different understanding of managing our natural resources with the environment at the centre of this thinking. We also need different mechanisms for responding to challenges at the Anthropocene that allow other actors to actively participate in the management. These actors should act as the guardian and trustees, not the owners of the earth and the environment.

8.2 Response to the challenges in the broad context

As I emphasised in the previous chapter, water management in general, and managing transboundary rivers in particular, is not only about providing water for various human needs. However, the management should be understood in a broad context by balancing the water demand between humans and the environment. Thus, a radical shift is

[1020] "Paris Agreement to the United Nations Framework Convention on Climate Change, Adopted Dec. 12, 2015; entered into force Nov. 4, 2016" at preamble.

required in managing the river from human-centric and state-centric toward more environment-centric goals because the environmental issues are unprecedented in this new century. To respond to the environmental challenges, river management issues, and the effective implementation of the IEL principles, state and non-state actors should cooperate comprehensively.

Equitable utilisation and minimisation of environmental harm are fundamental principles for sharing rivers nationally and globally. The principles can provide solutions for issues of transboundary rivers in particular. They are developed from customary international law and then codified via international conversions. The UN Watercourses Convention 1997 and the UNECE Water Convention 1992 are two significant conventions that addressed the two principles comprehensively. However, the two conventions and their principles are still not effective and influential enough to be adopted in a broad context and globally. They are discussed during negotiations, but they are not applicable among and within the majority of states.

In the broad context, four main reasons contributed to the weakness of these two conventions and their principles. Firstly, the classic understanding of sovereignty that grants legitimacy to exploit natural resources without interference from others is the primary obstacle to managing transboundary rivers. In addressing transboundary rivers, states should know that there will not be equitable utilisation in imposing sovereignty over these rivers. Equitable allocation of these river means sharing sovereignty over these rivers, which positively minimises environmental harm to other riparian states. Thus, sharing sovereignty over these rivers is crucial for equitable utilisation and reducing environmental harm.

Secondly, there is a narrow understanding and some ambiguity in defining, determining and implementing the two principles. For example, the UN watercourses convention addresses equitable utilisation in Article 5, but does not define the principle. Article 6 concentrates on determining the principle, but the factors to determining this principle are too general and broad. The equitable utilisation is also understood as an equitable share among states only, but it should also extend to equitable utilisation among people. Equitable participation of public and relevant actors within each state is also significant for implementing the principle and sustainability.

Article 7 of the UN Watercourses Convention encourages states not to cause significant harm to other states, but there is no clarification about *significant harm* in the convention. Environmental harm or damage could differ from the perspective of one state to another. The UN Watercourses Convention and the UNECE Water Convention also ignored determining and maintaining the minimum flow of rivers, which is crucial for the minimisation of the environmental harm principle. Initiatives such as the UN Watercourses Convention User's Guide, which was published in 2012, are important to clarify these ambiguities.[1021] Still, the UN and its organisations should have an effective role in filling the gaps of the IEL and implementing its principles.

Thirdly, only 37 states are the convention party after more than two decades of adapting the convention. This is a minimal number of party members for a convention that provides guidelines regarding the management of 286 transboundary rivers. States are joining the convention very slowly. The state of Palestine joined the convention in January 2015; since that time, Ghana was the only state that joined the Convention, in June 2020. Therefore, there should be annual meetings and a Conference Of the Parties (COP)s MOPs similar to the UNECE Water Convention to implement the convention effectively and engage more state actors and non-state actors.

Finally, the conventions are not comprehensive because they are only talking to states. Furthermore, they do not encourage states to allocate water equitably within the states and, among individuals and communities in each state. At the international level, international conventions and rules should encourage the state to guarantee public and non-state actors' participation in managing rivers at various levels. This is quite significant for governments that do not have democratic institutions. In autocratic governments such as Turkey and Syria, and with Iraq before 2003, the public in general and people who live in the basin, in particular, do not have a strong voice. Thus, the UN and international organisations should encourage states to be more comprehensive in managing water resources by including all the actors in river management. Besides, states should be more flexible regarding sovereignty, particularly for shared natural recourses.

More importantly, the UN Watercourses Convention marginally mentions the EIA, the first unimportant step to avoid environmental damage. The EIA has a solid and

[1021] See, Rieu-Clarke, Moynihan and Magsig, above n 11.

reciprocal relationship with the minimisation of the environmental harm principle because undertaking the EIA leads to a positive outcome in minimising environmental harm. Article 12 of the convention refer to the EIA as an optional tool but not as a significant and compulsory tool in avoiding environmental damage to other riparian states. Therefore, the environmental harm principle remains ineffective because a fundamental tool for strengthening the principle is ignored in the convention.

As well as all these points, changing our understanding of the ecosystem and the environment will have a crucial role in managing our natural resources, and river basins in particular. We as humans should act as guardians and trustees over these resources and allocate them equitably. I quote John Locke in chapter two, and I would like to raise that again because the Western idea of property is not suitable for managing natural resources at the Anthropocene. Locke stated, "I shall endeavour to shew, how Men might come to have a property in several parts of that which God gave to Mankind in common."[1022] In my conclusion in chapter three, I also emphasised that humans truly should act as the guardians of the earth and share transboundary rivers in common, not based on sovereign boundaries. This should be our understanding and thinking to achieve the sustainability of our resources.

More importantly, the UN needs to take a practical step to increase the effectiveness of the UN Watercourses Convention and attract more parties to the Convention. Following similar steps of the UNECE Water Convention by introducing a Meeting Of the Parties (MOP) is fundamental for keeping the Convention alive. The MOP is crucial not only for discussing challenges to our shared and limited freshwater resources but is an opportunity for the parties to express their concerns to find common solutions for their disagreements. This step could be one of the influential steps of the top-down approach for effectively implementing the two principles, strengthening the bottom-up approach simultaneously.

8.3 Response to the challenges in the narrow context

At the local level, the legitimacy of the internal sovereignty has a crucial role in adopting the rules and principles of international law and IEL in particular. This internal sovereignty also plays a crucial role in predicting that state and state leaders tend to

[1022] Locke, above n 169, at 24.

cooperate with their neighbours, as well as national and international organisations. In democratic states, such as New Zealand and Australia, governments have a long history of practising democracy and strong democratic institutions. Thus, there is a great chance for cooperation over river management in these states because people have a strong voice and pressure their governments. Despite that, these governments should involve all in management because local and indigenous participation in decision-making is crucial.

Public participation is fundamental to satisfying people regarding decisions about their basins. This should be the main element of river basin management and enacting national and international law, because this is a basic right for the people who live within river basins. These people also know what is in the best interests of themselves and for the basin's sustainability. The governments have the responsibility to trust these people's choices. As Montesquieu stated, we should not doubt "people's natural ability to perceive merit."[1023]

However, public participation and people's voices are mainly dismissed in countries without strong democratic practices. The TE-RB states are evident examples in this regard. Thus, I discussed the decreasing of the state's role in water resource management and enhancing the role of communities and local groups who live in the river basins. Improving transparency and data exchange in transboundary river management is fundamental among states, and between state agencies and people in the basin. To satisfy the decision making process and policy framework, Jean-Jacques Rousseau asserted that people should be "furnished with adequate information".[1024] According to him, this is a good approach to decision making, and the decisions made will be right.

Finally, discovering solutions within nature can positively contribute to promoting the IEL principles and sustainability. As addressed previously, the NBS is one of the great suggestions for managing river basins at all three levels; international, federal, and local. NBS for water means discovering solutions for water issues within nature. NBS can be included in IRBM for achieving sustainable management of the rivers. Here, the success of IRBM does not always depend on discovering a technological solution for

[1023] Charles De Montesquieu *Montesquieu: The spirit of the laws* (Cambridge University Press, 1989) at 12.

[1024] Rousseau, above n 60, at 61.

the management, but it also depends on mechanisms for implementing IRBM. It means moving toward green solutions without dismissing grey solutions or classical solutions. In this method, IRBM will respond to water issues and benefit the whole ecosystem.[1025] The NBS should start with individuals and communities from the bottom to the leaders and policymakers at the state's top level. In this way, a natural society will be created to solve most environmental issues, including transboundary river basins.

[1025] UNESCO, above n 1.

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