TRADABILITY OF WATER ABSTRACTION RIGHTS AS PROPERTY RIGHTS IN ETHIOPIA: A COMPARATIVE STUDY

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN LAW (PHD)

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18 NOV. 2024

School of Law
Doctoral Dissertation

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Submitted in Partial Fulfillment of the Requirements of the Degree of Doctor of Philosophy in Law (PhD)

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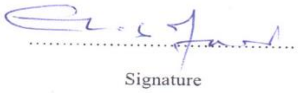

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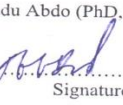

..... 18 November 2024
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Acronyms and Abbreviations

AAWSA	Addis Ababa Water and Sewerage Authority
ADR	Alternative Dispute Resolution
AfrDB	African Development Bank
AJOL	African Journals Online
ARB	Awash River Basin
Art/s	Article/s
AwBA	Awash Basin Authority
BCM	Billion Cubic Meter
BIT	Bilateral Investments
BLT	Build-Lease–Transfer
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BTO	Build-Transfer-Operate
CC	Constitutional Court
CCE	Civil Code of Ethiopia
CoAG	Council of Australian Governments
CPIA	Country Policy and Institutional Assessment
CSA	Central Statistical Agency
Cth	Commonwealth
CWRAS	Country Water Resources Assistance Strategy
DBOT	Design-Build-Operate-Transfer
DGA	Director General for Water
DWS	Department of Water and Sanitation
EDHS	Ethiopia Demographic and Health Survey
ERDC	Environment Resources and Development Court
ESAF	Structural Adjustment Facility
EU	European Union
EUWFD	European Union Water Framework Directive
FAO	Food and Agriculture Organization
FBOOT	Finance-Build-Own-Operate-Transfer
FDI	Foreign Direct Investment
FDRE	Federal Democratic Republic of Ethiopia
GATS	General Agreements on Trade in Service
GATT	General Agreement on Tariffs and Trade
GERD	Grand Ethiopian Renaissance Dam
GTPII	Growth and Transformation Plan II
GWP	Global Water Partnership
ICSID	International Centre for Settlement of Investment Disputes
ICWE	International Conference on Water and the Environment
IDA	International Development Association
IMF	International Monetary Fund
IPF	Investment Project Financing
IRC	International Rescue Committee
ISDS	Investor-State Dispute Settlement
IWRM	Integrated Water Resource Management
IWUAs	Irrigation Water Users Associations

KII	Key Informant Interview
LEC	Land and Environment Court
LSP	Letter of Sector Policy
MCM	Million Cubic Meters
MDB	Murray-Darling Basin
MDBA	Murray-Darling Basin Authority
MDGs	Millennium Development Goals
MFN	Most-Favoured-Nation Treatment
ML	Milliliter
MoWE	Ministry of Water and Energy
MWRs	Ministry of Water Resources
NAFTA	North American Free Trade Agreement
NCC	New Commercial Code
NGOs	Non-Governmental Organizations
NSW	New South Wales
NT	National Treatment
NWA	National Water Act
NWI	National Water Initiative
PPP	Public-Private Partnership
PSP	Private Sector Participation
RCC	Repealed Commercial Code
ROT	Rehabilitate-Operate-Transfer
SAPs	Structural Adjustment Programs
SB	Supervisory Body
SDGs	Sustainable Development Goals
Sec/s	Section/s
SNNPR	Southern Nations Nationalities and Peoples
UNCED	United Nations Conference on Environment & Development
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
UNs	United Nations
US	United States
USA	United States of America
USMCA	United States Mexico Canada Agreement
VNR	Voluntary National Review
WASH	Water Sanitation and Hygiene
WB	World Bank
WCW	World Commission on Water
WHO	World Health Organization
WMA	Water Management Act
WRM	Water Resource Management
WRMS	Water Use Authorization Registration Management System
WRSS	Water Resource Sector Strategy
WSA	Water Services Act
WSDP	Water Sector Development Program
WSDRP	Water Supply Development and Rehabilitation Project
WSPS	Water Resource Policy and Strategy
WSS	Water Sector Strategy
WSSS	Water Supply and Sanitation Services
WTO	World Trade Organization
WUCS	Water Users Cooperative Societies

WWC	World Water Council
WWF	World Water Forum
WWV	World Water Vision
YRB	Yellow River Basin
YRCC	Yellow River Conservancy Commission

Declaration

I hereby declare this dissertation comprises only my original work towards the Doctor of Philosophy in Law. I have not submitted it as a whole or any part thereof for an award of a degree at this or any other university. In accordance with the rules of the University, I have published the following two articles emanating from parts of the original material in Chapter 2 and Chapters 4 and 5 of this dissertation:

— Jetu Edosa Chewaka, 'The Economic Regulation of Water Supply in Ethiopia: a Review of Constitutional and Legal Bases' (2021) 27 (3) *Journal of Water Law* 103.

— Jetu Edosa Chewaka, 'Land Acquisition for Investment in Ethiopia: Economic Analysis of Legal Options' (2020) 32 *Journal of Ethiopian Law* 45.

All other materials and texts used in the dissertation have been duly acknowledged based on citation styles of Oxford Standard for the Citation of Legal Authorities. The dissertation is less than a maximum of 80,000 word limits excluding footnotes, tables, bibliography and annexes.

Name

Jetu Edosa

Signature

Date

18 November 2024

Acknowledgment

The scholarly journey I have been on for the past six years would not have been nearly as exciting or fulfilling had it not been for the patient guidance and mentorship provided to me by my supervisor Dr. Muradu Abdo Srur. I would like to express my earnest appreciation and profound gratitude to him for giving me the freedom to carefully think on my half-baked ideas and for being generous to extend his valuable comments and suggestions on my chapters even when I missed the deadlines. I would like to admit that without his encouragement to push forward against all odds, this significant intellectual accomplishment would not have been imaginable. I am truly privileged to have had the opportunity to be supervised by Dr. Muradu and could not have asked for a better mentor. I am also grateful to Prof. Dr. Christian Tietje of Martin Luther University Halle (Germany) for the valuable comments and suggestions on the earlier draft of Chapter 3 during the 2nd PhD Colloquium at the School of Law, Addis Ababa University held on 8-10 June 2023. Likewise, I also thank Dr. Elias Nour for the valuable comments and suggestions on Chapter 5 at the third PhD colloquium held on May 23-24, 2024 at School of Law, Addis Ababa University.

I would like to also thank institutions, colleagues and individuals who have assisted me in many ways during the writing of this dissertation. I am thankful to Professor Andrea de Guttry of the Institute of Law, Politics and Development at Sant'Anna School of Advanced Studies-Pisa (Italy) who gave me the opportunity to benefit from the Erasmus+ Study Mobility Exchange Program scholarship for a research stay from June to September 2018. I am also thankful to Dr. Yonas Birmeta, Dr. Sisay Alemahu, Dr. Francesca Capone, Claudia Ambrogi, and Alessandro Guadagnoli for facilitating my research stay and exposing me to the memorable experience at the beautiful city of Pisa. I am also grateful to Professor Dr. Florian Wettstein, Dr. Thierry Ngosso, Dr. Antonella Angelini, and Dr. Kebene Kejela Wodajo of the Institute of Business Ethics at the University of St. Gallen for giving me the opportunity to present my work at the conference held on September 15 and 16, St. Gallen (Switzerland).

I am also thankful to the following colleagues and friends at the School of Law, Addis Ababa University, from whom I benefit as my former mentors and current faculty members who contributed to the conversation on some of the ideas during coffee breaks at Law Lounge:

Mr. Mekete Bekele (Assoc. Prof.), Dr. Mellese Damtie, Dr. Takele Soboka, Mr. Yazachew Belew (Assist. Prof.), Dr. Martha Belete, Dr. Kinfe Yilma, Dr. Aschalew Ashagrie and Mrs Sefanit Mekonnen. I would also like to thank Mr. Semere Tiruneh and Mr. Andualem Eshetu (Assist. Prof) at School of Law, University of Gondar for I benefited from their valuable conversions and thoughts on the ideas of my dissertation. A special thanks to his Excellency Dr. Abraha Adugna, State Minister for Water Resource Management at the Ministry of Water and Energy (MoWE) for assigning responsible expertise who facilitated access and provisions of valuable data that helped me in the writing of this dissertation. Particularly, I am grateful to the following individuals who spared their valuable time for sharing data, their expertise and thoughts on my interview questions: Mr. Shiferaw Demissie, Mr. Michael Birhane, Mr. Belayneh Yirdaw, Mr. Tasew Zawudie, Mr. Keradin Dadhi, Mrs. Naima Yusuf and Chaluma Ragasa.

Finally, I would also like to express my deepest gratitude for my wife Medhanit Bahiru for tolerating my absence, shouldering household burdens and taking responsibility for parenting my kids Biyaa, Moa and Moyi while I pursued this degree. My mother, Chaltu Bekele Serda is always there with her prayer and support that provided me with the spiritual strengths during the years of my PhD journey.

Abstract

This dissertation has examined the question of whether the water use permit system in Ethiopia creates water abstraction property rights as an intended consequence of treating 'water as an economic good' to address challenges of water allocation and exploitation problems in light of comparative perspectives. Driven mainly by the imperatives of global water policy and lending conditionalities of international and regional financial institutions, Ethiopia undertook water sector policy reform in the 1990s to mobilize financial resources to meet the increasing demand for water supply services. The dissertation has assessed Ethiopia's water policy and legal reform from the perspectives of global water policy imperatives that posit and call for the treatment of water as an economic good as a means to promote the efficient allocation and use of water resources.

The dissertation has examined the literature and water policy developments to understand how treating water as an economic good aims to address issues of water resource allocation by assigning economic value to water use in all its competing uses. The recognition of water as an economic good under the UN Water and SDG principles on 'water use efficiency' does not adequately consider the application of these ideals within the context of managing water rights as property rights in the allocation of water resources to address the increasing demand for scarce water resources. Specifically, the research on water resource management in the Ethiopian context reveals a knowledge gap on how to establish a connection between the treatment of water as an economic good and defined water property rights as a means to efficiently allocate and use water resources in addressing water allocation problems within the public water property rights regime. In response to these knowledge gaps, the dissertation explores the instrumental role of property rights in transforming the concept of treating water as an economic good into tradable water property rights to address issues of water resource allocation and exploitation in Ethiopia.

The dissertation employed a comparative legal research approach to examine the attributes of water property rights in Ethiopia from a comparative perspective. It begins by interrogating the theories and concepts related to the bundle of property rights in order to

understand the nature of water property rights and their talking issues related to water resource allocation and exploitation. The study finds that the bundle of property rights theory can be applied to establish separable private water property rights in the form of usufruct rights without necessarily requiring total changes to the existing structure of public water resource ownership rights.

The dissertation explores the impact of global water policy imperatives on defining water as a commodity, acknowledging its economic value and the need for economic allocation based on competing uses. This recognition allows for the establishment of private water allocate rights that in turn facilitated private sector participation in the allocation and use of water resources. The study showcases how countries that have embraced the concept of water as an economic good have implemented water market mechanisms through the development of a legal framework that supports the creation of tradable water property rights. By doing so, such countries aim to enhance the efficient allocation and utilization of water resources. Furthermore, the research delves into the specific case of Ethiopian, revealing treating water as an economic good involves recognizing water allocation rights as property rights, both of which are essential for achieving optimal water resource allocation.

Finally, based on five attributes of property rights as common standards for comparative analysis of water resource laws of selected countries and that of Ethiopia, the dissertation has revealed that Ethiopia has normatively structured allocation of water rights under water use permit to functionally confer tradable water abstraction property rights on permit holders. However, complemented with data analysis collected from responsible water resource management authorities, the dissertation finds that the low level of water user registration and absence of formal water rights transfer in practice in Ethiopia show lack of implementation of water rights trading. It is argued that the *de jure* recognition of tradable water rights appears to present a reform appearance to the World Bank and similar international or regional financial institutions without seriously considering its implementation in practice. Even assuming that the *de jure* recognition of tradable water rights on the part of Ethiopia is deliberately designed to achieve the objectives of efficient allocation of water resources as the intended consequences of recognizing water as an economic good in Ethiopia, existing legal gaps under the water use permit system and

absence of deliberate initiation of water right transfer and water rights trading have so far inhibited its practical application. Moving forward, the dissertation proposes that Ethiopia needs to further clarify its existing water use permit system and conduct a water market readiness assessment to maximize the benefit of water resources allocation through the instrumentality of tradable water property rights.

CHAPTER 1

General Introduction

1.1. Introduction

The dissertation considers the extent to which water use permit systems within public water resources allocation regimes in Ethiopia recognize water abstraction rights as tradable property rights to facilitate efficient allocation and exploitation of water in light of comparative perspectives. The dissertation adopts instrumentalist approach to examine property rights under Ethiopia's water policy and law and aims to understand whether the nature, contents and functions of water use permit that creates legal rights to abstract water facilitates tradable water rights to achieve the objectives of efficient allocation of scarce water resources. It examines how water abstraction rights under water use permit is conceptually and functionally structured in water policy documents and legal texts and its potential implications for undermining or facilitating water abstraction rights as tradable property rights. The dissertation mainly employs comparative legal research methodology to understand the nature of water property rights and its tradability in Ethiopia in light of the water laws of selected comparative countries that constitutes Chile, Australia, China and South Africa by also drawing on their lessons from the experiences of water rights trading in these countries river basins gleaned from empirical literature.

The dissertation aims to contribute to the existing body of scholarship on water property rights by addressing the knowledge gap on the normative understanding of the nexus between the treatment of water as an economic good and water property rights as an instrument to address the challenges of common pool water resources allocation within public water property rights regime. The dissertation discusses the unique nature of water and its vital role to sustain life on earth shaping the water resource allocation policy paradigm of water as a free social or public good, which takes water abundance for granted, as if water

is available for every claim of public or private use.[1] It pinpoints the difficulty of holding onto the existing paradigm or approach of water as free public good due to the demand for water resources amidst population increase, rapid pace of urbanization and industrialization that required to find solutions on how to better allocate and use available water resources more efficiently to address these challenges.[2] It also interrogates the existing body of knowledge and presents how the solutions for addressing the challenges of the increasing demand for scarce water resources at the global and national levels called for the need to re-examine the viability of treating water as a free public good and the role and capacity of government to allocate limited financial resource to continuously supply water even for private and commercial water users without at least charging for water resources and recovering costs for the amount of water services provided.[3]

Based on such predisposition, the dissertation examines what can be learned from the understanding of the bundle of property rights theories and conceptualizations as a means to achieve efficiency in the allocation water resource and to locate water policy or legal gaps within the two major competing water resource property rights approaches emerged out of existing scholarly body of knowledge and their policy application at national and global levels.[4] On the one hand, the approach of treating access to water resources and water services as a free public good emphasized on the ownership structure of water resources to be vested in the state property regime under the public trust doctrine.[5] On the other hand, the approach to treat water as an economic good emphasized the instrumental role of economic instruments to allocate scarce water resources while seeking robust and well-defined recognition of private water property rights as a means to achieve optimal use.[6] The dissertation sheds light on how the justifications for the treatment of water both as a free public and economic good with prices assigned for its use are equally rooted in both national

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1 Hanemann W Michael, 'The economic conception of water' in Rogers P, Llamas MR, Martinez-Cortina L (eds), *Water crisis: myth or reality?(* (Taylor & Francis 2006) 71.

2 Madeline Baer, 'Private water, public good: water privatization and state capacity in Chile' (2014) 49 Studies in Comparative International Development 141, 145.

3 Karen Bakker, 'Commons versus commodities: political ecologies of water privatization' in Richard Peet, Paul Robbins and Michael Watts (eds*), Global Political Ecology* (Routledge 2011) 348.

4 Farhana Sultana, 'Water justice: why it matters and how to achieve it' (2018) 43 (4) Water International 483, 487.

5 Barton H Thompson, 'Water as a Public Commodity' (2011) 95 (1) Marquette Law Review 17, 20.

6 Itzchak E Kornfeld, 'Water: A Public Good or a Commodity?' (2012) 106 American Society of International Law 49, 49-50.

and global water policy frameworks often advancing competing and contradicting approaches with little space to reconcile.[7]

The justification for the treatment of water as a free public or social good with states obligation to allocate and manage water in the interest of the public is normatively rooted in the human rights approach to water.[8] The central argument for the continued status of water as a public good from a human rights approach contends that neoliberal policies that promote private property rights in water resources pose a risk to the human rights to water in developing economies as it diminishes the role of the government.[9] It is claimed that states are the bearers of international human rights obligation for fulfilling human rights to water either directly by providing adequate and affordable access to water services or by creating an enabling normative environment through which such rights are realized.[10]

The explanation for the treatment of water as an economic good is rooted in the commodity approach that aims to address the problems of water scarcity by promoting private space in the use and allocation of water use rights as property rights in order to accomplish better efficacy and optimum allocation.[11] This approach is further ignited by the growing global water problems where neo-liberal ideals and its global supporters, in the second half of 20th century, have seized the opportunity to push for an increased prominence on the imperatives of recognizing water as an economic commodity under the auspices of the United Nations (UNs) bodies.[12]

The real water problems of many countries around the world forced them to fall prey to the drive of water commodification in return for financial and technical support of the international and regional financial institutions such as the World Bank (WB) and the African

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7 Thompson (n 5) 18.

8 ibid 31.

9 Bakker (n 3)

10 ibid; Elena Emilia Ștefan, 'Water - Public Good Vital for Humanity' (2024) 10(2) Athens Journal of Law 209, 212.

11 Hilmer J Bosch, 'Evolving Property Rights in Water and their Impact on Water Allocation and Reallocation' (PhD Thesis, Universiteit van Amsterdam 2023) 3; Karen Bakker, 'Liquid assets: how we provide water depends on whether we view water as a commodity or as a public good' (2003) 29 (2) Alternatives Journal 17.

12 Rhodante Ahlers, 'Fixing and nixing: The politics of water privatization' (2010) 42(2) Review of Radical Political Economics 213, 218—219.

Development Bank (AfrDB) to mention the most prominent ones.[13] The UNs bodies, international and regional financial institutions together with other development partners vehemently advised developing countries to treat water as a commodity to overcome the problems of allocating scarce water resources generated as a result of growing demands through water market reallocation and greater role of private sector investment in water sector infrastructure.[14] In this manner, a potential market for private water abstractors or suppliers have permeated into the domestic water policy and legal space of developing and least developed countries like that of Ethiopia with the inevitable consequences of private water property rights to emerge in water resource allocation.

Against the above backdrops, the next sections of this Chapter discusses the actual 'water problems' in broader global and domestic context to understand why existing body of knowledge justifies the intervention of the law and economics of property rights in the allocation of water as a means to address the challenges of efficient use of such valuable resources. Section 1.2 provides a review of the literature on the state of water resource consumption and its socio-economic and 'hydro-legal' relevance to understand the real problems of water resource allocation to meet the increasing demand and diminishing supply services. Section 1.3 briefly discusses global policy solutions to address challenges and problems of water resource allocation. Section 1.4 briefly outlines scholarly knowledge gaps in the existing body of literature. Section 1.5 discusses research questions and scope and limitations of the dissertation. Section 1.6 outlines the theoretical approaches and research methodology. Section 1.7 briefly puts the structure of the dissertation in order. Section 1.8 provides Chapter summary.

1.2. 'Water problems': understanding its social and economic relevance

1.2.1. Increasing demand for water and limited water availability

The earth's surface is more than three-quarters covered by water, 98 percent of it is neither suitable for human consumption nor fit for use in agricultural or industrial activities as a result

[13] Jessica Budds and Alex Loftus, 'Water, Neoliberalism, and Commodification' in Sofie Hellberg and others (eds), *Routledge Handbook of Water and Development* (Routledge 2023) 144.

[14] Andrea Beck, "Aid, trade and investment": Water operator partnerships and the Dutch water sector' (2023) 41(1) Environment and Planning C: Politics and Space 182.

of its salinity or frozen state.[15] Thus, freshwater resources—water in which the salt content is less than three grams per liter—represent only 2.53 percent of overall global water resources.[16] Even worse, over 86.7 percent of these freshwater resources are frozen in polar ice caps, continental ice sheets, and alpine glaciers. The underground freshwater resources in liquid form accounts for 30.1 percent while surface freshwater resources both in lakes and rivers, and in the atmosphere constitute 0.26 and 0.04 percent respectively.[17] Despite the fact that water itself moves easily and replenishes partially as part of the hydrologic cycle, the increasing utilization of water resources for various consumptive purposes is creating freshwater scarcity at the global level.[18] According to the World Resources Institute and the International Water Management Institute it is estimated that 1.2 billion people or nearly 20 percent of the world's population live in areas of physical water scarcity, where water abstraction for agriculture, industry, and domestic purposes exceed 75 percent of river flows.[19] Similarly, an additional 500 million people live in areas approaching physical scarcity.[20] Another 1.6 billion people live in areas of economic water scarcity, where water is available but human capacity or financial resources limit access due to inadequate infrastructure or inequitable distribution.[21]

In Africa, renewable water resources constitute only 9 percent of the global renewable water resources with 15 percent of the global population, making the world's second driest continent.[22] At continental level, renewable water resources constitute only about 20 percent of total rainfall. Africa's water availability is also constrained by its groundwater resources, which represent only 15 percent of total renewable water resources, but supply about 75 percent of its population with most of its drinking water.[23] Africa's 63 international

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15 De Chazournes LB, *Fresh Water in International Law* (Oxford University Press 2013) 1.

16 ibid.

17 ibid.

18 Yacov Tsur, 'On the Economics of Water Allocation and Pricing' (2009) 1(1) Annual Review of Resource Economics 514.

19 Heather Cooley and others, 'Global water governance in the twenty-first century' in P H Gleick (ed) *The World's Water Volume 8: The Biennial Report on Freshwater Resources* (Island Press 2014) 1.

20 ibid 2.

21 ibid.

22 United Nations Environment Programme (UNEP), 'Africa Water Atlas': Division of Early Warning and Assessment (2010). <https://na.unep.net/atlas/africaWater/downloads/chapters/africa_water_atlas_i-36.pdf> accessed 15 February 2022

23 ibid

river basins cover about 64 percent of the continent's land area and contain 93 percent of its total surface water resources.[24] In terms of water abstraction, 85 percent is utilized for agricultural purposes while 9 and 6 percent are used for community water supply and for industrial use respectively.[25] It is worth mentioning that for Africa, as a whole, the amount of water abstraction for these three major uses of water amounts to only 3.8 percent of internal renewable resources indicating a low level of development and use of water resources on the continent.[26] It is also estimated that more than 75 percent of the African population uses groundwater as its main source of drinking water supply though groundwater accounts only for about 15 percent of the continent's total renewable water resources.[27]

In the context of Ethiopia, the endowment of its water resources originating from both low and the highland areas which earned the country the name 'the water tower of the Horn of Africa.'[28] The total area of Ethiopia covered with water bodies is 0.7 per cent. Those water bodies include 12 river basins of the country, each legally recognized as 'geographical area, described by the watershed limits of the water system including surface and underground water flowing into a common terminus'.[29] Though data on the Ethiopian water resource is limited and to some extent contentious, available sources indicate the amount of surface water obtained from the major River basins are estimated to reach more than 124.4 Billion Cubic Meter (BCM).[30] Likewise, despite the limited studies on groundwater availability, the official estimates of the Ministry of Water and Energy are between 12-30 BCM provided that all groundwater parts are assessed.[31] With no external water resources draining into the Ethiopian river basins, the surface water leaving the country is estimated at 96.5 BCM

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[24] African Economic Commission, 'The Africa water vision for 2025: Equitable and sustainable use of water for socioeconomic development' (Economic Commission for Africa 2003) 8.

[25] ibid

[26] ibid

[27] ibid

[28] Gebremedhin G H, 'Irrigation in Ethiopia, a Review' (2015) (5(15) Journal of Environment and Earth Science 1-2; Godswill Makombe and others, 'A comparative analysis of rainfed and irrigated agricultural production in Ethiopia' (2007) 21 Irrigation Drainage System 36.

[29] Ethiopian Water Resources Management Proclamation No 197 (2000) art 2(15).

[30] Dessalegn W A, 'Theoretical and Empirical Review of Ethiopian Water Resource Potentials, Challenges and Future Development Opportunities' (2018) 8 *International Journal of Waste Resources* 353. See also Belete Berhanu and others, 'Surface water and groundwater resources of Ethiopia: potentials and challenges of water resources development' in Melesse A and others (eds) *Nile River Basin: Ecohydrological Challenges, Climate Change and Hydropolitics* (Springer 2014) 97.

[31] FDRE Ministry of Water Resources: Strategic Framework for Managed Groundwater Development (Ministry of Water Resources 2011) 4.

annually.[32] Hence, except for the surface water of the Awash River basin, 97 percent of flows from the remaining River basins are lost in runoff to the lowlands of neighboring countries.[33] Accordingly, only 3 percent of the surface water resources remain in the territory of Ethiopia indicating the limited capacity of the country to fully utilize its water resources potential for various development objectives. It is estimated that 54.4 BCM of surface and 2.6 BCM of ground water resources could be technically developed for consumptive purposes.[34]

1.2.2. Water allocation and water scarcity in Ethiopia

Despite the impressive potential of surface water resources in Ethiopia, the present actual consumptive use is estimated at less than 5 percent indicating its limited social and economic contributions.[35] The use of both surface and groundwater for irrigation purposes is limited despite its importance to overcome the uncertainty of rain-fed agricultural production. In the agricultural sector, the use of water for livestock and irrigation crop productions represent the two main water withdrawing sectors.[36] While Ethiopia receives on average 850 mm rainfall per year of which about 13 per cent is diverted into river flows and fresh water in lakes, only 3 per cent can be sourced back to rain-fed agricultural production—which occupies 15 percent of the country's land area.[37]Available data also indicates that water withdrawal for the huge livestock population was estimated at 0.687 BCM in 2010.[38] Considering the availability of water and land resources, technology and finance, the irrigation potential of Ethiopia at present is estimated at about 2.7 million hectares.[39] Accordingly, the annual agricultural surface water withdrawal, based on the total irrigated area, was estimated at around 9 BCM in 2016.[40] This estimate is considered to be low given the large increase in irrigated areas and the changing pattern in irrigated crops. Yet the use of groundwater withdrawal for irrigation purposes is limited to traditional and shallow wells in some areas

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32 Food and Agriculture Organization of the United Nations, 'AQUASTAT Country Profile—Ethiopia' (FAO 2016) 5—6. <http://www.fao.org/3/i9732en/I9732EN.pdf>

33 ibid 8-9.

34 ibid

35 ibid

36 ibid 8.

37 Alemu Asana Dowa and others, 'Water and Poverty Linkages in Africa: Ethiopia Case Study' (Stockholm Environmental Institute, 2007) 24.

38 European Union, 'managing water for inclusive and sustainable growth in Ethiopia: key challenges and priorities. European Report on Development' (2011).

39 FAO (n 32).

40 ibid

constructed by farmers while the government is planning to expand its utilization for similar purposes.[41]

In 2005, the demand for municipal and industrial water withdrawals was estimated at 810 and 51 BCM respectively.[42] Recent reports indicate an increase of the demand for water supply in both rural and urban areas with the national average of 64.8 percent access coverage.[43] The 2016 Ethiopia Demographic and Health Survey (EDHS) report indicates that the water supply access coverage for rural population is 56.5 per cent—mainly 19 percent from public taps, 14 per cent from protected springs and 13 per cent from tube wells or boreholes.[44] This indicates that the remaining 43 percent of the rural population in Ethiopia access water from unprotected sources.[45] Similarly, the 2016 EDHS report also indicates that the water supply access coverage for urban population is 97.3 per cent. This 2016 EDHS report significantly corresponds with the Ministry of Water, Irrigation and Electricity's 2016 report where rural and urban water supply coverage for the Growth and Transformation Plan II performance period is 63.1 and 52.5 percent respectively with 61 per cent of the country level coverage.[46]

In terms of sources, groundwater is mostly used for drinking water supply which represents about 70 percent of rural water supply and 90 percent of municipal and industrial water supply in several of the largest cities such as Addis Ababa, Dire Dawa, Mekelle, and Harar including a number of medium sized towns.[47] For instance, the most current estimate for the city of Addis Ababa is that groundwater provides 105 milliliter (ML*)* per day while surface provides 195 ML per day of the municipal water supply provided by the Addis Ababa Water

41 FDRE Ministry of Water Resource Ethiopia: strategic framework for managed groundwater development. (2011).

42 FAO (n32) 8.

43 Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016. *Ethiopia Demographic and Health Survey* (CSA and ICF2016).

44 ibid

45 Richard Wilson and others, 'One Wash National Program: A Multi-Sectoral SWAP (Sector Wide Approach) Review of Phase I (2018) 24.

46 Tarekegn Birhanu, 'Evaluation of the Sustainability of Rural Water Supply Schemes: A Case of Bambasi Woreda' (Msc Thesis, Arba Minch University 2017); Israel Deneke Haylamicheal and Awdenegest Moges, 'Assessing water quality of rural water supply schemes as a measure of service delivery sustainability: A case study of Wondo-Genet district, Southern Ethiopia' (2012) 6 (5) African Journal of Environmental Science and Technology 229.

47 FAO (n 32); See also Haile A Mengistu and others, 'Groundwater resource potential and status of groundwater resource development in Ethiopia' (2019) 27 Hydrogeology Journal 1051.

and Sewerage Authority (AAWSA).[48] In addition to groundwater pumping by public water supply authorities through deep well drills, there is also private pumping of groundwater in Addis Ababa the quantity of which is yet not known. However, unlike surface water which could be abstracted from freshwater such as rivers and lakes through traditional and modern harvesting technologies, an estimated 30 percent of groundwater storage in Ethiopia is not easily accessible for direct use because of high salinity or high fluoride contents.[49]

The preceding discussion indicates that abstraction of water for domestic, industrial and agricultural purposes is on the increase due to the rapid growth of urbanization and population creating 'physical and economic water scarcity' in many countries.[50] According to studies, 'physical water scarcity is said to occur in a country when more than 75 percent of river flows in a country are withdrawn for domestic, industrial and agricultural purposes and the country is unable to meet future demands after accounting for its adaptive capacity.'[51] On the other hand, 'economic water scarcity is considered to occur in countries where renewable water resources are adequate (i.e. water withdrawals are less than 25 percent of river flows) but where there is a lack of significant investments in water infrastructure in order to make these resources available.'[52] The International Water Management Institute (IWMI) mapped African countries based on these two criteria as encountering 'either physical or economic water scarcity or areas expected to approach physical water scarcity'.[53] According to this mapping, Ethiopia is classified as a country facing 'economic water scarcity'.54 This fact clearly shows that countries like Ethiopia, with huge potential of surface and groundwater resources, may not afford the supply of water in all major social and economic sectors given technological and financial limitations in water sectors.

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48 FDRE Ministry of Water Resources (MoWR), 'Ethiopia: Practical Framework for Managed Groundwater Development in the Greater Addis Ababa Area' *Supplement to Task Force Report* (2013) 10.<https://metameta.nl/wp-content/uploads/2013/03/Task_Force_Report_Supplement.pdf>

49 Seifu Kebede, *Groundwater in Ethiopia: Features, vital numbers and opportunities* (Springer 2013) 239.

50 Lorenzo Rosa and others, 'Global agricultural economic water scarcity' (2020) 6 Science Advance 2. <https://advances.sciencemag.org/content/advances/6/18/eaaz6031.full.pdf>

51 Simon Damkjaer and Richard Taylor, 'The measurement of water scarcity: Defining a meaningful indicator' (2017) 46 Ambio 517.

52 ibid

53 ibid

54 ibid 518.

Besides, water supply at huge public investment costs are inefficiently utilized raising questions as to the wise use of valuable and scarce water resources. Studies also show that major reasons for low water supply coverage includes high wastage of water from old and damaged pipes and illegal connections, limited financial and technological capacities, rapid population growth, and limited service over the day from public distribution points in small towns.[55] Similarly, the National Water Supply and Sanitation Master Plan (2002-2003) estimates that 30.1 percent of the water produced from urban water supply systems is lost, and only 48 percent of the amount that can be produced is in fact produced and distributed. It is also estimated that by 2020, Ethiopia will be 'physically water scarce as the per capita blue water availability becomes lower than 1000 m3/cap/year.'[56]

Although only time will tell if 'water flows uphill to money' [57]as the saying goes, due to technological and financial investments in solving problems of economic water scarcity, some facts remain constant. On the one hand, climate change, seasonal droughts, extreme shortages of rainfall and similar other factors are always there as far as human beings care less for conservation of natural resources perpetuating physical water scarcity while at the same time lamenting for access to adequate water as human rights. On the other end, technological and financial advancements to realize access to physically inaccessible water resources cannot solve the problems of water scarcity perpetually. This is because even when technological and financial resources are available, existing water rules may limit physical access in order to ensure efficient use and optimal allocation of water resources. Most importantly, increased competition for the use of water and the national development desire to benefit from its economic use call for a legally structured and efficient allocation managed based on a robust and well-defined water property rights regime.

1.3. Global policy solutions to the problems of water allocation

To solve water resources allocation problems around the world, the treatment of water as an economic good and its attendant policy options of commercialization and privatization of water services are promoted in varying degrees of applications. In addition, managing water

[55] Alemu and others (n 37) 24.
[56] ibid
[57] Vinod Raina, 'War Over Water: 'Water flows Uphill to Money'' (2000) 16(1) Asian Exchange 64, 64.

rights as property rights to create an enabling conditions for the effective functioning of private and commercial water markets. As explained below, these water policy options are understood in divergent legal and institutional contexts but to achieve almost similar goals—allocate or reallocate water as a commodity in the water market with proprietary or property rights interests.

1.3.1. Water as an economic good

As indicated in section 1.1, the problem of water resource scarcity and the need to allocate water in socially and economically desirable ways is agreeably advanced in the two approaches despite the difference to address the how question. It is clear that both contending approaches on the status of water either as public or economic good cannot afford a straightjacket argument given the increasing pace of water allocation problems.[58] The common space of understanding between these competing scholarly approaches is a version of the economic good approach where a water user should pay at least an affordable price based on ability to pay as the supply of water service involves costs to the supplier irrespective of who owns the infrastructure or the water resources.[59] To that extent, global water policy solutions to the local problems of water resource allocation essentially manifests these two dichotomies of scholarly debates albeit predominated by treatment of water as economic good.[60]

The global water policy to treat water as an economic good to solve the problems of water scarcity was initiated at the Dublin Conference on Water and the Environment in 1992.[61] The Dublin Conference, under its famous Principle 4, popularized 'the concept of water as an economic good as a global agenda', as guiding principle for the regulation of water resources through the application of economic instruments.[62] Similarly, for an improved socio-

[58] Daniel Jaffee, 'Enclosing Water: Privatization, Commodification, and Access' in Katherine Legun, Julie Keller, Michael Bell, and Michael Carolan (eds), *The Cambridge Handbook of Environmental Sociology* (Cambridge University Press 2020) 303.

[59] ibid 304.

[60] Diana Day, 'Water as a Social Good' (1996) 3(1) Australian Journal of Environmental Management 26, 26.

[61] International Conference on Water and the Environment (ICWE), The Dublin Statement and Report of the Conference: Development Issues for the 21st century (Dublin, 26–31 January 1992).

[62] United Nations (1992), 'The Dublin Statement on Water and Sustainable Development', UN Documents. Principle No 4.

economic development of African water resources, the Africa Water Vision for 2025 adopted the fourth of Dublin principles that underscores the need to also regard water as an economic good.[63] In both global and continental contexts, the recognition of water as an economic good signifies that 'water has an economic value in all its competing uses'.[64]

In the context of Ethiopia, the global and continental approach has been domestically adopted where water is recognized as 'an economic and social good.'[65] The national water law also recognizes the need 'to put the water resources of Ethiopia to the highest social and economic benefits for its people.'[66] However, what actually transpires in the interpretation of 'treating water as an economic good' as solution to water resource allocation problem is the subject of debate and 'confusion'.[67] On the one spectrum, it is interpreted that water should be priced at its economic value so that the market will take care of its allocation or reallocation to its greater or optimal uses.[68] On the other angle of interpretation, water as an economic good is understood to signify 'the process of integrated decisions making on the allocation of scarce water resources, which does not necessarily involve financial transactions' in the marketplace.[69]

In least developed countries like Ethiopia, the second line of interpretation is dominantly pursued since the process of decisions making on the allocation of water resources in the interest of the public is vested in the state. For this reason, allocation of water resources and management of hydraulic infrastructures in Ethiopia are administered as public property based on cost-recovery principle which so far resulted in 'costly and large scale inefficiency in the supply and use of water'.[70] The first line of interpretation of water as an economic good

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63 ibid

64 Nihal Atapattu, 'Economic valuing of water', International Water Management Institute (2002) 201-202. <http://publications.iwmi.org/pdf/H031121.pdf>

65 Ministry of Water Resources 'Ethiopian Water Sector Policy' (FDRE Ministry of Water Resources 2001). <https://www.cmpethiopia.org/media/ethiopian_water_sector_policy_2001>

66 Ethiopian Water Resources Management Proclamation No 197 (2000) at *Preamble*.

67 Hubert Savenije and Pieter van der Zaag, 'Water as an Economic Good and Demand Management Paradigms with Pitfalls' (2002) 27(1) Water International 98, 98.

68 ibid

69 ibid

70 Dereje Adeba, ML Kansal and Sumit Sen, 'Assessment of water scarcity and its impacts on sustainable development in Awash basin, Ethiopia' (2015) 1 Sustainable Water Resources Management 71, 72; see also Kansal ML and others, 'Challenges of Sustainable Development and Management of Water Resources in Ethiopia', World Environmental & Water Resources Congress (2014).

is also pursued to a limited extent as there are attempts by the Ethiopian government to enact and practice water abstraction charges yet under the continuum of state dominated hydraulic paradigm for the development of water resources.[71] While the development of dams for the supply of electricity, irrigation and domestic water use reveals the concerted hydraulic mission of the government, it is not clear how the treatment of water as an economic good solves the problem of increasing demand of water by assigning its economic value to further induce reallocation of water resources.

In summary, the treatment of water as an economic good withered the thinking of water as free public good supplied by the state or accessible to users who can afford to pay water abstracted from common pool water resources by introducing water economics that underpins the instrumental role of making the rational choices about the development, conservation and allocation of water resources.[72] Therefore, the treatment of water as an economic good sets a high bar in the bid to address the escalating demand for the competing use of water resources creating options for the possible development of a market for re-allocation of water to be put to its efficient use. These ideals and principles of water as an economic good are further implemented through commercialization, privatization of water supply services as a means to address the problem of water resource allocation as succinctly discussed under the following sections.

1.3.2. Commercialization of water services

The adoption of commercialization represents the institutionalization of water as an economic good as the 'best response to the increasing scarcity' of water.[73] Its major goal relates to reforming the performance of resource management organizations by improving their efficiency 'in line with the commercial principles'.[74] In the Ethiopian context,

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71 Mike Muller, 'The 'nexus' as a step back towards a more coherent water resource management paradigm' (2015) 8(1) Water Alternatives 675, 684; Karen J Bakker, 'A political ecology of water privatization' (2003) 70(1) Studies in Political Economy 35, 40.

72 Savenije and van der Zaag (n 67) 103.

73 Karen Bakker, 'The "Commons" versus the "Commodity": Alter-globalization, Anti-privatization and the Human Right to Water in the Global South (2007)' in Pete Newell and J. Timmons Roberts (eds), *The Globalization and Environment Reader* (John Wiley & Sons, Ltd 2017) 187.

74 Karen Bakker, 'The business of water: Market environmentalism in the water sector' (2014) 39 Annual Review of Environment and Resources 469, 475.

commercialization was adopted to improve the performance of public water utilities and water boards to conduct as a commercial entities based business-driven model to efficiently manage public water utilities by collecting water service fees as an aspect of cost recovery.[75] This is particularly the case in WASH programs designed to meet the objectives of SDGs 'access to clean water and adequate sanitation service for all' that are in most cases funded by international financial institutions and development partners who require borrowing countries to introduce cost recovery principle.[76] Hence, commercialization in the water sector ultimately aims to gradually channel or shift public water utilities into commercially viable water business entities by changing the behaviours of water user 'citizens' into commercial 'customers'.[77]

1.3.3. Privatization in water sector

The proposition of privatization as a solution is facilitated by the transformative role of commercialization practice as enabler of 'the primacy of economic rationale and its economic institutions into the water sector to guide effective distribution'.[78] Hence, privatization in water pushes the horizon of solutions to a different level from mere 'distribution with the organization of delivering water' to the 'reorganization of water allocation' with a private right to allocate and manage water.[79] It is also noted that privatization may not necessarily entail 'full private sector control' given the 'extent of marketization in water sector' and the degree of government grip in water resource allocation.[80] Privatization may however actually create a situation where the right to determine 'who has access to water and for which use', is no longer the exclusive domain of

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75 Harold Lockwood, 'Sustaining rural water: A comparative study of maintenance models for community-managed schemes' (International Rescue Committee (IRC Ethiopia) 2019); see also World Bank, 'Federal Democratic Republic of Ethiopia Water Supply, Sanitation and Hygiene Project Implementation Completion and Results Report' (World Bank, March 2022). <https://documents1.worldbank.org/curated/en/692331647611632779/pdf/Ethiopia-Water-Supply-Sanitation-and-Hygiene-Project.pdf> accessed 20 February 2023

76 See World Bank, 'Federal Democratic Republic of Ethiopia Water Supply, Sanitation and Hygiene Project Implementation Completion and Results Report' (World Bank, March 2022). <https://documents1.worldbank.org/curated/en/692331647611632779/pdf/Ethiopia-Water-Supply-Sanitation-and-Hygiene-Project.pdf> accessed 20 February 2021

77 Bakker (n 74) 481.

78 Ahlers (n 12) 219.

79 ibid 220.

80 Ahlers (n 12) 219; see also Karen Bakker, 'From state to market?: water mercantilización in Spain' (2002) 34(5) Environment and planning A 767, 769.

the public sector'.[81] Despite the degree of private or public control, privatization in the water sectors of countries such as Mexico, Chile and South Africa, just to mention few, has been promoted as a solution to alleviate government's financial constraints and public service inefficiency by the WB and other international financial institutions (see Chapters 3—4). Through a series of structural adjustment policies (SAPs) designed to open up national economies to the global market, the World Bank became the primary global financial powerhouse to lure and force many developing countries to reform their policy and law to enable private sector involvement in all sectors of the economy including water.[82] Like many least developed countries, Ethiopia is no different and also witnessed the muscle flexing financial prowess of these international financial institutions to commit the water resource policy and legal reforms as required under their loan packages.[83]

However, the solution of privatization presents a more serious contentious approach to the problem of water resource allocation since it is vehemently opposed as a neoliberal encroachment of capital accumulation to the most vital public resources by altering the ownership or property rights structures.[84] The kernel of the argument is that water is far too important to the well-being of humans to be treated solely as an economic good with serious repercussions on the equitable allocation of water resources.[85] There are two counter arguments to this argument.

Firstly, it is counter-argued that there is ample evidence that shows the public allocation of water is fraught with enormous allocation problems of inequities affecting the poor and

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81 Ahlers (n 12) 219.

82 Andres Olleta, 'The World Bank's Influence on Water Privatisation in Argentina' IELRC Working Paper 2007-02 (Geneva: International Environmental Law Research Centre 2007); Leila M Harris and María Cecilia Roa-García, 'Recent waves of water governance: Constitutional reform and resistance to neoliberalization in Latin America (1990–2012)' (2013) 50 Geoforum 20.

83 Eva Ludi and others, 'Ethiopia's water resources, policies, and institutions' in Roger Calow, Eva Ludi and Josephine Tucker (eds), *Achieving Water Security: Lessons from research in water supply, sanitation and hygiene in Ethiopia* (Overseas Development Institute 2013); World Bank, 'Ethiopia: Managing Water Resources to Maximize Sustainable Growth: A World Bank Water Resources Assistance Strategy for Ethiopia' (World Bank 2006).

84 Karen Bakker, The 'Commons' Versus the 'Commodity': Alter-globalization, Anti- privatization, and the Human Right to Water in the Global South' (2007) 39(3) Antipode 430.

85 Khulekani Moyo, 'Privatisation of the commons: Water as a right; Water as a commodity' (2011) 22(3) Stellenbosch Law Review 804, 822.

vulnerable communities.[86] The poorer members of the urban communities resort to expensive water supply services from tanker trucks in the informal water market because of the problems of the inadequate and inefficient public water supply services.[87] Besides, the affluent sections of the community may afford to have piped water underground or abstract surface water by own tanker trucks only at a low water charge or tariffs.[88]

Secondly, the argument that treating water as economic with tradable private water rights is problematic to the realization of water as human rights is criticized because of its narrow conceptualization 'which focuses specifically on questions related to access to water for domestic purposes'.[89]It is argued that water rights as human rights 'only makes a difference if it affects how water users and governments regulate access to water.'[90] FAO, for instance, contends that 'the human right to water is a relationship with water in the abstract, rather than a relationship with water as a resource.'[91] It is contended that 'the human right to water does not articulate a claim over particular water resources such as over water contained in a specific river or stream.' Rather, the nature of a human right is that everyone enjoys water right simply by being human.[92] Water rights with security of property rights 'has the potential to play an important role in ensuring the realization of the human right to water' in the sense that water rights holders are legally protected from interference.[93] From this perspective, the obligation of the state is not only limited to the obligation to provide access to water but also to ensure that such water right holder is protected against violations through the acts of infringements. Hence, this dissertation is limited to property rights aspects of water rights and human rights discussion is only assessed to the extent it equally or relatively promotes

86 Paul Holden and Mateen Thobani, 'Tradable Water Rights: A property rights approach to resolving water shortages and promoting investment' Policy Research Working Paper No 1627 (1996) 4.

87 Ibid; Rhett B Larson, 'The New Right in Water' (2013). 70(4) Washington and Lee Law Review 2181, 2201-02.

88 Stephen Hodgson, 'Exploring the concept of water tenure, FAO Land and Water Discussion Paper *10* (2016) 12.

89 ibid xii.

90 ibid 11.

91 Ibid; Bruce Pardy, 'The Dark Irony of International Water Rights' (2011) 28 Pace Environmental Law Review 907.

92 Stephen Hodgson, 'Land and Water – the Rights Interface' FAO Legislative Study No 84 (2004) 11.

93 Imad Antoine Ibrahim, 'Water as a human right, water as a commodity: can SDG6 be a compromise?' (2022) 26 (3) The International Journal of Human Rights 469, 477-78.

the right to access water resources and its protection from interference in the border context of water resources allocation.

1.3.4. Water property rights and tradable water rights

The recognition of water as an economic good and its institutionalization through commercialization and privatization has made the creation of property rights in water inevitable. Recognition of privatization in the water sector inevitably requires the state to concede at least some of its public water allocation rights giving rise to private water allocation rights to be established.[94] In return, private water allocation rights further induce the promotion of market mechanisms as a means to reallocate some or all of water under the control of the private person to high value uses.[95] The WB and other regional financial institutions providing loans to developing countries attach conditions of property rights recognition to protect and secure the economic interest of private sector investment in the water sector.[96]

In line with the above imperatives, there is a growing body of literature that provides evidence and experiences showing examples of creation of different degrees of water property rights to facilitate enabling conditions for the emergence of tradable rights.[97] For instance, the development of water property rights in countries such as United States of America, Chile, Australia, China and South Africa is extensively studied and rich in experiences that can be helpful to learn lessons on how to approach the role of property rights in the creation of tradable water rights as a means to facilitate water market for the allocation of water resource to meet social and economic objectives.[98] The most recent and

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94 Karen Bakker (n 74) 483; Matthew S Tisdale, 'The price of thirst: The trend towards the privatization of water and its effect on private water rights' (2004) 37 Suffolk University Law Review 535

95 Stephen E Draper, 'Limits to water privatization' (2008)134 (6) Journal of Water Resources Planning and Management 493, 494.

96 Sylvia Cesar, 'Privatization of water: Evaluating its performance in the developing world' (2019) 90 (1) Annals of Public and Cooperative Economics 5; Slim Zekri and K William Easter, 'Water reforms in developing countries: management transfers, private operators and water markets' (2007) 9(6) Water Policy 573.

97 Formal Water Markets: Why, When, and How to Introduce Tradable Water Rights' (1997) 12(2) The World Bank Research Observer 166-167.

98 Bill Provencher and Oscar Burt, 'A Private Property Rights Regime for the Commons: The Case for Groundwater' (1994) 76(4) American Journal of Agricultural Economics 875; Kurt Schwabe and others, 'Water Markets in the Western United States: Trends and Opportunities' (2020) 12(1) *Water* 14; Thomas

wider scholarly contribution to the understanding of water property rights is made by Hilmer J Bosch, who in his PhD dissertation extensively dealt with the evolution of property rights in water and its impact on water resource allocation and reallocation through a content analysis of 60 countries laws, regulations and policies.[99] Though this study is limited to a non-legal background perspective, it provides an extensive analysis and account of water property rights features limited to state-investor contracts to show its implication on water resource allocation.[100]

In the context of Ethiopia, a PhD dissertation by Mulugeta Mengist assesses the regulatory frameworks of urban water supply in Ethiopia and Kenya focusing on the case studies of small scale and independent water providers from socio-legal perspectives.[101] In this study, Mulugeta argues that informal small scale, independent and private water providers in the urban setting should be regulated to ensure the safety and affordability of water supplies.[102] He recommends for a 'light-handed regulation consolidating and simplifying the existing licensing system of water abstraction and supply' as a requisite 'for those independent providers having their own source of water, wells and boreholes.'[103] However, though the dissertation provides a compelling insight into how the informal market for urban water supply in the private sector is evolving indicating the need for regulatory frameworks, the legal status of water abstraction rights as property rights as a condition to functionally tie an informal water market is not addressed.

In the context of irrigation water rights, Andrea Bues unveils how acquiring land rights for investment purposes affects the institutional arrangement for water management and the

C. Brown, 'Trends in water market activity and price in the western United States' (2006) 42 (9) Water Resources Research 1; RM Armitage and others, 'Establishing tradable water rights: case studies of two irrigation districts in South Africa' (1999) 25 Water SA-Pretoria 301; WL Nieuwoudt, and R M Armitage, 'Water market transfers in South Africa: Two case studies' (2004) 40(9) Water Resources Research W09S05; Min Jiang, *Towards Tradable Water Rights Water Law and Policy Reform in China* (Springer 2018) 109; Yahua Wang, *Assessing Water Rights in China* (Springer 2018) 177.

99 Hilmer J Bosch Evolving property rights in water and their impact on water allocation and reallocation (PhD Thesis, Universiteit van Amsterdam 2023).

100 ibid 52.

101 Mulugeta M Ayalew, 'Regulation of Urban Water Supply: The Case of Small-scale and Independent Providers in Ethiopia and Kenya' (PhD Dissertation, University of Surrey 2011).

102 ibid iii.

103 ibid 27.

lack of inadequate attention to the local water situation.[104] This study creates an insight into how 'access, withdrawal, management, exclusion and alienation rights' in irrigation water use depends on land tenure rights rather than as a transferable right to the investors as a separate usufruct water right. This author further found out how the distribution of available water resources was re-negotiated between previous and 'new' resource users resulting in a shift of water rights from domestic to foreign actors.[105] Likewise, Wondwosen also links land grabbing to the act of water grabbing in his assessment of agricultural investment in the Gambella regional state. After reviewing different forms of 'land investment deal contracts' in Ethiopia, the author found out that 'water is either vaguely mentioned or is implicitly given out to leasers together with the land'.[106] Beatrice Mosello and others also identified that 'the system of issuing water permits that regulate 'who gets what, when and how' remains very limited in scope at basin level, and tends to cover irrigation users only'.[107] The authors argue that traditional water rights systems also exist and dominate allocation choices in some areas without recognition in the formal allocation system.[108]

Finally, this work builds on these scholarly works to advance legal scholarship in water property law from perspectives of law and property rights economics to contribute to the lack or limited understanding on the interrelationships between economic good and tradable water property rights within the frameworks of water resources property rights theories and conceptualizations. Based on the above literature review, the following section 1.3 briefly discusses the relevance of this dissertation by articulating two important knowledge gaps in the current body of water property legal scholarship.

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104 Andrea Bues and Insa Theesfeld, 'Water grabbing and the role of power: Shifting water governance in the light of agricultural foreign direct investment' (2012) 5(2) *Water Alternatives*; Andrea Bues, Agricultural Foreign Direct Investment and Water Rights: An Institutional Analysis from Ethiopia' Conference Paper (25 Feb 2011). <https://www.future-agricultures.org/wp-content/uploads/pdf-archive/Andrea_Bues.pdf>; accessed on 12 January 2022.

105 ibid

106 Wondwosen Michago Seide, 'Lease the Land but Use the Water: The case of Gambella, Ethiopia' in Emil Sandstrom, Andres Jagerskog, and Terje Oestigaard (eds), *Land and Hydropolitics in the Nile River Basin: Challenges and New Investments* (Routledge 2019).

107 Beatrice Mosello and others, 'Building adaptive water resources management in Ethiopia' (Overseas Development Institute 2015) 55.

108 ibid

1.4. Identifying scholarly gaps in knowledge

1.4.1. Defining the problems in perspectives

As can be noticeable from the preceding discussions, the existing body of literature on the examination of water resource allocation can be categorized into two major areas. The first body of literature relates to policy studies and research reports of the WB and similar other international and regional financial institutions and sponsored 'promoters' such as the Global Water Partnership (GWP) and non-governmental organizations (NGOs).[109] The second body of literature relates to academic scholarly works published in peer-viewed and reputed journals and book publishing press. The body of literature in this category generally covers country specific and comparative works that aims to understand specific approaches or combinations of approaches designed to address problems of water resources allocation. Founded upon the review of these categories of literature, the following two gaps in knowledge have been identified.

The first gap in knowledge relates to gaps in clarity of understanding how the recognition of 'water as an economic good' transpired into private water allocation rights viewed through the lens of property rights theories. The international community as espoused under the Dublin Principle recognized water as an economic good with economic value assigned for all its competing use directly implicating the need to 'value water' to address the problem of water scarcity and the need to efficiently allocate it. The existing body of knowledge grapples with the daunting task of discussing water pricing policies to allocate water resources as economic instruments to efficiently allocate water resources in the context of public water resources allocation system without relating it to how such policies help in the initialization of private water property rights.[110]

The second gap relates to the lack of clear understanding on whether the treatment of water as an economic good entails the status of water as a tradable commodity or good/product

[109] Michael Goldman, 'How "Water for All!" policy became hegemonic: The power of the World Bank and its transnational policy networks' (2007) 38 (5) Geoforum 786.

[110] Ariel Dinar and Ashok Subramanian, Policy implications from water pricing experiences in various countries' (1998) (1(2) Water Policy 239; Arjan Ruijs, Alexandra Zimmermann, and Marrit van den Berg, 'Demand and distributional effects of water pricing policies' (2008) 66 (2-3) Ecological Economics 506.

susceptible to national or cross-border trade in water.[111] While the first type of lack of understanding is also common in many developing and least developed countries alike, the second gap in knowledge identified specifically relates to the context of Ethiopia: lack of understanding on how treating water as economic good ensures efficient allocation and reallocation of water resources by involving private sector without declaring private water use rights as tradable property rights. As shown below and discussed in-depth in Chapter 6, there are ample comparative examples on the discussions of water property rights. But, as far as the existing body of literature is concerned, there is no single scholarly work in Ethiopia that attempted to assess the nexus between water as economic good and public water resources allocation under water use permit to determine the status of water allocation rights as property right both alone and in a comparative perspectives. The following sub-section discusses the two gaps identified in brief to create a clarity of thought through the dissertation.

1.4.2. Water as an 'economic good' and water resource allocation

As discussed under Section 1.2.3, the treatment of water as an economic good is a catch-all phrase intended to describe a broad range of water resource allocation issues with lack of clear understanding in terms of its possible application in the real worlds of property rights based water resources allocation. As indicated under section 1.3, the perceived solutions to the complex problem of public water allocation failure is dominated by studies of the WB and similar other regional financial institutions and development partners that came in different forms and shapes dressed in neoliberal rationale that argues public sector lacks the necessary incentives to allocate water efficiently—i.e., to their highest market value.[112]

Based on the logic entrenched in this rationale, many research reports and working papers, directly sourced to the WB and Global Water Partnership repositories, have populated the citations of the existing body of literature speaking almost similar solutions to the water

[111] Howard Chong and David Sunding, 'Water Markets and Trading' (2006) 31 Annual Review of Environmental Resources 239, 242.

[112] Ahlers (n 12) 219; Peter Rogers, Radhika De Silva and Ramesh Bhatia, 'Water is an economic good: How to use prices to promote equity, efficiency, and sustainability' (2002) 4(1) Water policy 1.

allocation problems.[113] The findings of these research reports advise developing and least developed countries, who are the major targets of these global institutions as their financial consumers, to restructure the regimes of existing public water resource property rights to enable or create rooms for the private sector to manage and allocate water resources as secured and protected property rights.[114]

Though the 1992 Dublin Conference on Water and Environment is silent on whether the treatment of water as economic good implicates that status of water as property rights, the research reports conducted by WB water experts capitalizes on the bank's 1993 water resource policy that outlines the treatment of water as an economic good is interpreted to also involve property rights to facilitate allocation of water through market mechanisms.[115]Along such imperatives, studies also show how developing countries are also required to reform their domestic water law and policy space to create an enabling normative environment for private investment in water supply services.[116]From the Latin American countries, Mexico and Chile represent the global model for transforming the treatment of water as an economic good into the subject of property rights under the different schemes of WB's loan conditionalities.[117] In the continent of Africa, the WB and IMF also influenced countries like South Africa, Tanzania and Ghana to promote water as an economic good with cost recovery and privatization to be embedded in their water policy.[118]

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113 Edouard Fromageau, 'The Global Water Partnership: Between Institutional Flexibility and Legal Legitimacy' (2011) 8(2) International Organizations Law Review 367.

114 George Keith Pitman, 'Bridging Troubled Waters: Assessing the World Bank Water Resources Strategy' (The World Bank 2002) 25; Paul Holden and Mateen Thobani, 'Tradable water rights: A property rights approach to resolving water shortages and promoting investment (World Bank 1996).

115 H Bjornlund and J Mckay, 'Aspects of water markets for developing countries: experiences from Australia, Chile and the US' (2002) 7 Environment and Development Economics 768-769.

116 Julien Chaisse and Marine Polo, 'Globalization of Water Privatization: Ramifications of Investor-State Disputes in the "Blue Gold" Economy' (2015) 38 Boston College International & Comparative Law Review 1–2; Andrés.Olleta, 'The role of the World Bank in water law reforms' in Philippe Cullet and others (eds), *Water Law for the Twenty-First Century* (Routledge 2009) 101-126.

117 R Martinez-Lagunes and J Rodŕiguez-Tirado, Water policies in Mexico' (1998)1(1) Water policy 103; Greig Charnock, 'Improving the mechanisms of global governance? The ideational impact of the World Bank on the national reform agenda in Mexico' (2006) 11(1) New Political Economy 73; Patricia Romero Lankao, 'Missing the multiple dimensions of water? Neoliberal modernization in Mexico City and Buenos Aires' (2011) 30 (4) Policy and Society 267; Manuel Prieto, María Christina Fragkou, and Matías Calderón, 'Water policy and management in Chile' in Patricia A. Maurice (eds), Encyclopedia of Water: Science, Technology, and Society (John Wiley & Sons 2019) 2.

118 See Goldman (n 109); Kighoma A Malima, 'The IMF and World Bank Conditionality: Tanzanian Case' (1985) 10 (1-2) Africa Development /Afrique et Développement/ 285; Muhumed Mohamed Muhumedand Sayid Aden Gaas, 'The World Bank and IMF in Developing Countries: Helping or Hindering?' (2016) 28 (4)

The situation in Ethiopia is similar in terms of adopting WBs water policy imperatives of treating water as an economic good without any mention of its private property rights implications except for declaring water resources as public or state property under the Water Resource Management Policy.[119] The scholarly works and WB studies in Ethiopian water resource allocation and development focus mainly on the social aspects of public water supply services to ensure access to adequate and safe drinking water supply and sanitation with emphasis on partial or full cost recovery policy as a manifestation of treating water as an economic good.[120] Legal research in this area also focuses mainly on the discussions of water as human rights by emphasizing on the constitutional and human rights obligation of the government to prioritize and realize access to safe drinking water for basic human needs.[121]

Likewise, irrigation water use is the most extensively studied field of water allocation in Ethiopia mainly focusing on the case study of Awash River Basin (ARB). These studies generally examine problems of water pricing implementation and water use inefficiency and competition among water users due to unmet demands of water in the basin.[122] Some

International Journal of African and Asian Studies 237; Jaqui Goldin and Deusdedit Kibassa, 'Past, present and future landscapes of water policy in Tanzania' in Dave Huitema, Sander Meijerink (eds), Water policy entrepreneurs: a research companion to water transitions around the globe (Edward Elgar 2009) 215; Magalie Bourblanc, 'State transformation and policy networks: the challenging implementation of new water policy paradigms in post-Apartheid South Africa' (2017) 10(2) Water Alternatives 303.

119 Jetu Edosa Chewaka, 'The Economic Regulation of Water Supply in Ethiopia: a Review of Constitutional and Legal Bases' (2021) 27 (3) Journal of Water Law 103; Tesfaye Tafesse, 'A Review of Ethiopia's Water Sector Policy, Strategy and Program' in Taye Assefa (ed), *Digest of Ethiopia's National Policies, Strategies and Programs* (Forum of Social Studies 2008) 313; Awol Kedir Jewaro and Ibrahim Diler, 'The State of Water Management in Ethiopia: Problems and Solution Approaches' (2021) 17(4) Acta Aquatica Turcica 556.

120 Ayalneh Bogale and Berhanu Urgessa, 'Households' willingness to pay for improved rural water service provision: application of contingent valuation method in Eastern Ethiopia' (2012) 38 (2) Journal of Human Ecology 145; Sam Kayaga and others, 'Towards sustainable urban water services in developing countries: tariffs based on willingness-to-pay studies' (2018) 15 (10) Urban Water Journal 974.

121 Zbelo Haileselassie Embaye and Achamyeleh Gashu Adam, 'Prioritization of Water Use Rights in Ethiopia: Exploring the Perspectives and Practices in the Governance of Awash River Basin' (2022) 16 (1) Mizan Law Review 95; Zbelo Haileslassie Embaye, 'The Quest for Standard Tests in Prioritizing Water Use Rights in Ethiopia: Reasonable Use, Beneficial Use or 'Beyond'' (2016) 10(1) Mizan Law Review 177; Abiy Chelkeba Worku, 'Human rights approach to water in the Ethiopian context: legal and policy assessments and challenges' (2017) 6 Haramaya Law Review 1; Helen Derbew Adane, 'Reflecting on the Right to Water in Ethiopia with a Special Reference to Water Resources Development and Abstraction in the Central Rift Valley of Ethiopia (MS thesis, University of Oslo 2014)

122 Amare Haileslassie and others, 'Institutions for irrigation water management in Ethiopia: Assessing diversity and service delivery' (International Livestock Research Institute (ILRI) 2016); Daniel G Eshete,

studies examined how the current irrigation water use fee (3 Birr per 1000m3) is too low to encourage water users to reflect water price in their yearly irrigation water demand, irrigation scheduling, water application rate, crop selection and so on 'to improve water productivity'.[123] This research particularly reveals how the 'absence of maximum water abstraction limit for users' affects lower riparian users to 'face water shortage problems during high irrigation demand seasons in the middle Awash'.[124] Other studies advise the government to undertake a 'strategic exploitation of additional water supplies and a paradigm reformation of policy of the basin management' to promote sustainable use of water resources and improve the water shortage.[125]

As shown above, none of the literature reviewed attempts to understand whether treating water as an economic good implicates efficient allocation of water resources in Ethiopia. This shows lack of clarity on the nexus between the recognition of water as an economic good and efficiency in the reallocation of water resources to solve the problems of scarcity and unmet demand through the recognition of property rights in water. Therefore, the review of literature in this regard exposes how the ideals of treating water as an economic good, cost recovery and privatization remain on the policy papers without meaningful practical application on whether water as an economic good is 'capable of being the subject matter of property right'.[126] Hence, despite the treatment of water as an economic good, the status of water as a valuable good/product subject to market allocation is still unfinished business since countries are still reluctant to expose their freshwater resources to the vagaries of regional or international trade agreements on goods and services.[127]

Berhanu G Sinshaw, and Kassaye G Legese, 'Critical review on improving irrigation water use efficiency: Advances, challenges, and opportunities in the Ethiopia context' (2020) 3 Water-Energy Nexus 143.

123 Gebremeskel Teklay and Mekonen Ayana, 'Evaluation of irrigation water pricing systems on water productivity in Awash River basin, Ethiopia' (2014) 4(7) Journal of Environment and Earth Science 70.

124 ibid 75.

125 Mohammed Gedefaw and others, 'Water resources allocation systems under irrigation expansion and climate change scenario in Awash River Basin of Ethiopia' (2019) 11(10) Water 1966.

126 Simon Douglas and Ben McFarlane, 'Defining property rights' in James Penner and Henry E Smith (eds), *Philosophical Foundations of Property Law* (Oxford University Press 2013) 234.

127 Scott Philip Little, 'Canada's Capacity to Control the Flow: Water Export and the North American Free Trade Agreement' (1996) 8 Pace International Law Review 127; Milos Barutciski, Trade Regulation of Fresh Water Exports: The Phantom Menace Revisited' (2002) 28 Canada-United States Law Journal 145.

1.4.3. **Tradability of water property rights?**

The importance of creating private property rights as a means to avoid the 'tragedy of the commons' is widely examined in the context of common pool water resources.[128] In order to overcome the tragedies of overexploitation and unwise use of common pool water resources it is advised the establishment of well-defined property rights to enable private persons or the state to have the incentives and authority to enjoy the fruits of the resources in an efficient and sustainable manner.[129] It is widely argued that introducing well-defined private property rights in water 'internalizes the costs of overexploitation to the resource owner, thereby creating an incentive to preserve the resource'.[130] However, the nature of water as property rights on the one hand and as tradable property rights on the other hand is loosely understood in the literature in the following manner.

Firstly, owing to its physical characteristics, there is contentious debate on whether water is capable of being the subject of property rights.[131]For this reason, the majority of countries around the world are still directly or indirectly forced to treat water resources as public property in which governments take responsibility to manage and allocate water for public or private use.[132] The scholarly work in this regard is divided into public-private property rights dichotomy creating two water policy trajectories in the allocation of water leaving few rooms for possibilities to accommodate both as mutually reinforcing water property rights regimes complementing rather than competing with each other to achieve the common

[128] Gary D Libecap, 'The tragedy of the commons: property rights and markets as solutions to resource and environmental problems' (2009) 53 (1) Australian Journal of Agricultural and Resource Economics 129; Elias N Stebek, 'Conceptual Foundations of Property Rights: Rethinking De Facto Rural Open Access to Common-Pool Resources in Ethiopia' 2011) 5(1) Mizan Law Review 1, 40.

[129] Bryan Druzin, 'The drip, drip of depletion: Solving the tragedy of the commons in global water usage' in Julien Chaisse (ed), *The Regulation of the Global Water Services Market* (Cambridge University Press 2017) 248.

[130] Hilmer J Bosch, Joyeeta Gupta and Hebe Verrest, 'A water property right inventory of 60 countries' Review of European (2021) 30(2) Comparative & International Environmental Law 263; Hilmer J Bosch and Joyeeta Gupta, 'Water property rights in investor-state contracts on extractive activities, affects water governance: An empirical assessment of 80 contracts in Africa and Asia' (2022) 31 (2) Review of European, Comparative & International Environmental Law 295.

[131] Sandra B Zellmer and Jessica Harder, 'Unbundling property in water' (2007) 59(3) Alabama Law Review 679.

[132] Lynda L Butler, 'Environmental Water Rights: An Evolving Concept of Public Property' (1990) 9(2) Virginia Environmental Law Journal 323, 333.

objectives of efficient and optimal allocation of water.[133] For this reason, a careful investigation and testing of the legal status of water as a property rights under the Ethiopian water law within the wider comparative perspectives plays a significant role to understand whether presence or absence of property rights affects water resource allocation and optimal use to 'foster stewardship and wise investment of labour and capital'.[134]

Secondly, in the absence of water acquiring the status of property like a 'thing' or good over which property rights can be exercisable, its status as a tradable good or property may prove difficult if not impossible. Even when water is recognized as limited property rights with attenuated characteristics such as the right to use and enjoy its fruit, its tradable status or nature is not a warrantable since 'not all economic relationships give rise to property rights' that can be alienable at the same time.[135] Therefore, addressing this concern is also pivotal in the understanding of the tradability of water property rights within the bundles of property rights theory without necessarily looking for the troubles of arguing for the complete control of private property rights in the allocation of vital water resources.

1.5. Research question, scope and limitations

1.5.1. Main research question and sub-questions

This dissertation examines tradability of water abstraction property rights in Ethiopia in light of comparative legal perspectives as a means to efficiently allocate and exploit water resources through the following main question:

How are water abstraction rights recognized under the water use permit system in Ethiopia normatively structured when compared to selected comparative countries? Does it create tradable water property rights as intended consequences of treating 'water as an economic good' for efficient allocation and exploitation of water resources?

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133 Sarah Ann Wheeler, 'Debunking Murray-Darling Basin water trade myths' (2022) 66 (4) Australian Journal of Agricultural and Resource Economics 797, 803; Shelley Ross Saxer, 'The fluid nature of property rights in water' (2010) 21 Duke Environmental Law and Policy Forum 49, 53; Ayele Hegena Anabo, 'The myth of 'Tragedy of the Commons' in sustaining water resources' (2013) 7(2) Mizan Law Review 309, 330-331.

134 Zellmer and Harder (n 131) 682.

135 ibid 702.

The main question will be answered through the following sub-questions and are designed to specifically address the knowledge gaps identified under Section 1.3.

— What theoretical explanations could be provided for the conceptualizations of water as capable of being the subject of property rights? (Chapters 2, 6 and 7)
— How does the recognition of 'water as an economic good' under global and continental water policy and legal frameworks promote efficient allocation of water resources, and how does Ethiopia apply it under its water policy and law? [Chapters 3 & 4]
— How are different forms of private water abstraction rights under water use permit in Ethiopia structured, and what are their implications for allocation of water resources? (Chapter 5)
— How are the attributes of water abstraction rights normatively structured under water use permit in Ethiopia and selected comparative legal jurisdictions to confer tradable water property rights on users, and what are its policy implications for efficient allocation and exploitation of water resources? (Chapter 6—9).

1.5.2. Scope and limitations

Although this dissertation points to a broader problem in water resource management policy and law more generally, it is not intended, and does not claim, to present solutions or findings that can be generalized without further assessment or investigation of water market readiness in Ethiopia in general and in ARB in particular. However, the normative operationalization of terms and concepts about economic good, water rights, property rights and tradable water property rights makes this dissertation to be strong foundations for further empirical research to determine whether recognizing water abstraction rights under water use permit confers property rights in water as an instrument to facilitate or undermine the implementation of efficient allocation and utilizations of water resources. Hence, three major limitations are identified as follows.

Firstly, the substantive discussions of this dissertation are limited to the investigation of the normative interpretations of the nexus between the recognition of water as an economic good or commodity and property rights under the UN system, European Union (EU), WB and AfrDB water policy and strategic frameworks as an instrument of efficient water resources

allocation in the context of inland water resources. It is also limited to the investigation of property rights literature on natural water resources as it relates to property rights terms, concepts and theories and to the extent it informs normative discussions on water policy, water resource related legislations, investment law and commercial law pertaining to investment and trade activities in the water sector.

The dissertation relies on an in-depth review of literature, theoretical and empirical studies, from the field of environmental and water resource management and water resources economics, law and economics of property rights to the extent it informs the normative analysis of water resource policy and law under discussions. As such, as the dissertation relies on comparative legal research dominantly based on doctrinal legal analysis, the dissertation suffers the limitations of understanding on some discipline specific interpretations of water resource allocation. For this reason, a key-informant interview has been conducted with responsible water resource management experts to complement some of these concerns as it pertains to the discussion in the contexts of Ethiopia. However, as the dissertation is not about the investigation of informal water markets and water property rights implementation, it does not claim to be an empirical or socio-legal study.

Secondly, comparative legal analysis of the dissertation is limited to the comparison of four selected countries limited to the substantive discussions pointed earlier and based on their respective water laws that are in force. However, for non-English water laws such as the Water Code of Chile and the Water Law of China the un-official versions of English translations are used with specific corresponding reference to scholarly studies of native speakers of these two languages.

Thirdly, this dissertation is not a discursive study designed to present extensive debates on human rights to water, water privatization or commodification to advance arguments for or against taking positions on whether the creation of property rights in water should promote or undermine these issues. But to argue that the answers to the debate are there to be found in water law and other relevant normative documents regulating property rights in water resources with aims to achieve the social and economic objectives of efficient allocation and optimal use of water resources.

1.6. Research methodology

This dissertation uses a comparative legal research approach to answer the core research question and sub-questions. This section sets out the methodological approaches for comparative legal research under five subsections. Section 1.6.1 outlines the methods of comparative legal research. Section 1.6.2 defines and identifies conceptual property rights comparative frameworks. However, given that these conceptual frameworks require further systematic conceptual orientation, the detailed discussion is provided under Chapter 2. Section 1.6.3 outlines justifications for selecting comparative countries. Section 1.6.4 discusses the methods of data collection, analysis and interpretations. The final Section 1.6.5 outlines research ethics and Positionality Statement.

1.6.1. Methodological approach

Despite extensive criticism, 'functional method of comparative law 'continues to appear the mainstream methodological approach in comparative legal research'[136]as a response to find legal solutions to certain universal problems.[137]

The objective of adopting comparative method of legal research in this dissertation is that comparative law from a functional perspective, may help to improve or trigger reform to the Ethiopian water policy and law. It can assist to understand how legal approaches or choices to solve the problems of water resources allocation adopted under the water laws of two or more countries proves effectiveness to achieve legal certainty or predictability in addressing similar problems.[138] Koen Lemmens notes that specifying and explaining 'methodological choices in comparative legal research can be considered as 'methodological best practice' since it assists the readers to better fathom researcher's underpinning epistemological assumptions or 'frame of reference'.[139] He argues that while the 'methodological

[136] Wolfgang Faber, 'Functional method of comparative law and argumentation analysis in the field of transfers of movables: Can they contribute to each other?' (2013) 2 European Property Law Journal 23.

[137] Julie De Coninck, 'The Functional Method of Comparative Law: "Quo Vadis"?' (2010) The Rabel Journal of Comparative and International Private Law 338.

[138] Marie-Luce Paris. 'The comparative method in legal research: the art of justifying choices' in Cahillane, L and Schweppe J (eds) *Legal Research Methods: Principles and Practicalities* (Clarus Press 2016).

[139] Koen Lemmens, 'Comparative law as an act of modesty: a pragmatic and realistic approach to comparative legal scholarship' in Maurice Adams and Jacco Bomhoff (eds.), *Practice and Theory in Comparative Law* (Cambridge University Press 2012) 314.

frameworks' may nonetheless be contested, illustrating the conceptual framework with clarity from the undertaking of the study itself, may be a creditable exercise.[140] Likewise, Oliver Brand contends that identifying and defining conceptual and theoretical frameworks helps 'to establish a standard for comparability'[141] to systematically guide the research while addressing the limits of functional approach in describing the functions of legal settings as a response to certain comparable problems.[142]

As discussed in Chapters 3 and 4, the 'problems' associated with the inefficient and unsustainable exploitation of scarce water resources has become a national and global problem that forced many countries around the world to adopt and adapt water policy that promote the allocation of water in socially and economically desirable ways. As such, the solution to this water allocation and utilization problem is set to champion this 'conceptual orientation' by articulating the treatment of water as an economic good to promote efficient allocation of scarce freshwater resources.[143] Yet since treating water as a commodity or an economic good is not enough by itself, the need to design and implement workable water markets in which water abstraction rights are tradable as property rights is further promoted as a desirable course of global and national water policy and law actions. In this context, 'conceptual orientation' assists a researcher 'to make an explicit and rational choices' to qualitatively analyze the legal frameworks of Ethiopia and comparative jurisdictions based on such identified and defined conceptual standards as a 'criterion for comparability' as a *tertium comparationis*.[144] Furthermore, he noted that 'systematic comparison' based on the formulated *tertium comparationis* as a common point of reference that establishes or defines common attributes that merit the comparability of the issues to be compared in the legal settings of comparative jurisdictions.[145]

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140 ibid

141 Oliver Brand, Conceptual Comparisons: Towards a Coherent Methodology of Comparative Legal Studies (2007) 32 Brooklyn Journal of International Law 438-439.

142 ibid

143 ibid

144 ibid; see also TP van Reenen, 'Major theoretical problems of modem comparative legal methodology (1): The nature and role of the tertium comparationis' (1995), 28 The Comparative and International Law Journal of Southern Africa 181.

145 Oliver Brand (n 141); Julie De Coninck (n 137) 324.

As discussed in Chapter 2, conceptual approaches and theoretical frameworks on water property rights were examined in detail to guide and inform the doctrinal legal analysis of the tradability of water abstraction rights. With the risk of repeating here, the property rights conceptualizations within law and economics approach upholds the instrumental role of law for creating enabling conditions for promoting efficient and sustainable allocation of water resources.[146] For Albert Sanchez, the research utility of normative concepts derived from the law and economics of property rights as it assists to 'incorporate economic insights into legal analysis and scholarship'[147] of scarce water resource allocation. He argues that an 'economically-informed legal research' provides a normative yardstick for critical analysis of how the legal rules 'ought to be designed, reformed, interpreted or enforced' to accomplish explicit objectives that are economically and 'socially desirable'.[148] For instance, in light of Albert's understanding, the normative dimension of the economic analysis of property law in natural water resources 'ultimately rests on the pursuit of economic efficiency as a proxy for the maximization of social welfare from' the continued exploitation of such resources.[149]

Despite the debate on the functionality of law as a tool or instrument to achieve economic efficiency, the fact that such conceptual orientation relies on the work of scholarly giants of economic and legal thought with a Nobel Prize winning ideas makes the economic analysis of law a methodologically significant choice as a tool to evaluate the effectiveness of a given legal setting in achieving the goal of efficiency—maximizing social and economic welfare.[150] Particularly, the economic analysis of property law in water resources rests on the concepts of property rights attributes that consist of different functionalities captured within the orientation of the bundle of rights.[151] As such, the attributes of the bundle of property rights

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146 W Douglass Shaw, Water Resource Economics and Policy: an Introduction (Edward Elgar Publishing 2005) 16; Svetozar Pejovich, *The Economics of Property Rights: Towards a Theory of Comparative Systems* (Kluwer Academic Publishers, 1990) 27-29; Dolores Reya and others, 'Role of economic instruments in water allocation reform: lessons from Europe' (2019) 35 International Journal of Water resources Development 211.

147 Sanchez G Albert, 'Economic analysis of law, or economically-informed legal research', in D. Watkins, & M. Burton (eds), *Research Methods in Law* (2nd edn. Routledge 2017) 171.

148 ibid

149 ibid.

150 ibid 172.

151 Kirsten Foss and Nicolai J Foss, 'Resources and Transaction Costs: How Property Rights Economics furthers the Resource-Based View' (2005) 26 Strategic Management Journal 541–542.

in water resources represent vital aggregation as a unit of analysis in evaluating the tradability of water abstraction rights in Ethiopia and comparative legal jurisdictions.

1.6.2. Defining comparative conceptual frameworks

The policy objectives of trade boils down to the idea of 'stimulating economic growth and improving social welfare' by facilitating the voluntary exchange of goods and services whereby scarce resources 'that are essential for commodity production' can be exploited and allocated in an efficient way.[152] The enabling normative conditions for the voluntary exchange of water as a tradable economic good depends on whether water abstraction rights exhibit the attributes of property rights whereby public ownership right to water can be fragmented into multiple characteristics that creates 'fragmented entitlements' serving the property functions.[153] The functionalities of the units of property rights attributes within the property rights of water resources facilitates the purpose of efficient allocation depending on the ability of the law to establish well-defined and robust attributes of property rights in water that enables tradability of water abstraction rights in the market or non-market place.[154]

The attributes of property rights discussed in Section 2.4 of Chapter 2 based on Anthony Scott's six characteristics of property rights as a 'conceptual orientation' to systematically examining the tradability of water abstraction rights in comparative legal perspectives.[155] These attributes or characteristics of tradable property rights includes: quality of title; durability; exclusivity; transferability, and enforceability.[156] The following table summarizes their major attributes.

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[152] Zhenci Xu and others, 'Impacts of international trade on global sustainable development' (2020) 3 Nature Sustainability 964; Peter Rogers and others, 'Water is an economic good: How to use prices to promote equity, efficiency, and sustainability' (2002) 4 Water Policy 2.

[153] Anthony Scott, 'Property Rights and Property Wrongs' (1983) 16 The Canadian Journal of Economics 557-578.

[154] Joshua Getzler, 'Theories of Property and Economic Development' (1996) 26 The Journal of Interdisciplinary History 639; Andrei Shleifer, 'Establishing property rights' (1994) 8 The World Bank Economic Review 93-117.

[155] John Sheehan, 'The Commodification of the Asian Commons: Water as a Property Right' (2005) 9 Asia Pacific Journal of Environmental Law 100; M W Rosegrant and H P Binswanger, 'Markets in tradable water rights: Potential for efficiency gains in developing country water resource allocation' (1994) 22 World development 1615.

[156] Anthony Scott & Georgina Coustalin, 'The Evolution of Water Rights' (1995) 35 (4) Natural Resources Journal 821, 829; Anthony Scott, *The Evolution of Resource Property Rights* (Oxford University Press 2008) 6.

Table 1: **Comparable attributes**

Comparative Criteria	Summary of Attributes
Quality of Title	the extent to which legal rights to a specified amount of water abstraction is well-defined and registered to secure and protect proprietary interests of the right holder under the water use permits
Exclusivity	The extent to which water use permit guarantee exclusive use of the specified amount of water by the rights holders.
Durability	The extent to which the period of time for the expiration of water use permit enables water use permit holders reasonably encourages investment in water resource use taking into account the nature of the investment (a water use permit with longer duration or no expiration period considered to manifest a high degree of property rights).
Transferability	Whether water rights acquired under water use permit including the permit itself is transferable to other persons on either temporary or permanent basis.
Enforceability	Whether holder of water use rights created under water use permit or license can bring legal actions or claims for an infringement on the right to exercise water property rights

Source: Derived from Anthony Scott, 2008 note 156.

1.6.3. Justifications for selecting comparative countries

As discussed under Section 1.2.3, the manifestation of treating 'water as an economic good' as an overarching principle for water allocation is market mechanisms. Based on this principle, many countries around the world introduced and implemented water market systems by reforming their domestic water law to address the hindrance of legal and policy barriers to water trading markets.[157] Particularly, many countries in various continents widely recognized water rights as a critical element to heighten efficient water use and for meeting a country's water resource challenges.[158] However, dealing with the comparative legal analysis of all countries that introduced the legal basis for tradable water rights is difficult due to time and space limitations. For this reason, the legal basis of water rights trading experiences of four countries are selected as case studies to compare and contrast with the case of Ethiopia to examine how the attributes of water property rights are included in their water law as a condition for enabling tradable water rights. Hence, the legal setting of water rights trading of four countries that includes Chile, Australia, South Africa and China are selected for comparison with Ethiopia based on the following justifications.

[157] L Marston and X Cai, 'An overview of water reallocation and the barriers to its implementation' (2016) 3 (5) Wiley Interdisciplinary Reviews: Water 658, 659.

[158] Barton H Thompson, 'Institutional Perspectives on Water Policy and Markets' (1993) 81(3) California Law Review 671, 676; Mateen Thobanl, 'Formal water markets: why, when, and how to introduce tradable water rights' (1997) 12 (2) The World Bank Research Observer 161,162.

The legal setting of water rights trading in Chile is selected because the Chilean water model is considered as an international significant model of where water rights are considered private property unbundled from land title.[159] The significance of Chilean water rights trading model to test the tradability of water rights in Ethiopia simply lies in the fact that both countries are civilian legal traditions with code system[160] and their water resource policies had been influenced by the World Bank loan conditionalities as the most forceful promoter of recognition of water as an economic good as discussed under Chapters three and four. As a well-known Chilean Water resource scholar, Carl J Bauer noted the Chilean Water model can be relevant water rights trading experience to reform the legal setting of water rights allocation to ripe economic benefit from the exploitation of water resources. Bauer argues that domestic water law should provide 'legal security of private property rights to encourage private investment in water use for both agricultural and non-agricultural use.'[161] He also contends that water law should allow 'the freedom to buy and sell water rights to ensure the reallocation of water resources to higher value uses in certain areas and under certain circumstances'.[162]

Furthermore, the Limari River Basin is considered as the 'most engineered basin in Chile'[163] and 'one of the most innovative' and 'the most active water rights market' with 'permanent and temporary water right transactions.'[164] As Bauer concludes, the Chilean model of water rights and water resource management offers valuable lessons for both national and international water policy reforms because of its pragmatic example with the world's most pure free-market approach to water law and economics for regulating access to water

[159] Carl J Bauer, Siren song: Chilean water law as a model for international reform (USA: Resources for the Future, 2004) 84.

[160] James G Apple and Robert P Deyling, 'A Primer on the Civil-Law System' (USA Federal Judicial Center 1995) 11

[161] Bauer (n 159) 132.

[162] ibid 122.

[163] Alexandra Nauditt and others, 'The Limarı́ River Basin' in Jurgen Schmandt and others (eds.), Sustainability of Engineered Rivers in Arid Lands: Challenge and Response (Cambridge University Press 2021) 154.

[164] Anahí Urquiza and Marco Billi, 'Water markets and social–ecological resilience to water stress in the context of climate change: an analysis of the Limarí Basin, Chile' (2020) 22 Environment, Development and Sustainability 1935.

resources since 1981.[165] Therefore, as an extremely water stressed country,[166] the Chilean water rights trading model typically showcases how tradable water rights can be designed to address the demand for scarce water resources through water markets.

The Australian water rights trading is selected for the following three major reasons. First, like Ethiopia, Australia is a federal system[167] where the powers and function on water resource management are divided between federal and state governments. As such the constitutional divisions of power on the administration of water rights in the Australian federal system can be helpful reference for assessing the legal settings of water rights trading in the Ethiopian water rights allocation frameworks.

Second, the Australian approach has been 'globally recognized as being effective, efficient and resilient'[168] characterized by innovative water law and policy reforms with a 'hybrid governance system' as it combines 'market mechanisms and statutory regulation that provides a robust model for potential application in many countries facing water over-allocation across multiple jurisdictions, periodic drought and water scarcity.'[169] Unlike the Chilean water rights trading model based on free market and private property rights,[170] the Australian approach combined a regulatory water permit system by capping abstraction of water from its natural source as a means to establish environmental water rights on the one hand and creating tradable water rights within a market framework to facilitate the development of active water markets.[171] Like the Chilean water model, Australia 'has moved away from a strict engineering approach of water management towards economic principles

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165 Bauer (n 159) 118.

166 Tianyi Luo and others, 'Aqueduct Projected Water Stress Country Rankings' (World Resources Institute, 2015) *Technical Note* 5. <www.wri.org/publication/aqueduct-projected-water-stress country-rankings>. Accessed on 20 March 2024.

167 Dustin E. Garrick and others, 'Water markets in federal countries: comparing coordination institutions in Australia, Spain and the Western USA' (2018) 18 Regional Environmental Change 1595.

168 Elizabeth Macpherson and others, 'Lessons from Australian Water Reforms: Indigenous and Environmental Values in Market-Based Water Regulation' in Cameron Holley and Darren Sinclair (eds.) *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer Nature Singapore 2018) 214.

169 ibid.

170 Carl J Bauer, 'Water conflicts and entrenched governance problems in Chile's market model' (2015) 8 Water Alternatives 150—151; Carl J Bauer, 'Results of Chilean water markets: Empirical research since 1990' (2004) 40 Water Resources Research W09S06 2.

171 E O'Donnell & E Macpherson, 'Challenges and Opportunities for Environmental Water management in Chile: An Australian perspective' (2014) 23 Journal of Water Law 30—31.

and water markets'.[172] According to Lee Godden, Australia can be considered 'a paradigm example of the adoption of market-based property approaches to water governance designed around explicit efficiency goals.'[173]

Third, the Chilean Limari River Basin the 'Australia's Murray Darling Basin have well developed water markets in terms of the amount traded as a proportion of the entitlements available' constituting 'permanent and temporary water rights.'[174] In particular, the Southern Basin of the Murray Darling has been considered as 'a model for the rest of the world to follow' and 'the most researched water markets in the world' representing 'over 80 per cent of the total water market in Australia'.[175]

The legal setting of water rights trading in China and South Africa are selected because water rights trading in the former 'is still very much in its infancy' while water markets in the later 'are severely constrained by the lack of full legal recognition of existing use rights'[176] compared to the experience of Chile and Australia.[177] However, as Dajun Shen contends, China has adopted a 'sophisticated water resources legislation and institution' and adapted the sector to meet its new role in the market economy to promote water use efficiency.[178] Like Chile and Ethiopia, the World Bank's water resource assistance[179] to China also influenced its water policy by treating water as an economic good that prioritizes water pricing, full-cost recovery, water rights and tradable permits as vital in water sector

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172 Peter Debaere and others, 'Water markets as a response to scarcity (2014) 16 Water Policy 635.

173 Lee Godden `Governing common resources: environmental markets and property in water' in A McHarg & others (eds.), *Property and the Law in Energy and Natural Resources* (Oxford University Press Oxford 2010) 426.

174 R Grafton Quentin and others, 'An integrated assessment of water markets: a cross-country comparison' (2011) 5(2) Review of Environmental Economics and Policy 219, 230.

175 Sarah Ann Wheeler and Dustin E Garrick, 'A tale of two water markets in Australia: lessons for understanding participation in formal water markets' (2020) 36 Oxford Review of Economic Policy 139—140.

176 R Quentin Grafton and others (n 174) 221.

177 Greenwell Matchaya and others, An Overview of Water Markets in Southern Africa: An Option for Water Management in Times of Scarcity (2019) 11 Water 1008; Eduardo Araral, 'Reform of water institutions: review of evidences and international experiences' (2010) 12 Water Policy [Supplement 1] 12.

178 Dajun Shen, Water Resources Management of the People's Republic of China Framework, Reform and Implementation (Springer Nature Switzerland AG 2021) 431.

179 Robert C G Varley, 'The World Bank's Assistance for Water Resources Management in China' (World Bank Washington, D.C. 2005) 17-18; World Bank. 'Watershed: A New Era of Water Governance in China — Thematic Report' (World Bank, Washington, DC. 2019) 37.

reform.[180] As a civilian legal system[181] China's early stage development of legal frameworks for regulating the market for water rights trading as an alternative solution to address water shortages in selected river basins[182] can serve as a lesson for Ethiopia to assess what is missing in the attributes of water rights allocation in the case study of Awash River Basin. For instance, the experience of the water allocation scheme through water rights trading in the Yellow River Basin assisted China to modify its water law in 2002 in which the 'Yellow River Model' has become universal through codification.'[183]

Likewise, water rights trading in South Africa is relatively studied compared to other Sub-Saharan African countries with 'comprehensive' water law and policy.[184] Like Ethiopia, realizing access to water has been recognized in the South African constitution including access to 'a basic amount of free water' while also 'embracing the economic approaches to water management' vigorously reinforced by international financial institutions such as the World Bank and International Monetary Fund.[185] With the legal history based on Roman-Dutch law and blend of English Common law, South African water law provides an important lesson on how to approach matters of property rights in water resources.[186] Like Ethiopia's Awash River Basin,[187] the Lower Orange River Basin of South Africa is known for its water

[180] Lijin Zhong and Arthur P J Mol, 'Water Price Reforms in China: Policy-Making and Implementation' (2010) 24 Water Resource Management 378; Shen Yuling and Haakon Lein, 'Treating water as an economic good: policies and practices in irrigation agriculture in Xinjiang, China' (2010) 176 The Geographical Journal 125.

[181] Chen Lei, 'The historical development of the Civil Law tradition in China: a private law perspective' (2010) 78 The Legal History Review 163-164.

[182] Lizhen Wang and others, 'Optimal Water Allocation Based on Water Rights Transaction Models with Administered and Market-Based Systems: A Case Study of Shiyang River Basin, China' (2019) 11 Water 578; Dereje Adeba and others, Assessment of Water Scarcity and its Impacts on Sustainable Development in Awash Basin, Ethiopia' (2015) 1 Sustainable Water Resource Management 72.

[183] Yahua Wang, *Assessing Water Rights in China* (Springer Nature 2018) 177-178.

[184] Gerhard R Backeberg, 'Water institutional reforms in South Africa' (2005) 7 Water Policy 108.

[185] Alix Gowlland-Gualtieri, 'South Africa's Water Law and Policy Framework Implications for the Right to Water' (Geneva: International Environmental Law Research Centre, 2007) 8. <http://www.ielrc.org/content/w0703.pdf> accessed 15 January 2022

[186] Andrew Allan, 'A Comparison between the Water Law Reforms in South Africa and Scotland: Can a Generic National Water Law Model Be Developed from These Examples?' (2003) 43 Natural Resources Journal 428.

[187] Mohammed Gedefaw and others, 'Water Resources Allocation Systems under Irrigation Expansion and Climate Change Scenario in Awash River Basin of Ethiopia' (2019) 11 Water 1966.

resource scarcity and irrigation practices with 'one of the highest incidences of market trading of water rights' prevalent with the aims of efficient water allocation and use.[188]

1.6.4. Methods of data collection, analysis and interpretations

1.6.4.1. Data collection techniques

The review of both theoretical and empirical literature is conducted at two levels. First, a review of theoretical literature is undertaken to understand what constitutes water as an economic good and water as property rights under global water policy norms, and law and economics literature (Chapter 2—4). For literature review, scholarly journal articles and books published in reputable journals and publishing press are collected through library and online search engines using Google Scholar and online journal repositories such as HeinOnline, African Journals Online (AJOL) and Oxford Academic accessible to Addis Ababa University online libraries.

Second, review of empirical and scholarly legal research is undertaken to understand the argumentative analysis of the thematic issues or unit of analysis under the respective water laws of the comparative countries and Ethiopia (Chapters (5—7). The water legislations and other water resource management regulatory documents on property rights and water abstraction rights are collected from Food and Agriculture Organization's (FAO) online repositories of national laws on water laws available at https://aqualex.fao.org/ and each country` official legislation publishing webpage through internet search engines.

In addition to collection of secondary and primary data from literature and legal documents, few primary data is also collected through Key Informant Interview (KII) from some experts and government officials at the Federal Ministry of Water and Energy (4 KII), Oromia Water and Energy Bureau (1 KII), and Addis Ababa Water Supply and Sewerage Authority (1KII) to complement the institutional aspects of water use permit administration limited to water allocation rights, registration, transfer and enforcement of water abstraction rights.

[188] W L Nieuwoudt and R M Armitage, 'Water Market Transfers in South Africa: Two Case studies' (2004) 40 Water Resources Research W09S05; CG Gillitt and others, 'Water Markets in the Lower Orange River Catchment of South Africa' 2005) 44 Agrekon 364.

1.6.4.2. Data analysis and interpretation

Data analysis can be described as 'the process of bringing order, structure and meaning to the mass of collected data.[189] It is the task of 'making sense of, interpreting and theorizing data that signifies a search for general statements among categories of data'.[190] Through a doctrinal legal analysis helps to systematically examine the rules governing attributes of water resource property rights and evaluates the 'relationship between rules, explains areas of difficulty and, perhaps, predicts future developments.'[191] Based on the comparative themes identified and defined under Section 1.5.2 and conceptualized under Chapter 2, data from legal texts constitutes 'general normative premises'[192] that match the conceptual orientation to thematically analyze and interpret them in comparative perspectives to answer research questions.[193] Finally, 'elaborating a set of generalizations, which suggest that certain relationships hold firm in the setting being examined, and affirming that these cover all the known eventualities in the data set' to make inferences from them to similar cases.[194]

1.6.5. Ethical considerations and positionality statement

1.6.5.1. Research ethics

All ethical considerations were complied with. The research subjects only involved government officials and experts who are responsible to provide information and data to the public and to the researchers on demand with a letter written from an academic institution attesting the purpose of data collection and its use. The key informants were contacted face-to-face after a support letter was submitted to the responsible body who then assigned a

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189 Catherine Marshall and Gretchen B Rossman, *Designing Qualitative Research* (Sage Publications 2016) 399.

190 Thomas A Schwandt, *The Sage Dictionary of Qualitative Inquiry* (Sage Publication 2007) 6.

191 Terry Hutchinson & Nigel Duncan, 'Defining and Describing What We Do: Doctrinal Legal Research' (2012) 17 Deakin Law Review 101.

192 J J Moreso and Samuele Chilovi, 'Interpretive Arguments and the Application of the Law' in G Bongiovanni and others (eds) *Handbook of Legal Reasoning and Argumentation* (Springer, 2018) 497.

193 Sanne Taekema, 'Relative Autonomy: A characterisation of the Discipline of Law' in B Van Klink and Sanne Taekema (eds) *Law and Method, Interdisciplinary Research into Law* (2011) 47; Carla Willig, 'Interpretation and analysis' in Uwe Flick (ed), *The SAGE Handbook of Qualitative Data Analysis* (SAGE Publications Ltd 2014) 147.

194 Schwandt (n 190).

knowledgeable person who provided data and conducted an interview. At the start of the key informant interview I explained to them the purpose of the study and asked them if they were voluntary for the interview and whether they required anonymity for citation of sources. All of my key informants volunteered for no-anonymity status. As most of the key informant data corresponded to the official documents provided to me, a note for the interview was taken for later processing.

1.6.5.2. Positionality statement

Having a reflexive understanding of the ontological and epistemological assumptions underlying one's research paradigm helps reveal where a researcher stands in relation to other research paradigms and why one selects such a position in a research endeavor.[195] In this dissertation, I chose 'interpretative paradigm as a philosophy of doctrinal research paradigm to 'use problems and functions as heuristic tools'[196] to interpret and analyze the tradability of water property rights in comparative water law perspectives. Interpretative approach can help to reveal existence or no-existence of similarities of legal solutions or responses in comparative countries to certain fact situations, regardless of the differences in social, economic and cultural contexts strongly suggests that the respective legal frameworks can be seen as different but 'functionally equivalent' responses to a similar problem.[197]

Regarding legal ontology and epistemological assumptions, interpretive paradigm underpins the understanding that law properly enacted by the legislator is not something to be empirically discovered but 'created as objects, properties and relations'[198] that are

[195] Benedict Sheehy, 'Paradigms of Legal Research that Connect Theories, Methods and Phenomena: Doctrinal, Realist, and Non-Law Focused Legal Research." Methods and Phenomena: Doctrinal, Realist, and Non-Law Focused Legal Research' 2022) <https://ssrn.com/abstract=4309144> accessed 01 June 2024; Matyas Bodig, 'The Epistemological Profile of Legal Doctrinal Scholarship-A Reply to Geoffrey Samuel' (2022) 4(2) Amicus Curiae 476, 487.

[196] Ralf Michaels, 'Explanation and Interpretation in Functionalist Comparative Law – a Response to Julie de Coninck' (2010) 74(2) The Rabel Journal of Comparative and International Private Law 351, 356.

[197] Julie De Coninck, 'The Functional Method of Comparative Law: "Quo Vadis"?' (2010) 74(2) The Rabel Journal of Comparative and International Private Law 318, 324.

[198] Anne Ruth Mackor, 'Law as an abstract object, law as an empirical object: The relevance of ontology and epistemology for theories of legislation' (2013)1(3) The Theory and Practice of Legislation 441, 443; Brian Z Tamanaha, 'Necessary and universal truths about law?' (2017) 30(1) Ratio Juris 3, 5.

embedded in legal doctrines and 'social practices whose features can be revealed by way of identifying juridical concepts and interpreting their characteristic uses in participant communication'.[199] The task of a legal scholar in the conduct of doctrinal legal research is not only to discover this legal ontology as constituted in legal texts or materials but also to offer systematic descriptions of these legal objects and their attributes 'at different levels of abstraction' (either within single legal system, from the perspectives of comparative law or at a general level of legal theory) to 'discover higher-order facts about law'.[200] Through interpretative methods, inconsistency, incoherence, gaps, ambiguities and vagueness of legal facts are discovered to improve the *status quo* and thereby contributing to the doctrinal understanding of existing legal scholarship.[201]

Finally, as this dissertation is written by a legal academic acquainted with civilian legal background and legal research method, an effort has been made to minimize the subjectivity of doctrinal legal interpretations of the legal objects and their attributes under investigation by consulting scholarly works from non-legal fields such as hydraulic engineering, public policy, ecology, law and economics, and environmental sciences. In particular, given that the economics of property rights theories are dominated by the writings of scholars of law and economics, legal interpretation on issues under investigation are influenced by the understandings of some of the economic concepts such as the promotion of efficiency and optimal allocation as conceptual proxies of legal doctrines. I have endeavored to understand the explanatory scope of these economic concepts under the law and economic analysis of property rights literature and water resource economic regulation by publishing articles in local and international journals. Furthermore, as a legal academic from a least developed country trained in business law, my arguments on the role of creating property rights in water resources should not be mistaken for advancing neoliberal property rights approaches. That position is already taken by the water resource management policy of Ethiopia and I have just exposed it further by exploring its normative landscape.

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199 Mátyás Bódig, 'The issue of normativity and the methodological implications of interpretivism I: The idea of normative guidance' (2013) 54(2) Acta Juridica Hungarica 119, 120-21.

200 Mackor (n 198) 462.

201 Mark Greenberg, 'What Makes a Method of Legal Interpretation Correct? Legal Standard vs. Fundamental Determinants' (2017) 130(4) Harvard Law Review Forum 105, 124.

1.7. Structure of the dissertation

This dissertation is structured into 8 Chapters including the present introductory Chapter, which provides description of the problem under discussion, the research questions, and knowledge gaps in the literature review and methodology.

Chapter 2 discusses the literature on the theoretical foundations of property rights in water resources by examining the scope and nature of legal rights, identifying and defining the conceptual frameworks with which to assess tradability of water abstraction rights. This Chapter shows that the instrumentalist dimensions of the bundle of property rights creates legal possibility for adapting state or public property regime in water resources to serve multiple social and economic interests through the recognition of separable legal entitlements recognized as property rights. In this Chapter it is argued that recognizing property rights in water resources provides a suitable theoretical basis for the analysis of tradability of water abstraction rights since it creates a nexus between the legal rights to the use of water and the allocation functions of treating water as economic good. The Chapter draws inference from the theoretical objectives of water resources allocation by juxtaposing the purpose of the water use permit system in creating the legal room for the creation of a bundle of water use rights indicating that the legal possibility for the recognition of property rights in water within common or public water resource ownership regime. Finally, the Chapter concludes that both theoretical and conceptual explanations on property rights in water resources as intended or unintended consequences create further curiosity to inquiry into whether such is the understanding of water resources policy and legal context of public ownership of water resources as examined in Chapters 6 and 7.

Chapter 3 further reviews the literature on the status of water as an economic good under global and continental water policy documents and its normative implications for domestic water regulatory space on promoting water property rights as a means to allocate and reallocate water resources. The discussion includes a review on global and continental water policy imperatives including regional and multilateral trade and investment in water related treaties to specifically understand whether water as an economic good acquired the legal status of good/product that makes it tradable in cross border trade. The Chapter demonstrated how the treatment of water as an economic good at the global and

continental level can be used to shape the legal status of water as a tradable product under international economic law. The Chapter suggests the importance of addressing the missing normative link on the status of water as an economic good and its implications on the status of water as the subject of property rights facilitating tradable water rights as a means to allocate water resources as a tradable good or services. Finally, it is demonstrated that the legal status of water as a tradable good or services eventually depends on the domestic legal jurisdictions of member states to the bilateral, regional or multilateral trade and investment agreements that ultimately confers the legal status of water as a tradable property rights.

Chapter 4 specifically discusses the treatment of water as an economic good under water resource management policy and law of Ethiopia to understand how global water policy imperatives transpires into the domestic policy space as a means to influence or promote change in the status quo ante of water resource allocation. The Chapter specifically assessed the substantive contents of Ethiopia's WRM policy approach in light of the WB and AfrDB water policy imperatives. It argues that the lending policy conditionalities of these two major global and regional creditors as evidenced under their respective country water sector assistance strategies and water sector project loan facilities requires the Ethiopian government to treat water as an economic good and create an enabling environment for PSP in the allocation of water resources. The Chapter argues that Ethiopia's water resource allocation policy is heavily influenced by global water policy imperatives that promote the treatment of water as an economic good that aims to manage water allocation with the biting force of domestic compliance through the lending policy conditionalities of these financial institutions. Finally, the Chapter draws inference on the imperatives of treating water as an economic good and the need to create enabling conditions for PSP to manage water allocation by financing water supply services for the creation of the legal basis that ought to manage access to water rights as property rights.

Chapter 5 builds on the water policy status of water as an economic good as examined under Chapter 4 by demonstrating how those policy ideals and principles are transformed into normative status expressed in terms of water abstraction rights as the manifestations of treating water as an economic good for promoting the management of water allocation rights capable of susceptibility to property rights. The Chapter examined constitutional

provision on property rights and implementing subsidiary legislations on water resources and argues that water abstraction rights are recognized as property rights in Ethiopia entitling private persons to usufruct rights. Finally, the Chapter however shows that the recognition of water abstraction rights as property rights is not the ultimate guarantee for the legal status of usufruct water rights as tradable property rights since such property rights may simply confer the right to use water and enjoy its fruits without necessary warranting its tradable status.

Chapter 6 examines the attributes of property rights in water resources in four selected comparative countries based on comparative criteria identified and defined under Chapter 2 to understand how their water law normatively responds to similar problems of water resources allocation through the creation of tradable water property rights. The Chapter analyzed how these comparative countries designed property rights in water resources as a condition for implementing tradable water to facilitate water markets to efficiently allocate and use scarce water resources. The Chapter draws important lessons from the normative design of water rights trading approaches of the comparative countries by demonstrating how their legal frameworks are designed to confer tradable water property rights. It is argued that in all of the comparative countries there exists a consensus on the imperatives of creating normative conditions to facilitate water rights trading as a means to re-allocate scarce water resources. Finally, it is also demonstrated that the water laws of all comparative countries are normatively structured to create water property rights as tradable rights as a means to facilitate water right trade for the reallocation of water resources.

Chapter 7 replicates the analysis of Chapter 6 in the context of Ethiopia to compare and contrast how water property rights under the water law confers tradable water rights to enable water resource allocation. Based on a critical analysis of the property rights attributes of water use permit and reflections of the comparative countries, the Chapter concludes that a closer look at the quality of water use permit under the WRM Proclamation and WRM Regulation reveals well-defined attributes of water abstraction rights as durable, excludable, transferable and enforceable property rights creating enabling normative conditions for implementing tradable property rights. However, the Chapter argues that the functional implementation of tradable water abstraction rights based on water use permit has not

taken off the ground except for formal recognition of bottled water trading. Finally, the Chapter concludes that the water policy and law reform ideals of treating water as an economic good under the Ethiopian WRM Policy represent theoretical and normative rhetoric of progress and reform to enhance external legitimacy and financial support without the intended consequences of putting these water policy imperatives into function.

Chapter 8 provides conclusions and recommendations by systematically integrating the findings of the research questions and future policy and research implications on the intended or unintended consequences of designing and implementing tradable water abstraction rights to achieve the policy objectives of efficient allocation and use of Ethiopia's water as a valuable and strategic natural resource. The Chapter concluded the dissertation by recapitulating the findings of the research questions and providing policy recommendations on how Ethiopia should reform its water resource law to make sure that the objectives under water policy as a means to realize efficient allocation and exploitation of its abundant but economically scarce water resources.

1.8. Chapter summary

This introduction Chapter has established the vital role of understanding property rights in the efficient allocation of water resources in order to put the ideals and principles of treating water as an economic good into practice. The Chapter mainly highlighted the challenges of water resource allocation under the existing public water resource property rights regime and claims that the existing global water policy and scholarly solutions to treat water as an economic good lacks clarity in terms of treating water allocation rights as property rights. The Chapter also identifies knowledge gaps in existing bodies of water policy and scholarly discussions creating a missing link between treating water as an economic good and treating water rights as property rights as a means to promote efficient allocation of water resources. In order to contribute to the existing scholarly discussion, the Chapter asks questions and designs methodological approaches to systematically answer these questions in different parts of the dissertation. The next Chapter begins this work by building on the methodological section of this Chapter to establish the theoretical and conceptual foundations for the dissertation for examining the research questions under the remaining Chapters.

CHAPTER 2

Property rights foundations for tradability of water abstraction rights

2.1. Introduction

Property rights as a lynchpin of property law generally 'set the rules for who is allowed to use, manage, and control natural resources'[1] despite the fact that changes in property rights are triggered by the interaction between the prevailing property rights structures and man's search for achieving more utility'.[2] The features of property rights in water resources may also serve similar purposes though the nature of water as common pool resources creates debates on what types of property rights structures best situates these special qualities of water for the legal assignment of different rights.[3] Essentially, the scarce and fugacious nature of water has created legal difficulties and complexities of allocating proprietary interests in water resources compared to other forms of natural resources.[4]

However, as fresh water increasingly becomes scarce and coupled with the lack of clarity in relation to its amenability to property rights, the existing public water resource allocation system is questioned for its inability to promote the economic value of water to encourage wise use of water resources.[5] For quite a long time, legal scholars and economists among others contributed to the conceptual and theoretical debates on the role of property rights in common pool natural resources such as water as a means to encourage efficient allocation

1 Marie C Dade and others, 'Property rights play a pivotal role in the distribution of ecosystem services among beneficiaries' (2022) 18(1) Ecosystems and People 131, 131.

2 Andrew B Whitford and Benjamin Y Clark, 'Designing Property Rights for Water: Mediating Market, Government, and Corporation Failures' (2007) 40(4) Policy Sciences 335, 337.

3 ibid

4 Paul Babie, Paul Leadbeter and Kyriaco Nikias, 'Property, Unbundled Water Entitlements, and Anti-commons Tragedies: A Cautionary Tale from Australia' (2019) 9(1) Michigan Journal of Environmental & Administrative Law 107, 108.

5 Lee J Alston and Bernardo Mueller, 'Property rights and the state' in C Menard and M Shirley (eds) *Handbook of New Institutional Economics* (Springer 2005) 573.

and optimal use of resources.[6] Based on the property rights theoretical foundations of the water allocation system, these scholars provide a range of policy and legal options for the use of property rights as an instrument of water resource allocation within the prevailing structures of property rights regimes.[7] Hence, this Chapter aims to discuss the theoretical and conceptual explanations of property rights in water resources to provide analytical frameworks for the comparisons of water property rights tradability in Chapters 6 and 7.

In Section 2.2, the Chapter elucidates key terms and concepts that will be used throughout this dissertation. Section 2.3 discusses the property rights foundations of water abstraction rights. Section 2.4 systematically identifies and defines the attributes of property rights as conceptual frameworks with which the tradability of water abstraction rights in comparative countries and Ethiopia are comparatively analyzed in Chapters 6 and 7. Section 2.5 concludes by summarizing the major points of the Chapter.

2.2. Definitions of key terms and concepts

As a comparative study, providing working definition of key terms and concepts is justified to ensure their consistent application throughout the dissertation. Though it is assumed that terms like 'water resource' and 'water rights' are obvious, specific definitions provided under a given legislation may not be straightforward and possess definitional problems when used in different jurisdictional contexts. For instance, in Ethiopia as indicated under section 2.2.1, mineral water is not considered as a water resource making such definition imperative. In addition, some key terms or concepts are rarely defined in water law, opening the room for researchers to subjectively specify their meanings which can be prone to different scholarly understandings. This section provides explanations and definitions of key recurring terms and concepts used in the dissertation to avoid their inconsistent application during the comparative legal analysis.

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6 Henry E Smith, 'Governing Water: The Semi-commons of Fluid Property Rights' (2008) 50 Arizona Law Review 445; Joseph W Dellapenna, 'The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century' (2002) 25(1) University of Arkansas at Little Rock Law Review 9, 12.

7 Sarah Hendry, Ownership Models for Water Services: Implications for Regulation, in Aileen McHarg and others (eds) *Property and the Law in Energy and Natural Resources* (Oxford University Press 2010) 257.

2.2.1. Water resources

The term 'water resources' is understood in diverse ways because of its unique features and purposes. Given this fact, the definitions and concepts of water resources vary across legal jurisdictions indicating its multifaceted aspects. In most scholarly literature, the term 'water resources' is used to refer to 'renewable freshwater resources available on earth every year, including surface water and groundwater'.[8]According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) the term 'water resources' is defined as 'water available, or being made available, for use in sufficient quantity and quality at a location over a period of time appropriate for an identifiable demand'.[9]

Likewise, the Ethiopian Water Resource Management (WRM) Proclamation defines water resources in comparison to other natural resources. Accordingly, 'water resource' is defined as 'surface water or groundwater; however, it does not include mineral and geothermal deposits.'[10] Surface water in turn is defined as 'static and flowing water on the surface of the ground' while groundwater refers to 'water existing beneath the surface of the ground.'[11] However, the definition of water resource under the WRM Proclamation does not distinguish between exploitable and non-exploitable water resources since not all natural fresh surface or groundwater resources are accessible for use. For the purpose of this dissertation, the term or concept of 'water resources' is used to refer to both underground and surface bulk water resources that could be manageable with the feasibility to catch, extract/abstract, store and divert from its natural sources.[12]

8 Yahua Wang, *Assessing water rights in China* (Springer 2018) 19.

9 UNESCO: International Glossary of Hydrology 377 (3rd edn, World Meteorological Organization 2012).

10 Ethiopia Water Resources Management Proclamation No 197/2000, *Federal Negarit Gazeta*, 61st Year No. 25 Addis Ababa, 9th March 2000 (hereinafter, 'Water Resources Management Proclamation') art 2(6).

11 Ibid art 2 sub-arts (4—6).

12 Stephen Hodgson, '*Land and Water – the Rights Interface,'* (UN Food and Agriculture Organization (FAO) 2004) 10. The term 'natural source' includes a stream, river or lake, a reservoir created by the damming of a river, a swamp or pond as well as groundwater from a natural spring or a well.

2.2.2. Water resource allocation

In the earliest times, water resources allocation was of little concern given its open access and non-rivalry nature for in-stream and off-stream uses.[13] However, with the growing demand for freshwater resources, the issues of allocation have become a high concern since who shall have access to water requires the fair and equitable determination to avoid competition and conflicts among users.[14] In the literature, there are two major systems of water resource allocation.[15]

The first and most dominant allocation type relates to public water resource allocation systems that emanate from the conception that treats water as a public good.[16] Public water allocation system recognizes physical inaccessibility of water resources which make it difficult to transport and allocate for basic human needs without the financial intervention of the state.[17] Basically, the role of government under the public allocation system is twofold. On the one hand, the government is required to undertake public water distribution as public water utility service for basic human consumption.[18] This form of public water allocation requires the government to publicly finance water supply service to ensure adequate quantity and quality of water is available for basic human needs based on a set of social or economic criteria.[19] The construction of water canals, dams and reservoirs through public funds signifies the government attempt to distribute or supply water for drinking or irrigation purposes. The other type of public allocation goes beyond the issue of meeting basic needs

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13 David Sedlak, *Water 4.0: The Past, Present, and Future of the World's Most Vital Resource* (Yale University Press 2014) 15.

14 Ronald C Griffin, *Water Resource Economics: The Analysis of Scarcity, Policies, and Projects* (Massachusetts Institute of Technology Press 2006) 4.

15 Charles W Howe and Helen Ingram, 'Roles for the public and private sectors in water allocation: lessons from around the world' in Douglas S Kenney (ed), *In Search of Sustainable Water Management: International Lessons for the American West and Beyond* (Edward Elgar Publishing Limited 2005) 27.

16 Douglas L Grant, 'Two Models of Public Interest Review of Water Allocation in the West' (2005) 9 University of Denver Water Law Review 485.

17 Karsten Paerregaard, 'Liquid accountability: Water as a common, public and private good in the Peruvian Andes' (2019) 12(2) Water Alternatives 488, 488.

18 Ariel Dinar, Mark W Rosegrant and Ruth Suseela Meinzen-Dick, 'Water Allocation Mechanisms: Principles and Examples' (World Bank Publications 1997) 8-9.<https://documents1.worldbank.org/curated/en/640941468766210195/129529322_20041117145112/additional/multi-page.pdf> accessed 10 July 2022.

19 Peter Rogers, Radhika De Silva and Ramesh Bhatia, 'Water is an economic good: How to use prices to promote equity, efficiency, and sustainability' (2002) 4(1) Water policy 1, 5.

and looks at how the benefits and burdens of available water resources can best be shared among different persons.[20] This form of public allocation system requires the government to formally define and assign original allocation of water rights and liabilities among multiple water users through policy and legal instruments.[21]

The nature of water as common pool resources makes it highly susceptible to resource degradation and conflict that dictates the state to design legal frameworks and establish regulations that embody logic of control, rationalization and orderliness.[22] The government, which is responsible for the administration of common water resources on behalf of the public, defines the priorities to be given to different uses based on clearly prescribed allocation principles and conditionalities.[23]

The second type of water allocation relates to market allocation.[24] The conception of market allocation of water resources can be explained from two allocation perspectives. The first perspective of market allocation explains that public allocation of water resources often leads to wasteful allocation or far more likely to be preoccupied with the social concerns of satisfying the greater public good.[25] This form of market allocation opts for privatization of public water supply services as an efficient form of water resources allocation that addresses the problems of water scarcity.[26] Market based water allocation sees the public water

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20 ibid

21 L Z Wang, Liping Fang, and K W Hipel, 'Water resources allocation: a cooperative game theoretic approach' 2003) 2(2) Journal of Environmental Informatics 11, 12.

22 Francois Molle, 'Defining water rights: by prescription or negotiation?' (2004) 6(3) Water Policy 207, 214.

23 Barbara van Koppen and others, 'Principles and legal tools for equitable water resource allocation: prioritization in South Africa' (2024) 40(4) International Journal of Water Resources Development 555. 560; Sintayehu Legesse Gebre, Dirk Cattrysse, and Jos Van Orshoven, 'Multi-criteria decision-making methods to address water allocation problems: A systematic review' (2021) 12(3) Water 125; Zbelo Haileselassie Embaye and Achamyeleh Gashu Adam, 'Prioritization of Water Use Rights in Ethiopia: Exploring the Perspectives and Practices in the Governance of Awash River Basin' (2022): 16(1) Mizan Law Review 95, 102.

24 Nir Becker, 'Reallocating water resources in the Middle East through market mechanisms' (1996) 12(1) International Journal of Water Resources Development 17, 18.

25 Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action (Cambridge University Press 1990) 2-3.

26 Paul Trawick, 'Against the Privatization of Water: An Indigenous Model for Improving Existing Laws and Successfully Governing the Commons' (2003) 31(6) World Development 977, 986.

allocation system as incapable of providing appropriate economic incentives to improve the efficiency of water use through the instruments of adequate cost recovery or water pricing.[27]

The second mechanism of market allocation argues for the introduction of transferable water rights within the public water allocation system. Market based water allocation mechanisms require administrative or public water use permit systems that formalize tradable water rights.[28] Hence, the perspectives of market allocation underline the concept of a public water allocation system that allows the reallocation of water rights through water pricing as appropriate economic incentives to improve the efficient use of scarce water resources.[29]

2.2.3. Water rights

The notion of water rights portrays the legal or customary entitlements to use water for consumptive and non-consumptive purposes irrespective of the fact that water resources are either abundant or scarce.[30] However, the exact meaning of what constitutes water rights has long been debated by scholars due to the unique nature of water. More specifically, controversies in articulating interests or entitlements in water, unlike other things, have been the main reason to come across a universally accepted definition of what constitutes water rights around the world.[31] In many jurisdictions, rules and principles that define water rights are mainly explained within the broader notions of public and private water rights to common pool water resources that legally entitled individuals and communities to use water resources for a particular use.[32] Hence, it is crucial to explain what constitutes public and private water rights to understand the whole picture of what actually constitutes water rights when used in this dissertation.

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27 Mark W Rosegrant and Hans P Binswanger, 'Markets in tradable water rights: Potential for efficiency gains in developing country water resource allocation' (1994) 22(11) World Development 1613, 1614.

28 ibid

29 David Zilberman and Karina Schoengold, 'The Use of Pricing and Markets for Water Allocation' (2005) 30 (1) Canadian Water Resources Journal 47, 50.

30 Stephen Hodgson, *Exploring the Concept of Water Tenure* (UN Food and Agriculture Organization (FAO) 2016) 56.

31 ibid

32 Lynda L Butler, 'Environmental Water Rights: An Evolving Concept of Public Property' (1990) 9(2) Virginia Environmental Law Journal 323, 327.

Public water rights gives the general public the right to use water for consumptive or non-consumptive purposes as an 'inherent public right' held in common with all other people.[33] In both types of water use rights, the breadth and limitations of rights depend on the specific legislation that defines public water rights. In most countries, non-consumptive public water rights allow individuals unhindered access to in-stream water resources for the purposes of fishing, navigation, irrigation and discharge of wastes.[34] Similarly, consumptive public water rights allow individuals to abstract specified amounts of surface or underground water for the purposes of drinking and production of food as a basic human need.

Consumptive private water rights also emerged through various forms of water use doctrines outside the ambit of public ownership of water resources regimes.[35]In many legal systems, private water use rights that emanate from an incidence of land ownership or possession rights are commonly known as riparian water rights. Riparian water rights entitle the owner or holder of the land to take water for beneficial use from such underground land or lakes or natural streams that borders or flows over it.[36]Riparian water rights in many common law jurisdictions have been considered as an 'auxiliary constituent of land rights' making private right to use water dependent on the existence of land tenure.[37]The other type of private water right is appropriative water rights that entitle a person to 'a specific quantity of water for a specific period of time for specific use and place of use' depending on 'the relative priority among the holders of appropriation rights.'[38]Unlike public water rights that entitles individuals and communities to access water as common pool resources, riparian and appropriation rights regulate the relationship between persons or groups with some degree of rights that excludes other water users.[39] However, water rights defined in terms of public

33 Carol Rose 'The Comedy of the Commons: Custom, Commerce, and Inherently Public Property' (1986) 53 (3) The University of Chicago Law Review 711, 771.

34 Desheng Hu, *Water Rights: An International and Comparative Study* (IWA Publishing 2006) 38.

35 Bill Provencher and Oscar Burt, 'A Private Property Rights Regime for the Commons: The Case for Groundwater' (1994) 76 (4) American Journal of Agricultural Economics 875, 876.

36 Lynda L Butler, 'Allocating Consumptive Water Rights in a Riparian Jurisdiction: Defining the Relationship between Public and Private Interests' (1985) 47 University of Pittsburgh Law Review 95, 106.

37 Anthony Scott and Georgina Coustalin, 'The Evolution of Water Rights' (1995) 35(4) Natural Resources Journal 821.

38 Butler (n 32) 329.

39 Paul Holden and Mateen Thobani, 'Tradable Water Rights: A Property Rights Approach to Improving Water Use and Promoting Investment' (1995) Cuadernos de Economía 264.

and private entitlements to use water for consumptive purposes fail to address the effects of rights on the allocation of scarce water resources.

The present day viability of public water rights based on public trust doctrine of access to common pool water resources was challenged because of the fact that public water use regime is prone to the 'tragedy of the commons' resulting in inefficient use and conflict over open access water resources.[40] The non-excludable nature of consumptive public water rights tends to increase scarcity and generate rivalries between competing users.[41] Likewise, private water rights through the doctrine of riparian water rights have conventionally been associated with land tenure rights that confer the holder or owner of the land with direct physical access to a stream, river or other natural water source. Appropriative water rights also confer exclusive water rights to individuals who can assert priority or seniority of rights over an actual diversion of water from a natural source.

Thus, both types of private water rights establish entitlements to exclusively use water resources which may pose formidable challenges on the sustainable, equitable and efficient allocation of water resources. The allocation of water resources under traditional form of riparian water rights may create problems of rigidity and inequitable allocation of water resources among owners and non-owners of land rights.[42] Similarly, allocation of water based on a traditional appropriation system may not encourage senior appropriators to save water resources to ensure its efficient allocation.[43]

The response of various countries in addressing these kinds of water allocation problems is to enact legislation and establish an administrative regime with a defined water rights regime that embodies a logic of security, equity and efficiency of the water allocation system.[44] Unlike the traditional form of public and private water rights, the conception of

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40 G Hardin, 'The Tragedy of the Commons' (1968) 162 Science 1243; Elinor Ostrom, 'tragedy of the commons', in Steven N Durlauf and Lawrence E Blume (eds), *The New Palgrave Dictionary of Economics* (Palgrave Macmillan, 2nd (ed), 2008).

41 David Aubin, 'Asserted Rights: Rule Activation Strategies in Water User Rivalries in Belgium and Switzerland' (2008) *28* Journal of Public Policy *207.*

42 Scott and Coustalin (n 37) 825.

43 Stephen Hodgson, *Modern Water Rights: Theory and Practice (*FAO 2006) 15-25.

44 B Delworth Gardner, 'The Importance of Property Rights in Water' (2000) 116 (1) Journal of Contemporary Water Research and Education 31, 32.

'modern water rights' recognizes the desirability of establishing 'a clear definition of who is entitled to use a certain amount of water based on the water permit system.[45] In this context, water rights are created on the basis of a legal instrument through a water permit system that authorizes the abstraction or impoundment and use of water in a natural water course either as a share of the available flow or in the case of a regulated river, as a specific volume.[46]

It is also important to distinguish the concepts of water rights from human rights to water. The concept of human rights to water implies access to affordable and clean water for domestic uses as an aspect of human rights by imposing a positive duty on the government to realize such life sustaining purposes.[47] Viewed from this angle, the human right to water is a relationship with water in the abstract, rather than a relationship with water as a resource. In other words, the human right to water does not articulate a claim over particular water resources, i.e. over water contained for example in a specific river or stream.[48] The nature of a human right is that everyone enjoys that right simply by being human.[49] In this sense, the concept of water rights could be broader that includes access to clean water as a human right. This is because water rights impose not only the positive duty on the government to realize access to clean water for the individuals or groups but also the negative duty not to interfere in the legal and customary entitlements to use water resources. In this context the concept of water rights reinforces the concept of human rights to water by providing enabling legal frameworks for abstraction of water resources for various human needs.

In brief, the modern conception of water rights can be characterized by the following major features. Firstly, it is not necessary to own or possess land rights to acquire water rights.[50]

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45 Hodgson (n 43): 'Modern' formal water rights' derived from Permit-based long-term rights (12-30 years or more) to use water resources with the legal status of property or quasi-property rights, valuable and capable of being asserted against the state and third parties.'

46 ibid 15-25.

47 Emilie Filmer-Wilson, 'The Human Rights-Based Approach To Development: The Right To Water' (2005) 23 (2) Netherlands Quarterly of Human Rights 213, 213. See also General comment no. 15 (2002), The right to water (arts 11 and 12 of the International Covenant on Economic, Social and Cultural Rights) UN. Committee on Economic, Social and Cultural Rights (Geneva: 29th sess., 2002)

48 Hodgson (n 12) 11.

49 Tully Stephen, 'A human right to access water? A critique of General Comment No. 15' (2005) 23(1) Netherlands Quarterly of Human Rights 35, 36.

50 Hodgson (n 43)17.

Secondly, water rights are the creation of rules that enable the right holder to use water for the prescribed purpose by imposing obligations on third parties not to interfere with the enjoyment of such rights.[51] As such, water rights establish legitimate rights and duties to avoid conflicts because of the increasing competition over such scarce resources.

Thirdly, the object of water rights relates to the non-possessory right to use water in a natural source or the possessory rights to certain volume of water resources abstracted or diverted from its natural source.[52] The non-possessory water rights are frequently described as in situ or in-stream non-consumptive water uses that do not involve the diversion, removal or abstraction of water from its water source/course or its natural environment.[53] On the contrary, the possessory water rights refers to consumptive water uses where water is abstracted and used off-stream, with limited or no return flows returned to the water course of origin.[54] It is crucial to note that the term possessory water rights is used to refer not in a sense to control some physical object that someone 'can point and seize' as water is an intangible thing.[55] Hence, the term possession of water rights refers to both possession of a certain permitted amount of water abstracted and stored under the control of the private person and constructive possession to the use of specified amount of water flow based on water use abstraction permit.

2.2.4. Water abstraction rights

Water abstraction, requires labour and capital to extract water from surface and ground water resources through pumps, pipes and hand dug or drills of wells.[56] As such, the term water abstraction can be elaborated as the act of taking or withdrawing water from surface and ground water resources for various social and economic uses. However, to abstract water from its natural sources, one has to establish the existence of water rights that legally permits

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51 ibid

52 David B Anderson, 'Water Rights as Property in Tulare v. United States' (2016) 38(2) McGeorge Law Review 461, 485.

53 ibid 488.

54 Jean-Baptiste Bayart and others, 'A framework for assessing off-stream freshwater use in LCA' (2010) 15 The International Journal of Life Cycle Assessment 439, 442.

55 Eric T Freyfogle, 'Context and Accommodation in Modern Property Law' (1989) 41(6) Stanford Law Review 1529, 1530; Craig Anthony Arnold, 'The reconstitution of property: property as a web of interests' (2002) 26 Harvard Environmental Law Review 281, 282.

56 François Molle, 'Defining water rights: by prescription or negotiation?' (2004) 6(3) Water Policy 207, 218.

access to water source and withdrawal of water for the intended water use purposes based on an exempted and non-exempted water use permit system. Given the scope of this dissertation to non-exemptive legal right to abstract water from its sources, it is also vital to define what constitutes a water abstraction permit system that provides license to access and withdraw water from its natural sources. Thus, possession of a water use permit gives the abstractor a legal right to take water within the stated limits, from the stated water source until such time as the license expires or is revoked.[57]The term water abstraction right in this study refers to water use permits or licenses that legally authorizes water users to abstract or remove a specified quantity of surface or ground water resource for consumptive uses.[58]

2.2.5. Water abstraction permit

Water permits allow individuals or a group of persons to abstract or withdraw a specified amount of water from its natural sources for the designated water use purposes.[59] Water abstraction permit, which is also known as a water abstraction license, generally establishes private water rights in which public authorities determine as to who should abstract and use water, and to what use that water should be applied.[60] The conception of water abstraction permit emphases the need to address two major concerns of common pool natural resources such as water. Firstly, it emphasizes the nature of water as a public resource that requires public authority to oversee and direct allocation of water in socially and economically desirable ways.[61]Water abstraction permit plays an instrumental role as it enables government to overcome tragedy of wasteful exploitation of water resources[62] indicating that water is not an open access resource without a property rights regime.

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57 Phillip M Barber, 'Statutory Water Rights Permits: A Necessary Problem in Real Property Conveyancing' (1972) 9 Idaho Law Review 1, 2.

58 Paul W Puckett, 'Trading Water: Using Tradable Permits to Promote Conservation and Efficient Allocation of an Increasingly Scarce Resource' (2010) 59 Emory Law Journal 1001, 1003-4.

59 Robert H Abrams, 'Water allocation by comprehensive permit systems in the east: considering a move away from orthodoxy' (1989) 9 Virginia Environmental Law Journal 255.

60 Susan Begg, 'Allocating Water Rights in New Zealand: The Role of Tradable Permits' (1997) 4(1) A Journal of Policy Analysis and Reform 96, *98.*

61 Landon Marston and Ximing Cai, 'An overview of water reallocation and the barriers to its implementation' (2016) 3(5) Wiley Interdisciplinary Reviews: Water 658, 671.

62 Puckett (n 58).

Secondly, the systems of water abstraction permit assist the government to formalize users' water rights in a situation where there are concerns about scarcity or competing uses requiring sustainable and equitable allocation of water among diverse users in accordance with the government's priorities and plans.[63] In this context, a water abstraction permit allows the state to assign the right to access a given water source to a given user or number of users for abstracting specified amounts of water for the effective management of competition and conflict over water uses. Therefore, water abstraction permit in this dissertation is used to refer to the initial public allocation of water resources by responsible water management authorities based on water use permit or license that establishes legal rights or entitlements to license or permit holders to access and abstract a specified amount of water from its natural sources.

2.2.6. Tradable water abstraction permits

Water abstraction rights acquired through a water permit system can be either tradable or non-tradable water rights depending on countries' water permit rules.[64] Water abstraction permits that restrict the tradability or transfer of water rights to other water users are considered as non-tradable water permits.[65] Non-tradable water permits allow the permit holder only to use the totally allowable quantity of water for the beneficial purposes and any act of trading specified amount of water from the assigned quantity may result in revocation of water permit. Hence, under a non-tradable water abstraction permit system, water permit holders are required to adapt the water supply risks entirely based on the water permit quota limits allocated by the public authority or on the amount of water it is willing to allocate.[66]

On the one hand, the approach of a non-tradable water permit system emphasizes social objectives of fair and equitable water allocation that perpetuates a stable pattern of water use which also equally be quite unfair to prospective buyers and sellers by denying them the

[63] Dionisios Latinopoulos and Eftichios S Sartzetakis, 'Using tradable water permits in irrigated agriculture' (2015) 60 Environmental and Resource Economics 349.
[64] ibid 355-357.
[65] ibid
[66] ibid

possibility of selling water abstraction permit rights.[67] Therefore, the breadth of water rights assigned under non-tradable water abstraction rights is limited to the 'use and enjoyment' of water resources for beneficial purposes without the legal possibilities of water reallocation.

On the other hand, a tradable water abstraction permit allows water permit holders to trade abstraction rights among users who exchange depending on their present or future expected water consumption needs. As will be discussed in Section 2.4 of this Chapter, tradable water permit system is founded on the theoretical conception that underpins the creation of property rights to a specified amount of water by those to whom water abstraction licenses have been granted.[68] In rapidly increasing scarcity of fresh water resources, tradable water abstraction permits serve two basic purposes. First, it encourages water permit holders to reasonably utilize water to avoid purchasing costly abstraction rights.[69] Second, it allows water permit holders to gain income from selling water abstraction rights at disposal that are no longer needed once they manage to lower their water consumption.[70] Therefore, tradable water abstraction permits is a precursor to water markets as it may enable water rights trading to take place between 'a buyer's willingness to pay and a seller's willingness to accept payment for water'.[71]

2.2.7. Water pricing

The consumption of freshwater from its natural source has been historically viewed as a freely accessible public good without any prices attached to its economic value.[72] In the absence of rules that provide incentives for influencing behavior of water users, free access to bulk water resources may ultimately result in the tragedy of the commons.[73] The

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67 Stephen E Draper, 'The Unintended Consequences of Tradable Property Rights to Water' (2005) 20(1) Natural Resources and Environment 49, 51.

68 Simone Borghesi, 'Water tradable permits: a review of theoretical and case studies' (2014) 57(9) Journal of Environmental Planning and Management 1305, 1325.

69 ibid

70 ibid

71 Javier Calatrava and Alberto Garrido, 'Spot water markets and risk in water supply' (2005) 33(2) Agricultural economics 131, 132.

72 Musa Asad and others, *Management of water resources: bulk water pricing in Brazil* (World Bank Publications 1999) 5.

73 Devi Datt Tewari and Saidou Baba Oumar, 'Is the water permit system a panacea or a bed of inefficiency? The case of South Africa' (2013) 15(4) Water Policy 570, 580.

imperatives of introducing water pricing schemes since 1990's has been justified as a legitimate and necessary measure to induce water users to utilize water efficiently by having to pay for abstracting water from its natural sources.[74] Specifically, the concept of water pricing is closely associated with the Dublin Principles that reframed water as a public good with economic value—a commodity for which users should pay.[75]

However, there is no uniform understanding on how water should be priced given the relative value attached to water during the periods of scarcity or abundance.[76] But, in defining water pricing as a means to efficiently allocate water resources, distinctions are made between the prices of water as a collectable resource and the prices of supplying water to water users.[77] The former refers to bulk water pricing that is administratively assigned by public authorities so that the user faces full social, economic, and environmental costs arising from the use of wholesale bulk water supply.[78] The latter refers to water prices set once the bulk water has been successfully abstracted, transported, stored, treated and distributed for final use by water users.[79] Based on these distinctions, two central issues emerge in the discussions of water pricing.

Firstly, the concept of water pricing assigned to self-supplied bulk water represents the 'economic value 'administratively assigned to raw water abstraction and use by different users as an economic resource.[80] In this context, bulk water pricing refers to an abstraction charge or water resource extraction fee used as means to recover costs incurred by public authorities to manage and allocate water resources as well as to signal water users that water

74 C J Perry, M Rock & D Seckler, *Water as an economic good: A solution, or a problem?*(International Irrigation Management Institute 1997) 7; Ronald G Cummings and Vahram Nercissiantz, 'The Use of Water Pricing as a Means for Enhancing Water Use Efficiency in Irrigation: Case Studies in Mexico and the United States' (1992) 32(4) Natural Resources Journal 731, 741.

75 Rosa Maria Formiga-Johnsson, Lori Kumler and Maria Carmen Lemos, 'The politics of bulk water pricing in Brazil: lessons from the Paraíba do Sul basin' (2007) 9(1) Water Policy 87, 88.

76 Luiz Gabriel T De Azevedo and Alexandre M Baltar 'Water Pricing Reforms: Issues and Challenges of Implementation' (2005) 21(1) International Journal of Water Resources Development 19, 23.

77 Collins A Ayoo and Theodore M Horbulyk, 'The Potential and Promise of Water Pricing' (2008) 61 (2) Journal of International Affairs 91, 92; see also R Q Grafton, L Chu and P Wyrwoll, 'The paradox of water pricing: dichotomies, dilemmas, and decisions' (2020) 36(1) *Oxford Review of Economic Policy* 86, 88.

78 Ayoo and Horbulyk (n 77) 92.

79 ibid

80 ibid 99.

is indeed a scarce commodity that should be used wisely.[81] In the literature, two forms of self-supplied bulk water pricing arrangements were identified as a means to effectively achieve these two basic objectives.[82] The first type relates to the setting of fixed costs that could be recovered by pricing arrangements such as abstraction fee, water use permit fee, and bulk water charge which simply reflects users' access rights to bulk water resources.[83] This form of water pricing is used as instruments for recovering administrative costs of managing and controlling the bulk water abstraction system which would otherwise rely on funding allocations from the government.[84] The other forms of water pricing relates variable costs that could be charged for abstracting water based on the volumes of water supplied to encourage the efficient use of bulk water resources. This type of variable cost water pricing arrangement requires the need to monitor consumption of self-supplied bulk water through volumetric instruments to measure the unit price per volume of water abstracted at the source point.[85]

Secondly, once users' access rights to bulk water resources is guaranteed through water use permit fee, labour and capital is necessary to realize the withdrawal, transportation, treatments and distribution of bulk water for final use by bulk water users. The physical abstraction of surface water and groundwater requires capital investment in water supply infrastructures such as pumping machines, building reservoirs or dams, canals for the purposes of removing, storing and distributing specified amounts of water from its natural source. For instance, the supply of municipal or commercial water requires the process of abstraction, storage and treatments of bulk water and distribution of tap water to the domestic water users. Similarly, the supply of bulk water for irrigation purposes requires the pumping of water from its sources and the building of dams and canals for storage and transportation of water to irrigation land. In the public water supply system, water pricing is

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81 ibid

82 Hilda Guerrero-Garcia-Rojas, Faustino Gómez-Sántiz and J Refugio Rodríguez-Velázquez, 'Water Pricing in Mexico: Pricing Structures and Implications' in Ariel Dinar, Víctor Pochat, and José Albiac-Murillo (eds), *Water Pricing Experiences and Innovations* (Springer 2015) 236.

83 Marielle Montginoul and others, 'Water Pricing in France: Toward More Incentives to Conserve Water' in Ariel Dinar, Víctor Pochat, and José Albiac-Murillo (eds), *Water Pricing Experiences and Innovations* (Springer 2015) 155.

84 ibid

85 Antonio Massarutto, 'Water Pricing in Italy: Beyond Full-Cost Recovery', in Ariel Dinar, Víctor Pochat, and José Albiac-Murillo (eds),*Water Pricing Experiences and Innovations* (Springer, 2015) 211

relatively equivalent to the cost of recovering the operation and management for bulk water supply.[86] In private water supply systems, market forces determine the price of bulk water supply.[87]

In brief, water pricing policy in this study is used to refer to the economic instruments for assigning value to the use of water resources to the extent that Ethiopian water policy uses it as a scheme of exchange value for the initial allocation of water for private users with the view of promoting water as economic good. Yet there is a serious challenge of determining the value of water while at least theoretically water pricing as means to assign value to water use could be a triggering point for the initial allocation of water with a potential consequence for the development of water rights further triggering the nature of price based water acquisition rights as water property rights.[88]

2.3. Property rights foundations of water abstraction rights

The characterization of a thing, be it intangible or tangible thing, as a property has significant ramifications under the property law given its effect in creating legal relationships between persons with respect to such a thing.[89] The notion of property in general and property rights in particular is vital to understand whether water rights can be characterized as property rights. In light of this, the following section first discusses two major theoretical approaches—conceptualism and instrumentalism to understand property and property rights.[90] It then briefly discusses how these theoretical approaches relate to the water property abstraction rights.

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86 Antonio Massarutto, 'Water pricing and full cost recovery of water services: economic incentive or instrument of public finance?' (2007) 9 Water Policy 591, 599.

87 Ayoo and Horbulyk (n 77) 93.

88 David Zilberman and Karina Schoengold, 'The use of pricing and markets for water allocation' (2005) 30(1) Canadian Water Resources Journal 47, 53; C Dirck Ditwiler, 'Water Problems and Property Rights—An Economic Perspective' (1975) 15(4) Natural Resources Journal 663, 669.

89 Sandra B Zellmer & Jessica Harder, 'Is Water Property?' (2007) Nebraska Lawyer 5, 6; Abraham Bell and Gideon Parchomovsky, 'A Theory of Property' (2005) 90 Cornell Law Review 531, *533.*

90 Jonnette Watson Hamilton and Nigel Bankes. 'Different views of the cathedral: The literature on property law theory' in Aileen McHarg and others (eds), *Property and the Law in Energy and Natural Resources* (Oxford University Press 2010) 22.

2.3.1. Conceptualist approaches to property rights

Conceptualists heavily rely on the notions derived from the Roman law that posits property as 'things' focusing on the preeminence of *in rem* rights.[91] Such conception of property, in the Anglo-American legal tradition, was further formulated by Blackstone that became the basis for textbook understanding of property law. Blackstone's conception of property refers to 'that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe.'[92] Blackstone's conception of property bundles four elements that came to be known as the 'absolutist view of property. [93]

First, property is concerned with the primacy of rights *in rem*, referring to those rights which an individual may acquire in and to such external things as are unconnected with his person. In this sense, property rights are rights in *rem* that an individual, irrespective of consent, avail against the rest of the world as opposed to contractual rights that avail only against other parties to an agreement, right *in personam*.[94] Second, property solely refers to property belonging to a single individual which in the literature of property law is construed as the regime of private property.[95] Third, property right attached to the thing is the right to exclude other individuals in the universe considering excludability as the ultimate attributes of property rights.[96] Fourth, the idea of property envisages tangible things such as land over which property rights 'extends indefinitely upwards into the heavens and downwards to the center of the earth.'[97] This conception, restates the old maxim of 'He who owns the soil owns everything above and below, from heaven to hell' shortly known as *ad coelum* doctrine and dictated the notions of ownership, use, development, protection, and transfer of groundwater in riparian land tenure.[98]Therefore, based on Blackstonian conception, it could

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91 Bell and Parchomovsky (n 89)535.

92 William Blackstone, 11 Commentaries on the Laws of England, Chap. 1, 3 (Wayne Morrison ed., 2001) (1765-1769).

93 Bell and Parchomovsky (n 89) 544.

94 ibid 543.

95 ibid

96 ibid

97 ibid

98 Monika Ehrman, 'Application of Natural Resources Property Theory to Hidden Resources' (2020) 14 International Journal of the Commons 627, 631-32.

not be possible to talk about property without the cumulative rights to use, exclude others and alienate such property.[99]

Similarly, the conception of 'things-ownership' understanding of property rights that envisages individual right to fully own the thing is recognized under the Civil Code of Ethiopia most likely owing its familial affiliation to the civil law traditions of Roman origin.[100] The term ownership refers to indivisible and widest right on a corporeal thing that bestows upon the owner powers to *use (usus),* exploit the fruits of the thing *(fructus)* and the right to transfer and dispose of *(abusus)*of the thing for consideration or gratuitously.[101] Like Blackstonian 'physicalist conception of things' is also reflected in the Ethiopian Civil Code referring to corporeal chattels which have a material existence.[102]

However, within the conceptualist approach, the idea that property rights belonging to a given individual tend to be fully owned, have undergone significant conceptual refinement due to 'the innate complexity of relationships inherent in property'.[103] In a world of free market economy, the conception of full property ownership proves difficult to reconcile given the free choice of individuals to trade and give away some 'incidents of ownership' that in turn facilitates divisibility or fragmentation of full ownership and control over a thing owned.[104] The inherent rights of the property owner to form bundles of rights according to their own free choosing brought about the re-imagining of property rights as a bundle of rights as a substitution for a 'thing ownership conception of property'.[105]

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99 Margaret Davies, *Property: meanings, histories, theories* (Routledge-Cavendish 2007) 20.

100 Paul Brietzke, 'Private law in Ethiopia' (1974) 18(2) Journal of African Law 149, 160; Jacques Vanderlinden, 'Civil law and common law influences on the developing law of Ethiopia' (1966) 16 Buffalo Law Review 250, 257-58.

101 The Civil Code of Ethiopia (1960) art 1205; For similar civilian law discussions of 'ownership' see Sabrina Praduroux, 'Objects of property rights: old and new' in M Graziadei and L Smith(eds), *Comparative property law* (Edward Elgar Publishing 2017)

102 ibid arts 1126 and 1127.

103 Mikayla Novak, 'Property Rights in an Entangled Political Economy' (2018) 24(1) Journal des Économistes et des Études Humaines 8.

104 Gerald Gaus, 'Property,' in David Estlund (ed), *The Oxford Handbook of Political Philosophy* (Oxford University Press 2012) 93–112 See also James E Krier, 'The (Unlikely) Death of Property' (1990) 13 Harvard Journal of Law and Public Policy 75, 76.

105 Denise R Johnson, 'Reflections on the Bundle of Rights' (2007) 32 Vermont Law Review 247, 250.

The notion of 'bundle of rights' was prominently popularized with the work of Anthony Honoré on the ownership conception of property rights.[106]According to Honoré, the ownership can be fragmented down into pieces that have direct ramifications as between the persons in relation to certain property. These 'incidents of ownership' that make up the bundle of property rights, according to Honoré, encompasses:' the right to possess, the right to use, the right to manage, the right to the income, the right to the capital, the right to security, the rights or incidents of transmissibility, the prohibition of harmful use, liability in execution, and the incident of residuarity.'[107] According to Honoré, the bundle of rights view of property underpins that 'each right, power, privilege, immunity or duty is but one stick in the aggregate bundle constitutes property relationship'.[108]

However, the conception of property as the 'totality of rights, powers, privileges and immunities which' one could have with respect to a 'thing' is attributable to Newcomb Hohfeld.[109] Property ownership, as explained by Hohfeld, represents 'a complex set of legal relations' in which the rights and interest of persons with respect to the thing are symbiotic rather than a simple and non-social relationship between a person and a thing that Blackstone portrayed.[110] This illustrates that there are also possibilities in reality that individuals may also hold these rights in a fragmented way, illustrating the notion that there exists not just one right inherent with property, but bundles.[111]

Richard Epstein aptly explains the bundle of rights notion expressing that 'all voluntary transactions that create divided interests move along multiple margins. But there is no risk here so long as those divisions produce gains from trade to the parties and neither increase nor decrease rights against third persons.'[112] Last but not least, the conception of a bundle of

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[106] A M Honore, 'Ownership', in Patricia Smith (ed), *The Nature and Process of Law: An Introduction to Legal Philosophy* (Oxford University Press 1993) 370-75.

[107] ibid

[108] ibid

[109] W Newcomb Hohfeld, 'Fundamental Legal Conceptions as Applied in Judicial Reasoning' (1917) 26 The Yale Law Journal 710, 749. For detailed discussion on 'Hohfeld's conception of property see Pavlos Eleftheriadis, 'The Analysis of Property Rights' (1996) 16 Oxford Journal of Legal Studies 31-54.

[110] Hohfeld (n 109) 746. See also Dan Fuller, 'Ownership as Authority' (2014) 5 The King's Student Law Review *16.*

[111] Thomas C Grey, 'The Disintegration of Property' (1980) 22 Nomos 69, 70.

[112] Richard A Epstein, 'Bundle-of-Rights Theory as a Bulwark against Statist Conceptions of Private Property' (2011) 8 (3) Econ Journal Watch 223, 233.

rights redefines property as any stick in a combined bundle of rights that constitutes property relationship rather than as an absolute rights of use, exclusion and transfer concentrated in a single individual as Blackstone originally claimed.[113] The notion of bundle of rights re-conceptualizes property as a relation between people with respect to a thing instead of being a right to a thing and thereby repudiates any unchanging meaning to the term property and deemphasizes the prominence of the thing with regard to which the rights are claimed.[114] Therefore, given the intangible nature of water, and predominantly public ownership of water resource, the conception of bundles of property rights creates a room for the possibility to envisage water property rights as one or more sticks in the bundle.

2.3.2. Instrumentalist approach to property rights

The notion of instrumentalism essentially explicates property as 'the institution or system of rules that protects people's entitlements to the control of resources.'[115] Instrumentalists see the institution of property as a means to another end, as a device for capturing and retaining certain kinds of economic value. Accordingly, property is viewed as a legal field that stands on its own and serves its own goals in the sense that rules establish legal rights to draw a benefit from a valuable resource. A more specific instrumentalist approach to property analyzes 'whether recognizing property rights in a given thing is consistent with the objects and intrinsic values that property as an institution should serve.'[116]

The law and economics idea of property commonly referred to as 'legal property rights' holds the idea that law assigns property rights to individuals with the instrumentalist role of creating incentives for productive use and development resources as it secures the holder of such legal rights to benefit from the valuable resource.[117] For instrumentalists, the role of property law is to facilitate an efficient allocation of resources by establishing rules for voluntary exchange of property rights between individuals who expect to obtain benefits

113 Johnson (n 105) 250.
114 Bell and Parchomovsky (n 89) 545.
115 Hamilton and Bankes (n 90) 28.
116 Hope Johnson and others, 'Statutory Entitlements as Property: Implications of Property Analysis Methods for Emissions Trading' (2017) 43 Monash University Law Review 421, 432.
117 Emily Sherwin, 'Two- and Three-Dimensional Property Rights' (1997) 29 Arizona State Law Journal 1077, 1082-3

flowing from this particular resource.[118] It is argued that the rights of individuals to the use of resources in any society are to be construed as the creation of the law backed by states' sanctions to ensure expectations of deriving benefits from uses of such resources will be effective.[119] In the context of natural resources, instrumentalists predominantly view the functions of property as a means to discourage wasteful depletion of resources by safeguarding that the person entitled to exploit them will also bear the costs of over use.[120]

For instrumentalists, property as a bundle of rights can be best conceptualized not as arbitrary sticks, but rather as 'a means to achieve identified ends'.[121] As such, the ends that property as an institution should achieve depend on the underlying objectives and values that legal entitlements create in the bundle of rights. The instrumentalist dimensions of the bundle of rights 'captures the truism that property is an artifact, a human creation that can be, and has been modified in accordance with the human needs and values.'[122] In the literature of property rights economics, it is argued that society develops property rights for particular resources to keep up with the legal and economic developments in which new sets of rights in property can be amenable to changing circumstances.[123] The bundle of rights conception in its instrumentalist sense recognizes that property rights can be disaggregated to serve some values separately since 'property's whole may often be distinct from the sum of its parts.'[124]

Furthermore, in light of the objectives of treating water as an economic good and its underpinning purposes, it is vital to briefly discuss two varieties of the instrumentalist approach to property rights. The two instrumentalist approach includes the thoughts of

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118 Timothy Besley and Maitreesh Ghatak, 'Property Rights and Economic Development', in Dani Rodrik and Mark R Rosenzweig (eds), *Handbook of Development Economics* Vol. 5 (Elsevier 2010) 4527.

119 A A Alchian and W R Allen, *Exchange and Production: Theory in Use* (Wadsworth Publisher 1969)158; Andrzej Rapaczynski, 'The Roles of the State and the Market in Establishing Property Rights' (1996) 10 (2) Journal of Economic Perspectives 87, 92.

120 Gary D Libecap, 'The tragedy of the commons: property rights and markets as solutions to resource and environmental problems' (2009) 53(1) The Australian Journal of Agricultural and Resource Economics 129, 133.

121 Johnson and others (n 116) 432.

122 Hanoch Dagan, 'The Craft of Property' (2003) 91 California Law Review 1457, 1532

123 Joshua Getzler, 'Theories of Property and Economic Development' (1996) 26(4) The Journal of Interdisciplinary History 639, 641.

124 Jane B Baron, 'Rescuing the Bundle-of-Rights Metaphor in Property Law' (2013) 82(1) University of Cincinnati Law Review 57, 89.

'commercial realities' and the 'progressive property' both underlying 'the ends that property be designed to achieve' [125]

2.3.2.1. Commercial reality (commodity) approach

The commercial realities or expectations approach focuses on the instrumental value of property with the role of facilitating market transactions.[126] This approach recognizes certain things or resources as the object of property based on the criteria of commodification and the nature of rights to a legal entitlement depending on how it is treated in commerce. According to commodification criteria, a thing or a resource is considered as property over which proprietary interests exist based on how it is treated in commerce either as a matter of fact or law.[127] Richard Posner argues that commodification of a valuable (scarce as well as desired) resource depends on excludable and transferable (alienable) characters of ownership rights.[128] In other way, instrumentalist conception of property that adopts the approach of commercial realities to determine the object of property gives primacy to alienation rights as a means to achieve the desired end such as by maximizing its 'economic value'.[129] The instrumental role of property as an institution for enabling transferable rights, is best served through market transactions based on the exchange values explained in terms of pricing.[130] Therefore, recognition of water as an economic good to allocate water in all its competing use is intrinsically linked to the instrumental role of property rights as an enabling mechanism to secure the transfer of water allocation rights in the mater market.

2.3.2.2. Progressive property approach

A more nuanced instrumentalist understanding of property originates from the 'progressive property' thought that holds the view that property should ultimately serve the 'public interest, whether by facilitating market transactions, increasing obligations or restricting

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125 Johnson and others (n 116) 432.

126 ibid

127 Richard Posner, *The Economic Analysis of Law* (Wolters Kluwer Law & Business 9th edn 2014) 34.

128 Hamilton and Bankes (n 90) 33.

129 Bell and Parchomovsky (n 89) 587–88.

130 Diana Liverman, 'Who Governs, at What Scale and at What Price? Geography, Environmental Governance, and the Commodification of Nature' (2004) 94(4) Annals of the Association of American Geographers 734, 734.

particular rights.'[131] This approach emphasizes that the role of property and the rights that it involves should be determined by commonly held human values that property serves and the social relationships it nurtures or fosters.[132] Unlike the commercial realities approach that profoundly rely on the assumptions of a single metric such as efficiency or utility maximization, progressive property contends that property serves a diverse collection of values without essentializing the right to exclude as significant part of property.[133]

Proponents of progressive property discards the limited application of efficiency and utility maximization as sole means of examining laws and establishing property norms by contending that 'property implicates plural and incommensurable values'.[134] The framework of progressive property as an alternative view is not concerned with 'which intrinsic attributes will establish a property right but what should the effect of property rights be and what limitations on property rights are required to achieve particular goals.'[135] From this vantage point, property rights and the corresponding obligations must be suitable to achieve the underlying social goals and values. It is vital to note that while the conception on the limitations of property rights and its effect on third parties is as old as the institution of property itself, the progressive property framework further capitalizes on the social obligation of property rights holders towards non-owner by emphasizing the limitations on the right to exclude. The insight that can be drawn from the thoughts of progressive property is the importance of recognizing the limitations of the effects of treating water as an economic good that creates property rights to achieve the goal of efficient allocation of water resources.

2.3.3. Water abstraction rights as property rights

As indicated under the preceding section, the instrumentalist approach recognizes the institution of property rights in water resources provided that economic and social objectives

131 Hope Johnson and others (n 116) 432; Timothy M Mulvaney, 'Progressive Property Moving Forward' (2014) 5 California Law Review Circuit 349, 352.
132 Gregory S Alexander and others, 'A Statement of Progressive Property' (2009) 94 Cornell Law Review 743.
133 Hope Johnson and others (n 116) 434.
134 Gregory S Alexander and others (n 132).
135 Hope Johnson and others (n 116) 434.

are served by characterizing water abstraction rights as property rights.[136] Yet, the status of water rights as property is the subject of continuous intellectual debate with diverse answers to the question as to whether interests or entitlements in water are legally recognized as property.[137] As noted in the previous two sections of this Chapter, the lack of consistent answer in the analysis of water as property rights emanates from the lack of consensus on the conception of property itself. Therefore, an approach to unbundle the conception of property in water requires scrutiny of whether water can be a legal object of property and whether the relationships of persons with respect to water possess features of property rights.

On the question of whether water can be an object of property, examining the physical properties of water is critically important. The major reason advanced by conceptualist scholars of property for hesitating to characterize water as object of property emanates from the conception that the objects of property rights are defined 'as specific things that always remain stable in quantity and quality, such as a piece of land'.[138] It is argued that water rights are not subject to property rights, since water resources over which water rights could possibly exist, cannot be completely specifiable in terms of quantity or quality. Based on this notion, the fact that water lacks physical existence makes it impracticable for a person to exercise property rights over the corpus of water in a natural water course.[139] However, the idea that water lacks the object of property and attributes of property rights in its physicalist sense is fraught with two major conceptual problems.

Firstly, the concept that water lacks the character of object of property relies on the consideration that, water as it exists in its natural course, cannot exist as a physically divided resource can be problematic. The fact that a physical unit of water in its natural course or fugitive state cannot be physically divided and hence cannot be associated with a particular person doesn't necessarily mean that there are no possibilities for considering a specified

[136] See also Sandra B Zellmer and Jessica Harder, 'Unbundling Property in Water' (2008) 59 Alabama Law Review 679, 681-82.

[137] Shelley Ross Saxer, 'The Fluid Nature of Property Rights in Water' (2010) 21 Duke Environmental Law and Policy Forum 49; Scott and Coustalin (n 37) 822.

[138] Min Jiang, *Towards Tradable Water Rights: Water Law and Policy Reform in China* (Springer 2018) 110.

[139] Anderson (n 52)474.

amount of in-stream water as an object of property that can be the subject of property rights. Despite the inherent fluidity of water as an unavoidable biophysical reality, the 'rule of capture doctrine' and prescriptive water entitlement can allow individuals to take and use water off-stream subjecting water to a physical taking.[140] The use of labour and modern technologies such as pumps and diversion canals has made it possible that human beings can quantify a specific amount or share of water available from the water body over which a person enjoys property rights.[141] The object of property as such becomes a specified amount of water physically taken from a particular natural course measured in terms of volumetric proprietary interest. The legal right for the physical withdrawal of specified amounts of water from its natural source ultimately defines quantity of water as an object of property. This line of argument reinforces the idea that water as an object of property need not be physical things but legal things.[142] What is more relevant is the fact that water as an object of property need only be adequately well defined in a variety of settings the boundaries of which are not physical lines but legal rules expressed in a particular form.[143]

Secondly, the conception that physical properties of water make it incapable of exclusive possession and hence lacks property rights attributes of excludability as it exists in natural course is also equally implausible. It is a hydrological fact that water is constantly moving along the surface percolating into the ground, and vaporizing into the air resulting in uncertainty of its available quantity. Yet as mentioned above, the object of property in water relates to legal entitlement explained in terms of the right to abstract a specified amount of available water from its particular source. Hence, the concept of excludability as an attribute of property rights in water, only relates to the specific amount of water and not to the physical possession or ownership rights of a water body or a portion of it in situ.[144]

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140 J David Aiken & Raymond J. Supalla, 'GroundWater Mining and Western Water Rights Law: The Nebraska Experience' (1979) 24 South Dakota Law Review 612.

141 John E Ethell, 'Irrigation: Property in Water Rights and Ditches' (1917) 85(13) Central Law Journal 226; Bruce Yandle and Andrew P Morriss, 'The Technologies of Property Rights: Choice among Alternative Solutions to Tragedies of the Commons' (2001) 28 Ecology Law Quarterly 123, 125.

142 Saxer (n 137).

143 ibid

144 Zellmer & Harder (n 136) 681–87.

Therefore, legal recognition of a specific amount of water through the mechanisms of water abstraction permit as discussed in section 2.2.6 can establish excludable water abstraction rights in two ways. First, it allows holders of water abstraction permits as potentially excludable water abstraction rights from particular water sources since others who lack permits are legally prohibited to abstract. However, lack of enforcement of water abstraction permit requirements may create a tendency of open access to water sources resulting in the prevalence of what Yoram Barzel considers informal 'economic rights'.[145] Unlike the legal status of water abstraction rights based on the permit system, economic rights lack legal backing that safeguards the object of property and its attendant attributes of property rights in water.

2.3.4. 'Unbundling' water property rights

In water law jurisdictions that recognize water resources as public ownership, water rights as property rights are bundled together vested in the state which however according to Hohfeld's incidents of ownership represent a set of legal relations in which a bundle of rights (public ownership of water) can be divided into several water rights. In other words, public property rights to water constitutes a single bundle of water rights as the whole or in aggregate unless it is unbundled into separable legal rights to confer property rights to serve a particular goal.[146] Despite the differences in the types (as private or public), property rights in water can be unbundled into several legally distinct but mutually interconnected water rights provided that the law sufficiently defines the breadth of rights.

In the context of common-pool resources, Edella Schlager and Elinor Ostrom identify operation and collective choice property rights regimes that distinguish among diverse bundle of rights that may be held by water users.[147] Operational property rights involve

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[145] Yoram Barzel, Economic Analysis of Property Rights (CUP, 2nd edn 1997) 3; Geoffrey M Hodgson, 'Much of the 'economics of property rights' devalues property and legal rights' (2015) 11(4) Journal of Institutional Economics 683, 692; Yoram Barzel, 'What are 'property rights', and why do they matter? A comment on Hodgson's article' (2015) 11(4) Journal of Institutional Economics 719, 722.

[146] Edella Schlager and Elinor Ostrom, 'Property-Rights Regimes and Natural Resources: A Conceptual Analysis (1992) 68 Land Economics 249, 254; Yahua Wang, *Assessing Water Rights in China* (Springer 2018) 24. See also Ruth Meinzen-Dick and Esther Mwangi, 'Cutting the web of interests: Pitfalls of formalizing property rights' (2008) 26 (1) Land Use Policy 36, 37.

[147] Schlager and Ostrom (n 146) 251.

access and withdrawal rights in which the former grants the 'right to enter a defined physical property' and the later grants the 'right to obtain the products of resources' such as abstraction of bulk water.[148] Collective choice property rights include management, exclusion and alienation rights to a resource. The right of management comprises the right to regulate internal use partners and alter the resources by creating improvements. The right to exclusion contains the right to determine a person or a group who will have an access right to common pool resources, and how that rights may be transferred to others. The right to alienation involves the right to transfer management and exclusion rights through sell or lease or both.[149]

Furthermore, it is also vital to look into the distinctions between the bundle of rights in terms of how they interact at the level of operational and collective choice in terms of resource user categories. According to Schlager and Ostrom, the difference between operational and collective choice level property rights rests in the fact that the latter relates to the authority to arrange and participate in the definition of future operational level rights.[150] As such, a person who has access and withdrawal rights may lack the authority to partake in the collective actions such as undertaking the decision to modify operational level rules of access and withdrawal rights of a particular resource.

On the basis of the Schlager and Ostrom framework, categories of users holding operational level property rights of access to, and to withdraw water from a particular source are 'authorized users'.[151] Thus, authorized users lack the power to arrange their own water abstraction rules or exclude users from gaining access to a particular water source. However, an individual water user or a group of water users who enjoy right of management in addition to access and withdrawal rights are 'claimants.'[152] Unlike authorized users of water resources, claimants may formulate operational level rights of withdrawal. Like, authorized water users, claimants lack the authority to specify who may or may not have access to water resources nor can alienate their right of management.

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148 ibid 252
149 ibid 251
150 ibid 252
151 ibid
152 ibid 253

Another distinction between operational and collective choice level property rights can be found between the right to exclusion and management. The right to exclusion, as a collective choice property right, authorizes individuals or groups who hold rights of exclusion to arrange operation level rights to access a resource.[153] Likewise, the right of management as a collective choice right authorizes its holders to arrange operational level withdrawal rights governing the use of a water resource such as determining how, when and where abstracting from a given resource may occur and whether and how the structure of a resource may be improved.[154] Accordingly, individual water users who possess rights of management and exclusion can be considered as 'proprietors' as they can authorize who may access resources and how resources may be utilized. Similar to claimants, proprietors do not possess the right to alienate the rights to management and nor can alienate their right to exclusion as such rights are only left to 'owners' who can enjoy the full set of bundle of rights.

An additional distinction relates to the fact that operational and collective choice property rights may be held cumulatively or independent of one another.[155] A person may hold a full set of operational and collective choice property rights representing full ownership of property rights as in the classical case of private property rights. A person may also hold an access rights to a specific resource without holding a withdrawal rights, withdrawal rights without holding management rights, management rights without holding an exclusion rights, and exclusion rights without holding an alienation rights.[156] This kind of property rights arrangement indicates the legal possibilities in which an individual may hold property rights that do not include the full set of property rights to a particular resource as traditionally denoted in the concept of property ownership rights.

It is also crucial to note as to whether holding a stick of water right alone without another concomitant right is meaningful in terms of achieving the purpose of holding water property rights. For instance, a water right that entitles individuals to the off-stream water consumption may require meaningful enjoyment of withdrawal rights which further requires

153 ibid
154 ibid
155 ibid 252
156 ibid

access rights. Because, it is futile to hold water abstraction right without the attendant right to access a particular water resource. The effective exercise of consumptive water rights at the level of operational property rights, requires the cumulate entitlements to withdrawal and access rights. In addition, the demand for an extensive set of property rights to water at the operational level may further require the need for specific operational rules that permits individuals holding withdrawal and access rights to temporarily or permanently transfer these rights through alienation. However, since operational level property rights is limited to access and withdrawal rights, the right to transfer is not equivalent to alienation of management and exclusion rights.

As discussed in Section 2.2.5, water rights that authorize users to access and withdraw water from certain water sources emanate from a legally recognized water permit system. In the context of the public property rights regime to water resources, the water permit system can allow public authorities to address the specific needs of different water users by creating multiple property rights arrangements to effectively utilize water resources. However, it is vital to note that a water permit system that establishes operational level legal entitlements to access and withdraw a specific amount of water may not necessarily distinguish for what purposes such rights are granted and what individuals and groups can do with such rights.

For instance, for domestic water users, water abstraction rights may be limited to operational level rights to enter surface and ground water sources and withdraw a reasonable amount of bulk water. For a farmer who uses bulk water for subsistence level food production, water abstraction from either surface or ground sources would mean rights of accessing and withdrawing a reasonable amount of water for growing foods. However, as the purpose of this dissertation relates to the examination of the tradability of permit based water abstraction rights, the nature of water property rights in such a context needs further conceptual clarity going beyond the operational property rights limited to water use rights.[157]

[157] Council of Ministers Water Resource Management Regulation No 115/2005, art. 2(6)(hereinafter, 'Water Resource Management Regulation 2005') This regulation defines the term 'water use' as the use of water resources 'for drinking, irrigation, industry, power generation, transport, animal husbandry, fishing, mining', and 'discharge of treated wastewater'.

Beyond domestic water rights for drinking and subsistence level food production, the proprietary attributes attached to the economic use of water resources demands that water use permits may also broaden the breadth of water abstraction rights malleable to tradability as water property rights. The following section briefly discusses conceptual frameworks with which to analyze the tradability of water abstraction rights or entitlements arising from water use permit in Ethiopia and comparative countries under Chapters 6 and 7.

2.4. Conceptual frameworks for tradable water property rights

The legal qualification of water abstraction rights as property rights has far-reaching effects on investment, conservation and environmental protection since establishing well-defined and secure property rights can foster stewardship and wise investment of labor and capital.[158] The conceptualizations of property rights in water as discussed under section 2.3 naturally leads to the idea that water abstraction rights share some characteristics of property rights. However, not all forms of water abstraction property rights are amenable to tradable water rights characteristics indicating the needs for further analysis. The following attributes or characteristics of property rights as an enabling legal conditions to determine the tradability of property rights are well-established in legal theory and economics analysis of property rights scholarship.[159]

The most comprehensive features of property rights is provided by Tom Tietenberg and Anthony Scott who outlined and theorized at least five major fundamental attributes that should be present in any property right.[160] This dissertation employed these characteristics of property rights to analyze the tradability of water abstraction rights. As identified in the

[158] Joshua Getzler, 'Theories of Property and Economic Development' (1996) 26(4) The Journal of Interdisciplinary History 639; Andrei Shleifer, 'Establishing property rights' (1994) 8 The World Bank Economic Review 93, 117.

[159] Stephen E Draper, 'The Unintended Consequences of Tradable Property Rights to Water' (2005), 20(1) Natural Resources & Environment 49; Tom Tietenberg and Lynne Lewis, *Environmental & Natural Resource Economics* (9th edn, Pearson Education 2012) 23; Michael Mckenzie, 'Water Rights in NSW: Properly Property?' (2009) 31 Sydney Law Review 443; Sharon Mascher and Deborah Curran, 'The role of private property rights in Australia's and Canada's modern water allocation regimes' in Erkki J Hollo (ed), *Water Resource Management and the Law* (Edward Elgar 2017)199; John Sheehan, 'The Commodification of the Asian Commons: Water as a Property Right' (2005) 9 *Asia Pacific Journal of Environmental Law* 100; M.W. Rosegrant & H.P Binswanger, 'Markets in tradable water rights: Potential for efficiency gains in developing country water resource allocation' (1994) 22 *World development* 1615.

[160] Scott and Coustalin (n 37) 829; Anthony Scott, *The Evolution of Resource Property Rights* (Oxford University Press 2008) 6.

methodology section of Chapter 1, these conceptual attributes mainly include; quality of title, exclusivity, durability, transferability and enforceability of rights. These five basic characteristics may have sub-characteristics that also are directed to the economic value of property rights useful for testing tradability of property rights in water abstraction permit systems.

2.4.1. Quality of title

The attributes of quality of title describes the extent to which the water abstraction right is secure and well-defined to adequately describe the nature of the holders' rights and duties constituted in the permit title deeds as a proof against others' claims.[161] Quality of title guarantees assurance of the right to enjoy water rights as it defines and specifies the relationship of title holders with respect to others.[162] Quality of title also relates to the extent to which water abstraction rights can be enforced before judicial or quasi-judicial bodies for protection and remedy in situations of violations of rights. In general, quality of title in water right can be mainly manifested in terms of registration of title deeds before a relevant water authority responsible for registering water access license similar to land registry to publicize water access entitlement information to interested third parties.[163] Furthermore, quality of title signifies well-defined water property rights that specifies separation of water entitlements from land title, nature of the resource to be exploited, the timeframe for exploiting such a resource, and the maximum amounts exploitable in a given time.[164]

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[161] Benito Arruñada, 'Property titling and conveyancing' in Kenneth Ayotte and Henry E Smith (eds), *Research Handbook on the Economics of Property Law* (Edward Elgar 2011) 239.

[162] Joseph William Singer, 'Property and social relations: From title to entitlement' in Charles Geisler and Gail Daneker (eds) *Property and values: Alternatives to public and private ownership* (Island Press 2000) 69.

[163] Abraham Bell and Gideon Parchomovsky, 'Of Property and Information' (2016) 116 Columbia Law Review 237, 241.

[164] Jessica Budds, 'Securing the market: Water security and the internal contradictions of Chile's Water Code' (2020) 113 Geoforum 165; Michael Woolston, 'Registration of Water Titles: Key Issues in Developing Systems to Underpin Market Development' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar Publishing Limited 2005);Hilmer J Bosch, and Joyeeta Gupta' 'The tension between state ownership and private quasi-property rights in water' (2023): 10(1) Wiley Interdisciplinary Reviews: Water e1621.

2.4.2. Exclusivity

The nature of property rights in water requires for qualified application of excludability attributes as a test of tradable property rights. The fugacious nature of a water resource makes it suitable for open access use which in turn creates an opportunity for those who demand and supply water to equally compete for its exploitation. In the absence of excludable water rights, open access can result in the 'tragedy of the commons' where in a common pool natural resource is susceptible to overexploitation as each selfish, yet economically rational, water user takes measures to promote self-interest with less concern for externalities that diminish the resource.[165] Exclusivity as a basic attribute of water property rights describes the extent to which individual or group water users can be prevented from accessing a water resource or enjoying the benefits that flow from it.[166]

Schlager and Ostrom's operational property rights conceptual framework allows for attenuated characteristics of excludability as a test for the identification of tradable water abstraction rights.[167] The conception of exclusivity of water abstraction rights recognizes that exclusive access to water resources by water use permit holders can be diminished by the other competing water permit holders or priority rights of exempted water users. Hence, the exclusivity characteristic of water abstraction rights relates to a permit system that restricts non-permit holders to access and withdraw water from its common pool source.

In strictly regulated and controlled water resources such as irrigation dams, access to such common pool physical water resources can only be granted for users who hold water use permits entitled to abstract specified amounts of water thereby effectively excluding non-permit holders who are required to use water with the permit system. In this situation, individuals or groups holding water permit rights exclusively enjoy access to common pool water resources. But it is vital to understand that the characteristics of exclusivity when also applicable to permit-based water abstraction rights should not be equated with its classical

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165 Zellmer and Harder (n 136) 683.

166 Anthony Scott (n 160) 6.

167 Svetozar Pejovich, 'Towards a General Theory of Property Rights' (1971) 31 (1-2) Journal of Economics 141, 144. 'The term attenuation is used to signify the degree of restriction on the owner's right to the exclusive use of a thing'.

property rights conceptualization. In examining the principles and practices of tradable permits, Tietenberg briefly explains how 'tradable permit systems privatize the right to access the resources rather than privatizing the resource' *per se*.[168] Hence, it logically follows that a water use permit system creates exclusive rights to access water resources and does not create exclusive property rights to the resource itself.

2.4.3. Durability

The attributes of durability, as a useful element of water abstraction rights acquired through a water permit system, refers to the length or period of time that a resource user is allowed to abstract from the particular resource.[169] The allowable length of time that can be limited to months or years emanates from statutory requirements subject to periods of renewal or expiry. Hence, based on the length of time, duration of water abstraction rights can be short and long despite lack of general consensus as to what period of time constitutes long or short duration.[170] But it is argued that a longer period of time for water abstraction rights creates a stable duration of property rights that provides incentives for water users to efficiently utilize, protect and invest in the improvement of the water use practices.[171]

2.4.4. Transferability

The attributes of transferability lie at the heart of property rights exchange essential to facilitate the efficient use and optimal allocation of water as it encourages allocation and re-allocation of scarce resources to the highest value in water markets.[172] Anthony Scott and Veettil *et al* commonly describe the attributes of transferability as the extent to which water

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168 Tom Tietenberg, 'Tradable Permits in Principle and Practice' (2006) 14 (2) Penn State Environmental Law Review 251, 266.

169 Anthony Scott (n 160) 7; Lin Crase and Brian Doller, 'Water rights: a comparison of the impacts of urban and irrigation reforms in Australia' (2006) 50(3) The Australian Journal of Agricultural and Resource Economics 451, 452.

170 Hodgson (n 43) 63; Robert H Abrams, 'Water Allocation by Comprehensive Permit Systems in the East: Considering a Move away From Orthodoxy' (1990) 9(2) Virginia Environmental Law Journal 255, 261(at footnote).

171 Richard Ausness, 'Water Rights Legislation in the East: A Program for Reform' (1983) 24 (4) William & Mary Law Review 547, 548; Bruce R Huber, 'The Durability of Private Claims to Public Property' (2013) 102 The Georgetown Law Journal 991, 997.

172 John J Pigram and Warren F Musgrave, 'Transferability of Water Entitlements in Australia' (1990) 5 Regulated Rivers: Research & Management 391, 392.

abstraction permit holders can easily transfer their water entitlements to others, in return for fair compensation, either temporarily or permanently, within the specified period of time.[173]

The concept of transferability also involves the sub-attributes of divisibility and refers to the extent to which water abstraction permit holders transfer a party of a property right to water through the concept of unbundling of water use entitlements. While the attributes of transferability generally enables water use permit holders to transfer individual or group water abstraction rights to others, the features of divisibility specifically ensures possibilities to partially transfer allocation water rights to other persons who demand or need specified amounts of water. Transferability and divisibility rights in water abstraction permits can be attenuated because of the relative scarcity of water and rights assigned at subordinate level respectively. Hence, a water use permit that confers transferability of water rights indicates the degree or quality of tradable water property rights as it encourages reallocation of water rights leading to marketable water rights in water resources.

2.4.5. Enforceability

The concept of enforceability refers to the attributes of property rights with the absence of physical or regulatory interference on water abstraction permit rights and quantity of water abstracted and as property rights of authorized users. An enforceable water property rights refer to a condition where water permit holders could enforce their water rights before judicial or quasi-judicial bodies against third parties or government interference in a way that restricts their water abstraction rights as legally entitled under the water use permit. Hence, the attributes of water property rights enforceability captures the idea that the law regulating water use permits provides legal assurance for permit rights holders against involuntary seizure or encroachment by either the state who granted the permit or other permit or non-permit holders.[174]

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173 Prakashan Chellattan Veettil and others, 'Complementarity between water pricing, water rights and local water governance: A Bayesian analysis of choice behaviour of farmers in the Krishna river basin, India' (2011) 70 (10) Ecological Economics 1756, 1757.

174 Tietenberg and Lewis (n 159).

2.5. Chapter summary

To better understand water property rights, four major inferences can be drawn from the discussions on the theoretical and conceptual aspects of property rights examined in this Chapter. First, the understanding that property rights only relates to ownership of physical objects is no longer tenable as it fails to recognize a more nuanced view of property rights conceptions to accommodate modern economic and social conditions. It is shown that modern commercial realities and the intrinsic attributes of property rights forced mainstream property rights theorists to concede that the object of property need not be physical things but can be legal things.

The objects of property need only be sufficiently well defined to retain their identity in a variety of settings the boundaries of which are not physical lines but legal rules expressed in a particular form. This in turn clearly indicates that the intrinsic attributes of property rights are essentially malleable to the prevailing socio-legal and economic interests on water resources forcing states to create new sets of property rights in water to respond to national and global pressure on water resources. In this sense, the instrumentalist dimensions of the bundle of rights highlights how the institution of state or public property regime in water resources can be adapted to serve multiple social and economic interests through the recognition of separable legal entitlements recognized as property rights. Hence, the instrumental role of property rights as a means to allocate water rights provides a suitable basis for the analysis of tradability of water abstraction rights since it creates a nexus between the legal rights to the use of water and the allocation functions of treating water as economic good.

The second major inference that can be drawn from water allocation objectives through water use permit system as defined under Sections 2.2.2 and 2.2.5 is offering a legal room for the creation of bundle of water use rights in water resources indicating that the development of different degrees of property rights to water in common or public water resource ownership regime could be high legal probability. It provides explanations on how property rights in water abstraction can be initialized either as an intended or unintended consequences creating further curiosity to inquiry into whether such is the understanding of

water resources policy and legal context of public ownership of water resources as examined in Chapters 6 and 7.

The third major inference that can be drawn from the discussions under Section 2.4 is the nexus between the recognition of clearly defined, excludable, durable, transferable and enforceable water abstraction rights and water resource allocation through tradable water rights. It is shown that a water use permit that clearly defines water rights as transferable rights and enforceable against third parties may facilitate voluntary transactions in the sense that permit holders who are entitled to abstract a specified quantity of water can trade their water abstraction property rights as a good or commodity in the water market.[175] As property rights economists and legal scholars widely noted and discussed under this Chapter, enabling water trade through well-defined and transferable water rights with the legal force of property rights promotes efficient allocation of water resources.[176] It is under such theoretical and conceptual understanding that the efficiency implications of property rights that creates the normative conditions for transferable water rights links the allocability or tradability of water as an economic good.

Finally, the commercial realities approach discussed under Section 2.3 of this Chapter highlights the importance of understanding the nature and extent of recognizing water as an economic good for property rights to play the role of efficient allocation of such resources. This takes as to the threads of discussions under Chapters 3 to 7 to further understand how the international community is coming to recognize 'water as an economic good' and its economic value, thereby setting a critical process by which legal order is built at domestic and global context legitimizing the intervention of property rights approach to allocate such valuable natural resources. It is with such theoretical and conceptual perspectives of this Chapter that the relevance of investigations under the remaining Chapters is envisaged.

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175 Brian Richter, 'Water Markets: A New Tool for Securing Urban Water Supplies?' (2014) 106 (3) Journal AWWA(American Water Works Association) 26, 27

176 Gary D Libecap, 'Property Rights in Economic History: Implications for Research' (1986)23 Explorations in Economic History 227, 229; Zachary Donohew, 'Property rights and western United States water markets' (2009) 53(1) Australian Journal of Agricultural and Resource Economics 85, 88.

CHAPTER 3

Allocation of water as an 'economic good': global water policy and law

3.1. Introduction

As noted under Section 1.3 of Chapter 1, one of the global solutions recommended to address the problems of water resource allocation is the need to recognize water as an economic good. It is also indicated that though aspects of water as an economic good is extensively discussed in light of water supply service commercialization or privatization, its exact normative applicability as a means to guide the behaviours of states to efficiently allocate a scarce water resource is continuously debated in both academic and policy circles. In particular, there is lack of sufficient understanding on whether the recognition of water as an economic good is/ought to be interpreted to also refer to the recognition of water as a marketable good or commodity that is malleable to private proprietary interests when allocated in all its competing uses. This Chapter aims to examine how the recognition of 'water as an economic good' is normatively understood under global water policy and law as a solution to promote an efficient allocation of water resources.

In Section 3.2, how the contexts of 'global water policy and law' are understood in the dissertation will be explained. Section 3.3 provides a brief overview of how problems associated with water resources at domestic level evolved as a global issue justifying global solutions to address it. Section 3.4 discusses global and continental water policy norms that promote the treatment of water as an economic good. This section give due attention to non-binding water policies, declarations and statements that promote water as an economic good as adopted within and outside the United Nations global norm or agenda setting frameworks. It also draws attention to the roles of international financial institutions focusing on the World Bank (WB) in promoting water as an economic good through their water policy making avenues and roles in influencing countries to adopt such water policy imperatives in domestic regulatory space. Section 3.5 examines whether the recognition of water as an economic good crystalized the legal status of water as a good/product or services

under the international economic law focusing on multilateral trading rules and investment regulatory regimes. Section 3.6 provides a summary by briefly reiterating major points of the Chapter.

3.2. What constitutes global water policy and law?

Though there is a clear distinction between water policy and water law in terms of its normative force both at global and domestic levels, scholars pinpoint the implications where the difference between the two is merely recognized.[1]The term 'water policy and water law' is used to refer to statements, principles, declarations and treaty instruments forming both the non-binding and binding body of global norms capable of shaping 'shared conceptions of appropriate behaviour or action' in setting legitimate norms to institutionalize the principle and ideals of treating water as an economic goods at domestic, continental, regional and international levels.[2] In particular, the term 'global water policy' is used to refer to statements, principles and declarations on sustainable water development that has become more pre-eminent because of the partial absence of binding legal frameworks in setting international norms in key areas of sustainable use and allocation of water resources.[3]

The global norm setting movements since the 1990s have led to a situation where non-binding principles and declarations on water resource use is more consolidated into a coherent body of water policy frameworks than the developments of legal frameworks at the international level. Hence, the fact that global actors involved in the water development sector within or outside the UN system increasingly rely on non-binding commitments constituting principles and declarations as the only existing framework has been seen as a 'new pragmatic way' to develop binding international normative frameworks to ensure its effective implementation at the national level.[4]

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1 Philippe Cullet, 'Is water policy the new water law? Rethinking the place of law in water sector reforms' (2012) 43(2) Institute of Development Studies (IDS) Bulletin 69, 72.

2 Steven Bernstein, 'Liberal environmentalism and global environmental governance' (2002) 2 Global Environmental Politics 1, 2.

3 Jan Klabbers, 'The Redundancy of Soft Law' (1996) 65 Nordic Journal of International Law 167, 168.

4 Jürgen Friedrich, *International Environmental "soft law": the functions and limits of nonbinding instruments in international environmental governance and law* (Springer Science & Business Media 2013) 244-45.

Furthermore, these global water policy instruments in most cases acquire continental and national legitimacy as a 'soft law' with a significant degree of influence on domestic water regulatory space despite their non-binding nature.[5] Apart from the existence of binding legal frameworks regulating the use of trans-boundary water resources, these non-binding principles and declarations proclaimed at the global level has succeeded in penetrating national water policy and water law regulatory space of many countries as a minimum international or global standards to guide the utilization of domestic water resources. This context can be observable from the changing governance framework at the international level impacting the way non-binding global water policy instruments interact with the national water policy and water law frameworks.[6] For instance, within the UN system, the influence of non-binding instruments that universally call for the sustainable development of fresh water resources as enshrined under the Sustainable Development Goal No 6 (SDG6) is evident in many countries' domestic water policy and water law frameworks.[7] In this regard, countries comply with these kinds of non-binding norms at the national level to garner international legitimacy[8] by subscribing to these declarations and principles perceived to define a commonly shared global vision of managing freshwater resources for sustainable socio-economic development as for instance articulated in the SDG6.

Yet some countries' subscriptions to these non-binding global norms may be 'coercive' in nature since these countries are literally required to comply by adopting national water normative frameworks along these principles due strict conditionalities attached to the implementation of these global policy imperatives.[9] For instance, as discussed under Section 3.4.5 of this Chapter, developing and least developed countries, who are unable to finance

5 ibid, 373.

6 Alan Boyle, 'Soft Law in International Law-Making' in Malcolm David Evans (ed.) *International Law* (Oxford University Press, 4th ed, 2014)119.

7 Leslie-Anne Duvic-Paoli, 'From aspirational politics to soft law?: Exploring the international legal effects of sustainable development Goal 7 on affordable and clean energy' (2021) 22(1) Melbourne Journal of International Law 1, 3.

8 Peter M Haas, '*Epistemic Communities, Constructivism, and International Environmental Politics* (Routledge 2015) 285.

9 David A Wirth, 'Compliance with Non-Binding Norms of Trade and Finance' in Dinah Shelton (ed), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System* (Oxford University Press 2000)335; José E Alvarez, *International Organizations as Law-Makers* (Oxford University Press, 2005) 235-236.

water supply for different water use purpose, are encouraged to rely on international cooperation through which development assistance in the form of aid or loans or both are extended as a conditionality for their compliance with these global policy instruments.[10]

Finally, these non-binding declarations and principles have created a new way to weave global policy imperatives into a binding normative framework leading to a situation where the traditional ways of identifying the corpus of binding norm from non-binding policy instruments will become practically irrelevant to distinguish.[11] Hence, these non-binding global and continental policy frameworks like other binding international norms are equally relevant in shaping national water allocation policy and law making it pivotal to address the objectives set under this Chapter.

3.3. How water allocation problems are globalized: brief overview

In the early classical economic works of Adam Smith, the 'diamond-water paradox' was used in order to compare the value of water and diamond from the perspectives of scarcity and abundance of the two things.[12] Smith compared the price of water with diamond and argued that although water constitutes a basic component for existence and well-being, it holds a lower value in the market than diamonds owing to the scarcity of the latter.[13] For quite a long time, water was generally perceived to be an abundant public good whose economic value was not central for policy-making.[14] With the rise of capitalism, many resources which previously had no market value or were self-provided within households have been brought into the market with an exchange value.[15]

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[10] Chris Brummer, 'Why soft law dominates international finance: and not trade' (2010)13(3) Journal of International Economic Law 623, 640; Daniel E Ho, 'Compliance and International Soft Law: Why Do Countries Implement the Basel Accord?' (2002) 5(3) Journal of International Economic Law 649, 650.

[11] Jon Birger Skjærseth, Olav Schram Stokke and Jørgen Wettestad, 'Soft law, hard law, and effective implementation of international environmental norms' (2006) 6(3) Global Environmental Politics, 104, 104.

[12] H M Robertson and W L Taylor 'Adam Smith's Approach to the Theory of Value' (1957) 67(266) The Economic Journal 181, 187.

[13] Adam Smith, *The Wealth of Nations - An Inquiry into the Nature and Causes of the Wealth of Nations* (Edwin Cannan's edn. University of Chicago Press 1977) 48.

[14] W M Hanemann, 'The Economic Conception of Water' in Peter P Rogers, M Ramón Llamas and Luis Martinez (eds) *Water Crisis: Myth or Reality?* (Taylor & Francis 2006) 71.

[15] Daniel Jaffee, 'Enclosing Water: Privatization, Commodification, and Access' in Katherine Legun, and others (eds), *The Cambridge Handbook of Environmental Sociology* II (Cambridge University Press 2020) 305.

Furthermore, driven by economic globalization, as 'the process of integrating and opening markets across national borders,' the idea of commodification as 'the process of converting a good or service formerly subject to many non-market social rules into one that is primarily subject to market rules' gained momentum in many countries.[16] From this perspective, water commodification entails 'any act, practice or policy that promotes or treats' water 'as an article of commerce to be bought, sold, or traded through market transactions.'[17] The treatment of water as a commodity implies that the value of a certain amount of water is priced through market processes leading to the commercialization of water.[18] This in turn facilitates the transfer of certain amounts of water previously under the allocational decisions of the public into private hands leading to private water trading and private property rights to water resources.[19]

Water commodification as a solution to water allocation problems also overlap with a major shift in water resource governance regimes from a 'state hydraulic paradigm' in which a 'Keynesian Welfare State' was obliged to fulfill clean drinking water as a public good and a right of citizenship to a 'market environmentalist paradigm' that recognizes the economic value of water in all its competing uses.[20] In the former paradigm, the Keynesian Welfare State is required to manage water as a common public resource and provide water to fulfill basic human needs. This approach still continues to acquire global normative legitimacy since access to clean water as a basic human right is recognized as the obligation every government is required to provide.[21]

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16 Peter H Gleick and others, *The new economy of water: The Risks and Benefits of Globalization and Privatization of Fresh Water* (Pacific Institute 2002) i.

17 David A McDonald and Greg Ruiters, 'Theorizing water privatization in Southern Africa' in David A. McDonald and Greg Ruiters, (eds) *The Age of Commodity: Water Privatization in Southern Africa* (Routledge 2012) 19.

18 See Karen Bakker, 'The business of water: Market environmentalism in the water sector' (2014) 39 Annual Review of Environment and Resources 469.

19 Peter H Gleick and others (n 16).

20 Adrienne Roberts, 'Privatizing Social Reproduction: The Primitive Accumulation of Water in an Era of Neoliberalism' (2008) 40 Antipode 535, 535-36.

21 Sharmila L Murthy, 'The Human Right(s) to Water and Sanitation: History, Meaning, and the Controversy Over-Privatization' (2013) 31 Berkeley Journal of International Law 89, 109.

However, the public supply of water changed significantly in the late 1990s due to the frustration over the failure of the public authorities to effectively manage water resources and meet the basic demands of their citizens due to the sustained population increase that sparked a need for water supply expansion.[22] This led to a paradigm shift towards 'market environmentalism' as an instrumental approach to 'achieve positive environmental outcomes through the introduction of markets and market-derived institutions and organizations'.[23]

At the core of market environmentalism lies in privatization, commercialization, water pricing and the marketization as an array of approaches to manage, allocate and make decisions about water resources.[24] Therefore, since 1990 market environmentalism has been pursued by constellations of global actors such as the WB as an alternative approach to effectively address government failures to realize access to water services.[25] The argument that states in the Global South had failed to provide access water to growing and urbanizing populations created global water crisis or 'water problems', was hard pressed to justify supranational policy making efforts.[26] In this way, the supply of water becomes a 'new global agenda' that has led to a rethinking of national and international water priorities and policies in light of the positive impacts of market environmentalism.[27]

Last but not least, an important global trend relates to the role of global financial and development actors in influencing the behaviours of states in the Global South to adjust their domestic water policy space in such a way it enables water commodification. In this regard, the WB through lending conditionality played a leading role in influencing or shaping the behaviours of developing countries to transform common pool resources which previously had no market value into commodifiable good that ultimately leads to commercialization,

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22 Julien Chaisse and Marine Polo, 'Globalization of Water Privatization: Ramifications of Investor-State Disputes in the "Blue Gold" Economy' (2015) 38(1) Boston College International & Comparative Law Review 1, 1–2.

23 Bakker (n 18) 474-5.

24 ibid 475-476.

25 Karen Bakker, 'Constructing 'Public' Water: The World Bank, Urban Water Supply, and the Biopolitics of Development' (2013) 31 Environment and Planning D-Society & Space 280–300.

26 Bakker (n 18) 473.

27 Asit K Biswas and Cecilia Tortajada, 'Future Water Governance: Problems and Perspectives' (2010) 26(1) International Journal of Water Resources Development 129, 131.

privatization and marketization.[28] On the one hand, these kinds of water policy prescriptions create enabling conditions for transnational corporations to trade and invest in new commodities in new frontiers with international financial institutions zealously guarding their interests.[29] On the other, loan and development assistance provided by these international financial institutions can be utilized to develop technological and legal infrastructure that help to realize the economic use of its untapped water resources.

As we shall see in the next sections in the context of some countries such as Chile, these global institutions had popularized country experiences of water commodification as a leading example for addressing problems of water scarcity and the inadequacy of public investment in water supply services to meet coverage needs.[30] But in some other countries such as Bolivia, trends of water commodification opened a door for transnational corporations who made large profits from monopoly on water supply service and offered them the chance to impose profitable rates affecting access to affordable water to the local communities.[31]

3.4. Water as economic good: global and continental policy framework

3.4.1. Declarations and principles within the UN system

The global recognition of 'water as an economic good' was officially born at the 1992 International Conference on Water and the Environment (ICWE) held in Dublin, Ireland.[32] In the ICWE, 'about 500 water experts from a hundred countries and 80 international, intergovernmental and non-governmental organizations' participated to discuss new approaches to the management of freshwater resources to address the growing threat to the

[28] Gerhard Anders, 'The Normativity of Numbers: World Bank and IMF Conditionality' (2008) 31(2) Political and Legal Anthropology Review 187, 190.

[29] Susana Maria Cortina de Cardenas, 'Does private management lead to improvement of water services? Lessons learned from the experiences of Bolivia and Puerto Rico (PhD thesis: University of Iowa 2011) <https://ir.uiowa.edu/etd/941. https://doi.org/10.17077/etd.8ov1sojx> accessed 22 March 2023.

[30] Carl J Bauer, 'Results of Chilean water markets: Empirical research since 1990' (2004) 40 Water Resources Research W09S06, 1.

[31] Manuel de la Fuente, 'A Personal View: The Water War in Cochabamba, Bolivia: Privatization Triggers an Uprising' (2003) 23 Mountain Research and Development 98-100

[32] The Dublin Statement. International Conference on Water and the Environment: Development issues for the 21st century. 26-31 January 1992, Dublin Ireland. <http://www.un-documents.net/h2o-dub.htm> accessed 15 November 2023. (Hereinafter the ('the ICWE Dublin Statement 1992').

sustainable development and protection of the environment.[33] Most importantly, the ICWE crystalized the text of the 'Dublin Statement' that constitutes the four Guiding Principles. The Dublin Statement, under Guiding Principle No 4 recognizes the status of water as an economic good that has an economic value important to achieve efficient and equitable use.[34] The concept of water as an 'economic good' since the 1992 ICWE has dominated the vocabulary of the global policy agenda as a soft guiding principle for the regulation of water resources through the application of economic instruments to overcome wasteful use.[35]

In the language of the Guiding Principle No 4, water as an economic good is generally understood to refer to the principle that water will be managed and allocated across competing uses in a way that maximizes the net benefit from that amount of water utilized.[36] Thus, the bottom line of managing water as an economic good is that 'water must be valued and charges must be levied for its use.' The ICWE Guiding Principle No 4 further highlighted the imperatives of treating water as an economic good in view of past failure to recognize the economic value of water leading to the wasteful and environmentally unsustainable use of water resources.[37] While the economist's theory of treating water as a private good subject to allocation through competitive market pricing is an ongoing debate, the global problem of water scarcity in reality is forcing countries to adopt the policy of managing water as an economic good as an important instrument for achieving efficient and equitable use in a way that encourages its conservation and protection of water resources.

The imperatives of managing water as an economic good enshrined under the ICWE Dublin Statement Guiding Principle No 4 is further articulated during the United Nations Conference on Environment & Development (UNCED) held in Rio de Janeiro in the same

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33 W B Snellen and A Schrevel, 'IWRM, for sustainable use of water; 50 years of international experience with the concept of integrated water resources management' (2004) Alterra-report 1143. <https://edepot.wur.nl/30428> accessed 15 November 2023.

34 The ICWE Dublin Statement 1992 (n 32) Principle No 4.

35 Van der Zaag, Pieter, and Hubert HG Savenije, Water as an economic good: the value of pricing and the failure of markets. (UNESCO-IHE, 2006) 15.

36 Nihal Atapattu, 'Economic valuing of water', International Water Management Institute (2002) 201-202. Available at: http://publications.iwmi.org/pdf/H031121.pdf.

37 The ICWE Dublin Statement 1992 (n 32) Principle No 4.

year, 1992.[38] The Rio Declaration on Environment and Development expanded the ICWE Dublin Statement Guiding Principle No 4 to underscore the need to treat water not only as an economic good, but also as a social good. More specifically, Agenda 21 of the Rio Declaration on Environment and Development outlines important global policy imperatives on how to manage scarce water resources to ensure the efficient, equitable and sustainable allocation of water resources.[39]

In light of the ICWE Dublin Statement Guiding Principle No 4 on water as an economic good, Agenda 21 further articulates the economic instrument measures on the rational water utilization schemes for the development of surface and underground water supply sources in such a way to realize conservation and wastage minimization.[40] Agenda 21 of the Rio Declaration on Environment and Development recognizes the importance of satisfying the basic water needs of the population while also cognizant of the imperatives of introducing affordable water tariffs that reflect the marginal and opportunity cost of water, especially for productive activities.[41] Agenda 21 encourages countries to introduce suitable cost-recovery instruments, taking into account efficiency and equity through demand management mechanisms. In light of property rights, Agenda 21 recommends states to promote community ownership and rights to water supply and sanitation facilities.

Consequently, the global influence of the UNCED in setting an agenda for the efficient allocation of water resources by treating water as an economic good is critical for the following reasons. First, the 1992 UNCED was considered as the largest gathering attended by 178 nations giving it the name the 'Earth Summit'.[42] This makes the Rio Declaration on Environment and Development unique in light of the number of complementary international non-binding declarations proclaimed in which many countries across the world

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38 Rio Declaration on Environment and Development, U.N. Doc A/CONF/.151/5 Rev.1 (Rio de Janeiro, Brazil, 14 June 1992), U.N. Doc A/CONF/.151/5 Rev.1 reprinted in 31 I.L.M. 874 [hereinafter 'Rio Declaration on Environment and Development']

39 United Nations, UN (1992) Agenda 21. United Nations Conference on Environment & Development. U.N. Doc A/CONF/.151/PC/100/Add.1 (1992).

40 ibid, Agenda 21: Programme of Action for Sustainable Development. Chapter 18. Management and use of water resources.

41 ibid sec.18.59 (b).

42 Ingemar Elander and Rolf Lidskog, 'The Rio Declaration and subsequent global initiatives' in Nicholas Low and others (eds), *Consuming cities: the urban environment in the global economy after the Rio Declaration* (2nd edn., Routledge 2017) 31.

ostensibly committed themselves in the conference to translate those non-binding principles of the declaration into urgent national action programmes.[43] For this reason, the Rio Declaration on Environment and Development is considered as a 'register of world community legislative intent' and a 'repository of quintessential interpretative material' serving as a guiding principle or blueprint for evaluating all international agreements, programmes and domestic policy statements on sustainable development.[44]

Subsequently, the Rio Declaration on Environment and Development culminated in further adoptions of the Millennium Development Goals (MDGs) which was also replaced by Sustainable Development Goals (SDGs) in 2015. The SDGs was adopted by all UN Member States in 2015 and set out 17 goals as part of the universal call to action to end poverty, to protect the planet and to improve the lives and prospects of everyone, everywhere by 2030.[45] In particular, SDG 6 on access to water and sanitation emphasizes the need to 'ensure availability and sustainable management of water and sanitation for all'.

The indicators for realizing target of efficient, sustainable and equitable use of freshwater across all sectors under SDG 6 is articulated in terms of the substantial increase in water use efficiency over time and the level of freshwater withdrawal as a proportion of available freshwater resources that address water scarcity and substantially reduce the number of people suffering from water scarcity.[46] Furthermore, SDG 6 also emphasizes the need to 'expand international cooperation' and official development assistance to developing countries in water and sanitation programs that, among other things, include financing of water harvesting, desalination and water efficiency.[47] Therefore, recognition of water as an economic good under the ICWE Dublin Statement Guiding Principle 4 and its subsequent

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43 Rio Declaration on Environment and Development (n 38) Principle 7 & 11; Foo Kim Boon, 'The Rio Declaration and Its Influence on International Environmental Law' (1992) Singapore Journal of Legal Studies 347, 351.

44 John Batt and David C Short, 'The Jurisprudence of the 1992 Rio Declaration on Environment and Development: A Law, Science, and Policy Explication of Certain Aspects of the United Nations Conference on Environment and Development' (1993) 8 Journal of Natural Resources & Environmental Law 229, 231; Virginie Barral, 'Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm' (2012) 23 The European Journal of International Law 377, 397.

45 UN General Assembly, Transforming our world: the 2030 Agenda for Sustainable Development, 21 October 2015, A/RES/70/1, available at: https://www.refworld.org/docid/57b6e3e44.html [accessed 6 March 2023]. [Hereinafter, 'Sustainable Development Goals']

46 Sustainable Development Goals, Goal No 6.

47 ibid Goal 6.a.

articulation as an instrument for overcoming the water problems through water use efficiency under the SDGs are the contributions of the UN global normative frameworks to attain the objectives of efficient use and allocation of water resources.[48]

3.4.2. Continental approach: Africa

On top of the global initiative that crystalizes global policy imperatives encouraging the need to recognize the economic value of water, these international declarations had become a shared common vision for continental efforts to manage water both as a valuable economic and social good.[49] At the continental level, the Africa Water Vision for 2025 on the equitable and sustainable use of water for socio-economic development recognizes the increasing man-made and natural threats to the management of water resources on the continent to the satisfaction of competing demands for basic water supply for its multi-sectoral utilization.[50]

Similar to the UN water policy initiatives, the African Water Vision 2025 recognizes the growing problems of water scarcity, inappropriate governance and institutional arrangements in managing water resources, and unsustainable financing of investments in water as formidable challenges for their efficient, sustainable and equitable use.[51] More specifically, the African Water Vision 2025 acknowledges the existence of 'weak institutional arrangements and legal frameworks for the ownership, allocation and management of water resources and inadequate private sector involvement in financing water supply and sanitation services.[52] To address the problems and challenges related to water resource

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48 United Nations, 'The Role of the United Nations in Water Resources Development' (1979) 3(5) GeoJournal 471, 474-75; Lisa Hiwasaki, 'Water for Life'... Water for Whose Life? Water, Cultural Diversity and Sustainable Development in the United Nations' in Barbara Rose Johnston and others (eds) *Water, Cultural Diversity, and Global Environmental Change: Emerging Trends, Sustainable Futures?* (Springer 2011) 513.

49 Kristin Mutschinski and Neil A Coles, 'The African Water Vision 2025: its influence on water governance in the development of Africa's water sector, with an emphasis on rural communities in Kenya: a review' (2021) 23(4) Water policy 838, 842.

50 UN-Water/Africa, 'The Africa Water Vision for 2025: Equitable and Sustainable Use of Water for Socioeconomic Development' (Economic Commission for Africa 2003) 6-7. <https://repository.uneca.org/bitstream/handle/10855/40449/Bib-7443.pdf?sequence=1> accessed 15 November 2023. [Hereinafter 'The Africa Water Vision 2025']

51 ibid 8-9.

52 ibid 16.

governance, the African Water Vision 2025 also outlines the following principles basically drawn from the UNs global water policy imperatives discussed under the preceding section.

Firstly, the African Water Vision 2025 clearly recognizes the need to adopt the 'Dublin-Rio Principles' both at continental and national level by articulating that 'water has an economic value in all its uses'.[53] In the African Water Vision 2025, the policy statement that 'water should always be treated as an economic good in its competing uses for development,' is recognized as a good point of departure in identifying problems and defining priorities in the continent.[54] In this regard, the vision sends an important continental policy message by requiring African countries to 'treat water as a natural asset for all'.[55] Secondly, African Water Vision also recognizes the need to adopt water financing and pricing to promote and improve its efficient, equitable and sustainable use.[56] In this particular regard, the vision articulates the need to modify water laws and regulations to reflect market principles to enable a smooth transition from an administrative system of water allocation to a liberalized water market based on demands while meeting basic needs of the poor.[57] Thirdly, African Water Vision 2025 outlines the need to promote and facilitate private sector financing in the water sector by strengthening investment. The Vision also articulates the need to establish mechanisms for sustainable financing of water resource management such as by mainstreaming full cost recovery and service differentiation while ensuring safety nets for the poor.[58]

Prepared under the auspices of UN-Water, the Africa Water Vision 2025 capitalizes on the pivotal role of government regulation to ensure rights of people to water to meet their basic needs given the vital use of water for sustaining life and the environment.[59] Consequently, the African Water Vision 2025 underscores the continental policy intention on the treatment of water as an economic good to avoid 'inefficiency and wastage in water use' by adopting

53 Dennis D Mwanza, 'Water for sustainable development in Africa' in Luc Hens and Bhaskar Nath (eds), *The world summit on sustainable development: The Johannesburg conference* (Springer 2005) 98.
54 The Africa Water Vision 2025 (n 50) 6-7.
55 ibid 26-27
56 ibid 17.
57 ibid 12.
58 ibid 19.
59 ibid 15.

incentive mechanisms and frameworks that enables the financing and pricing of water supply for productive economic purposes.[60]

3.4.3. Continental approach: European Union (EU)

At the EU level, the European Union Water Framework Directive (EUWFD) promotes sustainable water use based on a long-term protection of available water resources.[61] In terms of ensuring environmental sustainability of the affected water systems, the EUWFD laid down the importance of controlling abstraction and impoundment of surface and ground waters. The EUWFD also articulates the need to adopt economic principles with the instrumental objectives of 'good ecological status' for Europe's waters and rationalizing water use in society.[62]

Though the EUWFD states that 'water is not a commercial product like any other', it implicitly conveys the spirit of maximizing the social value from the use of scarce resources which is indicative of policy intention to treat water as an economic good.[63]In recognizing the economic value of water the EUWFD subscribed to the application of economic instruments such as water pricing manifesting that imperatives of treating water as an economic good. In explicit legal terms, the EUWFD recognizes that 'water pricing policy provides adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of the Directive'.[64]More specifically, the EUWFD clearly states that users should pay the full costs of extractive or water use indicating the instrumental role of setting water prices to cover the costs of water services that also includes environmental and resource costs.[65]Therefore, the EU continental approach to address the mounting pressure

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60 ibid

61 David Aubin and Frédéric Varone, 'The evolution of European water policy' in Ingrid Kissling-Näf and Stefan Kuks (eds), *The evolution of national water regimes in Europe: Transitions in water rights and water policies* (Springer 2004) 84.

62 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 [OJ L 327, 22.12.2000] <https://eur-lex.europa.eu/eli/dir/2000/60/oj> accessed 16 November 2023 [hereinafter the 'European Union Water Framework Directive 2000'].

63 Dominic Moran, and Sabrina Dann, 'The economic value of water use: implications for implementing the water framework directive in Scotland' (2008) 87(3) Journal of Environmental Management 484, 484-85.

64 European Union Water Framework Directive 2000 (n 62) art 9.

65 ibid

on water resources is similar to the African Water Vision 2025 and UN approach discussed since there is no debate on the use of economic instruments to promote economic efficiency in water resources.[66]

3.4.4. Roles of the WB in promoting water as an economic good

The WB is one of the Bretton Woods institutions established at the UNs Monetary and Finance Conference in Bretton Woods in 1944.[67] The WB was 'created to channel investment in projects within countries in need of reconstruction and development.'[68] In addition, the Bank was entrusted with the obligation to 'promote balanced growth of international trade' and protect its members from 'the effects of international investment on business conditions.'[69] Since the 1970s the WB is considered as one of the 'global institutions most influential in setting development agenda through lending, co-financing and analytic work on development priorities for national governments and other donors.'[70]

During the 1980s, the WB together with other Bretton Woods institutions engaged in the provision of loans to many developing countries who 'took on large amounts of debts from commercial banks and other private lenders' in the 1970s to undertake development projects but were unable to repay their debts.[71] However, the loans borrowed from the World Bank were directed as a repayment of principal debts and its interests to the private lenders creating borrowing countries specially in Latin America and Sub-Saharan Africa to plunge into a series 'debt crisis and slow economic growth'.[72] This situation created suitable

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66 Dolores Rey and others, 'Role of economic instruments in water allocation reform: lessons from Europe' (2019) 35(2) International Journal of Water Resources Development 206, 208.

67 José Antonio Ocampo, *Resetting the International Monetary (Non) System (*Oxford University Press 2017) 1.

68 Mahfi Egilmez, 'The IMF and the World Bank' (2000) 2 Insight Turkey 75, 83; Werner Meng, 'Conditionality of IMF and World Bank Loans: Tutelage over Sovereign States?' (1988) 21 Law and Politics in Africa, Asia and Latin America 263, 264.

69 Egilmez (n 68) 83.

70 Danny Leipziger, 'The Role and Influence of International Financial Institutions,' in Bruce Currie-Alder and others (eds), *International Development: Ideas, Experience, and Prospects* (Oxford University Press 2014) 836.

71 Horst Brand, 'The World Bank, The Monetary Fund, and Poverty' (1994) 24 International Journal of Health Services 567, 568.

72 Jonathan Pincus and Jeffrey Alan Winters, 'Reinventing the World Bank' in Jonathan Pincus and Jeffrey Alan Winters (eds.), Reinventing the World Bank (Cornell University Press 2002) 11.

conditions for the WB to leverage its financial lending prowess to criticize that the 'debt crisis' in borrowing countries was due to the poor performance of development project loans and 'poor or inappropriate policies in developing countries.'

The move to rectify these poor performance and inappropriate economic development policies in borrowing developing and least developed countries gave birth to the 'structural adjustment loans' to developing countries to implement 'structural adjustment programs' (SAPs), famously named by John Williamson as the 'Washington Consensus' to refer to a set of ten market-oriented policies that were popular among Washington-based policy institutions during the 1980s and 1990s.[73]

The new global structural reform policy prescriptions requires borrowing countries to undertake structural adjustments which among others include the need to introduce property rights, privatization, trade liberalization and the opening domestic market to foreign investment to receive the WB financial assistance and loans.[74] Accordingly, the WB 'shifted from project-based to policy-based lending' by introducing 'structural adjustment lending' with greater emphasis on the use of loan conditionalities as a means to realize the implementation of specific policy changes in recipient countries.[75] Consequently, the structural adjustment policies of the WB induced global policy and legal reforms along the conditionalities of Washington Consensus policy prescriptions that eventually forced the national economies of borrowing countries to open up their respective domestic economies to foreign investments and the global market.[76]

In the 1980s and 1990's, the water resource sector was identified by the WB as one of the major strategic areas to undertake market-oriented structural adjustment reforms to efficiently realize citizens' access to water and sanitation services. In 1993, the WB adopted a comprehensive water resource policy to improve water resource management by

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73 Belinda Archibong, Brahima Coulibaly and Ngozi Okonjo-Iweala, 'Washington Consensus Reforms and Lessons for Economic Performance in Sub-Saharan Africa' (2021) 35(3) Journal of Economic Perspectives 133, 136.

74 John Williamson, 'The Washington Consensus and Beyond' (2003) 38 (15) Economic and Political Weekly 1475, 1476.

75 ibid

76 Scott Greer, 'Structural adjustment comes to Europe: Lessons for the Eurozone from the conditionality debates' (2014) 14(1) Global Social Policy 51, 53.

addressing the problems of water scarcity and water allocation around the world.[77] The water resource management policy of the WB recognizes that 'governments have often misallocated and wasted water (…) as a result of institutional weaknesses, market failures, distorted policies, and misguided investments.'[78] The WB water resource policy framework criticizes the existing public water allocation system as 'uneconomical and inefficient' for providing water at low or no cost resulting in weak incentives to enhance the efficient allocation of water resources. The WB pushes that countries around the world should commit to the treatment of water as an economic good by overcoming the perception of treating water as a cost-free social good without economic value.[79]

The treatment of water as an economic good for the WB is a precursor for promoting the economic value of water that requires countries' water resource policy to introduce water pricing instruments.[80] For the WB water pricing instruments relate to the setting of water tariffs that must reflect both the cost and true economic value of a commodity to provide the right signals to consumers and bring adequate returns to the water suppliers. Once water is treated as an economic good with prices set for its use, the WB's water privatization policy aims to attract private investments in water supply services ultimately privatizing public water utilities and the creation for the operation of water markets.[81] At the core of the WB's global water policy impetus of water pricing in water supply services is the intended

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77 R P S Malik, 'World bank policies and lending assistance' in John Briscoe and R P S Malik (eds), *Handbook of Water Resources in India: Development, Management, and Strategies* (Oxford University Press 2007) 69.

78 World Bank, 'Water Resources Management: A World Bank Policy Paper' (World Bank 1993) 9-10. <https://documents1.worldbank.org/curated/en/940261468325788815/pdf/multi-page.pdf> accessed 20 November 2023. [Hereinafter: 'World Bank Water Resource Management Policy Paper'].

79 ibid 54; Ariel Dinar and Ashok Subramanian, 'Water Pricing Experiences: An International Perspective,' in Ariel Dinar and Ashok Subramanian (eds), *Water Pricing Experiences: An International Perspective* (World Bank 1997) 1.

80 Danuta Sacher and Michael Windfuhr, 'The Debate on "Water as a Human Right" and its Implications for Development Assistance' in Waltina Scheumann, Susanne Neubert and Martin Kipping (eds), *Water Politics and Development Cooperation: Local Power Plays and Global Governance* (Springer 2008) 148; Andrés Olleta, 'The role of the World Bank in water law reforms' Philippe Cullet and others (eds), *Water Law for the Twenty-First Century* (Routledge 2009) 102; World Bank, *World Development Report 1997: The State in a Changing World* (Oxford University Press 1997) 65.

81 Susan J Spronk, 'The politics of water privatization in the Third World' (2007) 39(1) Review of Radical Political Economics 126, 129.

consequences to introduce privatization and commercialization of domestic water resources.[82]

As discussed under the following Section 3.4.5, promotion of cost recovery and water pricing as an instrument of water resource allocation aims to create linkage with private sector involvement in the water sector further requiring the need to introduce private water rights that can be tradable.[83] Though the UN and continental water policy in the treatment of water as an economic good in Africa and Europe does not specifically refers to the questions of property rights in water, the WB water resources management policy promotes that countries water regulatory should take the protection of property interests of private investments to promote the allocation and management of water resources through private sector involvement.[84] The ultimate aim was to either allow the water supply service sector 'operate along the lines of full cost recovery' or restructure it by 'transferring some or all of the assets or operations of public water systems into private hands'.[85]

3.4.5. Domestic implementation of WB water policy reform conditionalities

The influence of the WB in inducing domestic water sector restructuring is leveraged through various approaches that exert pressure on developing countries.[86] Generally, one can identify three major approaches by which the WB ensure that developing countries adopt or comply with its water policy frameworks at the domestic level. The first approach relates to the use of policy-based lending instruments as a condition to pressurize borrowing countries to undertake structural reform in the water sector. The second approach relates to the provisions of technical and financial assistance to build capacity of water institution experts and water sector stakeholders. The third approach relates to the use of regional and

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82 Barbara Rose Johnston, 'The Political Ecology of Water: An Introduction' (2003) 14(3) Capitalism Nature Socialism 73, 85.

83 P Raja Siregar, 'World Bank and ADB's Role in Privatizing Water in Asia' (2004) <https://www.circleofblue.org/wp-content/uploads/2012/06/WorldBank_ADB_Privatization_Asia.pdf> accessed 5 December 2023.

84 Mateen Thobani, 'Formal Water Markets: Why, When, and How to Introduce Tradable Water Rights' (1997) 12(2) The World Bank Research Observer 161, 170.

85 Maria Pempetzoglou and Zoi Patergiannaki, 'Debt-driven water privatization: The case of Greece' (2017) 2(5) European Journal of Multidisciplinary Studies 97, 97.

86 Sara Grusky, 'The IMF, the World Bank and the Global Water Companies: A Shared Agenda' (2003) <https://www.citizen.org/wp-content/uploads/sharedagenda.pdf> accessed 10 December 2023.

transnational non-governmental organizations (NGOs) as partners to push its water policy imperatives at global and domestic levels. The following subsections discuss these three approaches in detail.

3.4.5.1. WB loan conditions as 'carrot and stick approach

Implementing structural adjustment reforms by borrowing developing countries had been one of the major conditions to receive loans provided by the WB.[87] The WB identified water sector reform as one of the areas that required structural adjustment reforms because of inappropriate policy frameworks to efficiently allocate scarce water resources.[88] Accordingly, developing countries who badly needs loans from the WB to adopt certain privatization policies such as water privatization or cost recovery requirements as a condition for receiving loans and financial assistance.[89] For instance, the Latin American countries such as Chile and Mexico were known as the best examples for complying with WB's structural adjustment policy conditionalities in their respective domestic water sector.[90]

The first WB loan in Chile implicated water policy reform imperatives to develop hydropower generation and irrigation traces back to 1948.[91] In 1951, Chile adopted the Water Code in which water rights became protected property rights known to facilitate the monopolization of water rights by electricity companies.[92] However, the 1951 Water Code was replaced by the 1967 Water Code as a result of the Chilean Agrarian reform under Salvador Allende and his predecessor Eduardo Frei Montalva that expropriated and redistributed landholdings and

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87 Iasmin Goes, 'Examining the effect of IMF conditionality on natural resource policy' (2023) 35 (1) Economics and Politics 227, 236; Axel Dreher, 'The development of IMF and World Bank conditionality', in Linda Yueh (eds),*The Law and Economics of Globalisation: New Challenges for a World in Flux* (Edward Elgar Publishing Limited 2009) 162.

88 Jeremy Allouche and Matthias Finger, 'Two Ways of Reasoning, One Outcome: The World Bank's Evolving Philosophy in Establishing a "Sustainable Water Resources Management" Policy' (2001) 1(2) Global Environmental Politics 42, 43.

89 Pempetzoglou and Patergiannaki (n 85) 97; Chelsea Brown, 'Democracy's Friend or Foe? The Effects of Recent IMF Conditional Lending in Latin America' (2009) 30(4) International Political Science Review 431, 433.

90 Teichman, Judith A, *The politics of freeing markets in Latin America: Chile, Argentina, and Mexico* (University of North Carolina Press 2001) 63.

91 Frederick L Hotes, 'World bank irrigation experience' (1983) 1(1) International Journal of Water Resources Development 65, 65.

92 Carl J Bauer, 'Water conflicts and entrenched governance problems in Chile's market model' (2015) 8(2) Water Alternatives 147, 152

intended to enable new landowners to access water.[93] In 1973, Chile once again opened up its economy and adopted free market economic policies under Augusto Pinochet military government with the advice of economists (known as the 'Chicago Boys') who trained in the Chicago school of economic policy framework in the USA.[94]

In 1981, the Pinochet military government enacted the new Water Code with the aim to establish water rights as a 'fully protected as private property rights completely separate from land ownership.'[95] The Pinochet economists contend that private water trading and price incentives would motivate users to save water in order to sell surplus water and to transfer water rights to higher-valued uses thereby boosting efficiency.[96] Though the 1981 Chile's Water Code declares water as a public property to which the state reserves the right to grant private rights of use, the code establishes broad private water rights with constrained state regulatory powers compared to the earlier water codes. So much so that, between 1980 and 1990's, the Chilean water policy and law has become a leading water resource management model often referred to as 'the textbook case of treating water rights not merely as private property but also as a fully marketable commodity.'[97]

Similarly, the Mexican 'debt crisis' forced its government in 1982 to introduce the WB and IMF's package of market-oriented policy reforms through SAPs to access loans for servicing its foreign debts.[98] As part of the World Bank's structural adjustment conditionality, Mexico's water policy initiated the treatment of water as an economic good, full-cost recovery water pricing, public registry of water rights and the establishment of formal markets for trading

93 Carl J Bauer, *Siren Song: Chilean water law as a model for international reform* (Resource for the Future Press 2004) 39.

94 Manuel Prieto, María Christina Fragkou, and Matías Calderón, 'Water policy and management in Chile' in Patricia A Maurice (ed), *Encyclopedia of water: science, technology, and society* (John Wiley & Sons 2019) 2; Carl J Bauer, *Against the Current: Privatization, Water Markets, and the State in Chile* (Springer 2012) 12.

95 Prieto and others (n 94).

96 Jessica Budds, 'Power, Nature and Neoliberalism: The Political Ecology of Water in Chile' (2004) 25(3) Singapore Journal of Tropical Geography 322, 326.

97 Carl J Bauer, 'In the image of the market: the Chilean model of water resources management' (2005) 3(2) International Journal of Water 146.

98 Julio Hernández-Estrada, Manuel R. Villa-Issa and Adán Quintana Loya, 'Mexican External Debt and Its Effects on U.S.-Mexico Agricultural Trade' (1989) 17 American Journal of Agricultural Economics 1117-1122, 1120.

water surpluses.[99] In 1992, the new Mexican water law was introduced based on the 1981 Chilean water law model ushering in separate legal treatment of land and water rights. Like the Chilean experience, water formally remains the property of the state in Mexico with legal and institutional regulatory frameworks designed to treat water as a private property resource.[100] Furthermore, the WB showcased both Mexican water policy reforms as a global inspiration of the implementation of SAPs around the world.[101] The WB presents the Chilean and Mexican water policy reforms as a 'reference policy model' in many Latin American countries marking the beginning of implementing lending conditionality to influence domestic water resource policy landscape.[102] Above all, the 1993 WB water policy was literally based on the 1981 Chilean water policy and legal frameworks.[103]

In addition to Chile and Mexico, as the most noticeable countries, there are examples of the poorest and most debt-ridden developing countries that were being subjected to WB and IMF loan conditions that promoted water privatization and full cost recovery water pricing during the 'water privatization decade'. For instance, African countries like Ghana, South Africa and Tanzania were required to rework their legal and policy frameworks in the water resources to create conditions for the marketization and privatization for receiving structural adjustment loans.[104] In Ghana, the WB structural adjustment loans required the need to implement increased water cost recovery and full cost recovery to cover operating costs for water services.[105] In South Africa, under Country Assistance Review (1999), the WB promoted bulk water pricing to recover operation and maintenance costs in water supply

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99 Margaret Wilder and Patricia Romero Lankao, 'Paradoxes of Decentralization: Water Reform and Social Implications in Mexico' (2006) 34(11) World Development 1977, 1979; Margaret Wilder, 'Water governance in Mexico: political and economic apertures and a shifting state-citizen relationship' (2010) 15(2) Ecology and Society 22.

100 Rhodante Ahlers, 'Fixing and Nixing: The Politics of Water Privatization' (2010) 42(2) Review of Radical Political Economics 213, 217 at footnote.

101 Ibid 218.

102 Budds (n 96) 323.

103 Ahlers (n 100).

104 Kate Bayliss, 'Tanzania: From Nationalization to Privatization – and Back?' in Kate Bayliss and Ben Fine (eds) *Privatization and Alternative Public Sector Reform in Sub-Saharan Africa: Delivery on Electricity and Water* (Palgrave Macmillan 2008) 170; Kate Bayliss and Rudolf Amenga-Etego, 'Ghana: Privatization – A Work in Progress' in Kate Bayliss and Ben Fine (eds), *Privatization and Alternative Public Sector Reform in Sub-Saharan Africa: Delivery on Electricity and Water* (Palgrave Macmillan 2008) 125; Kighoma A Malima, 'The IMF and World Bank Conditionality: Tanzanian Case (1985) 10 Africa Development 285-297, 294-5.

105 Sara Grusky, 'Privatization tidal wave: IMF/World Bank water policies and the price paid by the poor' (2001) 22 Multinational Monitor 14-19.

services.[106] The same is also true for Tanzania where the then government negotiated with the IMF to receive Extended Fund Facility in the 1980s on condition that it implements structural adjustments on price control, liberalization of import and privatization of the economy.[107] Finally, it is vital to note that though most of the WB loan conditionality prescriptions has changed over time, to the point that it bears minimal resemblance of the 1990s policy recommendations of the 'Washington Consensus', recent studies show that 'privatization is the only area that maintains prominence in loan conditions'.[108]

3.4.5.2. Water sector capacity building programs

The WB influences domestic water management policy reform through the provision of development assistant for developing and least developed governments in the form of policy advice geared towards capacity building programs with the aim to establish 'strong legal and regulatory frameworks' to realize structural reform in water resource management.[109] In this regard, the WB played two major roles to influence the domestic implementation of structural reforms in water resource management. First, the WB heavily relies on country specific data collection and generates ideas that can be transformed into specific evidence-based policy imperatives.[110] The WB used to publish the reports and findings of its studies with publications such as the 'Ease of Doing Business Report' and the 'Annual World Development Report' for countries' reference to revisit domestic policy and legal gaps identified in the document.[111] Second, the WB also plays major roles in building policy implementation capacity of developing countries by providing training for civil servants,

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106 Patrick Bond, *Against Global Apartheid: South Africa meets the World Bank, IMF and International Finance* (University of Cape Town Press, 2nd edn. 2003) 23.

107 Kighoma A Malima, 'The IMF And World Bank Conditionality: Tanzanian Case' (1985) 10(1/2) Africa Development 285.

108 Ben Cormier and Mark S Manger, 'The evolution of World Bank conditionality: A quantitative text analysis' (Paper for the 13th annual conference on 'the political economy of international organization 2020) accessed 10 November 2024 <https://www.peio.me/wp-content/uploads/2020/01/PEIO13_paper_46.pdf>

109 World Bank Water Resource Management Policy Paper (n 78) 13-14; Michael Goldman, 'How "Water for All!" policy became hegemonic: The power of the World Bank and its transnational policy networks' (2007) 38(5) Geoforum 786, 793.

110 Michael A Clemens and Michael Kremer, 'The New Role for the World Bank' (2016) 30(1) Journal of Economic Perspectives 53, 59; Robin Broad, "Knowledge Management': A Case Study of the World Bank's Research Department' (2007) 17(4-5) Development in Practice 700, 701.

111 Clemens and Kremer (n 110). Though currently discontinued, 'the Ease of Doing Business Index published by the World Bank lasted from its first report in 2003 through its final one in 2020'. <https://worldpopulationreview.com/country-rankings/ease-of-doing-business-index-by-country>

journalists, development consultants and policymakers on the topic of water privatization through its Water Policy Capacity Building Program.[112] Hence, in these ways, the WB softly exerted influence on the decisions of policymakers on the preferred position of their domestic water policy and legal options along the direction of the 1993 water management policy norms.[113]

3.4.5.3. Regional and global water policy networks

The third approach through which the WB pushes through its water policy imperatives at the national, continental and global levels is the funding of regional and transnational policy networks on water sector reform under 'partnership' program.[114] The three major global water policy network actors that were born from the WB partnership include the Global Water Partnership (GWP), the World Water Council (WWC), and the World Commission on Water for the 21st Century (WCW).[115] The WB provided support for the establishment of the GWP in 1996 as a response to the global 'concern about the deteriorating freshwater resources.'[116] The initial objective of the GWP was to 'support countries in the sustainable management of their water resources through advocacy networks based on the principles of Integrated Water Resource Management (IWRM).[117]

Likewise, the WB sponsored the foundation of the WWC in 1996 as an 'international water policy think tank' with the purpose to provide policymakers with up-to-date research and advice on global water issues.[118] Similarly, the WB, through the auspices of WWC, facilitated the establishment of the WCW in 1998 which was constituted from representatives of global water companies and NGOs, senior WB officials and head of states from Global North and

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112 George Keith Pitman, *Bridging Troubled Waters: Assessing the World Bank Resources Strategy* (World Bank 2002) 10.

113 Clemens and Kremer (n 110); Gerhard Anders, 'The Normativity of Numbers: World Bank and IMF Conditionality' (2008) 31 (2) Political and Legal Anthropology Review 187, 191.

114 Michael Goldman, 'Water for All! The Power of the World Bank and its Transnational Policy Networks' in Gabriella Kütting and Ronnie Lipschutz (eds), *Environmental Governance: Power and Knowledge in a Local-Global World* (Routledge 2009) 6; M Finger and J Allouche, '*Water Privatisation: Trans-National Corporations and the Re-Regulation of the Water Industry* (Spon Press, 2002) 62

115 Goldman (n 114) 8.

116 Edouard Fromageau, 'The Global Water Partnership: Between Institutional Flexibility and Legal Legitimacy' (2011) 8(2) International Organizations Law Review 367, 368

117 ibid

118 Goldman (n 109).

Global South.[119] The WWC together with the WCW provided a significant contribution in organizing the second and third World Water Forum (WWF) in the Hague (2000) and Kyoto (2003), respectively, hosting transnational water conferences presenting seminar and policy papers with the aim to provide the guiding principles of the new water reform movement.[120] The second World Water Forum organized by the WWC together with the WCW produced the first World Water Vision report dealing with issues of water pricing as a step towards establishing a framework that recognizes the full economic value of water, investment and private sector involvement in water supply services.

The World Water Vision (WWV) also articulates the need to establish clear property and access rights and entitlements and enforcement of these rights to ensure that individuals, companies, and organizations holding those rights and obligations meet their associated responsibilities.[121] It is argued that the first WWV unequivocally pushes for 'water privatization agenda for the future' as one that imitates and extends the 'WB's policy position and economic analysis on global water policy reform'.[122]

Finally, the WB also utilizes international NGOs networks advocacy to strengthen its leverage over its borrowers to tone down the criticisms of loan conditionality to force structural adjustment policies.[123] For instance, 'the world's most influential water NGO', the WaterAid of Great Britain, supports developing and debt-ridden countries to commit to water privatization to access loans and debt relief arrangements from the WB.[124] The WaterAid was established in London in 1981 by the UK water companies with the purpose 'to find solutions to global water crisis on access to clean water, sanitation and hygiene around the world.'[125] On the one hand, the WaterAid calls for increased participation of

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119 ibid

120 ibid

121 William J Cosgrove, Frank R Rijsberman, '*World Water Vision: Making Water Everybody's Business* (2nd edn., Earthscan 2014) 50.

122 Goldman (n 109).

123 Paul J Nelson, 'Deliberation, Leverage or Coercion? The World Bank, NGOs, and Global Environmental Politics' (1997) 34(4) Journal of Peace Research 467, 467.

124 Goldman (n 114) 7; Arjuman Naziz, 'The Privatisation of Water in Developing Countries' (2020) 24(4) World Affairs: The Journal of International Issues 130, 133.

125 Roy Laishley and ken Laidlaw, Thirsty third world: a report of the NWC conference held in London on 27 January 1981 to support the start of the Water Decade 1991-1990' (National Water Council, 1981) <https://www.ircwash.org/sites/default/files/71NWC81-1171.pdf> accessed 10 December 2023.

NGOs and transnational water companies in water reform as a new approach to deliver Sustainable Development Goal 6 by 2030.[126] On the other hand, it encourages water privatization as the most sensible way to overcome the problem of global water crisis. Therefore, WaterAid's endorsement of the SAPs of water privatization inevitably impacts national water reforms in countries where WaterAid operates.

3.5. Status of water under international economic law

The term international economic law', according to Ignaz Seidl-Hohenveldern, 'refers to those rules of public international law, which directly concern economic exchanges between the subjects of international law' such as 'international organizations, multinational enterprises, NGOs and individuals.'[127] The aspects of public international law that, among others, regulate economic activities include international finance law, trade law, investment law, development law and environmental (natural resources) law.[128]

The gist of international economic principles was further articulated under the UN Declaration on the Establishment of a New International Economic Order adopted in 1974.[129] This Declaration articulates the principles of new international economic order on which international economic law drives its global normative legitimacy.[130] The international economic principles enshrined under this Declaration mainly emphasize on the economic sovereignty of every country with full permanent sovereignty over its natural resources and all economic activities including the rights to adopt the economic and social system that it deems the most appropriate for its own development.[131] It is argued that international economic law takes the task of regulating state's economic sovereignty over its natural

[126] Goldman (n 109).

[127] Ignaz Seidl-Hohenveldern, *International Economic Law* (3rd rev. ed., Kluwer 1999) 1

[128] Steve Charnovitz, 'The Field of International Economic Law' (2014) 17(3) Journal of International Economic Law 607, 608; Robert Gilpin, *Global political economy: understanding the international economic order* (Princeton University Press 2001).

[129] Ahmed Mahiou, 'Declaration on the establishment of a New International Economic Order' (2011). <https://legal.un.org/avl/pdf/ha/ga_3201/ga_3201_e.pdf> accessed 15 December 2023.

[130] Wil D Verwey, 'The Principles of a New International Economic Order and the Law of the General Agreement on Tariffs and Trade (GATT)' (1990) 3(2) Leiden Journal of International Law 117, 117; Matthias Herdegen, *Principles of international economic law* (Oxford University Press 2016) 17.

[131] UN General Assembly Declaration on the Establishment of a New International Economic (Adopted at the 2229th plenary meeting, 1 May 1974 A/RES/3201(S-VI).

resources and to the rules of engagement in international economic relations.[132] Hence, water as a natural resource and its global recognition as an 'economic good', creates alignment of international economic law that sets the rules of economic engagement in the trade and investment in water resources. In view of this, the legal status of water as a good/ product or service under international trade and investment law is examined as follows.

3.5.1. Trade in water: international trade law

The unequal distribution of fresh water resources among countries on top of clean water scarcity impacts international trade regimes as these countries seek to import or export bottled or bulk water or agricultural goods containing water in the form of 'virtual water'.[133] For instance, countries with limited fresh water resources may tend to import water in its bulk form or bottled package and abstain from producing water intensive agricultural goods by resorting to the import of such goods.[134] Similarly, countries with relatively abundant fresh water also want to benefit from its economic value that can be maximized according to the principle of comparative advantage.[135] The preamble of the WTO also articulates the goal of international trade as a means of 'expanding the production of and trade in goods and services, while allowing the optimal use of world's resources in accordance with the objective of sustainable development.'[136]The WTO Agreement codified multilateral trading rules whereby its members are required to enforce the substantive provisions of GATT in their domestic jurisdictions.[137]Hence, it is crucial to examine the treatment of water under multilateral and regional free trade agreements - the World Trade Organization (WTO) General Agreement on Tariffs and Trade (GATT) and North American Free Trade Agreement (NAFTA).

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132 Verwey, (n 130) 124.

133 Edith Brown Weiss and Lydia Slobodian, 'Virtual Water, Water Scarcity, and International Trade Law' (2014) 17(4) Journal of International Economic Law 717, 719.

134 Alix Gowlland Gualtieri, 'Legal Implications off Trade in 'Real' and 'Virtual' Water Resources' IELRC Working Paper (2008) 10 <http://www.ielrc.org/content/wo802.pdf>; Paolo Turrini, 'Virtual water: a global economic solution to a local environmental and political problem?' in Julien Chaisse (ed), *Charting the Water Regulatory Future: Issues, Challenges and Directions* (Edward Elgar Publishing, 2017) 58.

135 John H Jackson, 'World Trade Rules and Environmental Policies: Congruence or Conflict?' (1992) 49(4) Washington and Lee Law Review 1227, 1231.

136 WTO Agreement: Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154, 33 I.L.M. 1144 (1994) [hereinafter 'WTO Agreement'].

137 Robert J Girouard, 'Water Export Restrictions: A Case Study of WTO Dispute Settlement Strategies and Outcomes' (2003) 15(2) Georgetown International Environmental Law Review 247.

3.5.1.1. Water trade and water services: WTO trade rules

The ultimate goal of setting 'soft' global policy imperatives for treating water as an economic good was to establish international rules for trade in water as a commodity. The global effort of the WB and IMF for the privatization of water in many countries' heads for the binding application of the WTO GATT that governs trade in goods and the one that regulates General Agreements on Trade in Service (GATS). Both GATT and GATS trading rules generally embody the concept of trade liberalization across international borders by prohibiting national measures that restrict trade in goods and services. Therefore, it is crucial to examine how water is treated under both WTO rules on trade in water as a 'good' and trade in water services within the context of service sector liberalization.

3.5.1.2. Trade in water: GATT

As a multilateral agreement within the WTO, GATT aims to regulate the cross-border trade of goods by reducing the barriers to trade that exist between Member States through agreed upon tariff reduction arrangements. In order to promote the liberalization of trade in goods, GATT provides three core normative principles of non-discrimination designed to provide for the equal treatment of Members and market access for their goods, and restrict the barriers that parties may impose for reasons of national concern.[138] The GATT principle on Most-Favoured-Nation Treatment (MFN) enshrines that any favourable treatment accorded by one country to another should also be granted to all other countries with which the former trades.[139] The National Treatment (NT) principle provides that goods or services of trading countries should be accorded treatment no less favourable than that accorded to domestic goods.[140] Finally, the General Elimination of Quantitative Restrictions prohibits quantitative

[138] General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 187, 33 I.L.M. 1153 (1994).

[139] Marrakesh Agreement, opened for signature 15 April 1994, 1867 UNTS 3, annex 1A (General Agreement on Tariffs and Trade) 1867 UNTS 190, art I (entered into force 1 January 1995) ('GATT').

[140] Marrakesh Agreement, opened for signature 15 April 1994, 1867 UNTS 3, annex 1A ('GATT') 1867 UNTS 190, art III (entered into force 1 January 1995).

restrictions, such as the banning of trade in products though such prohibitions are not absolute.[141]

The application of these core provisions of GATT requires the determination of the legal status of water as a 'good' or 'product'. [142] While the global recognition of water as an 'economic good' is a crucial policy dimension, determining the legal status of water as a good or product further requires determining the status of water under GATT disciplines on international trade in goods.

However, GATT does not specifically provide what constitutes the elemental definition of 'good' or 'product'.[143] Hence, it is important to closely examine how water can be traded in different forms to determine its status from the general understanding of what constitutes 'product' with reference to bulk water trade and non-bulk water trade.

The International Convention on the Harmonized Commodity Description and Coding System classified 'waters' as internationally traded goods.[144] The Harmonized Commodity Description and Coding System comprises commodities each identified by specific code, arranged in a logical structure and well-defined rules to achieve uniform classification worldwide.[145] The latest edition of Harmonized System Nomenclature under the heading 22.02 classifies 'waters, including mineral waters and aerated waters…' as international product nomenclature accepted by member countries to the Convention as the universal basis for Customs tariffs and international trade in good statistics.[146]

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141 General Agreement on Tariffs and Trade, Oct. 30, 1947 [hereinafter GATT], art. XI, 61 Stat. A-11, A-32-34, 55 U.N.T.S. 194 (relating to general elimination of quantitative restrictions). Marrakesh Agreement, opened for signature 15 April 1994, 1867 UNTS 3, annex 1A ('GATT') 1867 UNTS 190, art XI (entered into force 1 January 1995)

142 Girouard (n 136) 249; Bryant Walker Smith, 'Water as a Public Good: The Status of Water under the General Agreement on Tariffs and Trade' (2009) 17 Cardozo Journal of International and Comparative Law 291, 293; Paolo Turrini, 'Water, from One State to Another: The Wavering Legal Status of Water and Its Export in Bulk under International Trade Law' (2015) 7(2) Trade, Law and Development 300, 310.

143 Piotr Szwed, *Cross-Border Water Trade: Legal and Interdisciplinary Perspectives* (Koninklijke Brill NV 2019) 91.

144 International Convention on the Harmonized Commodity Description and Coding System, (Brussels, 14 June 1983) (entered into force on 1 January 1988) as amended by the Protocol of Amendment of 24 June 1986. UNTS 1503 (with annex) & 1660.

145 David M Attwater, 'The General Rules for the Interpretation of the Harmonized Commodity Description and Coding System from a Canadian Perspective' (1996) 30(4) The International Lawyer 757, 758.

146 World Customs Organization: Amendments to the Nomenclature Appended as an Annex to the Convention on the Harmonized Commodity Description and Coding System (entry in to force 01 January

However, the Harmonized System Nomenclature indicated does not distinguish between trading in bulk water and non-bulk water in the classification of water as a good or product.[147] In this sense, the fact that water is mentioned under a tariff heading of the Harmonized System does not necessarily mean that water will be out-rightly subject to the GATT trading rules.[148] The application of GATT trading disciplines to water requires water to have the status of a 'good' or 'product'. Hence, it is vital to further explain what constitutes product or good or commodity and whether these words refer to the same thing.

The Black's Law Dictionary defines the term 'product' as a thing that is distributed commercially for use or consumption that is usually the result of a fabrication or production process, and an item that has passed through the distribution channel before ultimate use or consumption.[149] The term 'good' is defined as a 'thing that has value, whether tangible and intangible and includes articles of trade or items of merchandise.[150] Likewise, the term 'commodity' is defined as an 'economic good', 'article of trade or commerce' such as products or merchandise.[151] From these definitions the term product is broader in scope as it further envisages 'manufacturing process for the production of any good or commodity before its ultimate distribution for use or consumption.

The essence of the production process in defining good or commodity denotes that value should be added to bulk water to make it a product in commerce.[152] The production process that involves pumping, purification, packaging and distribution of bottled water exemplifies how water can be a tradable product subject to GATT trading rules. Based on such understanding, bulk water in its natural state or source, could not be considered as a

2022) <https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/nomenclature/instruments-and-tools/hs-nomenclature-2022/ng0262b1.pdf?la=en> accessed 25 December 2023.

147 Esther J De Haan, 'Balancing Free Trade in Water and the Protection of Water Resources in GATT' in Edward HP Brans and others (eds), *The Scarcity of Water: Emerging Legal and Policy Responses* (Kluwer 1997) 245–58.

148 Cynthia Baumann, 'Water Wars: Canada's Upstream Battle to Ban Bulk Water Export' (2001) 10 Minnesota Journal of International Law 192, 115; Fitzgerald Temmerman, *Trade in Water Under International Law: Bulk Fresh Water, Irrigation Subsidies and Virtual Water* (Edward Elgar Publishing 2017) 29.

149 Bryan A Garner, *Black's Law Dictionary* (9th edn., St. Paul, MN West 2009) 1328.

150 ibid 762.

151 ibid 310.

152 Scott Gordon, 'Canada's Fresh Water and NAFTA: Clearing the Muddied Waters' (2006) 15 Dalhousie Journal of Legal Studies 77; Christopher S Maravilla, 'The Canadian Bulk Water Moratorium and Its Implications for NAFTA' (2001) 10 Currents 33.

product.[153] However, as bottled water undergoes production through pumping, purification, packaging and distribution, it outrightly fits to the definition of tradable good.[154] In the same logic, the removal of bulk water from its natural source through diversion or pumping and distribution for commercial use involves the process of converting raw water in its natural state into a tradable good.[155] The fact that a certain amount of bulk water withdrawal from such an underground well, lake or river is subject to distribution for sale could lead to the conclusion that bulk water resource is already recognized as a tradable product.[156]

In addition to the features of production process as a technical definition of product as in the case of bottled water, the existence of legally recognized bulk water trading in certain country for strongly arguing the status of bulk water as a product leading to the conclusion that GATT's trading rules apply to that state-defined sphere of bulk water as a product.[157] Therefore, WTO member states that already liberalized trade in bulk water for national and foreign companies will be subjected to MNT and NT principles of GATT.[158]

3.5.1.3. Trade in water services: GATS

Like GATT liberalization of the trade in goods, GATS aims to establish a multilateral framework of principles and rules for trade in services as a means to 'promote liberalization of services trade and investment flows' among all trading partners.[159] Accordingly, the GATS framework agreement contains the general rules and the accompanying schedules which list

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153 Bryant W Smith, 'Water as a Public Good: The Status of Water Under the General Agreement on Tariffs and Trade' (2009) 17 Cardozo Journal of International & Comparative Law 291, 293.

154 Scott S Slater, 'State Water Resource Administration in the Free Trade Agreement Era: As Strong As Ever' (2007) 53 Wayne Law Review 649, 651–2; Noah D Hall, 'Protecting Freshwater Resources in the Era of Global Water Markets: Lessons Learned from Bottled Water' (2009) 13 University of Denver Water Law Review 1, 19.

155 Laurence Boisson de Chazournes, Fresh Water in International Law (Oxford University Press, 2013) 85; David M Quealy, 'Bayview Irrigation District et al. v. United Mexican States: NAFTA, Foreign Investment, and International Trade in Water - A Hard Pill to Swallow' (2008) 17 Minnesota Journal of International Law 99.

156 René Urueña, 'International Trade Law and Fragmentation in Water Regulation' (2009) 6 US-China Law Review 50–66.

157 Isable Dendauw, 'The Great Lakes Region and Bulk Water Exports, Issues of International Trade in Water' (2000) 25 Water International 565, 570.

158 Elise L Larson, 'In Deep Water: A Common Law Solution to the Bulk Water Export Problem' (2011) 96 Minnesota Law Review 741.

159 Colin Kirkpatrick and David Parker, 'Domestic Regulation and the WTO: The Case of Water Services in Developing Countries' (2005) 28 World Economy 1491, 1491.

national commitments on specific domestic access for foreign suppliers.[160] Like GATT, the general rules of GATS contain provisions that promote equality between Member States (MFN), non-differential treatment of like services (NT) and Market Access.[161]

Unlike GATT, principles of national treatment and market access, national commitments under GATS will only apply in circumstances where Member States nominated certain service sectors for liberalization.[162] Hence, in the context of water services, Member States are required to nominate their water sectors for liberalization before arts XVII and XVI have national application. As such, water services liberalization by WTO Member States sets the application of trade in service rules in motion by way of what the GATS calls 'commercial presence'. In other words, water service liberalization under GATS requires committing member states to allow the movement of persons and capital into its territory to ensure that foreign firms invest in the provisions of water services for local or international markets.[163]

The other relevant point on GATS trading rules is the legal status of what constitutes 'water services' in general and 'services' in particular. The definition of what constitutes trade in services is basic to understand the scope and operation of GATS in relation to specific commitments inscribed by Members in their GATS Schedules relating to market access and national treatment. Though the term 'trade in services' is defined as a supply of services in the four modes defined under GATS article 1:2, there is no specific definition of the meaning of services. However, the term services can be understood in two ways.

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[160] Marrakesh Agreement Establishing the World Trade Organization, opened for signature 15 April 1994, 1867 UNTS 3 ('Marrakesh Agreement'), annex 1B (General Agreement on Trade in Services) 1869 UNTS 183 (entered into force 1 January 1995)

[161] Rebecca Bates, 'The Trade in Water Services: How Does GATS Apply to the Water and Sanitation Services Sector?' (2009) 31 Sydney Law Review 125. See also General Agreements in Trade in Service: Marrakesh Agreement, opened for signature 15 April 1994, 1867 UNTS 3, annex 1B ('GATS') 1869 UNTS 183, art XV & XVII (entered into force 1 January 1995).

[162] Kirkpatrick and Parker (n 159) at 1494-1495; Lyla Mehta and Birgit la Cour Madsen, 'Is the WTO after your water? The General Agreement on Trade in Services (GATS) and poor people's right to water' (2005) 29 Natural Resources Forum 154–164.

[163] General Agreements in Trade in Service (n 161) at art I (2); Rupa Chanda, 'Movement of Natural Persons and the GATS' (2001) 24 World Economy 631, 632.

First, the term 'services' may encompass all forms of trade in services nominated by a Member for liberalization.[164] The second line of defining the term 'services' emanates from a contrario of readings of GATS art I:3(c). This article defines a service supplied in the exercise of government authority to be 'any service which is supplied neither on a commercial basis, nor in competition with one or more service suppliers.' Accordingly, the term 'services' can be defined in a contrario as any service which is supplied either on a commercial basis or in a competition with one or more service suppliers. Therefore, putting the two definitions together, the term 'services' may refer to any service nominated by Member states for liberalization as trade in services which is supplied either on a commercial basis or in a competition with one or more service suppliers.

The question as to whether water services falls within such definitional ambit and hence merits the application of GATS, depends on WTO member state practices of commitment in the trade in water services. Accordingly, studies indicate that water services are neither specifically mentioned within the the GATS Services Sectoral Classification List and Central Product Classification system and nor nominated as a liberalized service by the WTO Member State so far.[165] Hence, the bottom line in the legal status of water service in GATS depends on the wishes of WTO Member States national commitment for its liberalization and classification as falling within the ambit of trade in services and thereby brings about market access and national treatment obligations.

Lastly, in addition to GATS, there are other international normative frameworks for regulating service liberalization that impact the domestic regulation of water services. Like the normative landscapes of trade in water as a 'tradable product' under GATT, water service liberalization can be realized under both Bilateral Investments (BITs) negotiation and investment chapters of bilateral and regional trade agreements.

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[164] Andrew Lang, 'The GATS and regulatory autonomy: A case study of social regulation of the water industry' (2004) 7 Journal of International Economic Law 801, 813.

[165] Rebecca Bates, 'The trade in water services—how does GATS apply to the water and sanitation services sector?' in Julien Chaisse (ed), *Charting the Water Regulatory Future: Issues, Challenges and Directions* (Edward Elgar Publishing 2017) 45-46.

3.5.1.4. Water trade: regional free trade agreements

The most pronounced debate on the status of water under regional free trade agreements emanates from the North American Free Trade Agreement (NAFTA) signed between the United States of America, Canada and Mexico in 1993.[166] Like the WTO multilateral trade regime, NAFTA commonly shares the rules of trade liberalization in international goods. In 2018, NAFTA was replaced by the revised regional free trade agreement known as 'United States Mexico Canada Agreement' (USMCA) with the view 'to support mutually beneficial trade leading to freer, fairer markets, and to robust economic growth in the region.'[167] Like NAFTA, the objective of USMCA is to facilitate cross-border movement of trade in goods and services between parties by preventing, identifying and eliminating technical barriers to trade.[168]

On top of eliminating obstacles to international trade, USMCA also emphasizes the promotion of effective 'environmental protection' to realize 'sustainable development through mutually supportive trade and environmental policies and practices.'[169] As such, USMCA aligns both trade and environmental policies that impact the domestic regulation of trade in water, shifting the cliché of 'free' trade agreement into the idea of 'managed trade'.[170] However, USMCA is also referred to as 'NAFTA 2.0' as it only revised the original NAFTA to bring about some modifications aimed at modernizing and addressing some concerns of the three countries under the original agreement.[171]Thus, in light of such recent developments, it is vital to examine how trade in water is normatively treated and see to it

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166 North American Free Trade Agreement (NAFTA), Can.-Mex.-U.S., Dec. 17, 1992, 32 I.L.M 289 (1993); Scott Philip Little, 'Canada's Capacity to Control the Flow: Water Export and the North American Free Trade Agreement' (1996) 8 Pace International Law Review 127.

167 Protocol Replacing the North American Free Trade Agreement with the Agreement Between Canada, the United States of America, and the United Mexican States (signed on Nov. 30, 2018 (enter into force July 1, 2020) at preamble para 4. [hereinafter 'USMCA']

168 ibid para 11.

169 ibid para 14.

170 David A Gantz, *An Introduction to the United States Mexico-Canada Agreement: Understanding the New NAFTA* (Edward Elgar Publishing 2020) 1-2.

171 ibid xii. Gratz opines that in reality 'there is no such thing as a free trade agreement, and it may be telling that the term "free" does not appear in the USMCA title.' Ibid. see also Laurens Noemie and others, 'NAFTA 2.0: the greenest trade agreement ever?' (2019) 18 World Trade Review 659-677; David Evans, 'The United States-Mexico-Canada Agreement: How NAFTA 2.0 Represents a New Era in North American Trade' (2022) 71 DePaul Law Review 831, 836.

whether USMCA addressed existing ambiguities on the status of water as a tradable good in free trade agreements.

To begin with the definition of what constitutes 'good', USMCA defines the term 'goods' 'as a merchandise, product, article, or material', and goods of a Party as domestic products as these are understood in the GATT 1994 or such goods as the Parties may agree, and includes originating goods of a Party.[172] Unlike GATT and NAFTA, USMCA provides a circular definition of goods as products with additional inclusion of word vocabulary such as 'merchandise', 'article' or 'material' without providing specific definition of what constitutes product or good subject to the rules of international trade. The definition provided for the term 'goods of a Party' under USMCA is verbatim of the one provided under NAFTA's Chapter 2 of article 201. Thus, USMCA like NAFTA refers to GATT for the legally binding status of what constitutes 'goods' and hence whether water as such constitutes a tradable product or good.

As indicated in section 3.5.1.2 of this chapter, whether water constitutes good or product under GATT depends on the international classifications of goods under the Harmonized System.[173] As such, the same arguments can be extended to examine how the normative nuances of water as a tradable good is construed under USMCA. Like GATT, a distinction under USMCA can also be made between water in its 'natural state' as it dwells in the surface or ground and 'water in commerce' referring to water in containers or bottles. With regard to the status of water in its natural state, there are two competing arguments on the applications of the original NAFTA and its replacing USMCA provisions.

The first line of argument for the status of water as a 'good in commerce' in its natural state emanates from the explicit wording of the GATT's tariff schedule which states, 'ordinary water of all kinds (other than sea water)' qualifies as a good in international trade.[174] Based on this line of GATTs interpretations, water in its natural state is subject to the provisions of

[172] USMCA (n 167) art 1.4.
[173] Little (n 166) 134.
[174] Jon Johnson, 'Water Exports and Free Trade: Another Perspective' in Canadian Water Exports and Free Trade (1989) 28.

USMCA's article 1.4 since water in its natural state constitutes 'ordinary water of all kinds' susceptible to the quality of good in international trade.

The second line of argument hinges on article 301 of NAFTA and article 2.3 of USMCA concerning National Treatment and Market Access for Goods. Accordingly, contracting parties are required to 'accord national treatment to the goods of another party in accordance with Article III of the GATT.'[175] The principle of National Treatment also requires USMCA member states to accord or treat nationals of another contracting party operating in another contracting party no less favorably than the domestic nationals 'to any like, directly competitive, or substitutable goods.'[176] It is argued that though contracting parties retain regulatory power over their bulk water resources, permitting the abstraction of water from its natural sources for domestic traders for commercial purposes guarantees foreign investors similar entitlements and rights as that of to access water in its natural state.[177] Based on this line of argument a Mexican or US owned company would be equally treated with a Canadian owned domestic water company involved in the trading of bulk water in domestic or international markets.

However, the tradability of water in its natural state under NAFTA and its replacing USMCA could be questioned based on a restrictive and narrow argument that 'water in its natural state is an unexploited resource like oil and gas in the ground'.[178] Relying on the 'product test' argument, bulk water in its natural state couldn't qualify as a good under GATT in order to fit to the USMCA similar requirement. Accordingly, water in its natural state needs to 'undergo a process that somehow alters the state of such a resource into an item of good' in commerce to be subjected to the rules of USMCA. In Canada, the NAFTA' Implementation Act of 1993 under Section 7(2) recognizes that water 'packaged as a beverage or in tanks,' but not 'natural, surface and groundwater,' is included under the national treatment obligations of

175 NAFTA (n 166) art 301 (1) & USMCA (n 167) art 2.3 (1).

176 USMCA (n 167) art 2.3 (2); For the detailed discussion on NAFTA, see also Jamie W. Boyd, 'Canada's Position regarding an Emerging International Fresh Water Market with Respect to the North American Free Trade Agreement' (1999) 5 Law & Bus. Rev. Am. 325, 333.

177 Gordon (n 152) 81.

178 Edith Brown Weiss, 'Water Transfers and International Trade Law' in Edith Brown Weiss, Laurence Boisson de Charzournes & Nathalie B Ernasconi-Osterwalder (eds), *Fresh Water and International Economic Law* (Oxford University Press 2005) 61-92

NAFTA.[179] By the same token, the inclusion of water as a tariff heading under the GATT should be indicative to qualify water as a good was is contended as 'not determinative' 'as it doesn't tell us if and when water is a good.'[180]

Despite debates on the status of bulk water in its natural state as a good or product under GATT, the Joint Statement of the United States and Canada articulated their intentions that water in any form should have entered into commerce to become a good or product.[181] Similarly, the 'Canada-US Side Letter on Natural Water Resources' on USMCA affirms the original position under NAFTA. According to the statement of the 'Side Letter,' 'USMCA creates no rights to the natural resources of a party to the agreement unless water in any form has entered into commerce and become a good or product.'[182] The side letter further articulates the right of the USMCA member states 'to exploit its water for commercial use, including its withdrawal, extraction, or diversion for export in bulk.'[183] Therefore, the domestic policy position reflected in the US-Canadian Joint Statement that water in lakes, rivers, reservoirs, aquifers, water basins is not a good or product essentially reinforces the difficulty of establishing property rights in water as it exists in its natural state.

However, recognizing the legal right to capture water from its natural source with the intention to sell it as a product reinforces its commercial use status implicating that such commercial exploitation could be the subject of international trade law governing trade in goods.[184] Ultimately the status of water as a product or good further ignites the role of

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179 Little (n 166) 139.

180 Sophie Dufour, 'The Legal Impact of the Canada-United States Free Trade Agreement on Canadian Water Exports' (1993) 34 C de D 705, 740.

181 Statement of Representatives from Canada, the United States, and Mexico Concerning NAFTA and Water (1993) <https://www.worldtradelaw.net/document.php?id=usmca/CA-US_Side_Letter_on_Natural_Water_Resources.pdf> accessed 25 December 2023.

182 CA-US Side Letter on Natural Water Resources (November 30, 2018) <https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/CA-US_Side_Letter_on_Natural_Water_Resources.pdf> accessed 25 December 2023.

183 ibid

184 Howard Mann, 'International Economic Law: Water for Money's Sake?' (2004) 3. <https://www.iisd.org/system/files/publications/investment_water_economic_law.pdf> accessed 25 December 2023. It is argued that international economic law is 'increasingly creating foreign rights to access water resources in other states, whether to provide services or to exploit the available water for other economic purposes.' ibid.

international investment law as it attracts foreign investment in water supply services for domestic or international markets.

3.5.2. Investment in water services: international investment law

The global trends of water commodification created an enabling policy environment for foreign investors to invest in the water sectors of countries around the world for financial gain. As such, an investment in water supply requires the existence of water entitlements that actually or potentially enable investors to exercise property rights.[185] However, what aspects of investment in water supply services constitutes water entitlements or rights so that foreign investors are protected from the expropriation of their water property rights by the host states under the international investment law requires closer scrutiny.

Unlike the role of international water law that deals with shared or trans-boundary water use rights among riparian states, domestic or international investment law creates water rights to foreign investors to access water resources of the host states. In this regard, international investment law provides binding normative frameworks on investment in water services that enables investors to exploit the available water resources to engage in the investment of water supply services for economic or commercial purposes. Under this section, how Bilateral Investment Treaties (BITs) and regional trade agreements provisions on investment approaches the legal status of water as a protected property in investment will be examined.

3.5.2.1. Water services: bilateral investment treaties

According to Türk and Krajewski, investment in 'water services' may involve investment in water collection and purification, water distribution, wastewater treatment and other incidental water services such as building and maintaining networks or management services.[186] In light of the scope of this study, investment in water services can relates to

[185] De Duonni, Angela, Susana Neto, and Jeff Camkin, 'Defining the investment value of Water Entitlements' (2019) 5 World Water Policy 94; Janice Gray and Louise Lee, 'Water entitlements as property: A work in progress or watertight now?' in Cameron Holley and Darren Sinclair (eds), *Reforming water law and governance: From stagnation to innovation in Australia* (Springer 2018) 103.

[186] Elisabeth Türk and Markus Krajewski, 'The right to water and trade in services: Assessing the impact of GATS negotiations on water regulation' (2003) 6. <https://ciel.org/Publications/GATS_WaterHR_28Oct03.pdf> 25 December 2024.

investment in water collection and purification as in the case of investment in bottled water, and investment in water collection and distribution as in the case of bulk water supply services for different use purposes may suffice to examine the nature of property rights in the investment of water service. However, despite the varying scope of what constitutes water services, investment in water services emanates from two basic driving forces.

The first driving force relates to the willingness of countries to economically utilize their water resources by opening up domestic economic sectors to Foreign Direct Investment (FDI). Accordingly, governments open up investment in the water sector to generate economic benefits from its natural endowments as a means to improve the living standards of its people.[187] The second driving force relates to the financial inability of national governments to effectively access water supply services to its citizens due to the limitations of financial and technological resources. This reality forces governments in developing countries to introduce 'statutory property rights' in water services in once monopolized sectors through long term investment or concessions agreements between foreign investors and host states.[188]

The attraction of private investment in water services requires governments to create an enabling policy and legislative framework that builds the confidence of foreign investors.[189] This can be done through two main legal measures. Firstly, governments are required to clearly define what constitutes property rights in the investment of water supply services articulating social and policy objectives of such economic endeavors. Secondly, governments are required to sign BITs with the countries of investors because failure to do so may dis-incentivize foreign investors to enter into long-term investment operations in the water sector. Hence, in such a way, BITs create a specific set of investment protection obligations on host countries thereby impacting regulatory ability of governments in the water sector.

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187 James Horne, 'Economic approaches to water management in Australia' (2013) 29 International Journal of Water Resources Development 526-543, 537.

188 Jennifer Naegele, 'What is Wrong with Full-Fledged Water Privatization,' (2004) 6 Journal of Law & Social Challenges 99, 101.

189 Antoinette G Sebastian and Jeroen F Warner, 'Geopolitical drivers of foreign investment in African land and water resources' (2014) 12 African Identities 8, 19; Kate Miles, 'Blue oil Water resources, social justice and the international law on foreign investment' in Shawkat Alam, Natalie Klein and Juliette Overland (eds), *Globalisation and the Quest for Social and Environmental Justice The relevance of international law in an evolving world order* (Routledge 2011) 61—62.

In other words, BITs provide normative guarantee to foreign investors who invested in water services to access water resources and protection against expropriation without compensation.

The imperatives of BITs dealing with investment in water service on the domestic policy and legal landscape come in two major forms. First, once investment in water services becomes the subject matter of investment treaties, the host state's ability to impinge the economic interest of the investor to trade water as a commodity across international borders could be restricted.[190] Second, host states who found it necessary to expropriate or nationalize such water investment undertaking will be required to do so under the strict norms of expropriation that requires the state to provide 'prompt and adequate compensation' as set out under the rules of BITs or customary international law.[191] In other words, investment treaties that are applicable to investment in water services determine the nature of investors' property rights in water resources of the host state. Therefore, determining whether investment in water service constitutes property rights in water requires a closer look into how international investment agreements define property interest in the term 'investment'.

International investment agreements use either an asset or enterprise based definition of investment.[192] The asset-based approach defines 'investment' to refer to 'every kind of asset' of a foreign investor in a host state, signifying that such agreement covers anything of economic value.[193] In this approach, demonstrative lists of assets such as movable and immovable property and other property rights, interests in the property of companies and concession rights conferred by law or contract are included.[194] The enterprise based approach focuses on foreign investment as an enterprise without a list of different forms of

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190 Allison L Kindle Pejovic, 'Fresh Water, Law and Game Theory: Strategies for Navigating the Troubled Waters of a Canada-U.S. Bulk Water Export Conflict' (2010) 36 Queen's Law Journal 203, 222.

191 Binda Preet Sahni, 'Status of Bulk Water Exports under NAFTA' (2014) 22 University of Miami International & Comparative Law Review 77, 80.

192 Julien Chaisse, 'Foreign investment in water: privatization, globalization and the law' in Charting the Water Regulatory Future (Edward Elgar Publishing 2017) 80; Mavluda Sattorova, 'Defining Investment Under the ICSID Convention and BITs: Of Ordinary Meaning, Telos, and Beyond' (2012) 2 Asian Journal of International Law 267, 270.

193 Chaisse (n 192) at 80.

194 Hilmer J Bosch and Joyeeta Gupta, 'The tension between state ownership and private quasi-property rights in water' (2023) 10 Wiley Interdisciplinary Reviews: Water e1621; Hilmer J Bosch and Joyeeta Gupta, and Hebe Verrest, 'A water property right inventory of 60 countries' (2021) 30 Review of European, Comparative & International Environmental Law 263, 268-9.

tangible or intangible assets.[195] This second approach takes into account the long-term objectives of business operation in the host state that may involve acquisition of a lasting interest in the ownership or management of the investment as an enterprise.

In the context of investment in water services, an investor in the host state is required to own and operate physical facilities with adequate technical expertise and proper technology to sufficiently pump, transport and purify water to make it safe for various human and industrial uses. In such cases, investment assets involve property rights over movable and immovable physical assets. In this context, there is no ambiguity on the property interests of a foreign investor when it comes to tangible assets and innovations used to create new technologies (intangible assets) to realize the investment objectives of the enterprise.[196] However, the debatable issue pertains to whether an investor claims property rights over the bulk water supplied from water sources to realize the investment objectives of providing water services and hence consider water use rights as 'investment asset'.

As indicated in Chapter 2 of this dissertation, water rights as property rights can refer to the relationship of the use to the water source in terms of access and abstraction rights. In the asset-based definition of investment, concession rights conferred by the investment agreements or water use permits or license may confer property rights to the foreign investor to use a certain quantity of water for the agreed period of time.[197] Accordingly, such concession agreements, investment contracts or water use permits establish property rights relationship between foreign investors and the host state ultimately creating the right to use water resources for the purposes of investment in water services. Hence, a foreign investor established to provide water services in host states acquire either legal or contractual rights that 'constitutes a possessory interest in the right to use water from its sources'.[198]

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195 Julien Chaisse and Marine Polo, 'Globalization of water privatization: ramifications of investor-state disputes in the blue gold economy' (2015) 38 Boston College of International and Comparative Law Review 1, 5.

196 ibid 6.

197 Hilmer J Bosch and Joyeeta Gupta, and Hebe Verrest, 'A water property right inventory of 60 countries' (2021) 30 Review of European, Comparative & International Environmental Law 263, 268-9.

198 Hilmer J Bosch & Joyeeta Gupta, 'Water property rights in investor-state contracts on extractive activities, affects water governance: An empirical assessment of 80 contracts in Africa and Asia' (2022) 31(2) Review of European, Comparative & International Environmental Law 296.

The property rights of foreign investors in the investment of water services is also articulated in the investor-state disputes in relation to concessions contracts that grants foreign investors the right to 'operate, manage and supply water' as tradable services. This is evident from the figures of leading foreign investment disputes in water services under the BITs that ended up in the International Centre for Settlement of Investment Disputes (ICSID) arbitration tribunal.[199] Basically, claims of expropriation of property rights or entitlements in the investment of water services under the investor-state investment disputes, would likely resume with the determination of whether those claimed property rights essentially subsist. According to Zachary Douglas, 'investments disputes are about investments, investments are about property, and property is about specific rights over things cognizable by the municipal law of the host state'.[200] As such the legal status of water use as a property rights under the domestic water or property law will be crucial in determining the property rights of investors in the investment of water services.[201]

Among the different types of water related foreign investment disputes, the ten year 'Dar El Saalam City Water Project' concessions contract between foreign investors (German and English) and Tanzania presents a unique case where 'a national investment program' in water supply service 'supported by the World Bank, the African Development Bank and the European Investment Bank' could also end up in the international arbitration tribunal.[202] In the Biwater Gauff Ltd. v. Tanzania case, the (ICSID) arbitral tribunal found Tanzania had committed an indirect expropriation of Biwater Gauff's investment by unlawfully terminating water and sanitation services lease contract and violating the fair and equitable

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199 For instance, Chaisse and Polo (n 195) 14: identifies that 'between 2006 and 2014, at least twenty-one water services related cases were brought to international arbitration.' These two writers note that such 'number, however, may only be the tip of the iceberg because many arbitration cases have yet to be released to the public or continue to remain in private negotiation'.

200 Zachary Douglas, 'The Hybrid Foundations of Investment Treaty Arbitration' (2003) 74 The British Year Book of International Law 197-198.

201 Ana Maria Daza-Clark, The Nature of Property Rights over Water Resources: The Role of Domestic Law' in International Investment Law and Water Resources Management: An Appraisal of Indirect Expropriation (Brill Nijhoff 2017) 134; Zachary Douglas, 'Property, investment and the scope of investment protection obligations' in Zachary Douglas, Joost Pauwelyn and Jorge E Viñuales (eds), *The Foundations of International Investment Law: Bringing Theory into Practice* (2014) 363-406.

202 International Centre for Settlement of Investment Disputes (ICSID) in the matter of arbitration between Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania, ICSID Case No. ARB/05/ 22, Award, Para. 3–6, 9 (July 24, 2008).

treatment standard that amounts to violations of treaty obligations under the BIT.[203] It is evident from the rulings of this case that rights acquired under the lease contracts in the investment of water services represents the property interests of a foreign investor and unlawful termination of such contract amounts to 'expropriation of foreign owned property.'[204]

Furthermore, 'an expanded view of expropriation' by the international arbitral tribunals, and 'the general status of investment law' as put forward by the ICSID Arbitration Tribunal in '*Santa Elena v. Costa Rica'* case 'would require States to compensate for adopting legal measures that may be instrumental to achieve valuable policy goals, like protection of water resources'.[205] In this case, the ICSID arbitration tribunal 'held the ruling that acts of expropriation under the guise of 'environmental measures' is not different from 'any other expropriatory measures' that a state may take in order to implement its domestic policy imperatives. The Tribunal ruled that Costa Rica's obligation to pay compensation may not be absolved because of the fact that the expropriation relates to 'environmental purposes.[206]

3.5.2.2. Investment in water services: USMCA

Whether investment in water services constitutes protected property rights depends on how the term investment is defined under USMCA.[207] Unlike NAFTA's closed definition based on enterprise approach, the definition of 'investment' under USMCA is changed to an assets-based definition.[208] In this definition, investment is defined to mainly include commitment of capital, the expectation of gain or profit, or the assumption of risk, an enterprise, tangible or intangible, movable or immovable property, concessions and other similar contracts, leases, licenses, authorizations, permits, and similar rights conferred pursuant to a Party's

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203 ibid

204 Yuliya Chernykh, 'Overview of Contract Interpretation in Investment Treaty Arbitration' in Contract Interpretation in Investment Treaty Arbitration (Brill Nijhoff, 2022) 17-70.

205 International Centre for Settlement of Investment Disputes (ICSID): In the matter of arbitration between 'Compañía del Desarrollo de Santa Elena S.A. v. Republic of Costa Rica', ICSID Case No. ARB/96/1, Award, Para. 72' (2000) ICSID Review—Foreign Investment Law Journal 192.

206 ibid

207 Paul Stanton Kibel, 'Grasp on Water: A Natural Resource That Eludes NAFTA's Notion of Investment' (2007) 34 Ecology Law Quarterly 655, 662.

208 USMCA (n 167) arts 14.4–14.11; Annexes 14-A, 14-B; NAFTA (n 166) arts 1102–1110.

law.[209] According to this definition, investment in water services constitutes property rights as it emanates from leases, concessions, contracts, licenses and permits that authorize access, withdraw and use water resources with the expectation of gain or profit.

The status of 'investment' in water services as property rights warrants the legal protection that prohibits NAFTA member states to take actions or measure tantamount to nationalization or expropriation of such an investment.[210] Similarly, USMCA also provides protection of foreign investment from expropriation or nationalization of a covered investment either directly or indirectly through measures equivalent to expropriation or nationalization (expropriation) except for a public purpose on the payment of prompt, adequate, and effective compensation.[211] USMCA's Annex 14-B on expropriation elaborates it in two ways. On the one hand, direct expropriation relates to interference with a tangible or intangible property right or property interest in an investment through formal transfer of title or outright seizure. On the other hand, Indirect expropriation relates to interference with a tangible or intangible property right or property interest in an investment without formal transfer of title or outright seizure in which an action or series of actions by a Party has an effect equivalent to direct expropriation.[212]

The proprietary interests of foreign investors in water services is also protected through the enforcement of Investor-State Dispute Settlement (ISDS) mechanisms as provided under NAFTA.[213] However, the right of an individual investor to bring a claim against a sovereign country in an international tribunal over the utilization of its natural resources on the grounds of unlawful expropriation was vehemently criticized since it complicates the host state's 'ability to exert sovereign control over its domestic water resource.'[214] The claim between US investor and Canada in 'Sun Belt Water Inc v Government of Canada for ISDS under NAFTA

[209] USMCA (n 167) art 14.1
[210] NAFTA (n 166), art 1110.
[211] USMCA (n 167) art 14.8 with Annex 14-B (Expropriation).
[212] ibid Annex 14-B (Expropriation) 1-3.
[213] ibid art 14.1
[214] Gordon (n 152) 75.

exemplifies how countries` abilities to take regulatory measures to halt the export of bulk water can be affected under investment agreements.[215]

Briefly, in 1987, the Canadian province of British Columbia granted Snowcap Water Ltd., a domestic investor, a license for bulk water export. In 1990, Sun Belt Water, an American investor, formed a joint venture partnership with Snowcap Water Ltd to develop the business of shipping bulk water by marine tanker from British Columbia province to the USA.[216] After joint venture agreement, Snowcap Water wanted to make the business of bulk water export economically feasible and hence applied to increase its right to annual water quantities from 247 million liters to 15.8 billion liters.[217] However, the Government of British Columbia 'placed a moratorium on bulk water removals' by denying the issuance of new licenses and extension of any existing licenses for the export of bulk water.[218] Because of the cancellation of water export permits, both companies sued the Government of British Columbia claiming breach of the investment chapter of NAFTA and demanded compensation for 'government expropriated future profits.'[219]

The Government of British Columbia settled with Snowcap Water but denied Sun Belt's compensation claim for lost profits, lost market access, and lost access to water resources.[220] In the notice of intent to submit a claim to arbitration, Sun Belt Water asserted the fact that Canada violated equal treatment to foreign and national investors under article 1102 of NAFTA that recognizes the trading of recognized similar treatments, in like circumstances, to investments of its own investors.[221]

Eventually, the claim of Sun Belt Water reveals the fact that foreign investors can potentially claim compensation for expropriation of bulk water export use entitlements acquired

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215 Sun Belt Water v. Canada, UNCITRAL, Notice of Intent to Submit a Claim to Arbitration, Para 2 (Nov. 27, 1998) <https://perma.cc/FW5B-PE23?type=pdf> accessed 25 December 2023.

216 Amer Obeidi, Keith W Hipel, and D Marc Kilgour, 'Canadian bulk water exports: analyzing the sun belt conflict using the graph model for conflict resolution' (2002) 14 Knowledge, Technology & Policy 145, 146.

217 ibid

218 ibid

219 ibid

220 Terry L Anderson and Clay J Landry, 'Exporting water to the world' (2001) 118 Journal of Contemporary Water Research and Education 62; Paul Stanton Kibel, 'Grasp on Water: A Natural Resource That Eludes NAFTA's Notion of Investment' (2007) 34 Ecology Law Quarterly 655, 662.

221 ibid

through licenses or permits for commercial purposes when governments interfere on the ability of investors to enjoy its economic value.[222] For this reason, Canada re-negotiated changes to NAFTA under USMCA in which there will be no applications of ISDS with binding third-party international arbitration. Accordingly, no USMCA ISDS protections will apply For Canadian enterprises investing in Mexico and the United States, and Mexico and US based companies investing in Canada after a three-year transition period from NAFTA for 'legacy' investment claims and pending claims that remain subject to NAFTA Chapter 11.[223]

3.6. Chapter summary

Based on the discussions under this chapter, four major normative implications can be drawn regarding the treatment of water as an economic good as a means for the efficient use and allocation of water resources.

Firstly, the global policy framework on the recognition of water as an economic good with an economic value facilitated the idea that water can be subjected to the vagaries of market exchange as a commodity thereby encouraging what economists consider as efficient use and allocation of scarce water resources. The global and continental water policy statements and declarations of principle assisted in creating widely accepted normative frameworks in the accounting of water as a valuable and scarce economic resource that should be allocated in all its competing uses. The global Dublin-Rio Principles and declarations on the treatment of water as an economic good directly manifested at the continental and country levels brought about the shared common normative understanding on the instrumental role of recognizing water as a valuable economic resource.

Secondly, the present chapter has shown that the recognition of water as an economic good further necessitated the introduction of water pricing thereby charting the policy basis for assigning value for the use of water resources to facilitate allocation for economically productive or beneficial uses. The recognition that water should be priced as any other

[222] ibid
[223] USMCA (n 167), Annex 14-C.

commodity and the user should pay for its use further dictated the role of trade as an instrument for allocating water across competing uses to maximize its economic benefit by price signals efficient use of resources. In this regard, the water pricing policy frameworks discussed under this Chapter implicates the development of shared common principles that water pricing plays a profound role to allocate water that otherwise would be frequently misallocated and wasted under free or under-priced resource use regimes.

The shared common understanding that water has economic value in all its competing uses made it clear that even allocating water for basic human needs as an aspect of access to water as a human right should receive a pricing signal to indicate its relative value to minimize unwise use and wastage of water. In this way, water pricing used in allocating water for domestic purposes needs to ensure that both public and private water service providers should be able to recover the costs to adequately fund the maintenance and operation of water abstraction and water supply services to realize sustainable access to clean water for domestic uses. As such, even allocation of public water supply through piped water connection utilities with the use of water pricing based on volumetric charge for actual water used reflects the highest value use of water that treats each unit of water consumed as a commodity.[224]

Similarly, water pricing schemes adopted as an economic instrument for allocating public water resources for productive economic use such as for industrial, commercial irrigation and bottled water trade also provides economic incentives for water users to encourage its efficient use thereby maximizing the economic benefit of water as a valuable national natural asset. Therefore, the implications of water policy pricing for the allocation of public water resources underpins the imperatives of providing economic incentives for water users to encourage its efficient use thereby maximizing the economic benefit of water as a valuable national natural asset. Hence, by designing water pricing legal schemes, the status of water as an economic good finds its meaningful application as it facilitates price based allocation moving water towards commodity status with an economic value corresponding to its price.

[224] Peter H Gleick and others, (n 16).

Thirdly, the Chapter explored the stick and carrots approaches of global actors such as the WB which have succeeded in influencing the behaviours of sovereign states around the world to domesticate non-binding global water policy norms into their national water policy and legal frameworks. In particular, the loan conditionalities of these global financial institutions has created biting teeth to the non-binding global water policy norms since developing and debt-ridden countries were influenced to adopt water as an economic good in their domestic water policy and law regulatory space. In this way, global financial institutions gave global water policy norms the force of persuasion since the treatment of water as an economic good at the global level became the guiding principles for reforming domestic water law of many countries around the world. The instances of treating water as a tradable commodity under the water law and policy reforms of Chile and Mexico underpin the instrumental role of global water policy norms in making a once free and under-priced water to become a tradable property in commerce capable of generating economic value to the property rights holders.

Fourthly, the Chapter also demonstrated how the treatment of water as an economic good at the global level is shaping the legal status of water as a tradable product under international economic law. It is shown that the caveat for the global push to recognize water as an economic good profoundly relates to the global desire for norm setting efforts capable of facilitating the international trade of water as a good or product. As discussed under Section 3.5 of this Chapter, water can be traded as a bulk water sale or as a value-added product in the form of bottled waters. While there exists little debate on the product status of bottled water under GATT trading rules, product status of bulk water depends on how states domestically recognize its tradability as a good or commodity in commerce. As such, the legal status of water as a tradable good or product at the domestic level provides solid bedrock for GATT negotiations to press those countries to include trade in water in their national commitments. Therefore, once water in bottled or bulk condition is recognized as a product or good under domestic water law, GATT's rules of trading potentially limit state's ability to control the export of fresh water resources that ultimately impacts the long-term regulation of its national water resource. So much so that domestic water policy and law may be required to conform to the international trading norms thereby effectively limiting the regulatory power of the countries to impose restrictions on the trade in water.

Likewise, the application of international investments law and their interpretations under arbitral tribunals on investment disputes attempted to clarify the status of water services as investment assets that require property rights protection. It could be argued that regional trade agreements, BITs and Arbitration Tribunal taking care of applying treaty rules have contributed to profoundly shape the nature of property rights in water services when issues of private investment are involved under the auspices of through privatization or commercialization. More importantly, the rise of BITs in the regulation of investment in water services reveals that the allocation of water resources are no longer matters of domestic jurisdictions alone left for domestic regulatory space. By re-defining what constitutes investment in domestic law and international investment agreements, governments around the world are eventually defining property rights in water resources despite its intended or unintended consequences.

The discussion under this Chapter takes us to the conclusion that the legal status of water as a tradable good or services eventually depends on the legal status of water as a property rights susceptible to tradability under the domestic legal jurisdictions of member states to bilateral, regional and multilateral trade and investment agreements. This conclusion suggests the importance of addressing the missing normative link on the status of water as an economic good and its implications on the status of water as the subject of property rights facilitating tradable water rights as a means to allocate water resources as a tradable good or services. The following Chapters are dedicated to the investigation of these issues both in Ethiopian and comparative contexts.

CHAPTER 4

Treating water as an economic good in Ethiopia

4.1. Introduction

In Chapter 3, it is shown that countries in Latin America and Sub-Saharan Africa undertook structural water sector reform towards treating water as an economic good because of the push from the international community through the United Nations (UN) system and the international financial bodies such as the World Bank (WB) and African Development Bank (AfrDB). The discussion also indicated that principles for the treatment of water as an economic good are essentially premised on the desire to guide countries mainly from the Global South to reform their water resource management policy to achieve efficiency in water use and allocation to overcome the increasing pressure on water resources consumption.

In a similar course of events, the Transitional Period in Ethiopia (1991—1995) coincides with the 1990s WB's water sector policy reform programs around the world during which Ethiopia made a shift from 'command economy' to a 'free' market economy.[1] The post 1990s Ethiopia found itself in economic distress that desperately needed the WB and International Monetary Fund's (IMF) economic structural adjustment reforms. In 1996, Ethiopia entered into a three year Enhanced Structural Adjustment Facility (ESAF) arrangement with the IMF to undertake 'important liberalization and structural reform measures.'[2] The major objectives of these SAPs, among others, aim at 'the progressive integration of Ethiopia into the global economy' through the 'liberalization of foreign trade in goods and services',

[1] Wuletaw Mekuria, 'Neo-liberalism and Structural Adjustment Programs: Effects of Institutional Reforms on Agriculture Based Economy in Ethiopia' (2021) 5 Acta Scientific Agriculture 75-85, 79; Martha Belete Hailu and Zeray Yihdego, 'The law and policy of foreign investment promotion and protection in Ethiopia: an appraisal of theories, practices and challenges' in Zeray Yihdego and others (eds.), Ethiopian Yearbook of International Law 2017 (Springer International Publishing AG 2018) 13-47.

[2] Ethiopia—Enhanced Structural Adjustment Facility Medium-Term Economic and Financial Policy Framework Paper, 1998/99-2000/01 <https://www.imf.org/external/np/pfp/eth/etp.htm>; A Meenakshi Sundara Rajan T Iyappan and Jesiah Selvam, 'Impact of Economic Reforms on Economic Issues: A Study of Ethiopia' (2005) 17 African Development Review 138, 139-40.

privatization and foreign direct investments. In the water resource sector, the then Ethiopia's Ministry of Water Resources (MWR) proffered a structural adjustment implementation plan through the 1996 'Letter of Sector Policy' (LSP) outlining various form of water policy measures that should be undertaken for the purpose of improving the existing conditions of water resource management.[3] In light of this understanding, this Chapter aims to discuss whether Ethiopia also recognized water as an economic good with the objectives of promoting efficient use and allocation of water resources and examine the extent to which its domestic water resource management policy is influenced by these global water policy imperatives.

The present Chapter is organized as follows. Section 4.2 provides a brief overview of water resource use and allocation problems in Ethiopia by demystifying the anomaly of water abundance and water scarcity. Section 4.3 assesses the extent to which the Ethiopian Water Resource Management (WRM) Policy, Water Sector Strategy (WSS), Water Sector Development Program (WSDP) and other relevant national development plans promote water as an economic good. This section mainly focuses on (i) how efficient allocation of water resource is understood and (ii) how water policy and law articulates the imperatives of economic instruments such as water pricing policies and how the role of private sector participation (PSP) in water sector is recognized in a bid to realize efficient use and optimal allocation of water resource. Section 4.4 assesses how regional and international financial institutions such as the WB and AfrDB loan conditionalities in the water resource sector influences Ethiopia's water resource management policy and regulatory space towards the treatment of water as an economic good by promoting water pricing and PSP. Section 4.5 provides Chapter summary by concluding on the major point discussed under the Chapter.

[3] Federal Democratic Republic of Ethiopia Ministry of Water Resources: 'Letter of Sector Policy' (1996) <https://www.ircwash.org/sites/default/files/824-ET96-14139.pdf> accessed 25 December 2023. [Hereinafter 'Letter of Sector Policy' (LSP).

4.2. Water resource allocation problems: a brief overview

4.2.1. Conditions of water resource allocation

The thinking that water is a gift of God freely available in abundance to human and animal use is a commonly established perception in Ethiopian society.[4] As also noted in section 1.1 of Chapter One, the understanding of water as a free gift of nature in many countries around the world resulted in the ignorance of assigning an economic value for the use of water 'for political, cultural and social reasons.'[5] Even when the value of water has been debated in water policy discourse, it only suggests the costs associated with its supply, treatment and distribution but not to the economic value of water abstracted *per se*. The question is what causes the most useful gift of nature less valued when compared to other natural resources? To make the story brief, the glimpse on the works of Benjamin Franklin and Adam Smith can shed light on the Ethiopian contexts of water resource abundance and allocation problems.

In Benjamin Franklin's Book, 'The Way to Wealth' (1758), the idea that water can be scarce and worth value was recounted as 'When the wells dry, they know the worth of water'.[6] Likewise, in his seminal work, the Wealth of Nations (1776), Adam Smith also noted that 'things which have the greatest value in use have frequently little or no value in exchange' while 'those which have the greatest value in exchange have frequently little or no value in use.'[7] Smith further notes that though 'nothing is more useful than water', its availability in 'great quantity' makes it invaluable in exchange.[8] On the contrary, Smith contends that diamond is less valuable in use but its availability in smaller quantities makes it scarce and valuable commodity in exchange.[9]The ideas of these eminent scholars provide two

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4 Beshah M Behailu, Pekka E Pietilä and Tapio S Katko, 'Indigenous practices of water management for sustainable services: Case of Borana and Konso, Ethiopia' (2016) 6 Sage Open 6; Yericho Berhanu Meshesha and Mulugeta Bekele Abdi, 'Challenges and opportunities for implementation of integrated water resource management in omo-gibe basin, Ethiopia' (2019) 11(7) Journal of Ecology and the Natural Environment 84, 92.

5 Muhammad Shatanawi and Sawsan Naber, 'Valuing water from social, economic and environmental perspective' in Junier S and others (ed), *Dialogues on Mediterranean water challenges: Rational water use, water price versus value and lessons learned from the European Water Framework Directive* (CIHEAM 2011) 110.

6 Benjamin Franklin, *The Way to Wealth* (Applewood Books 1986) 22.

7 Adam Smith, *The Wealth of Nations - An Inquiry into the Nature and Causes of the Wealth of Nations* (Edwin Cannan's edn. University of Chicago Press 1977) 48.

8 ibid

9 ibid

important perspectives to help understand access to abundant water and its value and usefulness. First, in reference to 'Well', as a point source of water, Benjamin Franklin's idea underpins the fact that it takes one to dig a well to access it even though water is abundant beneath the surface of the earth. In this sense, labour plays an important role since according to Smith labour 'is the real measure of the exchangeable value of all commodities.'[10] Second, it underpins the fact that scarcity or the short supply of water sends an important signal to the water users to appreciate the value of water. So much so that early scholarly wisdom implicates the role of scarcity in determining the value of water as an exchangeable commodity.

At first glance, it appears that Ethiopia is considered a water resources abundant country with 0.7 percent of water bodies that run through 12 major river basins with an estimated 122 and 2.6 Billion Cubic Meters (BCM) of surface and ground water potentials respectively.[11] The enigma of water abundance in Ethiopia is famously expressed as 'the water tower of Africa' but only to tell that about 97 BCM of its freshwater resources is discharged into its neighboring countries with no amount of water flowing into its territory.[12] Yet even the existence of abundant water sources both on the surface and beneath its landmass does not guarantee its immediate and free availability for use. According to the most recent data, Ethiopia's annual freshwater withdrawal is estimated to be 10.5 BCM.[13] More specifically, the limited abstraction of surface and ground water resources in Ethiopia for social or economic use can be deciphered from the amount of water withdrawn for use in agriculture, industry, and municipal sectors.

The latest United Nations Food and Agriculture Organization (FAO) data (2016) estimates about 85 percent or around 9 BCM of surface water is removed from surface water source for

[10] Smith (n 7) 70.

[11] Asmaa Abusamak, 'Water Projects in Ethiopia and their Implications for the Future of the Nile Water' (2022) 13 Journal of Pharmaceutical Negative Results 1938.

[12] ibid 1939.

[13] Tesfay Abraha, Assefa Tibebu, and Gebremariyam Ephrem, 'Rapid Urbanization and the Growing Water Risk Challenges in Ethiopia: The Need for Water Sensitive Thinking' (2022) 4 Frontiers in Water 13.

agricultural purposes, making it the major water abstracting sector.[14] The agriculture sector represents the backbone of the Ethiopian economy, 'accounting for 34 percent of GDP, 90 percent of total export value and 70 percent of total employment share in 2017.'[15]

Furthermore, chiefly reliant on rainfed agricultural crop production, the agricultural sector provides 90 percent of Ethiopia's subsistence food supply. However, the impact of climate change and the variability of rainfall affected the viability of rain-fed agriculture thereby necessitating a shift into the use of surface and ground water sources through irrigation systems.[16] So far, the total irrigated areas in Ethiopia vary from 1.2 million hectares according to the 2019 FAO estimates and to 2.9 million hectares according to the 2018 estimates of the Ministry of Agriculture of Ethiopia.[17] As of 2015, the area equipped for full-control irrigation is estimated at 658 340 hectares.[18] Moreover, it is also estimated that Ethiopia has an irrigation potential of 3.7 and 1.6 million hectares of land that can be utilized using surface and ground water sources, respectively.[19] The potential availability of irrigable land and the priority of the government to rely on irrigation based agricultural production to alleviate poverty would inevitably increase the demand for water use.

> On the other hand, an estimated 51 Million Cubic Meters (MCM) or about 0.4 percent of water for industrial use is withdrawn mainly from ground water sources.[20] The major reason indicated in the studies for the low withdrawal of water resources in the Ethiopian industry sector is attributable [sic] to the 'under-developed' manufacturing enterprises

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14 United Nations Food and Agriculture Organization, 'AQUASTAT Country Profile – Ethiopia' (FAO 2016) <https://www.fao.org/3/i9732en/I9732EN.pdf> accessed 25 December 2023. [Hereinafter 'Food and Agriculture Organization'].

15 United Nations Food and Agriculture Organization, 'Evaluation of FAO's country programme in Ethiopia 2014-2019' (2020) Country Programme Evaluation Series 10/2020 8. <https://www.alnap.org/system/files/content/resource/files/main/cb1354en.pdf> accessed 26 December 2023.

16 Mekonen A Gebul, 'Trend, Status, and Challenges of Irrigation Development in Ethiopia—A Review' (2021) 13 Sustainability 5646; Megersa F Gemechu, 'GIS-Based Multi-criteria Approach Surface Irrigation Potential Assessment for Ethiopian River Basin: in Case of Upper Awash River Basin' (2023) 7 Process Integration and Optimization for Sustainability (2023) 501, 502

17 Abay Yimere and Engdawork Assefa, 'Current and Future Irrigation Water Requirement and Potential in the Abbay River Basin, Ethiopia' (2022) 15 Air, Soil and Water Research 1.

18 Food and Agriculture Organization (n 15) 10.

19 Zablon Adane and others, 'Balancing Water Demands and Increasing Climate Resilience: Establishing a Baseline Water Risk Assessment Model in Ethiopia' (2021) Technical Note. <https://doi.org/10.46830/writn.19.00123> accessed 26 December 2023.

20 Samuel S and P Restiani, 'Water Governance Mapping Report: Textile Industry Water Use in Ethiopia' (2018)<https://siwi.org/wp-content/uploads/2017/06/Water-Governance-Mapping-Report-Ethiopia.pdf> accessed 27 December 2023.

> with little water demand. The existing small number of factories abstract bulk water from surrounding surface water sources and municipal water supplies.[21] However, the current water use for industrial purposes might increase due to the proliferation of agro-processing, and garment manufacturing industries located in the various parts of the country.[22]

Finally, the last significant water withdrawing sector in Ethiopia is municipal water use that removes fresh water for domestic purposes. Accordingly, the annual municipal water withdrawal is currently estimated at 810 MCM or [8] percent of the total water abstraction.[23] In terms of source, groundwater constitutes for 70–80 percent of domestic water supply in urban and rural Ethiopia.[24] The low level of ground and surface water abstraction by the municipality can be further manifested in the limited supply of water for domestic uses explained in terms of per capita water demand measured as 'the quantity of water utilized by each person per day.'[25] According to the World Health Organization (WHO), the minimum quantity of water required for basic human needs ranges between 50 and 100 liters of water per person per day.[26]

Despite the absence of the national estimates on the quantity of water currently used for domestic needs by a person per day, the second Ethiopian Growth and Transformation Plan II (GTP II), respectively, sets 25 and 40–100 liters of water for rural and urban areas as a national standard.[27] Ethiopia's Ten Years Development Plan' (2021-2030) which articulates the country's 'homegrown economic policy' also planned to increase the percentage of rural residents with access to 25 liters of tap water per person per day, within one kilometer from 54.88 to 100 percent.[28] Likewise, it is also planned to increase the percentage of urban residents with access to 40-100 liters of tap water per person per day from 58.9 to 100

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21 ibid

22 ibid 14—15.

23 Food and Agriculture Organization (n 15) 8-9.

24 ibid

25 Abdulkerim Bedewi Serur, 'Optimal surface water allocation under various scenarios in the Central Rift Valley basin in Ethiopia' (2022) 8 Sustainable Water Resources Management 161.

26 Rebeca Sultana and others, 'Measuring Water Quantity Used for Personal and Domestic Hygiene and Determinants of Water Use in a Low-Income Urban Community (2022) 19 International Journal of Environmental Research and Public Health 15656.

27 Federal Democratic Republic of Ethiopia Growth and Transformation Plan II (GTP II) (2015/16-2019/20) Vol. I: Main Text (National Planning Commission May 2016 Addis Ababa) 39.

28 FDRE Planning and Development Commission, 'Ten Years Development Plan: A Pathway to Prosperity (2021-2030)' (Planning and Development Commission 2019) 54

percent.[29] From this National Development Plan, it is understandable that 45.12 percent of rural residents do not access 25 liters of tap water within one km while 41.1 percent of urban residents do not access 40-100 liters of tap water.

The demand for water for domestic use in Ethiopia is still flagged as 'major challenges' since the efforts of the government to publicly supply drinking water with low cost proved difficult to achieve the commitments of Sustainable Development Goals (SDGs) on accessible and sustainable management of water.[30] The 2022 Ethiopia's Voluntary National Review (VNR) on the implementation of SDGs, the proportion of households in 2019/2020 with access to drinking water from improved sources is reported as 68.8 percent.[31] However, compared to a global country (Ethiopia) report on the implementation of SDGs one can observe a significant disparity from the national report in the proportion of population accessing drinking water for the same year.[32]

The latest (2020) UN-Water data based on the FAO-United Nations Children's Fund (UNICEF) report shows the proportion of the Ethiopian population using 'safely managed services' and 'improved water source' was 13 and 78 percent, respectively.[33] The former refers to the proportion of the Ethiopian population using an improved source of drinking water located on premises (residence, yard or plot) that is available when needed and free from bacterial and chemical contamination.[34] The latter refers to the proportion of the population using safe drinking water from improved sources such as 'piped water, boreholes or tubewells, protected wells, protected springs, rainwater, and packaged or delivered water.'[35] Likewise, in 2020, Saches *et al* reported that Ethiopia is facing 'major challenges' in realizing

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29 ibid

30 FDRE Growth and Transformation Plan II: (2015/16-2019/20) Volume I: Main Text (National Planning Commission, 2016)183. [Hereinafter GTP II]. The plan under GTP I was to increase access to clean water from 84 to 100 percent at national level during GTP II period.

31 Ethiopia: Voluntary National Review 2022 (FDRE Ministry of Planning and Development, 2022) 87.

32 UN Water: Sustainable Development Data Portal, accessed at <https://sdg6data.org/en/maps>; World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), Progress on household drinking water, sanitation and hygiene 2000-2020: five years into the SDGs (Geneva 2021) 32.

33 ibid.

34 United Nations World Health Organization, *Safely managed drinking water - thematic report on drinking water* 2017 <https://iris.who.int/bitstream/handle/10665/325897/9789241565424-eng.pdf?sequence=1&isAllowed=y> accessed 27 December 2023.

35 ibid.

access to drinking water with 49.6 percent of the population using 'at least basic water service.'[36]

4.2.2. Demystifying water scarcity and water abundance

Ethiopia is anomalously considered as a water abundant country albeit the legacy of hydrological variability and uneven distribution of such water resources affecting its temporal and physical availability. However, the fact that the country is potentially endowed with abundant natural water resources does not necessarily mean that fresh water is immediately available and freely accessible for beneficial use. This context of water scarcity in Ethiopia can be explained in two ways. Firstly, the existence of limited financial and technological capacity creates infrastructural and institutional constraints despite the physical availability of fresh water in nature.[37] This is considered as economic water scarce created because of lack of adequate water infrastructure affecting the ability to abstract inaccessible but abundant water resources without sufficient investments.[38] This state of economic inability to utilize abundant water resources was publicized at the global level when, Ethiopia's Water, Irrigation and Energy Minister, his Excellency Minister Seleshi Bekele, addressed the United Nations Security Council on the issue of Grand Ethiopian Renaissance Dam (GERD) on 08 of July 2021. His address in part reads as follows:

> Our inability to utilize the Nile so far is deeply embedded in the psychology of our people. Two famous Ethiopian proverbs underscore this point. '*Gowwaan bishaan keessa dhaabbate dheeboota'* or '*ye abayin lij wuha temaw.'* Both roughly translate to the irony of the tribulations of a poor man who stood in the middle of a river and lamented about experiencing extreme thirst. To change this generational lament, we have nowhere to look but the Abay or Nile River in which two third of Ethiopia's water resources are found.[39]

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[36] Jeffrey D Sachs and others, From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond; Sustainable Development Report 2022 (Cambridge University Press 2022)199.

[37] Birtukan A Hirpa and others, 'Green, blue and economic water productivity: a water footprint perspective from the Upper Awash Basin, Central Ethiopia' (2023) 14 Journal of Water and Climate Change 559.

[38] Ethiopian Panel on Climate Change, *First Assessment Report: Working Group II Water and Energy* (Ethiopian Academy of Sciences 2015)

[39] Seleshi Bekele, Minister of Water, Irrigation, and Energy of Ethiopia on the Nile Dam Briefing UN Council, 8816th meeting on Peace and security in Africa (New York: 08 July 2021) <https://youtu.be/KUw9gnFCQe0?t=287> accessed 26 December 2023.

The above quote clearly indicates the social and economic reality where the Government acknowledged the inability of the Ethiopian state and its people to utilize its abundant water resources for at least basic human needs let alone maximizing economic benefit from its use.

Secondly, the availability of freshwater resources in some of the Ethiopian river basins are seasonally or naturally limited that makes it physically inaccessible even if there exists economic and technological means to use.[40] For instance, of the 12 river basins in Ethiopia, two are considered as dry while eight of them are water deficit basins of different extents.[41] These major rivers and lakes are also located in the rugged topography making it physically inaccessible to easily abstract fresh water for different social and economic exploitation. This very fact is clearly mentioned in the WSDP adopted to implement the WRM Policy reads as follows.

> Ethiopia has abundant water resources, but they have yet to contribute more than a fraction of their potential to achieving the national economic and social development goals. Because of the uneven distribution of those resources, and the limited financial and technical resources available, Ethiopia has repeatedly suffered from drought and the aridity of much of its lands. Very little has been done to date in harnessing the country's water resources as engines to propel national economic and social development.[42]

Hence, lack of finance and investment in infrastructure developments to utilize abundant water resources inevitably limits Ethiopia's ability to abstract the required quantity to allocate for socially and economically beneficial use. This is the reason why Ethiopia is globally mapped as a country affected by economic water scarcity.[43] According to the 'Falkenmark Water Stress Index', the amount of renewable freshwater in Ethiopia that is available for each person per year is estimated at 1,162 cubic meters.[44] The global standard is that a country experiences water stress when water availability is below 1,700 cubic meters

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40 FDRE Ministry of Water Resources: Water Sector Development Program (2002-2016) Main Report Volume II (2002) 6. [Hereinafter. 'Water Sector Development Program Vol. II' (WSDP)].

41 Dereje Adeba, ML Kansal and Sumit Sen, 'Assessment of water scarcity and its impacts on sustainable development in A wash basin, Ethiopia' (2015) Sustainable Water Resource Management 71.

42 Water Sector Development Program Vol. II (n 40).

43 HK Jeswani and A Azapagic, 'Water footprint: methodologies and a case study for assessing the impacts of water use' (2011) 19 Journal of Cleaner Production 1289.

44 USAID: Ethiopia Water Resources Profile Overview, Water Resources Profile Series. Accessed at: https://winrock.org/wp-content/uploads/2021/08/Ethiopia_Country_Profile-Final.pdf

per person per year making Ethiopia a water stressed African country.[45] Likewise, according to the SDGs 6.4.2 indicator that measures country's water stress level in terms of a 'freshwater withdrawal as a proportion of available freshwater', the total freshwater withdrawal in Ethiopia accounts for 10.55 BCM or 32.3 (2017) percent of the total renewable freshwater resources (122 BCM).[46] As such, Ethiopia can be categorized as a 'low water stressed' country falling within the ambit of between 25-50 percent, which is the SDG threshold for low water stress.[47] Therefore, the state of water resource use and problems associated with its allocation in Ethiopia shows there is a need to use and allocate water resources in efficient ways.

4.3. Recognition of water as economic good

The Ethiopian MWR adopted the LSP in 1996 that outlined national commitment to undertake structural policy reform in the water resource development to realize access to development aid and financial assistance from the WB and donors.[48] The LSP states the importance of paradigm shift in the financing of water supply services was emphasized by articulating that 'policies pursued in the past have a tendency to treat water as a free commodity for which the people are not expected to directly pay.'[49] Based on this county policy intention, the WRM Policy of Ethiopia was adopted in 1999 with the verbatim nomenclature of the 1993 WB 'Water Resource Management Policy paper'.[50]

The overarching objectives of the WRM Policy is well-defined by stating that the water resources of the Country should be developed on the basis of equitable access, efficient and sustainable uses to maximize 'economic and social benefits of its people.'[51] Likewise, the Water Resource Management Proclamation (WRMP) of 1997 states that water resources of

45 FAO, Progress on level of water stress - Global baseline for SDG 6 Indicator 6.4.2 (Rome: FAO/UN-Water, 2018) 32.

46 ibid 33.

47 United Nations Food and Agriculture Organization, 'Progress on level of water stress - Global baseline for SDG 6 Indicator 6.4.2' (FAO/UN-Water 2018) 33; Jeffrey D Sachs and others, *Sustainable Development Report 2021: The Decade of Action for the Sustainable Development Goals* (Cambridge University Press 2021) 211.

48 Letter of Sector Policy (n 3).

49 ibid

50 FDRE Water Resource Management Policy (Ministry of Water Resources 1999) [Hereinafter 'Water Resource Management Policy' (EWRMPo)].

51 ibid

Ethiopia should be allocated 'to the highest social and economic benefit of its people through appropriate protection and due management.'[52] Moreover, the WRM Policy treats 'water as a scarce and vital socio-economic resource' and encourages conservation of existing water systems through efficient utilizations.[53] The same objective under the Draft Water Resource Policy and Strategy (WSPS) also emphasizes the significance of water as a vulnerable and 'strategic resource' that should be managed with care and environmentally sustainable ways.[54] Thus, both existing WRM Policy and its new Draft posits that treating water as an economic good plays a vital role for water resources to significantly contribute to the economic development of the country.[55] Particularly, both the old and draft water policies articulates the guiding principle that states 'water has social and economic value in all its competing uses and should be recognized both as a social and an economic good.'[56]

The policy recognition for the treatment of water as an economic good that has economic value underscores water pricing schemes to efficiently and rationally allocate existing water resources to manage water demand among all competing uses.[57] Therefore, the following section assesses the manifestations of water as an economic good under the water policy documents focusing on how water use efficiency, water pricing and private sector participation (PSP) are recognized to ensure the efficient allocation and optimal use of water resources.

4.3.1. Policy language of efficient use and allocation of water

As discussed in Chapter 3, the recognition of water as an economic good is directly related to the desire to efficiently use and allocate water resources. The increase in water scarcity and competition for water across multiple sectors inevitably forces policy makers to promote efficient allocation and use of water resources. As such, assessing how the Ethiopian water

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52 Ethiopian Water Resource Management Proclamation No 197/2000 at preamble. [Hereinafter 'the Water Resource Management Proclamation 1997' (WRMP)].

53 Water Resource Management Policy (n 50).

54 FDRE National Water Policy and Strategy (Ministry of Water, Irrigation and Energy, 2020 draft) 9. [Hereinafter 'Draft National Water Policy and Strategy']

55 Water Resources Management Policy (n 50); FDRE Water Sector Strategy (Ministry of Water Resource, 2001) 2-3[Hereinafter 'Water Sector Strategy' (WSS)].

56 Water Resources Management Policy (n 50); Draft National Water Policy and Strategy (n 54) 12.

57 Water Resources Management Policy (n 50) 56.

resource policies and other relevant articles and documents are pivotal to understanding the extent to which the economic value of water use per volume of freshwater abstraction in the production of economic goods and services is normatively rooted.

In light of the above understanding, the objective of the WRM Policy is pronounced to 'enhance the development of the country's water resources to make optimum contribution to an accelerated socio-economic growth.'[58]The WRM Policy recognizes 'the rational development of water resources for its substantive and significant contribution to the Country's economy as well as to the annual Gross Domestic Product.[59] Furthermore, the WRM Policy also emphasizes the importance of realizing economic and social benefit from the optimal allocation of a country's water resources by incorporating principles of efficient, equitable and sustainable use.[60] The Water Sector Strategy (WSS) also employs the use of terms like 'efficient allocation', 'redistribution', 'transfer' and 'efficient use of water resources' as the major objectives of the WRM Policy for managing and combating drought and other associated problems.[61] The WSS further states the need to ensure water allocation based on efficient use of water resources that takes into account the need to devise and implement demand management measures to improve the 'water use efficiency' in all water using sectors and promote appropriate water management practices to 'maximize water yields'.[62]

Despite the lack of specific definition of what constitutes efficient use of water resources under WRM Policy and WSS, expressions like optimal or efficient use of water resources are commonly employed in articulating sustainable development and utilization of water resource endowments. For instance, the WSS states 'effective and optimum use of available water resources by prioritizing multipurpose water resource development' activities that are 'economically more viable' water use to maximize its net benefits.[63] As such the WSS promotes optimal exploitation of water resources 'based on abstraction of the maximum

[58] ibid
[59] ibid
[60] ibid
[61] Water Sector Strategy (n 55) 2.
[62] ibid 5.
[63] ibid 3.

amount equal to the sustainable yield' to maximize the benefits from different types of water use.[64] Likewise, the Ten Years Development Plan and the draft NWPS encourages improved water use efficiency by using improved technologies and applying 'water use efficiency standards in different water uses' to save water and reduce water losses.[65]

Furthermore, the WSS encourages water allocation based on efficient use of water resources that takes into account the needs of drought-prone and water scarce areas.[66] In this regard, the need to implement criteria for allocation of water among different uses through the preparation of water allocation procedures and guidelines are emphasized. The WSS requires the need to give special considerations to drought-prone areas and promote the transfer of water from surplus to water deficit areas.[67] In particular, the WSS underlines the imperatives of formulating and executing 'demand management measures to improve water use efficiency in all water using sectors.'[68] The Draft NWPS specifically pinpoints the need to ensure that fees are paid for services rendered including the determination of water use and abstraction charges or fees in line with the users pay principles to efficiently manage the supply and demand of water.[69]

Finally, the above discussion on efficient use of water resources under the Ethiopian water policy space reveals two major normative implications. Firstly, the policy language referring to efficient use of water implies the objectives of recognizing water as an economic good since efficiency mainly underpins optimal use of water resources for social and economic benefits. The normative implication is that once the imperatives of water use efficiency is embedded in the water policy, sustainable and efficient use of available water resources require that water should be allocated in such a way that social and economic benefits are maximized. In particular, the policy basis for promoting transfer of water from surplus area to water deficit or scarce area underpins the possibility of introducing the institution of water market to channel the demand for valued exchange of water as a valued resource.

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64 ibid.
65 Draft National Water Policy and Strategy (n 54) 48 & 71; FDRE Ten Years Development Plan (n 28) 54.
66 Water Sector Strategy (n 55) 5.
67 ibid
68 ibid
69 Draft National Water Policy and Strategy (n 54) 55.

Secondly, maximizing the social and economic benefit through sustainable and efficient allocation further requires that producers of goods and services should take the price of water use into account. On the one hand, producers who consume water to produce goods and services are required to cover the costs of water supply services. In other words, since abstracting water from surface or groundwater sources involves operation and maintenance costs, water users who are benefiting from the gross value added per volume of water consumed are reasonably required to cover the costs of water supply services. In such a context, the normative implication is that cost recovery water pricing policy, based on willingness to pay by the water users per volume of water consumed, should be adopted to account for the cost of water service. On the other hand, water users who self-supply water from surface or groundwater sources for the purposes of producing goods or services are required to pay water abstraction charges for the exploitation of water resources. In such a case, the normative implication is that the abstraction of a certain amount or volume of water from its natural source should be treated as an economic good capable of generating economic benefits as a bulk product.

The policy language emphasizing on the importance of efficient use and allocation of water resources clearly indicates that the Ethiopia water policy intends to encourage the economic value of water for its consumption to maximize economic benefits from the increasing allocation of water resources of the country. Therefore, given that the recognition of water as an economic good with economic value is articulated through water pricing principles, the following section further discusses how water pricing principles are designed under the water policy as a means to ensure that water users are required to pay water charges or water supply service for the abstraction or use of water supply services respectively.

4.3.2. Water pricing policy

The recognition of water as an economic good as discussed in Chapter 3 underpins the guiding principle for the allocation of water as a valuable natural resource in all its competing uses requires the application of economic instruments commonly referred to as water pricing. In broad terms, water as an economic good means that water will be allocated across competing uses in a way that maximizes the net economic benefit from that amount of water

used, be it in the form of gross value added to the product or as valued input to produce goods.[70]

Briefly, when a country employs the language of water pricing in its water policy, two major normative implications can be drawn in the allocation of either scarce or abundant water resources. Firstly, it underscores the policy imperatives that water is no more a free or under-priced natural endowment that should be left to the tragedy of frequent misallocation and wasteful use without driving economic or social benefits from its increasing use.[71] Without appropriate water pricing schemes, 'consumers have no incentive to use water more efficiently as they receive no signal indicating its relative value'.[72] In the absence of price signals to reveal opportunity costs per volume of water consumed, producers of goods and services 'do not consider or internalize social benefits and costs in their production or investment actions.'[73] As such, since water abstraction, production and allocation decisions are based on other factors that ignore the economic value of the resources.[74]

Secondly, even if water is a free public good, its abstraction and conveyance to a needed place require a cost for which 'water service fee' should be accounted for. The policy implication is that price is paid not for the value of water use per se with the view to ripe economic benefits but for recovering the costs of maintaining and operating water delivery services to those who need to consume or want to produce goods and services with it. The most commonly used term that refers to such a scheme of water pricing is cost recovery mechanisms levied in the form of water service fee or tariffs. It is contended that water service fees in such water pricing mechanisms provide incentives for demand management

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70 Nihal Atapattu, *Economic valuing of water* (International Water Management Institute 2002)201-202< http://publications.iwmi.org/pdf/H031121.pdf>accessed 22 March 2024.

71 Gary D Libecap, 'The tragedy of the commons: property rights and markets as solutions to resource and environmental problems' (2009) 53(1) The Australian Journal of Agricultural and Resource Economics 129, 130-32.

72 Muse Asad and others, *Management of water resources: Bulk water pricing in Brazil. World Bank Technical Paper No. 432* (World Bank Group 1999)<http://documents.worldbank.org/curated/en/805021468781782646/Management-of-water-resources-bulk-water-pricing-in-Brazil>accessed 24 May 2023

73 Libecap (n 71) 129.

74 ibid 130

as it signals consumers' willingness to pay for additional benefits derived from water services.[75]

Considering the above water pricing policy alternatives, the Ethiopian WRM Policy recognizes the '*user pays principle*' that requires water users to 'bear the full cost of running down natural capital and consuming natural resources.'[76] Accordingly, two water pricing policies can be decipherable from the user pays principle and further entrenched within the draft WRPS.[77] The first form of water pricing policy involves the 'principle of cost recovery' designed to ensure that 'fees are paid for services rendered'[78]The LSP particularly mentions financial or budgetary limitations of the government to provide water supply services given 'the magnitude of the investment, operation and maintenance costs' indicating the inability of public water supply services without the application of water pricing mechanisms. This LSP underscores that 'tariff will be assigned on marginal cost pricing approach which takes into account economic, social and financial objectives of water utilities.[79] The Water Sector Strategy also requires the government to 'develop and implement water pricing measures' that step by step leads to 'full cost recovery' based on the user's willingness and ability to pay with the view to cover the costs for the operation and maintenance of water supply services in a sustainable way.[80] This type of water pricing is specifically termed as 'water service fee' referring to 'fees charged for water supply services only.'[81]

The second form of water pricing policy relates to the water abstraction charge that requires water users to pay for bulk water consumption. The Water Resource Policy specifies that water abstraction charges should be collected from water users to 'finance water resource management undertakings.'[82] The policy further authorizes the government to 'establish sector-based criteria and guidelines for the determination of water use and abstraction

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75 V Ratna Reddy, 'Water Pricing as a Demand Management Option: Potentials, Problems and Prospects' in Rathinasamy Maria Saleth (ed) *Strategic Analyses of the National River Linking Project (NRLP) of India, Series 3. Promoting irrigation demand management in India: Potentials, problems and prospects.* (International Water Management Institute 2009) 26.

76 Draft National Water Policy and Strategy (n 54) 7.

77 ibid

78 ibid 55; Water Resources Management Policy (n 50) 12.

79 Letter of Sector Policy (n 3) 9.

80 Water Resource Strategy (n 55) 9; Draft National Water Policy and Strategy (n 54) 35.

81 Draft National Water Policy and Strategy (n 54) 7.

82 Water Resources Management Policy (n 50); Draft National Water Policy and Strategy (n 54) 55-78.

charges or fees in line with the users pay principles.'[83] Similarly, the WRMP also requires that 'water charges shall be paid to use water resources for any use allowed.'[84] Finally, the proclamation enacted for establishing River Basin Councils and authorities mandates River Basin Authorities 'to collect water charges' set by the government.[85]

In terms of sectoral water pricing approach, WRM Policy provides different pricing arrangements for domestic and non-domestic water uses.[86] Firstly, the use of surface and groundwater for domestic and small irrigation purposes including groundwater allocation based on customary law or traditional decision-making process is exempted from water pricing schemes.[87] The policy justification for free access to small quantities of surface and groundwater abstraction, referred as de minimis water use, is to ensure basic human need including food security for disadvantaged rural communities who cannot afford to pay for development of water systems.[88] The legal basis for de minimis water use is also guaranteed under the Water Resource Management Proclamation stipulating that any person who uses water from hand-dug wells or use water for traditional irrigation, artisan mining, traditional animal rearing as well as for water mills are exempted from water permit fee and water use charges.[89] However, water pricing exemption for irrigation water abstraction is qualified by defining what constitutes traditional irrigation as 'peasant managed irrigation that supplies water to land at a maximum rate of one liter per second (1.1/s) or not more than one hectare of land per peasant for his or her subsistence use.'[90]

Secondly, the water pricing policy for domestic use introduces the scheme of 'social tariff' to ensure equitable access to basic water services through affordable prices.[91] As such, the government is required to subsidize rural water supply service to partially cover operation and maintenance costs.[92] The pricing policy for domestic water use in urban areas is planned

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83 Draft National Water Policy and Strategy (n 54).

84 Water Resource Management Proclamation 1997 (n 52) art 21(1); Water Resources Management Regulations No 115/ 2005, art 31 [Hereinafter, 'Water Resources Management Regulations 2005'].

85 River Basin Councils and Authorities Proc. No. 534/2007, art 9(10) (Currently repealed).

86 Water Resources Management Policy (n 50) 12-13.

87 Draft National Water Policy and Strategy (n 54) 53.

88 ibid 2.

89 Water Resource Proclamation 1997 (n 52) art 12(1).

90 ibid art 2(9).

91 Water Resources Management Policy (n 50) 23;

92 ibid

to be based on full cost recovery principle which requires urban residents to pay water supply service fees or tariff set by the government per volume of tap water consumed. In order to strike the delicate balance between the desire for efficient and equitable water use, the Water Resources Policy clearly states that 'the price for water should be neither too high to discourage water use nor too low to encourage abuse and overuse of water.'[93]

To put it succinctly, water abstraction charge under the Ethiopian WRM Policy requires the payment of administratively assigned price on those who self-supply bulk water from ground or surface water sources. The exception to this rule is the application of zero water abstraction charge for *de minimis* self-supply or abstraction of water for basic human needs such as for subsistence traditional irrigation or animal rearing. In the case of access to bulk or tap water from public or private water supply service providers for domestic, irrigation and industrial uses, water supply service fee based on partial or full cost recovery principle will be applicable.[94] Thus, the policy recognition of water pricing takes the treatment of water as an economic good to the next level from free to valued public good since pricing mechanisms signal wise and efficient use of water resources as stated in the draft WRPS.[95] The fact that the use of a certain amount of water has a price to be paid for its use means that surplus water can be transferable to third parties who demand water.

Consequently, treating water as an economic good with price assigned for its use or value inevitably attracts the private sector to engage in the abstraction of water to provide water supply services for different purposes since users or customers are required to pay for the water abstracted or water supply services rendered. This relevant question that needs to be addressed is whether the Water Resource Policy promotes private sector engagement in the abstraction, production and supply of water supply services in the Ethiopian water sector.

4.3.3. Private sector participation in water resource allocation

The recognition of water as an economic good inevitably creates an enabling environment for the private sector to invest in the abstraction, production and supply of water for different

93 Draft National Water Policy and Strategy (n 54)77; Water Resources Management Policy (n 50) 13.
94 Water Resources Management Policy (n 50) 13.
95 Draft National Water Policy and Strategy (n 54) 56.

water users. The promotion of private sector participation (PSP) in water resource development and supply service emanate from two mutually inclusive policy justifications. The first policy justification stems from resource mobilizations due to financial constraints on the part of the state to invest in water supply infrastructure to meet the needs and increasing demands or utilization of resources.[96] The Ethiopian Public-Private Partnership (PPP) Policy recognizes the need for mobilizing resources from the private sector to fill the gaps in infrastructure financing in order to meet the growing demand for public service.[97] Understandably, absence of finance for public sector investment in water supply infrastructure created formidable challenges to developing countries like Ethiopia to address increasing demands for water for multiple use purposes.

Considering this fact, the draft WRPS promotes PPP and PSP as a strategic approach to overcome the financing gaps in the domestic and non-domestic water supply services.[98] As the precursor of all other water resource policy documents, the LSP establishes early motives of the government to assess the conditions and legal frameworks for PSP in the area of water supply activities.[99] The LSP specifically states the policy intention of the government to involve private sectors in the management, operation, and maintenance of urban water supply services with the view to 'create competition and control monopoly.'[100] The WRM Policy also restates the need to promote and encourage PSP in the operation and maintenance of water utilities.[101] Similarly, the WSDP acknowledges the limited role played by the private sector so far and the need to introduce different kinds of incentives to create a conducive environment to ensure PSP in the development of the water sector.[102] Particularly, the importance of creating a conducive environment for the private sector by facilitating credit services from banks and other NGOs as an incentive for water supply services and legalizing informal participation of stakeholders is emphasized to ensure an

96 Karen J Bakker, 'A political ecology of water privatization' (2003) 70(1) Studies in Political Economy 35, 44

97 Ethiopian Public Private Partnership Policy (Ministry of Finance and Economic Cooperation 2017) 1 and 11. [Hereinafter PPP Policy].

98 Draft National Water Policy and Strategy (n 54)22; Water Resources Management Policy (n 50) 25

99 The Letter of Sector Policy (n 3) 10

100 ibid

101 Water Resources Management Policy (n 50) 15

102 Water Sector Development Program (n 40)17

efficient management of water supply services.[103] Thus, promoting PSP is increasingly seen as a crucial means to mobilize additional financial resources to the development and management of the water sector.[104]

The second policy justification for PSP owes its basis to the mainstream economic theory that profoundly promotes the role of private actors as more efficient compared to public management and allocation of water supply services.[105]As discussed in section 3.4.5 of Chapter 3, the treatment of water as an economic good signaled that water supply services are no longer free public good or services and eventually persuaded financially constrained countries to open their market for PSP to commercially supply water services under competitive pricing conditions.[106] In order to implement such imperatives, the Public-Private Partnership Proclamation No 1076 of 2018 states the objectives of PPP to 'enhance transparency, fairness, value for money, efficiency and long term-sustainability' of public service activities.[107]

It is argued that water policy underpinning for PSP also entails a qualified shift from predominantly 'state hydraulic paradigm' to 'market conservation paradigm' for water resource development and management.[108] The former paradigm treats water services as a public good prone to 'market failures' in the absence supply-oriented intervention by the state at subsidized prices.[109]

However, the latter paradigm contemplates that emerging resource and socio-economic realities require a demand-oriented approach through the market system to address 'state failures' that refers to the inefficient allocation of water resources by public water service providers.[110] Bakker notes how water services are viewed as 'no longer a public good subject

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103 ibid.

104 ibid 21.

105 Lijin Zhong, 'Public-Private Partnerships in China's Urban Water Sector' (2008) 41 Environmental Management 863; R Maria Saleth and Ariel Dinar, *The Institutional Economics of Water: A Cross-Country Analysis of Institutions and Performance* (Edward Elgar Publishing Limited 2004) 9-10.

106 Edouard Perard, 'Water supply: Public or private? An approach based on cost of funds, transaction costs, efficiency and political costs' (2009) 27 Policy and Society 197.

107 Public-Private Partnership Proclamation No 1076/2018, art 3(2). [Hereinafter 'PPP Proclamation'].

108 Bakker (n 96).

109 ibid 41-42.

110 ibid 43.

to market failures' which must be provided and monopolized by the public water service providers, 'but a tradable good which can profitably be supplied by the market under competitive conditions'.[111] Despite the continued debate on the appropriateness of this paradigm shift, the global trend since 1980's either forced or persuaded many least developed countries to introduce PSP as an epitome of promoting 'efficient and durable solutions' to address water scarcity and the problems of public water utility service.[112]

Contemplating a paradigm shift towards the private sector efficiency role, Ethiopian water policy documents incorporated PSP as additional efforts in the production, supply, and maintenance of water supply technologies to efficiently use water resources.[113] The WSS encourages meaningful participation of private sectors in the development and management of water resource infrastructure, technology development, construction, operation, and maintenance of utilities 'with costs to be covered from the services rendered.'[114] Furthermore, despite the state monopoly of piped domestic water supply services, the WSS also promotes 'privatization of utility services and increased user involvement' through payment of water service charges or fees to reflect its economic value and its effective use and management.[115] Hence, Ethiopia's WSS and its implementing WSDP have made it abundantly clear in recognizing the role of PSP in water supply services to realize efficient management of water resources.

4.4. Influence of WB and AfrDB's lending conditions

As indicated in Chapter 3, implementation of global water policy on the treatment of water as an economic good was spearheaded by international financial institutions mainly championed by the WB and transnational water policy networks and NGOs through various forms of water sector project financing strategies with the proviso of assisting the government realize water supply and sanitation services to its rural and urban communities.

111 ibid 42.
112 Reta Hailu, Degefa Tolossa and Getnet Alemu, 'Water security: stakeholders' arena in the Awash River Basin of Ethiopia' (2019) 5 Sustainable Water Resource Management 513, 518.
113 Water Resources Management Policy (n 50) 15; Draft National Water Policy and Strategy (n 54) 34.
114 Water Sector Strategy (n 55) 5-10.
115 ibid 8.

The involvement of the international financial and development agencies in the finance of water supply and sanitation services in urban and rural areas can be seen from the dozens of proclamations ratified by the Ethiopian government designed to mobilize financial resources through loans.[116] As a low-income country, Ethiopia is known as the largest WB affiliated International Development Association (IDA) borrower in Africa and ranked the fifth largest in the world.[117] Likewise, AfrDB is the second largest borrower of Ethiopia representing a 70 percent disbursement increase in the budget of the government in 2021.[118]

However, it is essential to note that the purpose of this section is not to question or challenge the provisions of loans as alternative sources of financing the desperately needed water supply services in rural or urban Ethiopia. It is only to show how the conditionalities for the release of these international loans carry with them the baggage of policy imperatives for implementing full-cost recovery and promoting private sector investment in the domestic water supply services impacting water policy and legal reforms towards private water property rights in Ethiopia. Hence, the following subsections assess how policy and strategic documents of the WB and AfrDB articulates the requirements of implementing water pricing/cost recovery and PSP as conditions to access development assistance or loans with which the government of Ethiopia finance water supply services.

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116 African Development Fund Loan Agreement for Financing Koga Irrigation and Watershed Management Project Ratification Proclamation No. 264/2002; The African Development Fund loan Agreement for Financing the Harar Water Supply and Sanitation project Ratification Proclamation No. 340/2003; Arab Bank for Economic Development in Africa Loan Agreement for financing the Kibre Mengist Town Water Supply Project Ratification Proclamation No. 426/2004; International Development Association Credit Agreement for financing the Water Supply and Sanitation Project Ratification Proclamation No. 427/2004; International Development Association Financing Agreement for financing the Urban Water Supply and Sanitation Project Ratification Proclamation No. 538/2007; International Development Association Financing Agreement for Additional Financing for Water Supply and Sanitation Project Ratification Proclamation No. 683/2010; Water Supply Agreement with the Government of the Republic of Djibouti Ratification Proclamation No. 856/2014; African Development Bank Loan Agreement for financing Four Towns Water Supply and Sanitation Improvement Program Ratification Proclamation No.936/2016; European Investment Bank Loan Agreement for partly Financing Small and Medium Towns Water Supply and Sanitation Infrastructure Expansion and Rehabilitation Programme Ratification Proclamation No. 941/2016; International Development Association Financing Agreement for financing the Second Urban Water Supply and Sanitation Project Proclamation No. 1026/2017

117 World Bank, 'An Independent Review of World Bank Support to Capacity Building in Africa: The Case of Ethiopia' (2005) 1.

118 African Development Bank Group, Ethiopia: Country Strategy Paper 2023-2027 and 2022 Country Portfolio Performance Review (2022) 13.

4.4.1. Conditionalities of cost recovery and private sector participation

As discussed under section 3.4.5 of Chapter 3, WB and AfrDB Water Policies emphasizes the implementation of full-cost recovery in domestic water supply services for the efficient use and allocation of water. However, the application of this form of water pricing principles in borrowing countries acquires the legitimate force of implementation through the policy conditions attached to the provisions of loans and development assistance extended to finance water supply services in Ethiopia.

To begin with the WB, the domestic application of water pricing policy imperatives can be traced back to the early 1990's where the involvement of the WB in the Ethiopian economic reform was highly pronounced through the structural adjustments reforms.[119] For instance, between 1996 and 2003 the WB's Water Supply Development and Rehabilitation Project (WSDRP) provided concessional loans to finance Water Supply and Sanitation Services (WSSS) in various regions with two policy implications on the allocation and use of water resources in Ethiopia.[120]

Firstly, the investment financing project of the WB promotes 'improved cost recovery through incorporation of financial and economic analysis during the project design phase and through tariff reform' to ensure financial sustainability of WSSS.[121]The water policy imperatives of cost-recovery as the major economic instruments aims to transform the public allocations of water resources by creating an enabling environment for the public authorities to ensure water users ultimately pay the price for water services. Secondly, the WSSS project also aims to promote the participation of a wider range of stakeholders, including the private sector and communities, in the design and implementation of urban

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119 World Bank, 'An Independent Review of World Bank Support to Capacity Building in Africa: The Case of Ethiopia' (2005) working paper series No 32909 (World Bank 2005) <http://documents.worldbank.org/curated/en/769941468035973446/An-independent-review-of-World-Bank-support-to-capacity-building-in-Africa-the-case-of-Ethiopia>accessed 23 May 2023.

120 World Bank: 'Water Supply Sector Resource Flows Assessment Sector' (World Bank Water and Sanitation Program, 2004) Finance Working Papers 7. <https://documents1.worldbank.org/curated/en/349671468036360139/pdf/463560WSP0v0l11IC10af1flow1ethiopia.pdf> accessed 23 May 2023.

121 ibid; Abdulsemed A Musein 'Assessment of Cost Recovery Practices in Water Supply in Worabe Town, SNNPRS of Ethiopia' (2021) 9(7) International Journal of Academic Research in Education and Review 305.

and rural water supply systems.[122] In the face of proven inefficiency to recover costs of water utility services by the public authorities and growing financing gap to realize sustainable water supply services, the requirement of creating an enabling policy and legal environment for private sector involvement in water supply services becomes a string attached to the loans.

The conditionalities on the need to implement cost recovery and PSP in water supply system was explicitly acknowledged under the 1996 LSP by outlining the purposes of the policy document as 'implementation of the proposed IDA financed WSDRP and donor assistance programs' as a commitment to access finances for the development of rural and urban water supply.[123]

In the end, Ethiopia's commitment to execute the programme of water sector reform ultimately resulted in the adoption of Integrated Water Resource Management (IWRM) principle under WRM Policy as an accepted paradigm for efficient, equitable and sustainable use of water resources, aligning it with the WB Water Policy and loan conditionality designed for its domestic implementation.[124]

The involvement of the WB in Ethiopian water resource development is also specifically outlined in the 2006 'World Bank Water Resources Assistance Strategy for Ethiopia.'[125] In this Country Water Resources Assistance Strategy (CWRAS), the World Bank charted out priority areas for future financial assistance aligned with Ethiopia's WRM Policy. The strategic priority of the WB to extend access to Investment Project Financing (IPF) for Ethiopia is outlined in reference to the investment in multipurpose hydraulic infrastructure developments such as dam developments for irrigation use purposes.[126] The WB Investment Project Financing (IPF) that is accessed for medium and long term (5 to 10 years) with the

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122 Water Supply Sector Resource Flows (n 120) 19.

123 Letter of Sector Policy (n 3) 2.

124 Rafik Hirji and Richard Davis, 'Strategic Environmental Assessment: Improving Water Resources Governance and Decision Making' Water Sector Board Discussion Paper Series Paper No 12 (Washington DC: The World Bank, 2009) 1.

125 World Bank, 'Managing Water Resources to Maximize Sustainable Growth: A World Bank Water Resources Assistance Strategy for Ethiopia' (Washington DC, 2006). [Hereinafter 'Water Resources Assistance Strategy for Ethiopia'].

126 ibid 66-70

alleged purpose of reducing poverty and creating sustainable development in Ethiopia by supporting the government for financing investment in physical or social infrastructures.[127] Therefore, since the policy objective of IPF is to act as a 'vehicle for sustained, global knowledge transfer and technical assistance' in capital-intensive water sector development activities,[128]its policy implication as an incentive to structurally transform Ethiopia's water resource development is inevitable.

The lending approach of the AfrDB to finance WSSS in Ethiopia is also akin to that of the WB lending conditionalities. Like the WB Water Policy, the AfrDB also adopted Water Policy and Water Strategy articulating its focus and priority areas to finance water supply in borrowing countries.[129] The 2000 IWRM Policy of the AfrDB calls for a 'new approach to water resources management' to address the challenges of growing water scarcity due to rapid population growth and urbanization, misallocation, and mismanagement of resources in its Regional Member Countries.[130]Accordingly, the IWRM policy of AfrDB clearly states that the bank's policy on water resources emphasizes 'national policies which emphasize the treatment of water as an economic good'.[131] The IWRM Policy underpins the principles of 'treating water as an economic, social and environmental good' with the central objective of promoting efficient, equitable and sustainable development through IWRM.'[132] By reiterating the objectives of African Water Vision, the AfrDB Water Policy outlines the significance to leverage the Bank's financing opportunities to promote the implementation of IWRM principles.[133] In light of this approach, the Water Policy of AfrDB states that 66 percent of the Bank's water sector loan was approved to finance investment in WSSS projects followed by 19 and 15 percent of funds disbursed for irrigation and hydropower development projects

127 ibid 68.

128 World Bank, 'Investment Project Financing (IPF)'<https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments/investment-project-financing>accessed 05 June 2023.

129 Africa Development Bank, The African Development Bank Group Water Strategy 2021 – 2025: Towards a Water Secure Africa (2021) [Hereinafter 'AfrDB Water Strategy']; Africa Development Bank Group: Policy on Water (2021) 12. [Hereinafter 'AfrDB Water Policy'];

130 Africa Development Bank and Africa Development Fund: 'Policy for Integrated Water ResourcesManagement' (2000) vi. Hereinafter 'Integrated Water Resources Management Policy of AfrDB' (AfrDB IWRM Policy].

131 ibid xi.

132 ibid 3.

133 AfrDB Water Policy (n 129) 16.

respectively.[134] It is also stated in the Water Policy of the AfrDB that 6 percent is used as policy based instruments to support borrowing member countries with the 'technical assistance to influence the shaping of effective IWRM policies.'[135]

The condition to implement cost recovery and create an enabling regulatory landscape for PSP in water supply services for loan provision by the AfrDB is straightforward in various water sector financing documents of the Bank. The AfrDB Water Policy promotes the need to make policy shifts and the introduction of new models that prioritizes efforts to increase innovative financing methods by involving private sector participation in water supply services and institutional capacity building of service providers in borrowing countries.[136] The AfrDB Water Strategy unequivocally states how the Bank leverages sectoral knowledge, analytical experience to identify and clarify the 'rules of the game' by supporting the national water institutions of the borrowing countries in the design and implementation of policies that address cost recovery mechanisms.[137] The Water Strategy of the AfrDB clearly indicates the implementation of cost recovery as a critical factor to determine the creditworthiness of the borrowing countries to provide loans in the water supply sector.[138] The implications of failure to implement cost recovery in water supply services as 'historically major impediment to private sector participation' is recognized in the AfrDB's Water Strategy indicating water pricing policy reform in borrowing countries.[139] The Water Strategy reaffirms the Bank's 2000 IWRM Policy that stated 'getting the prices right is at the very core of improving water resources management.'[140]

Moreover, the Water Strategy of the AfrDB outlines the importance of policies leading to cost recovery in water supply services as an essential condition to 'attract more private sector participation to increase efficiency of operations.'[141] In this regard, the Bank's Water Strategy indicates how the Bank planned to increase its portfolio of 'bankable projects' to showcase

134 ibid 12.
135 ibid.
136 ibid 53.
137 AfrDB Water Strategy (n 129) 7.
138 ibid 8.
139 ibid
140 Africa Development Bank, Guidelines for User Fees and Cost Recovery for Urban, Networked Water and Sanitation Delivery (2010) 1.
141 AfrDB Water Strategy (n 129) 8.

the obstacles for private sector engagement can be fruitfully tackled.[142] Most importantly, the Water Strategy further outlines Bank's water supply financial support aims to 'encourage corporatization of water utilities and increased PSP in the management of water utilities to promote efficient commercial practices such as metering, billing and collection and sound customer services.[143]

The Water Strategy of AfrDB promotes domestic application of cost recovery and PSP in water supply services through the finance of capacity building activities to policymakers, regulatory institutions, and key stakeholders in borrowing member countries.[144] Considering such strategic intervention options, the 2000 IWRM Policy of the Bank also advises borrowing member countries to prioritize the adoption and continuous update of their national water policies and legal frameworks.[145] Through the Country Policy and Institutional Assessment (CPIA) rating system, the AfrDB evaluates the performance of legal and regulatory frameworks in the water sector to determine funding eligibility of borrowing member countries.[146]

4.4.2. Conditionalities of water property rights

One of the criteria in the Country Policy and Institutional Assessment rating system, among others, involve property rights and rule based governance that assess the extent to which private economic activity is facilitated by an effective legal system in which property and contract rights are reliably respected and enforced.[147] These criteria specifically assess the legal basis for secure property and contractual rights including the application, predictability, transparency, and impartiality of laws affecting economic activity.[148] More specifically, the legal and regulatory framework analysis of the AfrDB sees to it whether regional member

142 ibid
143 ibid
144 ibid
145 AfrDB IWRM Policy (n 130) 21.
146 Africa Development Bank, Ethiopia: Accelerating Reforms for Inclusive Growth and Structural Transformation: Country Diagnostic Note (2021) 47. [Hereinafter 'Country Diagnostic Note'].
147 World Bank: Country Policy and Institutional Assessment (CPIA) Africa: Policies for Economic Resilience in a Turbulent World (World Bank 2023) 59. [Hereinafter 'Country Policy and Institutional Assessment 2022']
148 ibid 58-59.

countries of the Bank adopted clear and comprehensive laws and regulations that consider the private sector's participation in the financing and managing water supply services.[149] For instance, AfrDB's documents clearly indicate how the Bank supported the laws and regulations for public-private partnerships in 2018 to catalyze private investment and finance.[150]

4.5. Chapter summary

This chapter has analyzed the extent to which Ethiopian water policy and law establishes the normative basis for treating water as an economic good. The discussion on the extent of national water resources use leads to the understanding that despite the availability of both surface and groundwater endowments, Ethiopia is not reasonably utilizing it as valuable and strategic resources for social and economic developments. However, since the 1990s the government of Ethiopia has turned the tide to intensively finance water supply services to meet the increasing water access demand from rural and urban populations. Particularly, the government of Ethiopia seized the opportunities of the 1990s global structural adjustment reform agendas of international and regional financial institutions such as the WB and AfrDB to undertake serious water sector policy reforms.

Primarily, the promises of access to financial resources disbursement and assistance from these financial institutions allegedly aims to address the public financing gaps of public water utility services for urban and rural communities on conditions of water sector policy reforms. In view of such conditions to access external financial resources, water related development policies and strategies in Ethiopia prioritized the supply of water for domestic and irrigation use purposes to benefit from loan provisions in return for managing water as an economic good. Hence, in the bid to access financial resources from these global financiers, Ethiopia during the 1990s was literally under the economic pressure to undertake structural water policy and legal adjustments in the water sector along the water policy imperatives promoted by the international and regional financial institutions. Accordingly, the following

[149] Africa Development Bank, Ethiopia: Accelerating Reforms for Inclusive Growth and Structural Transformation: Country Diagnostic Note (2021) 36-38; [Hereinafter 'Africa Development Bank Country Diagnostic Note']

[150] Africa Development Bank, Ethiopia: Ethiopia—Combined Country Strategy Paper 2016-2020 Update and Extension to December 2022 and 2020 Country Portfolio Performance Review (2020) 17-20.

global water policy directives were adopted in the Ethiopian domestic water policy and legal frameworks.

Firstly, the water policy and law adopted the global water policy imperatives of managing or treating water as an economic good. The imperatives of managing water as an economic good become the central tenet of Ethiopian water policy and law with the further adoption of water pricing policy as an economic instrument of valuing water. Such introduction of water pricing based on cost recovery for water supply services clashes with the societal thinking that water is free because water is abundant. On top of the adoption of water pricing policy in the Ethiopian water policy and law, the loan conditionalities of global financial institutions heralded the domestic application of cost recovery pricing policy in water supply services. Therefore, with the intention of creating a 'commercially viable' water services, loan providing global and regional financial institutions required Ethiopia to implement appropriate cost recovery policies in the loan financed urban and rural public water utilities. Though the debate on the appropriateness of the price assigned to cover the costs of water supply services remains a matter of policy concern for different social and political reasons, its normative basis in the domestic water policy and law by now is crystal clear.

Secondly, the Ethiopian water policy and law has also created an enabling normative condition for PSP in financing water supply services as per the global water policy imperatives promoted by these global financial institutions. Though domestic water supply services through pipelines are still monopolized by the public water supply services, the water policy has created multiple rooms for enabling PSPs. Therefore, the inevitability of private sector investment in the Ethiopian water supply services is taken for granted as long as Ethiopia heavily relies on the finances of these global and regional financial institutions.

Thirdly, the lending policy conditionalities of the WB and AfrDB as evidenced in both Banks country water sector assistance strategies clearly show the inevitability of the Ethiopian domestic water policy and law reform, as articulated in the Chapter 5, towards property rights-based water resource allocation system. The water policy directives of these global and regional institutions that have promoted the treatment of water as an economic good with price assigned for its use, on the one hand, and the conditionalities of PSP in the water

supply services, on the other, is not mere coincidence. As discussed in Chapter 5, the loan policy conditionalities that dictate Ethiopia to create an enabling policy and legal environment for PSP in the water supply services primarily requires managing water rights over which private sectors should exercise property rights.

CHAPTER 5

Recognition of water abstraction rights as property rights in Ethiopia

5.1. Introduction

The recognition of treating water as economic good under the Ethiopian water resource policy as considered under Chapter 4 underpins a pivotal stage in the potential characterization of water as the subject of commerce like other goods with exchange value assigned for its competing use. As a public property, the recognition by the state that water should be treated as an economic good also signals the policy direction intended to unbundle water property rights with the initial allocation of water rights to private persons through the payment of price or charges for water abstracted or supplied.

The characterization of water as an economic good has a paramount legal ramification for the characterization of water as property and water rights as property rights.[1] In addition to the water policy treatment of water as economic good, the actual legal entitlements to abstract such good from its natural sources as object of property have broader normative implications on the exploitation of water resources. However, a careful examination of water policy and law on the nature and forms of existing water rights is critical to determine the normative status of water abstraction property rights in Ethiopia.

This Chapter aims to assess the policy and legal basis of water abstraction rights in Ethiopia and the extent to which such rights are recognized as property rights. Hence, Section 5.2 examines the policy basis of water abstraction rights as the policy aspects of institutionalizing the treatment of water as an economic good or commodity. This same section also assesses how global financial institutions like the World Bank (WB) and African Development Bank (AfrDB) promote reform on water rights as lending conditionalities for financing water sector projects in Ethiopia. Section 5.3 assesses the constitutional basis of

[1] Sandra Zellmer and Jessica Harder, 'Is Water Property?' (2007) Nebraska Lawyer 6.

recognizing water as property and water abstraction rights as property rights as the legal aspects of institutionalizing the treatment of water as an economic good. Section 5.4 examines the extent to which water resource and investment laws of Ethiopia recognize water abstraction rights as property rights. Section 5.5 provides chapter summary by drawing the normative ramifications of the recognition of water abstraction rights as property rights on the tradability of water abstraction rights that will be addressed under comparative Chapters 6 and 7.

5.2. Water policy basis for water abstraction rights

The policy basis for ensuring water abstraction rights can be examined from two perspectives laying the basic foundational guidelines for the establishment of enabling legal environment for private Sector Participation (PSP) in the water sector. The first global policy basis for water abstraction rights emanates from loan or financial assistance policy conditions of global and regional financial institutions that promotes and requires the establishment of secure water and property rights to ensure PSP in water supply services. The second policy basis for water abstraction rights emanates from domestic water resource and PSP policies that recognizes the importance of creating an enabling regulatory landscape to attract private parties to invest in the development and management of water supply services.

5.2.1. Loan policy conditions and private water abstraction rights

As indicated in Section 4.4 of Chapter 4, the loan policy conditions of the WB and AfrDB that requires borrowing countries to create an enabling environment for PSP in the water sector with domestic policy ramifications for the adoption of private water abstraction rights. The WB and AfrDB Country Policy and Institutional Assessment (CPIA) reports rely on the 'property rights and rule-based governance' rating system among others to determine countries' legibility for the International Development Association's (IDA)credits.[2] Property rights and rule-based governance criterion measure how existing policy and regulatory

[2] World Bank, Country Policy and Institutional Assessment (CPIA) Africa: Policies for Economic Resilience in a Turbulent World (World Bank 2023) 58.

frameworks respect and enforce property and contractual rights to ensure predictability and protection of private sectors investment.[3]

The WB's Water Resources Sector Strategy (WRSS) that provides strategic directions for the Bank's engagement in country water resource development assistance requires borrowing countries to 'recognize and manage water rights' to address the 'challenges of managing irrigation systems and river basins or aquifers.'[4] The WRSS of the WB which is the basis for the adoption of Water Resources Assistance Strategy (WRAS) for Ethiopia clearly articulates the significance of developing laws, regulations and institutions required for governing water resources in 'economically productive,' 'socially acceptable' and 'environmentally sustainable' ways.[5] In particular, this WRSS identifies three major conditions as an appropriate approach for recognizing and managing water rights in borrowing countries.

The first policy and regulatory advice pertains to the need to 'clarify that water is publicly owned and that a water right is usufructory—it is a right to use, not a right to own water.'[6] The kernel of recognizing or establishing water rights as usufructory right according to the WRSS of the WB is to safeguard that 'individuals and communities enjoy the same legal certainty as land and other property rights.'[7] This policy advice of the WB is explained in the WRAS developed for Ethiopia in terms of creating property rights regimes that assures domestic and foreign investors with water use rights capable of long term tenure security to ensure adequate return on investments.[8]

The second condition for WB's strategic water resource assistance requires borrowing countries to undertake fundamental changes in managing water rights to address increasing

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3 ibid 59.

4 Water Resources Sector Strategy: Strategic Directions for World Bank Engagement' (World Bank Group2004) 16 <http://documents.worldbank.org/curated/en/941051468765560268/Water-resources-sector-strategy-strategic-directions-for-World-Bank-engagement> accessed 21 May 2023 [Hereinafter 'World Bank Water Resources Sector Strategy'].

5 ibid 11.

6 ibid 16.

7 ibid

8 Managing Water Resources to Maximize Sustainable Growth: A World Bank Water Resources Assistance Strategy for Ethiopia' (World Bank 2006) 38 <http://documents.worldbank.org/curated/en/947671468030840247/Ethiopia-Managing-water-resources-to-maximize-sustainable-growth-water-resources-assistance-strategy>accessed 12 May 2023 [Hereinafter, 'Water Resources Assistance Strategy for Ethiopia']

demands for water resources. The WRSS of the WB states that existing water rights should be allowed to undergo 'series of fundamental and healthy changes' in response to water demands to address the needs of growing cities.[9] This idea of the WB reiterates the property rights approach to scarce water resource management in the sense that those who want water the most may be able to meet their needs by acquiring the water rights of those who are using water for low value purposes. The WB in this strategic engagement document asserts that recognizing transferable water rights provides 'strong incentives for low-value water users to voluntarily reallocate their usufructory rights to high value water users making private water reallocation 'both politically attractive and practical.'[10]

The third conditionality further capitalizes on the need to establish formal water rights to put 'strong pressures for improving the data required to manage [water] resources.'[11] Recognizing formal water rights among others require registration of water rights with detailed terms and conditions on the questions of when and how much water resource use and for what purposes. It is intelligible from the WB's WRSS and Ethiopia's WRAS that establishing formal water rights confers the status of title deeds on water users that guarantees legal protection from third party interferences. On the one hand, recognizing formal water rights provides powerful incentives for water rights holders to the sustainable use of water resources as rational investors that expect long-term return from investment in water supply services. On the other hand, the WB wants to minimize or avoid the risks of investment project lending to private sectors engaged in commercial water supply services with the risks of insecure and informal water rights in water resources.

The WB's push for the domestic introduction of formal water rights as an enabling regulatory environment for PSP in the water sector is presented with two policy caveats. The first policy caveat capitalizes on the best practices of some borrowing countries such as Brazil, Chile, Mexico and South Africa to showcase the possibility of 'substantial progress' and acquired 'practical experience in the legal and administrative machinery for setting up and managing rights-based systems of water management.'[12] The second policy caveat cautiously notes

9 World Bank Water Resources Sector Strategy (n 4).
10 ibid.
11 ibid.
12 ibid.

that WB's Water Resources Sector Strategy is not meant to suggest that there is unanimity on the concept of water rights because some view it as an 'unhealthy commodification of a public good.'[13] The Water Resources Sector Strategy of the WB further puts out a statement of disclaimer by reiterating that it is not to 'imply that it is simple to introduce rights-based systems for a fugitive resource with deep cultural implications in administratively weak environments.'[14] However, despite the concerns of 'unhealthy commodification of public good' and fear of introducing formal water rights, the WB in the WRAS for Ethiopia extends strategic advises on how necessary it is 'to look beyond traditional water resources management in order to curtail the negative effects of hydrological variability on the Ethiopian economy.'[15]

Similarly, the Water Policy of AfrDB also emphasizes on the requirement of implementing 'equitable water allocation and property rights' as an enabling regulatory environment for PSP in water supply services.[16] This Water Policy reiterates the support of the AfrDB in promoting legal, regulatory and institutional reforms including facilitating implementation and enforcement of national water policies. However, the Water Policy of AfrDB is conservative in the use of water rights while broadly referring to property rights as an enabling policy and legal framework for private sector engagement in the water supply services of borrowing member countries. Unlike the WB who underscores the establishment of water property rights as an important primary step, the AfrDB broadly refers to policy and legal reforms as an enabling condition for PSP in water supply services. Yet both Banks with Water Policy and strategic frameworks designed to articulate their respective loan policy conditions in the water sector want that water policy and law of borrowing countries guarantee private investors water rights to ensure that such investors ripe the fruit of their investment.

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13 ibid.

14 ibid 24.

15 Ibid 16.

16 Africa Development Bank Group (AfrDB): Policy on Water (2021) 22. <https://www.afdb.org/sites/default/files/documents/policy-documents/policy_on_water-18062021.pdf> accessed 2 January 2024.

Finally, the WB and AfrDB strategic interventions in the Ethiopian water sector clearly indicates their role beyond water and sanitation services financiers as basic services merely motivated to change the living standards of rural and urban communities. The CPIA frameworks of both banks provide the 'carrot approach' to push the government of Ethiopia to reform and adopt water policy and strategic imperatives of the WB and AfrDB that promotes recognition and protection of property rights in the exploitation of water resources.

As discussed under Section 3.4.5 of Chapters 3 and Section 4.4 of Chapter 4, the advisory role of both banks through different forms of technical assistances and capacity building activities to the government of Ethiopia can also influence water policy and law in such a way to promote domestic behavior change in the implementations of their water policy conditionalities. Thus, the domestic regulatory implications is that Ethiopia is required to reform its water policy and law to ensure that property rights in the water sector are respected and enforced to meet the IDA borrowing average score to access credits to finance development projects in water supply services.

5.2.2. Water resource and PSP policies on water abstraction rights

The water resource policy encourages private sector investment in water supply services both for domestic and non-domestic consumptive water use purposes. The 2020 draft Water Resource Policy and Strategy (WRPS) defines self-supply as 'water abstraction for own consumption or non-domestic use.'[17] Accordingly, depending on the types of water users and purposes of water use, three forms of water abstraction rights can be identified under the new water resource policy.

The first form of water abstraction rights relates to self-abstraction at the household and community level. This form of water abstraction under the draft Water Resource Policy and Strategy pertains to *de minimis* water use rights for domestic purposes and small scale irrigation including water allocation governed by social courts, customary or traditional law

[17] FDRE National Water Policy and Strategy (Ministry of Water, Irrigation and Energy, 2020 draft) 6;FDRE Water Resource Management Policy (Ministry of Water Resources 1999) definition of 'water supply'

decision making arrangement.[18] *De minimis* water abstraction right is self-financed and no administrative water use permit is required as a condition for access and use of water.[19] However, depending on the pertinent social water tariff and based on willingness and ability to pay, *de minimis* water users may be required to pay affordable water abstraction charges.[20]

The second form of water abstraction rights relates to regulated self-abstraction of water by industries, commercial establishments and public institutions for own consumption or other permitted water use purposes.[21] The draft Water Resource Policy and Strategy promotes industries to develop their own water sources that can be used for small, medium and large scale manufacturing, construction and mining purposes to enhance the country's industrial development.[22] Unlike the first form, industrial water abstraction rights emanates from a water use permit system that establishes formal access to and abstraction of water from its natural sources. [23] Besides, this category of water abstractor is required to pay water use charge as per the pertinent water abstraction fee set by appropriate administrative authority.[24]

The third form of water abstraction rights promoted under the draft Water Resource Policy and Strategy relates to private sector investment in water supply services for domestic or non-domestic purposes on a commercial basis. As discussed in Section 4 of Chapter 4 the Water Resource Policy promotes PSP to leverage their technical and managerial expertise as well as finance for the development and management of water supply services. Unlike the first two forms, private sector water abstraction is designed for commercial supply of water for either domestic or non-domestic uses as an act of investment activity in the water sector that is based on enabling a regulatory business environment for PSP. The policy on Public Private Participation (PPP) creates an enabling policy environment by regulating different modes of PSP that also applies to water sector activities.[25]

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18 ibid 53.
19 ibid
20 ibid 15.
21 ibid 23.
22 ibid 3.
23 ibid 44.
24 ibid.
25 The Ministry of Finance and Economic Cooperation: Ethiopian Public Private Partnership Policy (2017) 10.

Like the second form of water abstraction rights, the private sector is required to hold water use permits to access and abstract water sources to ensure the investment objectives of water supply services are undertaken. However, since private sectors are required to shoulder the burden of financing the development, management and operation of water supply services, the right to access and abstraction water is inevitable creating concomitant proprietary interests over the exploitation of water resources. As discussed in section —of this chapter, different modes of PSP that requires private parties to finance, develop, manage operate, own or transfer water supply infrastructure facilities guarantee legal or contractual assurance of water abstraction rights to provide commercially viable water supply service by collecting fees from water users for short or long period of time.

5.3. Constitutional water property rights

The constitutional status of water as property and water abstraction right as property right has a significant implication for analyzing the tradability of water property rights in Ethiopia. The social and economic benefits derived from water resources depend on the existence of overarching constitutional rights to use water that guarantees property rights or entitlements for the purposes of maximum utilization of natural resources through wise investment of labour and capital.[26]

5.3.1. Water resource as property: tale of two old constitutions

In the constitutional history of Ethiopia, water resources are essentially portrayed as state or public property in which the government takes the responsibility for its conservation, development and utilization. To begin with, the first written constitution of Ethiopia that attempted to define the property relationships between the state, people and private persons or individuals with respect to water resources was the 1955 Revised Constitution. Under article 130, it states that:

> (a) The natural resources of, and the sub-soil of the Empire including those beneath its waters, are state Domain, (b) The natural resources in the waters, forests, land, air, lakes, rivers and ports of the Empire are a sacred trust for the benefit of present and succeeding generations of the Ethiopian people. The conservation of the said resources is essential for

[26] Bruce Yandle and Andrew P Morriss, 'The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons' (2001) 28 Ecology Law Quarterly 123, 130.

> the preservation of the Empire. The Imperial Ethiopian Government shall accordingly take such measures as may be necessary and proper, in conformity with the Constitution, for the conservation of the said resources. (c) None of the said resources shall be exploited by any person natural or juridical, in violation of the principles of conservation established by Imperial Law. (d) All property not held and possessed in the name of any person, natural or juridical, including all land in escheat, and all abandoned properties, whether real or personal, as well as all products of the sub-soil, all forests and all grazing lands, water courses, lakes and territorial waters, are State Domain.[27]

As can be seen from this provision, the Revised Constitution recognizes state domain by articulating the primary interest of the state in the natural resources that can be found in a water resource. Though water resources are not recognized as natural resources, the Constitution identify three types of property rights in water based on the criterion of who is holding or possessing or exploiting such resources.

First, it recognizes water courses, lakes and territorial waters that are not held and possessed in the name of any person, natural or juridical, whether real or personal as falling under the state Domain. This legal expression resemble the concept of public domain vested in the state held in 'sacred trust for the benefit of present and succeeding generations of the Ethiopian people.'[28]

Second, it recognizes the possibility of private use or exploitation of water resource under the state domain by any juridical or natural persons based on the conservation principles of the imperial law. As such, while 'water ownership right' is vested in the state, the use certain amount of water without violating conservation principle established under the law creates usufruct property rights.[29]

Third, the acontrario reading of sub-article (d) of article 130 reveals that water courses or lakes held and possessed by any juridical or natural person are not part of the public or state Domain indicating that there could be water courses or lakes that fall under private domain.[30]

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[27] Revised Ethiopian Constitution (1955) art 130 [Hereinafter the 'Revised Constitution 1955']

[28] see also Dante A Caponera, 'Water Law in Selected African Countries (Benin, Burundi, Ethiopia, Gabon, Kenya, Mauritius, Sierra Leone, Swaziland, Upper Volta, Zambia)' (FAO 1979) 81.

[29] Hilmer J Bosch and J Gupta, 'The tension between state ownership and private quasi-property rights in water' (2023) 10 Wiley Interdisciplinary Reviews: Water e1622.

[30] ibid.

The 1987 Constitution of People's Democratic Republic of Ethiopia (PDRE Constitution) recognizes 'waters' as 'property of the state'[31] with the responsibility of the government to conserve, develop and utilize for the benefit of the working people.[32] Since the 1987 PDRE Constitution aspires to establish socialist state in which state ownership plays a leading role in the socialist economic production, the recognition of privately held property rights for water resources is inconceivable.[33]

Hence, both the 1955 and 1987 constitutions recognizes as property with similar legal expressions— 'state Domain' or 'state property.' However, unlike the 1955 Revised Constitution, the 1987 PDRE Constitution clearly vests exclusive property rights on the state who is solely responsible for the development and utilization of water resources. Despite state exclusivity of property rights in water, a constitutional construct of water as property assists in analyzing 'the nature of property as a normative legal construct and the nature of water as a thing potentially subject to that construct.'[34]

Finally, the Revised Constitution and the 1987 PDRE Constitution recognize water as property which can avoid confusion on the legal classification of water as the object of property and provide guidance in defining the attributes of property right in water in subsidiary legislation.[35] Yet both constitutions were short of clearly defining the attributes of property rights in water despite general reference to matters of water conservation, development and utilization.

5.3.2. Water abstraction rights under the FDRE constitution

The Federal Democratic Republic of Ethiopian Constitution (FDRE Constitution), like the 1987 PDRE Constitution, defines the right to ownership of land, as well as all natural

[31] Constitution of People's Democratic Republic of Ethiopia (1987) art 13(2) [Hereinafter 'Ethiopian Constitution 1987']
[32] ibid art 10.
[33] ibid art 13 (2).
[34] Sandra BZellmer and Jessica Harder, 'Unbundling Property in Water' (2008) 59 Alabama Law Review 683.
[35] ibid 682; Muradu Abdo, 'Legislative protection of property rights in Ethiopia: an overview.' (2013) 7 Mizan Law Review 166.

resources as the common property of the state and the peoples of Ethiopia.[36] As a valuable natural resource, the FDRE Constitution unequivocally treats water as a property that falls within the category of public or common property. Hence, in view of such normative constitutional contract of water as property albeit as common, the following section assesses the basis of water abstraction right as property rights within the parlance of the FDRE Constitution.

5.3.2.1. Water abstraction right as the human rights

The constitutional basis of water abstraction rights predominantly stems from the duty of the government to allocate natural resources of the country for the common benefits of its people stated through the implementation of 'economic and social objectives'.[37] It is stated under the FDRE Constitution that 'the government has the duty to hold, on behalf of the People, land and other natural resources and to deploy them for their common benefit and development.'[38] Mainly, realizing such economic objectives, require formulating economic policies so that water resources of the country are allocated to maximize the economic benefit for its people. In this sense, the government is required to ensure that individuals have regulated access rights to water resources to deploy or invest their labour or capital in economically beneficial allocation of water resources. Hence, while the government holds the responsibility to administer allocation of water resources as public property, individuals collectively constituting the 'people', hold the right to use water resources of the country for beneficial or development purposes thereby conveying the essence of property rights relationships.[39]

Similarly, the social objectives of the FDRE Constitution also articulates the duty of the government to provide all Ethiopians access to *clean water* to the extent the country's resources permit.[40] In principle, a government is required to provide access to clean water to the public through either a public water supply system based on availability of resources or

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[36] The Federal Democratic Republic of Ethiopian Constitution Proclamation No 1/1995 (Federal Negarit Gazeta No 1, 21st August 1995) art 40 (3). [hereinafter 'FDRE Constitution 1995']

[37] ibid arts 89 & 90

[38] ibid art 89(5).

[39] C Dirck Ditwiler, 'Water Problems and Property Rights—An Economic Perspective' (1975) 15 (4) Natural Resources Journal 663, 665-66.

[40] FDRE Constitution 1995 (n 36) art 90(1).

create an enabling condition for the private sectors to supply private water services in the absence of available resources. The duty of the government to realize access to clean water to its citizens as a human right is not clearly stipulated under the FDRE Constitution like other substantive bills of rights mentioned in chapter three. However, such human right to water can be invoked under its article 9(4) that makes human rights agreements ratified by Ethiopia an integral part of the law of the land.[41]

The human rights basis for water rights as a set of claim rights under international human rights law is interpreted under the General Comment No 15 by the UN Committee on Economic, Social and Cultural Rights as constituting 'freedoms and entitlements.'[42] The aspect of freedom is interpreted as the right to maintain access to existing water supplies and the right to be free from interference in any way with the enjoyment of the right to water. The obligation of the state in terms of 'freedoms' to the right to water is elucidated in terms of obligation to respect and obligation to protect. The former obligation requires the government not to limit or deny physical access to rivers and wells' as well as not to arbitrarily interfere with customary or traditional arrangements for water allocation. The later obligation requires the state to prevent third parties from interfering in the exercise of the right to water.

The human right to water within the ambit of such constitutional fiat provides a normative basis for water abstraction rights albeit its limitation to domestic water use and to some extent to agricultural water use to ensure the right to food.[43] However, given the limited availability of financial resources to realize access to clean water through the public water supply system, the human rights obligation to respect and protect implies that at least the government should not interfere on existing water supplies services despite the fact that it is

[41] Abiy Chelkeba W, 'Human Rights Approach to Water in the Ethiopian Context: Legal and Policy Assessments and Challenges' (2017) 6 Haramaya Law Review 1, 12.

[42] General Comment No. 15: The Right to Water (arts 11 and 12 of the Covenant) Adopted at the Twenty-ninth Session of the Committee on Economic, Social and Cultural Rights, on 20 January 2003 (Contained in Document E/C.12/2002/11)

[43] StephenTully, 'A human right to access water? A critique of general comment no. 15' (2005) 23 Netherlands Quarterly of Human Rights 41.

supplied formally or customarily by individuals or corporations.[44] This leads to the unintended consequences where the human rights to water 'ends up complementing rather than opposing the agenda of privatization.'[45] Rene Urueña contends 'privatization' could play an instrumental role in protecting the human right to water as it would allow for the recovery of the costs involved in providing access to water service.[46]

The consideration of private water supply services as a normative aspect of promoting the human rights to water provides individuals or corporations to invoke 'the right to property over the actual water resources, not only over the infrastructure to supply it' against the state.[47] As such, private water abstraction right, at least for the purpose of personal and domestic services, would also be a human right to property worth indivisible state protection. Yet on the contrary, the recognition of the human rights to water is pursued to 'keep water as a public good' that should be available to everybody.[48] Therefore, the obligations of the state to allocate resources to realize access to clean water and ensure access to water resources for self-supply establishes the human rights foundations of water abstraction rights.

5.3.2.2. Water abstraction as a property right

The question on the constitutional status of water abstraction as the object of property rights can be examined from two normative perspectives. The first normative vantage point relates to the caveat on the status of water as the domain of public or state property compared to land and other natural resources. The FDRE Constitution exclusively vests the common ownership of land and all natural resources in the state and in the peoples of Ethiopia.[49] As such, water as a natural resource falls within the public domain that can be categorized as a public or common property. Therefore, the status of water as property albeit defined as

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44 Malcolm Langford, 'The United Nations Concept of Water as a Human Right: A New Paradigm for Old Problems?'(2005) 21(2)International Journal of Water Resources Development 273, 279.

45 Rene Urueña, 'The rise of the constitutional regulatory state in Colombia: The case of water governance' (2012) 6(3)Regulation & Governance 282, 293-94.

46 ibid

47 ibid

48 Carlos Bernal, 'The right to water: Constitutional perspectives from the global south' in Shawkat Alam and others (eds), *International Environmental Law and the Global South (*Cambridge University Press 2015) 282.

49 FDRE Constitution 1995 (n 36) art 40(3).

common property generally settles the normative questions as to whether water resources can be amenable to the attributes of property rights.

The second normative vantage relates to the status of water abstraction as amenable to private appropriation as a 'thing' subject to property rights. Considering the constitutional status of water resources as a common property regime, private water abstraction can be considered as stick/s in the bundles of common or public property rights. As explained under section 2.3.3 of Chapter 2, the notion of bundle theory holds that property rights comprises a 'bundle of sticks' in the sense that 'the right of a property owner is separable into a series of component rights-parts' such as the rights to use, possess, transfer, exclude or alienate none of which is conceptually dependent on any of the other.'[50] From this vantage point, the term 'common ownership' under the FDRE Constitution primarily connotes that property rights holders are many including but not limited to 'the state and the Ethiopian peoples' indicating plurality of legal relations with respect to such ownership rights.

However, one major limitation on bundle of rights approach to common property regime to water is its debatable nature as whether the constitution prohibits 'alienation right' like the case of land property rights. It is argued that while the term 'all natural resources' include water, one may ask why the constitution left out the term 'all natural resources' and particularly articulated only land as matters of common property regime that 'shall not be subject to sale or to other means of exchange'?[51] While the common way of categorizing property rights in natural water resources is the use of public property regime, such constitutional omission could be the subject of legal debate when it comes to the alienation or sale of water abstracted from surface or groundwater sources. However, given the legal and economic reality of similar natural resources such as gas and oil that are subject to commodification, the argument that the constitution should be interpreted making water resources to fall within the ambit of 'not the subject of sale or other means of exchange' can be indefensible.

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[50] Shane Nicholas Glackin, 'Back to Bundles: Deflating Property Rights, Again' (2014) 20(1) Legal Theory 3-4.

[51] FDRE Constitution 1995 (n 36) art 40(3).

The other vantage point within which the normative status of water as amenable to private property rights can be examined is derived from the constitutional guarantee of private property rights. The FDRE Constitution provides a foundational basis in codifying how property over which private persons can exercise the right of ownership is created by defining the elemental tenets of private property rights. It defines private property as 'any tangible or intangible product which has value and is produced by the labour, creativity, enterprise or capital of an individual.'[52] The constitutional implication of this definition underpins the fact that a person can exercise private property rights over a certain amount or volume of water if it has a value and is produced by labour, creativity and capital of such a person.

Furthermore, as discussed under Section 3.4.4 of Chapter 3 and Section 4.3 of Chapter 4, the recognition of water as an economic good with an economic value underpins the fact that water is a valuable natural resource that can be amenable to proprietary interests or rights. Likewise, the abstraction of bulk water from surface or ground sources involves labour indicating how the constitution adopted John Locke's labour theory for the acquisition of private property rights. Locke argued that incorporating one's labour with natural resources such as by removing them out of that common property regime or free access regime of ownership establishes 'new property right.'[53]

The interpretation of the Lockean labour theory of the FDRE constitution to acquire property rights on water through abstraction from common pool water resources is agreeable since the act of labour adds value that triggers new property rights.[54] However, the argument of high transaction cost for securing the consent of all 'Ethiopian Peoples' is indefensible given the presence of the government to act on behalf of such people. This makes consent of the government to access water resources not only a prerequisite for enjoying property rights through abstraction (act of labour) but also guarantees protection against Hobbes' 'state of nature'.[55] As we shall see in the next section, the consent of the government to access and

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52 ibid art 40(2).

53 Brent M Haddad, 'Property rights, ecosystem management, and John Locke's labor theory of ownership' (2003) 46 (1) Ecological Economics 19, 21-22.

54 Elias N Stebek, 'Conceptual foundations of property rights: rethinking de facto rural open access to common-pool resources in Ethiopia' (2011) 5 (1) Mizan Law Review 1, 14-15.

55 Benjamin B Lopata, 'Property Theory in Hobbes (1973) 1(2) Political Theory 203, 204.

abstract water resources for different forms of private use is regulated through the administrative water permit system.

5.4. Water abstraction rights under water resource and investment law

Water Law profoundly sets both socially and economically acceptable rules to regulate the relationships between persons with respect to the use of water resources.[56] The source of these sets of rules regulating the behaviors of water users in the control of water resources ranges from informal customs embedded in traditional practices or explicitly recognized in formal law either codified as a comprehensive water code or dispersedly found in various legislation regulating the use of natural resources.[57] In this section, legal basis for recognizing different modes of water rights acquisitions including the nature and limitations of such modes are examined under different water resource related laws.

5.4.1. Modes of acquiring water rights

Understanding different modes of water rights acquisitions can be relevant to establish the legal basis for appropriation of water by identifying the breadths of 'rights' to access, abstract and use such natural resources.[58] The legal sources that establish such rights or entitlements to abstract water can be found in various legal enactments providing authoritative foundations for formal water rights. Hence, the modern water rights on which the scope of this dissertation is limited emanates from three modes of water rights acquisitions that formally grants the right to physically access, abstract and use water resources for different purposes.

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[56] Bryan Randolph Bruns and Ruth Meinzen-Dick, 'Frameworks for Water Rights: An Overview of Institutional Options' in Bryan Randolph Bruns, Claudia Ringler, and Ruth Meinzen-Dick (eds), *Water rights reform: lessons for institutional design* (International Food Policy Research Institute 2005) 4-5.

[57] Dik Rotha and others, 'Property, legal pluralism, and water rights: the critical analysis of water governance and the politics of recognizing "local" rights' (2015) 47(3) The Journal of Legal Pluralism and Unofficial Law 456, 457.

[58] Dante A Caponera and Marcella Nanni, *Principles of Water Law and Administration: National and International (*rev. 3rd edn., Taylor & Francis Group, 2019) 173.

5.4.1.1. Land based water rights

In Ethiopian history, revolutions have been fought over land rights marking the 1975 sweeping rural land reform during the *Dergue* regime.[59] Yet water rights, as the most important rights to support the agrarian economy, were simply derived from land rights. Since water rights are thought of as part and parcel of land rights, subsequent legal reforms on land rights remain silent in separating water rights from the land tenure system. The notion that water and water rights as profoundly constituting part of land and land rights that establishes a prima facie entitlement of the land possessor to abstract water from its surface or underground runs deep in land policy reforms. This is essentially the case for the acquisition of land for agriculture purposes as it presupposes the right to use water for irrigating such land. The same principle also applies when someone abstracts water found on or under the land possessed for either domestic or industrial use.

The legal basis for acquiring water rights based on acquiring land rights is well regulated under the 1960 Civil Code of Ethiopia (CCE) articulating landholders' riparian rights to use water for domestic, irrigation and industrial uses.[60] Firstly, the right to abstract water for domestic use is regulated so as to legally entitle 'landholder' to 'use the water on, below, running through or bordering his land' for personal use and watering cattle.[61] Secondly, the holder of the land which is crossed or bordered by running water may use such water for irrigating his land.[62] Thirdly, the holder of land which is crossed or bordered by water may use such water for industrial or commercial undertakings such as water-mills, wash houses or bathing establishments.[63] Finally, a land holder who requires water bordering his land is entitled to access neighboring riparian land for constructing or maintaining building works necessary for taking water for irrigation or other purposes.[64] However, the neighboring riparian land holder is entitled to the payment of compensation if the size and durations of

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59 Proclamation to Provide for the Public Ownership of Rural Lands No. 31 of 1975; Marina Ottaway, 'Land Reform in Ethiopia 1974-1977' (1977) 20:3 African Studies Review 79.

60 So long as compatible, the Civil Code of Ethiopia may be applicable to regulate matters that are not covered by the Water Resource Management Proclamation and its Regulation. See Water Resource Management Proc. No 197/2000 art 27(3) and Water Resource Management Reg. No 115/2000 art 35(1.e).

61 The Civil Code of the Empire of Ethiopia (1960) art 1232.

62 ibid art 1236(1).

63 ibid art 1242 (1).

64 ibid art 1249.

the works constructed to access water bordering the riparian land holder 'unduly or unreasonably inconvenienced' or deprives part of land permanently.[65]

Riparian underground water rights for industrial and irrigation use under the CCE is limited to crossing or running waters bordering land while there is no limitation imposed on the ground water for domestic use as it is also given priority rights over other water use purposes.[66] As such, the CCE way before the current debate on the human rights to water crystallized the imperatives of allocating water for basic human and animal needs. Furthermore, the CCE considers underground water accumulations to form part of the public domain requiring permission for abstraction of water that exceeds one hundred meters.[67] Therefore, construction or drilling of land by the land holder to abstract underground water from a depth of one hundred meters requires no authorization.

Unlike the CCE, rural and urban land laws in Ethiopia are silent on water rights except for a passing remark referring to water equity among riparian landholders. For instance, the Federal Rural Land Administration and Land Use Proclamation only remarks on the need to create an equitable water use system between upper and lower watershed communities.[68] This rural land law regulates acquisition and use of rural land by private investors who want to engage in agricultural development activities in accordance with the investment policies and laws enacted at the federal and regional levels.[69]

Despite the provision of different modes of land acquisition options for investors,[70] both federal investment laws including horticulture and agricultural investment regulatory frameworks say nothing about the 'rights interface' between land and water rights.[71] The

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65 ibid art 1250.

66 ibid art 1237.

67 ibid art 1255.

68 Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation No 456/2005, art 13(2).

69 ibid art 5(4).

70 Jetu Edosa Chewaka, 'Land Acquisition for Investment in Ethiopia: Economic Analysis of Legal Options' (2020) *32* Journal of Ethiopian Law *62*.

71 Investment Proclamation No 1180/2020 (Federal Negarit Gazette No. 28 April 2nd 2020) Investment Regulation No 474/2020 (Federal Negarit Gazette No. 78, September 2nd 2020); Ethiopian Horticulture and Agricultural Investment Authority Establishment Council of Ministers Regulation No. 396/2017 (Federal Negarit Gazette No. 13, 24th January, 2016).

question is what legal or contractual schemes are employed by investors who acquired land for agricultural development to exercise riparian or land based water rights? An answer to this question requires looking into the empirical evidence conducted on large scale agricultural land acquisition in Ethiopia sparking the debate of 'land grabbing' as water grabbing.'[72]

The promotion of 'large-scale' agricultural investment in Ethiopia is predicated on the caveat that land and water resources are 'unutilized' or 'abundant' signifying the carrot with which to lure or attract foreign direct investment (FDI) in crop and horticulture developments.[73] As such lease agreement designed to regulate acquisition of large scale land deals for agricultural investment purposes entitles an investor to develop and use surface and groundwater as part of the land rights. According to the standard agricultural investment lease agreement prepared by the Ethiopia's Ministry of Agriculture an investor who acquired land through lease agreement has the right to build infrastructure such as dams, water boreholes and irrigation systems at his/her own discretion.[74] However, as we shall see in the Section 4.1.3 this does not mean that water use permit request from appropriate administrative authority is not applicable depending on the type and size of the investment property.

The implications of land acquisition through lease agreement on water rights is that water resources are accessed for free as subordinate to land lease price or indirectly included in such land lease price. Such practice can be distinguished in the large scale land deals with a degree of lease price difference in rain-feed agricultural land and irrigable land calculated based on proximity to Addis Ababa and water resources. According to the study conducted by Bossio *et al*, an investor who wants to acquire rain-fed or irrigable agricultural land 700 km

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72 Logan Cochrane and Danielle D Legault, 'The Rush for Land and Agricultural Investment in Ethiopia: What We Know and What We Are Missing' (2020) 9 Land 167; Tsegaye Moreda, 'Large-scale land acquisitions, state authority and indigenous local communities: insights from Ethiopia' (2017) 38(3)Third World Quarterly 698, 700.

73 Abdi Mohammed and Anis Ibrahim, 'Large Scale Agricultural Investment and Natural Resources Linkage in Ethiopia: Harmony or Enemy? Systematic Review' (2022) 12(6) Journal of Environment and Earth Science 16, 18.

74 D Bossio and others, 'Water implications of foreign direct investment in Ethiopia's agricultural sector' (2012) 5(2) Water Alternatives 223, 231; A Bues and I Theesfeld, 'Water grabbing and the role of power: Shifting water governance in the light of agricultural foreign direct investment' (2012) 5(2) Water Alternatives 266, 269.

away from the capital for commercial farming is required to pay about 6.30 USD and 9.10 USD lease price per hectare per year respectively.[75] Thus, about 2.80 USD in irrigable land lease price constitutes the price for blue water use (surface or groundwater) albeit indirectly measured.

Finally, since the objective of allocating land for agricultural investment is to enhance the export of agricultural commodities, the failure of land lease price to directly reflect the value of water may have its own implications on economic utilization of water resources. Since 2005 the global land rush for agricultural investment due to the spikes in the price of agricultural products in the global commodity market has become a blessing and a curse for Ethiopia.[76] On the one hand, it attracted FDI in agriculture to promote the export of agricultural commodities despite the unintended consequences of land grabbing and unproductive ending of large scale land deals. On the other hand, the fact that economic value of water is not adequately reflected in land lease price or not separately valued may have its own repercussions on the assessment of national blue water footprint affecting the net benefit gained from the export of virtual water. Therefore, decoupling the acquisition of water rights as property rights from land rights can assist to quantify the amount of blue water appropriated for agricultural production in the acquired land.[77]

5.4.1.2. Appropriation water rights

The appropriation of water as a private property is articulated under article 1229 of the CCE. It is stated that 'water collected in a man-made reservoir, basin or cistern from which it does not flow naturally' shall be considered as a private property. The CCE applies the doctrine of capture for appropriating water from water sources through abstraction as a means to acquire private water property rights. Therefore, through the rule of capture or collection, private property rights to water are assigned only upon abstraction of water from water bodies since it allows to 'physically reduce it to possession.'[78]

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75 D Bossio and others (n 74).

76 Tsegaye Moreda (n 72) 702.

77 Insa Theesfeld, 'From Land to Water Grabbing: A Property Rights Perspective on Linked Natural Resources' (2018) 154 Ecological Economics 62.

78 Frank J Trelease, 'Policies for Water Law: Property Rights, Economic Forces, and Public Regulation' (1965) 5 (1) Natural Resources Journal 1, 27.

Regarding the scope of private appropriation of water as property rights under the CCE, Mulugeta Mengist distinguishes the difference between the 'source of water and the corpus of water' articulating the nature and limitation of such water property rights.[79] On the one hand, Mulugeta argued that since the source of water is a public domain and as such is not subject to 'alienation' right nor is 'possessed in good-faith or usucaption'. He argues that a private person may be entitled to concessionary rights and occupy the source of water only through 'authorization'.[80] On the other hand, he argues that 'the corpus of water could be privately owned if it is appropriated' such as through collection in man-made reservoirs.[81] The first line of argument refers to administrative water permits to access the 'source of water' for abstraction since such permit 'entitles the holder to a vested interest in the use of the water.[82] The second line of argument should have distinguished off-stream or in-steam water use in which the former refers to the collection of water out of the water body by private persons in whatsoever man-made reservoirs. As argued by Professor Saxer water right is essentially less than full ownership (as public domain), one can privately appropriate water as a right to 'the use of the water' but could not privately own 'the corpus of the water' in situ even for appropriation purposes.[83] Other scholars also argue that while 'physical ownership of the corpus of water is possible under certain circumstances, literal private ownership of the water of a stream is not possible as 'it cannot be seen or marked or fenced or otherwise taken into possession'.[84] Hence, private appropriation of water as private property rights pertains to rights to use, diversion and abstraction of whatever water present in the water source or corpus of the water.[85]

Furthermore, the effective use of water through private appropriation under the CCE also depends on the existence of servitude rights to access water sources or water bodies found

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79 Mulugeta Mengist Ayalew, *Regulation of Urban Water Supply: The Case of Small-scale and Independent Providers in Ethiopia and Kenya* (PhD Dissertation, University of Surrey 2011) 120.

80 ibid

81 ibid

82 Shelley Ross Saxer, 'The Fluid Nature of Property Rights in Water' (2010) 21 Duke Environmental Law & Policy Forum 49, 77.

83 ibid; Sandra B Zellmer, 'Unbundling Property in Water' (2008) 59 Alabama Law Review 679, 735; Henry E Smith, 'Governing Water: The Semi-commons of Fluid Property Rights' (2008) 50 Arizona Law Review 445, 470.

84 Frank J Trelease (n 78) 26.

85 ibid

on a riparian landholder.[86] The water resource law also recognizes the applicability of the principles of servitude recognized under the CCE.[87] Similarly, Irrigation Water Users' Associations Proclamation No 841 of 2014 also provides that irrigation water users can be entitled to acquire servitude rights over any land for the purpose of developing or rehabilitating irrigation and drainage systems upon payment of compensation to the landholder.[88] Yet the applicability of private water appropriation under the current water resource law holds true for the private appropriation of *de minimis* water abstraction for domestic and irrigation purposes while other aspects of private appropriation of water rights emanates from the administrative water use permit system. Consequently, the CCE regulates aspects of water resources that can be the object of private property rights like other things that essentially augments the legal nature of water rights as property rights.

5.4.1.3. Permit based water rights

The riparian doctrine for acquiring water rights based on land rights recognized under the CCE is too old to accommodate modern concerns of water allocation under conditions of water scarcity. Likewise, appropriative water rights promotes tragedy of the commons as it promotes competition among users to store water collected from its natural source in man-made reservoirs without taking the availability of water into account. Hence, overcoming the tragedy of the common in the use of common pool water resources demands the administration of water rights in which the state takes major responsibility for determining the conditions of appropriate water abstraction rights. As discussed earlier, the CCE mentions the requirement of permission to construct a drilling for abstraction of ground water exceeding the depth of 100 meters. Nevertheless, this provision is much to be desired to address critical matters of water permit that could have been addressed under the water permit administration system of this modern time. Likewise, during the Dergue regime, Water Supply and Sewerage Authority was established under Proclamation 219 of 1981 with the power to permit and prohibit any persons to engage in the supply or sale of water in areas

86 The Civil Code 1960 (n 61) art 1230(1).

87 Water Resource Management Proclamation No 197/2000, art 2(22).

88 Irrigation Water Users' Associations Proclamation No 841 of 2014, art 50 [hereinafter, 'Irrigation Water Users' Associations Proclamation 2014']

where they are not provided and provided by it respectively.[89] However, the acquisition of water rights through the water permit system was comprehensively addressed since the 1990s that heralded the beginning of modern water rights in Ethiopia.

The Water Resource Utilization Proclamation 92 of 1994 enacted during the Transitional Period Charter was the first specific water law specifically designed to regulate water use permit administration. This Proclamation distinguishes two types of water use permit system for acquiring water rights. The first type of water permit system regulates the prerequisite of obtaining water permits issued by the appropriate authority to abstract and use water for the purposes listed under the proclamation. As such, the use of water resources for agricultural irrigation, commercial animal rearing, commercial fishery resources development, industry and agro-industry, mining, municipal and urban water supply, hydro-electric power generation, recreation and tourism, water transport and water construction works requires to carry water permit certificate as a title deed for water rights.[90]

The second type of water use permit is the use of water without the issuance of water use permit as a title deed to enjoy water abstraction rights. This category of water rights holders constitutes 'peasants, artisanal miners, traditional fishermen and persons rendering traditional water transport services.'[91] The term "peasant" is clearly defined as a 'person whose traditional occupation is animal rearing'[92] to distinguish it from the first category permit water users who irrigate agricultural land and rear animals as modern and commercialized occupations. The same is true for other persons who engaged in artisan mining as opposed to modern mining, traditional fishery and water transport services as opposed to commercial fishery and modern water transport and *et cetera*.

Furthermore, the term 'traditional irrigation and drainage system' is defined as 'an irrigation and drainage system constructed by farmers using their own indigenous knowledge and locally available materials.'[93] However, on top of proof of occupation as an important factor

[89] Proclamation to provide for the Establishment of Water Supply and Sewerage Authority Proclamation No 219 of 1981 art 7(7) and art 7(10) [Hereinafter, 'Water Supply and Sewerage Authority Proclamation 1981'].
[90] A Proclamation to Provide for the Utilization of Water Resources No 92 of 1994, art 3(1).
[91] ibid art 3(2).
[92] ibid art 2(8).
[93] Irrigation Water Users' Associations Proclamation 2014 (n 88) art 2(6).

to determine eligibility for using water without the requirement of water use permits, Irrigation Water Users' Associations Proclamation 841 of 2014 requires 'use right certificate' to the traditional irrigation and drainage system that establishes the right.[94]

Like Proclamation 92 of 1994, the Water Resource Management Proclamation 197 of 2000 adopted a water use permit system as an approach to administer water rights. The latter states that, no person shall construct water works, supply water whether for his own use or for others, transfer water which he/she abstracted from a water resource or received from another supplier without having obtained a permit from the supervising body.[95]

In similar manner, no person is required to have a water use permit for the utilization of water resources for traditional irrigation, artisanal mining and for traditional animal rearing, as well as for water mills including the hand digging of water wells or the use of water from hand-dug water wells.[96] In comparison, the legal principle on water use permit requirement under Proclamation 197 of 2000 is confined to consumptive water abstraction use and transfer unlike that of Proclamation 92 of 1994 who also requires water use permits for non-consumptive and in situ use of water resources. However, Proclamation 197 of 2000 avoids the listing approach and generally regulates acts of water abstraction, use, supply and transfer system unlike Proclamation 92 of 1994 that lists different forms of water use purposes risking non-exhaustive debate.

5.4.1.4. Contract based water rights

The principle that contractual relationships among resource users 'leads to changes in the definition and assignment of property rights'[97] is well founded among scholars of both economics and law with famous articulation that at 'the heart of the study of property rights lies the study of contracts'.[98] Libecap argues that contracting property rights indicates 'the efforts by individuals to assign or to modify property rights'.[99] Harold Demsetz also argues

94 ibid art 48.
95 Ethiopian Water Resources Management Proclamation No 197 of 2000, art 11(1).
96 ibid art 12(1).
97 Gary D Libecap, *Contracting for Property Rights* (Cambridge University Press, 1989) 13.
98 Yoram Barzel, *Economic Analysis of Property Rights* (2nd ed. Cambridge University Press 1997) 33.
99 Libecap (n 97). Harold Demsetz, 'Toward a Theory of Property Rights (967) 57 The American Economic Review 359.

that 'an assignment of property rights' is a precondition for the creation of price for a resource in the 'price-making markets reflecting underlying demand and supply condition and to facilitate socially valuable exchange among economic agents.'[100] In the context of water as a common pool resources where the state holds the title of public property ownership, controlling and excluding the public from its use to enforce such property rights may be difficult if not impossible.[101] Therefore, as economic and social conditions change, contracting some sticks of common property ownership rights may assign more exclusive property rights to water resources among members of the public for controlling access and use which also motivates competing right holders to divert labour and capital to transform water from socially valued production to higher valued economic uses.[102]

However, there are certain limitations on the assignment of water property rights through contractual rights.[103] On the one hand, the assignment of water property rights through contract is considered as *in personam* that are governed by contract law that imposes rights and duties on the respective parties to that contract.[104] Without additional legal requirements for the third party effect, such as registration requirement,[105] water property rights based on contract 'bind only the parties to the contract.'[106]

On the other hand, the assignment of water property rights through property law is considered as in rem which imposes rights and duties not only contracting parties but also third parties. Contracting water property rights based on the doctrines of property law creates mandatory legal standards that bind 'the rest of the world' for regulating the relationships of property rights whereby the contracting parties may not be entitled to modify by mutual agreement.[107] Eventually, whatever the degree of property rights involved,

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100 Libecap (n 97).

101 ibid.

102 ibid.

103 The Civil Code 1960 (n 61)art 1318 and art 1411. See generally sections on 'Joint ownership, Usufruct and Other Rights in rem' and 'Contractual rights of purchase or pre-emption' (arts. 1410-1425).

104 Thomas W Merrill and Henry E Smith, 'The property/contract interface' (2001)101 Columbia Law Review 773, 776.

105 See, The Civil Code 1960 (n 61)art 1723 and art 2878 for registration requirements for third party effects.

106 Merrill and Smith (n 104)776-777.

107 ibid 776.

both *in personam* and *in rem* rights can be seen as two different ways for the creation of property rights in the use of water resources.[108]

The creation of water property rights based on contractual arrangement in Ethiopia emanates from two categories of normative frameworks within the context of public-private water supply continuum. The first contract based water property rights emanates from the policy and legal frameworks governing Public Private Partnership (PPP) arrangement in the water sector resource development. The second contract based on water rights emanates from the contractual arrangement between public or private water supply entities and water users designed to provide water supply services for different water use purposes.

To begin with the first category, the policy basis of promoting Private Sector Participation (PSP) in the water sector inevitably creates a degree of property rights effect over the use of water by private parties albeit contractual.[109] The PPP Policy and Proclamation 1076 of 2018 provides general frameworks that can be applicable to PSP in the water resources sector. The PPP Proclamation permitted PSP in water sector investment activities since water is not expressly excluded 'activities' unlike oil, mines, minerals, rights of air space and the privatization or divestiture of public infrastructure or public enterprises.[110] In addition, the normative understanding of PPP is articulated taking the rights and liabilities of the private sector into account during the engagement period. The term PPP is defined as

> the long-term agreements between contracting authority and a private party in which the private party: (a) undertakes to perform public service activity that would otherwise be carried out by the contracting authority; (b) receiving a benefit by way of: (1) compensation by or on behalf of the Contracting Authority, (2) tariffs or fees collected by the Private Party from users or consumers of a services and (3) a combination of such compensation and such charges or fees (c) is generally liable for risks arising from the performance of the activity or use of the state property in accordance with the terms of the Project Agreements.[111]

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[108] The Civil Code 1960 (n 61) art 1416 and 1411(3).

[109] Okke Braadbaart, 'Private versus public provision of water services: does ownership matter for utility efficiency?' (2002) 51 (7) Journal of Water Supply: Research and Technology-Aqua 376.

[110] Public Private Partnership Proclamation No 1076 of 2018 art 4(2) (as amended by Proclamation No 1287/2023) [Hereinafter, 'Public Private Partnership Proclamation 2018']

[111] ibid art 2 (12); Ethiopian Public Private Partnership Policy (Ministry of Finance and Economic Cooperation 2017)11.

Furthermore, the PPP Proclamation provides normative guidelines on the duration and modes of PSP in water sector economic activities.[112]The PPP Proclamation prescribes two major forms or combinations of different PPP agreements that can be applicable to PSP in public water supply service activities.[113] The first form of PPP agreement may take the contract model of build-own-operate-transfer (BOOT) in which the private sector is responsible for 'the design, construction, financing, maintenance or operation of new Infrastructure Facilities'[114]in water supply services and finally transferred to the contracting authority at the end of the contract period.[115] The combinations or variations of the BOOT model of PPP arrangement may include build-operate-transfer (BOT), design-build-operate-transfer (DBOT), finance-build-own-operate-transfer (FBOOT), build-transfer-operate (BTO), and build-lease–transfer (BLT).[116]Depending on the type of the PPP arrangement ownership rights can be exercised by the private entity until expiration of the contract duration, after which these rights are transferred to the public authority.[117] It is argued that the BOOT model is preferred when the existing public service provided by the contracting authority is unable to address new demand and where the projects require significant finance'[118]such as the case of 'greenfield investment' in water supply services mainly focusing on the supply of bulk water.[119]

The second form of PPP agreement may take the model of rehabilitate-operate-transfer (ROT) in which the private sector is involved in 'the rehabilitation, modernization, financing, expansion, maintenance or operation of existing Infrastructure Facilities'.[120] Unlike the

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112 Public Private Partnership Proclamation 2018 (n 110) arts 45 and 5.

113 ibid art 5.

114 ibid art 5(1.a).

115 ibid art 27.

116 Ernest E Ameyaw and others, 'A Fuzzy-Based Evaluation of Financial Risks in Build–Own–Operate–Transfer Water Supply Projects' (2017) 23 Journal of Infrastructure Systems 1943; Osmo T Seppälä, Jarmo J Hukka and Tapio S Katko, 'Public-Private Partnerships in Water and Sewerage Services: Privatization for Profit or Improvement of Service and Performance?' (2001) 6(1) Public Works Management and Policy 42, 43.

117 ibid

118 United Nations Development Program: 'Prospects of Public- Private Partnership (PPP) in Ethiopia' (2015) UNDP-Ethiopia Development Brief 7. <https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/2022-03/Public%20Private%20Partnership%20jan2015updated.pdf> accessed 18 January 2024.

119 Samuel Godfrey and others, 'Fuzzy Logic Analysis of the Build, Capacity Build and Transfer (B-CB-T) Modality for Urban Water Supply Service Delivery in Ethiopia' (2019) 11 (5) Water 979.

120 Public Private Partnership Proclamation 2018 (n 110) art. 5 (1.b).

former PPP model, the private sector is just handed over existing public water supply infrastructure facilities, be it old or new, for the purpose of rehabilitation, refurbishing, maintenance and operation for the contract duration.[121] In this PPP model, in addition to the common requirements of management and operation, the private sector is responsible to finance the tasks of major expansions and upgrades to ensure its modernization but not required to develop new infrastructure assets. Hence, to the extent the private party is responsible for the renewal or extension of an existing or a brownfield asset', the ROT model resembles the BOT type PPP arrangement.[122]

The last but not least category of contract based water rights relates to the contractual arrangement for water supply based on fee or tariff payment. Contract based water supply rights in urban and rural context is based on the contractual agreement signed between a customer or beneficiary and a public or private organization responsible for the supply of potable water supply services. For instance, the Water Supply and Sewerage Authority was established under Proclamation 219 of 1981 to supply water services by entering into a contract with water users in return for the payment of 'service charges and water fees.'[123] Similarly, Addis Ababa Water and Sewerage Authority[124] and Regional states rural and urban potable water supply service organizations[125] also enter into contract with clients or customers of water users. In the context of bulk water supply for irrigation use, Irrigation Water Users' Associations Proclamation 841 of 2014 also provides the requirement of service agreement for the supply of irrigation water between the water service provider and the service beneficiary.[126] Therefore, so long as water users pay water service charges and abide

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121 ibid; Daniel Mesfin, 'Public-Private-Partnership in Ethiopia: The BOT Modality in Utility Billing' (2016) 8(31) European Journal of Business and Management 54, 55; Alemnew G Dessie, 'Public-Private Partnerships in Ethiopia: A Legal and Policy Analysis' (LLM thesis, Bahir Dar University, 2021).

122 Olivia Jensen, 'Public–private partnerships for water in Asia: a review of two decades of experience' (2017) 33 International Journal of Water Resources Development 14.

123 Water Supply and Sewerage Authority Proclamation No 219 (n 89) art 7(12) and art 7(14).

124 Addis Ababa Water and Sewerage Authority Order No 68 of 1971 (amended by Proclamation No 298 of 1972)

125 Proclamation to Determine Oromia Region Potable Water and Sewage Services No 228/2020, art 8(6); The Revised Amhara National Regional State Urban and Rural Potable Water Supply and Sewerage Services' Reorganizing Proclamation N°188/2011; The Revised Urban and Rural Potable Water Supply and Sewerage Services' Reorganizing Proclamation Implementation, Council of Regional Government Regulation No 94/2012 art 20(4).

126 Irrigation Water Users' Associations Proclamation 2014' (n 88) art 51(3) and art 52.

by the terms and conditions set under rules governing water supply service, the agreement for the provision of water supply creates contract based water rights.

5.4.1.5. Investment based water rights

The objectives of Ethiopia's investment laws were articulated to play an instrumental role of 'augmenting the role of the private sector in the country's economic development' and exploitation and development of its immense natural resources.[127] Despite several reforms made to this investment law, investment operations in the water sector that mainly includes bulk and potable water supply were not restricted for private domestic and foreign investors. The investment law governs all investment activities except investments in the prospecting, exploration and development of mineral and petroleum resources.[128]

Likewise, the Investment Regulation 474 of 2020 provides that investment in water related economic activities are open to foreign investors since such investment activities are not specifically reserved to domestic investors.[129] However, the previous Investment Regulation specifically mentions '*manufacturing of soft drink, mineral water or other bottled water'* as an investment area reserved for domestic investors.[130] Therefore, the minimum capital requirements for engaging in investment activities related to water sector economic activities particularly for foreign investors inevitably creates investment based water rights for the duration of the investment permit.

As indicated in Section 4.1.4, the involvement of private parties in water sector activities is not expressly excluded like that of mining and mineral activities. Besides, what is expressly excluded only relates to 'the privatization or divestiture of public infrastructure or public enterprises' with a complete transfer of public ownership rights. As such, it is safe to argue that only privatization or divestiture of existing public water infrastructure facilities are excluded for PSP. In the context of bulk water supply for irrigation use, private investors are

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127 See previous Investment Proclamation No 769 of 2012 art 5 and New Investment Proclamation No 1180 of 2020 art 5.

128 Investment Proclamation No 1180 of 2020, art 2.

129 ibid art 6; Investment Regulation No 474 of 2020 art 6.

130 See Investment Incentives and Investment Area Reserved for Domestic Investors Council of Ministers Regulation No 270 of 2012 *schedular attachment*.

allowed to engage in 'irrigation development' 'covering more than 50 hectares of land'[131] based on the Build-Own-Operate (BOO) model of PSP.

The Irrigation Development Incentives Regulation 162 of 2008 was designed with the objectives of providing incentives to investors engaging in irrigation development to increase the role of the private sector in developing irrigation through utilizing the huge available irrigable land and water resources of the country.[132] Unlike the PPP model, the BOO model allows private investors to be involved in the development of new water supply infrastructure facilities with full responsibility for its finance, design, construction, operations, and maintenance. In return, the private investor is granted 'exemptions from water use charges[133] 'until the actual investment cost is recovered'.[134] Therefore, unlike the PPP models based on long term lease or concession contracts, the BOO model for PSP is entirely governed by investment law subject to licensing and water use permit systems.

5.5. Chapter summary

This Chapter has argued that water abstraction rights are recognized as property rights in Ethiopia entitling private persons to usufruct rights. In addition to *de minimis* water abstraction rights for domestic, traditional and non-commercial use, the FDRE Constitution and other subsidiary legislations discussed under this Chapter establish different forms and degree of water rights that may have a property rights effects. As this Chapter revealed, while water resource policy and law predominantly capitalizes on the social aspects of access and abstraction of water resources for domestic use and irrigation developments, the normative frameworks under the PPP Policy and Proclamation, investment laws also separately establish additional layers to the existing water abstraction property rights. Hence, it can be concluded that while water abstraction rights arising under water use permit provides basic legal foundations for private persons to have vested property rights interest in the use of water resources, other forms of water use rights arising under contractual rights,

131 Irrigation Development Incentives Council of Ministers Regulation No 162 of 2008, art 2(3).
132 ibid art 4.
133 ibid art 6 (1) (3).
134 ibid art 7(1).

land rights and investment related water rights are some of the avenues for the development of water property rights.

More specifically, water rights acquired under water use permit as complemented by investment laws designed to attract Foreign Direct Investment (FDI) in the water sector implicates two things. First, as the brainchild of the WB Water Policy, Ethiopian WRM Proclamation (1997) and WRM Regulation (2005) adopted water use permit to manage water rights evidencing the influence of global water policy and law on the domestic regulatory landscape pushing Ethiopia to assign water property rights as a means to allocate water resources. Second, the adoption of water use charges as a requirement for acquiring water use permits juxtaposes the economic value of water and payment of price by potential water users that consequently establishes private proprietary interests for the exploitation of water resources. In this regard, the Chapter has shown that part of the WB and AfrDB loan conditionalities for promoting cost recovery and PSP in the water sector is a clear manifestation of how these two global and regional financial bodies push for the recognition of private water property rights in Ethiopia.

Finally, it is also evident from the discussion under this Chapter that the recognition of water abstraction rights as property rights is not a guarantee for the status of water rights as tradable property rights. This is because water property rights may simply confer the right to use water and enjoy its fruits without necessarily warranting its tradable nature through transferability of such rights. Therefore, the existence of the limitations and difference in the degree of property rights involved in water abstraction rights under water policy and law in Ethiopia logically leads to the question as to whether water abstraction rights can be amenable to the attributes of property rights to assign tradable water right as a means to efficiently allocate water resources through the channels of formally recognized water market. This form of inquiry leads to the discussion under Chapters 6 and 7 to find out the status of water abstraction rights tradability in comparative perspectives.

CHAPTER 6

Tradability of water property rights in comparative legal perspectives

6.1. Introduction

As examined in Chapters 1—3, the global policy imperatives on the recognition of water as an economic good coupled with the push from international financial institutions encouraged countries like Chile, South Africa and China to adopt water market mechanisms as an instrument of allocation and reallocation of scarce water resources by establishing a varying degrees of legal frameworks that recognize water rights trading among competing water users. The water law reform in Australian federal jurisdiction is essentially motivated by the imperatives of addressing water scarcity through efficient allocation by recognizing the legal status of tradable water rights.[1] As shown in Section 1.5.3 of Chapter 2, selected comparative countries underlined the importance of recognizing property rights in water resources as a means to facilitate conditions for the efficient allocation of water resources.

This Chapter examines tradability of water property rights in comparative perspectives in light of the conceptual frameworks discussed under Chapter 2. Section 6.2 discusses the nature of water rights in comparative countries to understand how different forms of water rights entitlements are established and whether these acquired water rights constitute rights in property. Section 6.2 discusses the attributes of water rights as legally recognized under water use permit/license or water use authorizations to comparatively show whether water allocation rights also confer water property rights that could be tradable in order to facilitate or promote water market as a means to allocate water resources among water use permit holders. Section 6.3 briefly discusses the tale of water rights trading experience of the comparative countries in their typically selected river basins context based on the empirical

[1] Robert Brooks and Edwyna Harris, 'Efficiency gains from water markets: Empirical analysis of Watermove in Australia' (2008): 95(4) Agricultural water management 391; M Ejaz Qureshi and others, 'Removing barriers to facilitate efficient water markets in the Murray-Darling Basin of Australia." Agricultural Water Management' (2009) 96 (11)1641, 1642.

studies gleaned from the literature. Section 6.4 summarizes the Chapter by providing reflections on the comparative assessments.

6.2. Legal nature of water rights

Before delving into the details of water rights tradability, it is vital to first compare the manner in which water rights are primarily allocated creating an entailment to abstract water resources. It is also pivotal to assess whether such water rights are recognized as property rights. In particular, comparing and contrasting whether rights to abstract water from water bodies is defined as the 'legal object—capable of being a property'[2] over which a person can exercise property rights separate from land rights.

6.2.1. Allocation of water right: forms and contents

The legal arrangements for acquiring consumptive water abstraction rights is a pivotal step as it ensures the initial allocation of water resources for different social or economic purposes. In the context of Chile, Garretón identifies three forms or ways of establishing or acquiring water rights under the Water Code.[3] The first common form is the creation of new water rights on the application of a person for a new water permit free of charge from the authority—The Director General for Water (Dirección General de Aguas).[4] The Director General for Water (DGA) grants new water permits to the applicant on the basis of 'first come first served' after identifying 'availability of resources and the absence of water conflicts with other owners.'[5] The second formal option to acquire water is by the 'regularization of unregistered' existing or customary water use before the court of law or judicial organs.[6] The formalization of existing or customary water rights passes through two stages that involves publication for the regularization of the application by the DGA to inform other water users

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2 Cristy Clark and Erin O'Donnell, 'Property in Water?' in Nicole Graham and others (eds.) *The Routledge Handbook of Property, Law and Society* (Routledge 2023) 280.

3 Sofía Hübner Garretón, 'Chilean water law and climate change challenges' (2019) 30 Journal of Economic and Administrative Law/*Revista de Derecho Administrativo Económico*/181-182. <https://ojs.uc.cl/index.php/REDAE/article/view/10150/9394> (Accessed 20 January 2024).

4 ibid; Chile Water Code (Decree Nº 1122, of 1981 (as amended by Law No 21. 435) art. 20. (hereinafter, 'Chile Water Code 1981') <https://www.bcn.cl/leychile/navegar?idNorma=5605> accessed 20 May 2024.

5 ibid art 22 (as amended by Law Decree No 20.017); cf María Christina and others, 'Water Policy and Management in Chile' in Patricia A. Maurice (ed), *Encyclopedia of Water: Science, Technology, and Society* (John Wiley & Sons, Inc. 2019) 2.

6 Garretón (n 3) 182.

and the judicial state where water users legally establish the existence of customary use. This type of water rights acquisition resembles usucaption rights because the applicant is required to show or prove to the court that water use rights are exercised without violence or an illegal way for uninterrupted five years since the coming into force of the 1981 Water Code.[7] The third option is buying water rights in the water trading market from water rights holders who acquired in either of the two earlier forms.[8] In addition, Vergara and Rivera also suggest that concession by the authority constitutes formal water rights despite lack of registration requirement.[9] This form of water rights under the Water Code also relates to the concession of the lands of public domain necessary to make it effective.[10]

Furthermore, water right under the amended Water Code is characterized as 'the right in *rem* that falls on the waters and consists of the temporary use and enjoyment' within the bounds and limitations of the rules enunciated under the Code.[11] This right in *rem* is further 'expressed in a volume per unit of time'.[12] As such the water use title or permit should indicate the maximum authorized flows at the monthly level for surface water and the maximum instantaneous flow and the total annual volume for groundwater.[13] In the case of consumptive water rights, the Water Code entitles the user to fully consume the water in any activity' without the requirement to return water to the natural source after use.[14] Consumptive water use may be characterized as permanent, contingent, continuous, discontinuous and alternate water rights.[15] Permanent consumptive water rights allows the water permit holder to abstract a specified water flow known as shares of water flow provided that sufficient water is available to quench the needs of other permanent water rights holders.[16]

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7 Chile Water Code 1981 (n 4) art 6 and Transitory art 2; cf Garretón (n 3) 182; Alejandro Vergara and Daniela Rivera, 'Legal and Institutional Framework of Water Resources' in G Donoso (ed), *Water Policy in Chile* (Springer International Publishing AG 2018) 62.

8 Garretón (n 3) 182.

9 Chile Water Code 1981 (n 4) art 6

10 ibid art 26

11 ibid art 6

12 ibid

13 ibid art 7

14 ibid art 13.

15 Monica Rios Brehm and Jorge Quiroz, 'The Market for Water Rights in Chile: Major Issues' (World Bank 1995) 285.

16 Chile Water Code 1981 (n 4) art 17

However, the DGA is authorized under the Water Code to 'declare the exhaustion of natural sources of water' to justify the revocation of an already constituted right or deny the grant of new permanent consumptive water right.[17] Contingent or eventual consumptive water rights authorizes the permit holder to abstract water after permanent water rights holders have abstracted their shares or quota of the water flow.[18] Continuous consumptive water right permits water users to abstract water without interruption while discontinuous water right authorizes water to be abstracted or used at a given time period.[19] Finally, alternate consumptive water rights distribute water use rights among two or more people who take turn to the successive use of water.[20]

In Australia, the primary allocation of water rights is vested in the states based on their respective water legislations. However, the Australian Water Act of 2007 envisages three major options to acquire water rights. The first option relates access to water entitlement for 'critical human water needs' without the requirement of holding a water access license.[21] The right to access water for critical human needs is the minimum amount of water reasonably required to meet core human consumption in urban and rural areas.[22] This form of water right is similar to the human right to access water for basic human needs recognized albeit implicitly defined under the Australian Water Act. Lee Godden argues that though Australian Water Laws are not clearly predicated on the social equity objectives as part of its water law reform, the trend in implementation aims 'to subordinate protection of the environment to human needs.'[23] Likewise, the allocation of water for the environment for the purpose of ensuring adequate natural flows of water to sustain streams, rivers, aquifers and estuaries and their dependent ecosystems is exempt from water use license. The Council of Australian Governments (CoAG) Water Reform Framework Agreement requires states to 'give priority

17 ibid art 282
18 ibid art 18
19 ibid art 19
20 ibid
21 Australian Commonwealth Water Act 2007, sec 86A [hereinafter, 'Water Act 2007 (Cth)']. <https://www.legislation.gov.au/C2007A00137/latest/text> accessed 10 June 2024.
22 ibid sec 86A(2)
23 Lee Godden, 'Water Law Reform in Australia and South Africa: Sustainability, Efficiency and Social Justice (2005) 17 (2) Journal of Environmental Law 181, 203.

to formally determining allocations or entitlements to water, including allocations for the environment as a legitimate user of water'.[24] Despite such a national framework, Lee Godden argues that there was no unified model in Australian plural water laws that dealt with allocation of water to the environment except for fragmented attempts by some state's water law.[25]

The second form of acquiring water rights in Australian jurisdiction is through water access license. The right to use water through a water license establishes 'water access right' as any right conferred by or under a law of a state to hold water from a water resource or to take water from a water resource.[26] Furthermore, water access rights granted based on water access licenses can be further unbundled as water access entitlement and water allocation rights.[27] Water access entitlement confers on a license holder to 'a perpetual or ongoing entitlement, by or under a law of a State, to exclusive access to a share of the water resources of a water resource plan area'.[28] However, Mascher and Curran contend that 'a right to exclusively take a specified volume of water in perpetuity' is incompatible with the guiding principles of adaptive water management that demands flexibility in the allocation of water resources due to climate changes or drought that affects its availability in the required quantity.[29]

Thus, water access entitlement for consumptive use is only a right to a specified share of a consumptive pool of available water each year as prescribed in a water license and does not grant the bearer permission to abstract or take a fixed maximum volume.[30] As such, the

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[24] Australian Commonwealth: The Council of Australian Governments' Water Reform Framework (Hobart, 25 February 1994 Communiqué) <https://www.ielrc.org/content/e9401.pdf> accessed 20 February 2024; see also Australian Water Act 2007 (Cth) (n 21) sec 85 ABA and Sec 104ff); Alex Gardner, 'Environmental water allocations in Australia' (2006) 23 Environmental and Planning Law Journal 208-209.

[25] Godden (n 23) 191.

[26] Water Act 2007 (Cth) (n 21) sec 4.

[27] Paul Babie, Paul Leadbeter and Kyriaco Nikias, 'Property, Unbundled Water Entitlements, and Anticommons Tragedies: A Cautionary Tale from Australia' (2019) 9(1) Michigan Journal of Environmental & Administrative Law 107, 124; D J McKane and I Franssen, 'An adaptive approach to water rights reform in South Australia' (2013) 171 WIT Transactions on Ecology and the Environment 61, 63.

[28] Water Act 2007 (Cth) (n 21) sec 4 and sec 100C (5).

[29] Sharon Mascher and Deborah Curran, 'The role of private property rights in Australia's and Canada's modern water allocation regimes' in Erkki J Hollo (ed), *Water Resource Management and the Law* (Edward Elgar 2017) 204.

[30] ibid

volume of water differs each year according to water availability and is also dependent on whether the entitlement is classed as high or low security.[31] Water allocation right refers to the specific volume of water allocated to water access entitlements in a given water accounting period based on the volume of water available for allocation in that period.[32] The third form of acquiring water rights is the purchase of water use rights in a secondary water reallocation market.[33] The Water Act of 2007 provides water rights trading rules so that a willing buyer purchases water from a willing seller in the water market.[34]

In South Africa, there are four options or legal forms for acquiring water rights under the National Water Act (NWA). The first option is considered as 'permissible use' of water designed to permit a reasonable use of water for domestic purposes and is not required to undergo the system of license and authorization.[35] As will be discussed in the next section, this form of water right recognition is part of the constitutional implementation of access to water as basic human rights. The second form of water right is a 'general authorization' for the use of water resources in a specific area or certain parts of a catchment either for all or only specific users at a certain period of time free from administrative restrictions or the requirements for license applications.[36] It is argued that the purpose of this type of water right use is twofold. On the one hand, it aims to 'reduce the administrative burden' where relevant water authority may exculpate from the effect of such burden 'on the people who otherwise would not be ready to apply for license to still have an authorization to use water'.[37]

On the other hand, it aims to serve as an instrument to help the allocation of water rights under the NWA meets its objective of ensuring equity by making it simple for 'resource poor

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31 Madelaine Moore, 'Water trading markets: Facilitating financial flows through the hydro-social cycle?' (2024) 150 Geoforum 3-4. <https://doi.org/10.1016/j.geoforum.2024.103977> accessed 20 April 2024.

32 Water Act 2007 (Cth) (n 21) sec 4.

33 ibid sec 10

34 ibid sec 26.

35 Republic of South African National Water Act No 36 of 1998(as amended by National Water Amendment Act No 45 of 1999) sec 22 [hereinafter, 'National Water Act 1998'].<https://www.gov.za/sites/default/files/gcis_document/201409/a36-98.pdf>accessed 10 May 2024.

36 ibid sec 39.

37 Liping Dai and others, 'Towards a sustainable, balanced and equitable allocation of water use rights' in Erkki J Hollo (ed), *Water Resource Management and the Law (*Edward Elgar 2017) 187.

farmers to have lawful access to water' resources.[38] The third form is recognized as 'existing lawful water uses' which refers to the continued use of water derived from the repealed laws by the NWA.[39] The continuity of existing lawful water use under the NWA, without the requirement of license, needs to undergo the process of declaration and verification by responsible authority.[40] The verification process by the responsible authority is designed to ensure the extent, veracity and the lawfulness of an existing water use.[41] However, on conditions of redress, existing lawful water use rights may be subjected to compulsory licensing procedure by the Department of Water and Sanitation with the aim of re-distribution of water resources to ensure fairness and equitability in water stressed areas.[42]

The fourth option that is not included in any of the previous three categories for acquiring water rights in South Africa is obtained through water use license.[43] This option of acquiring water rights is similar with the other comparative countries as it essentially established the legal foundations for water entitlement allocation rights to ensure efficient and beneficial use of water in the public interest.[44] In addition to the conditions for the use of water resources, the authorization of water use right through license does not imply any guarantee regarding the availability or quality of water which it covers.[45] For instance, the breadth of conditions attached to license among others include the volumes and timing of abstractions, the volume of water that may be stored and mandatory review of license by the responsible authority at least every five years.[46] Finally, water use licenses are characterized by their specific nature because a water license is valid for use by the holder alone to use water for a particular use or uses in a particular property area for a particular period of time.[47]

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38 ibid
39 National Water Act 1998 (n 35) secs 32—34.
40 ibid sec 33 and sec 35.
41 ibid sec 35.
42 ibid sec 43.
43 ibid secs 40—43.
44 *See* discussion under Australia and Chile.
45 National Water Act 1998 (n 35) sec 31.
46 ibid sec 29.
47 ibid sec 29(1) (e) (vi).

In China, the initial allocation of water rights originates from a system of 'public water rights allocation' that hierarchically assigns the right to use water at different administrative and river basin levels as a shared public resource.[48] Water rights are defined by the state according to the primacies assigned to competing users and based on predetermined criteria for administrative decision-making on public water rights.[49] Water quantity allocation is defined as 'the allocation of the total usable amount of water resources or the total distributable water quantity to administrative divisions on a level by level basis, so as to determine the shares of consumable water quantity for life and production as well as the shares of water taking and its quantity'.[50] On the basis of this national water allocation framework, water rights are defined as the right to a share of a common water resource granted to an administrative region which authorizes such a region to allocate its share amongst sub-regions, water abstractors or end-users.[51] Within the framework of the public water rights allocation system, one can identify three major options to acquire water rights with varying characteristics.

The most common way of acquiring water rights is through a water abstraction permit. The Water Law requires a water abstraction permit or license for any unit or individual that takes water and uses water resources directly from a river, a lake, or underground with the payment of resource fee.[52] The process for application, approval and supervision of water abstraction is prescribed under 'Measures for the Administration of Water Abstraction Licensing of 2008. The Regulation on the Administration of the License for Water Drawing and the Levy of Water Resource Fees defines 'water drawing' as the drawing of water

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48 Hang Zheng and others, 'A Comparative Study of the Performance of Public Water Rights Allocation in China' (2012) 26 Water Resource Management 1107; Yahua Wang and others, 'Structuring water rights in China: a hierarchical framework' (2017) 34 International Journal of Water Resources Development 7-8.

49 ibid 1109; Qian Zhang and others, 'The Study on Initial Allocation of Water Rights in China' (2014) 641-642 Applied Mechanics and Materials 124.

50 Ministry of Water Resources of the Republic of China: 'Interim Measure for Water Quantity Allocation 2008' (Order No. 32 of the Ministry of Water Resources 2008), art 2.<https://www.gov.cn/flfg/2007-12/29/content_847012.htm> accessed 22 May 2024.

51 Water Law of the People's Republic of China Order No 74 of 2002 (as amended on 27 August 2009) arts. 44–47 [hereinafter 'China Water Law 2002'] <http://www.china.org.cn/english/government/207454.htm>accessed 20 may 2024; see also Min Ge and others, 'A Coupled Allocation for Regional Initial Water Rights in Dalinghe Basin, China' (2017) 9 Sustainability 428.

52 China Water Law 2002 (n 51) art 48.

resources directly from rivers, lakes or underground with the use of water drawing engineering structures or facilities, which relates to water gates, dams, channels, artificial watercourses, siphons, pumps, wells and hydropower stations.[53] Hence, a water license or permit certificate together with the payment of water resource fee establishes water abstraction rights under the Water Law of China. Through a controlled water use system, water resource fees are charged on the basis of the amount of water used and a progressive higher price charged for the amount that exceeds the quota.[54] The second option for acquiring water rights relates to *de-minimis* water rights that doesn't require a water use permit for abstracting 'only a small amount of water for domestic use or for drinking by poultry and livestock reared outdoors or in houses.[55] This form of water use rights for domestic needs both in rural and urban areas is given priority of use over the water drawing permits for agricultural, industrial and other purposes.[56] The third option for obtaining water rights is based on the practice of water rights trading framework that enables water use rights transfer among water rights holders in the water markets.[57]

6.2.2. Nature of water property rights

The nature of water rights as property rights depends on whether water rights acquired through different mechanisms are recognized as property rights per se. In water law jurisdictions whereby property ownership of water resources is vested on the states as a public property or public domain, the nature of water rights as property rights depends on the existence of at least two legal conditions. The first legal condition relates to the extent to which the public property regime over the allocation of water resources unbundled property rights with the legal entitlements for private persons to the claims of private water property rights be it usufructory. The second legal condition relates to whether water rights

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53 The Regulation on the Administration of the License for Water Drawing and the Levy of Water Resource Fees (Decree No. 460 of the State Council of the People's Republic of China 2006). <https://www.gov.cn/zwgk/2006-03/06/content_220023.htm> accessed 22 May 2024 [hereinafter, 'China Regulation 2006']

54 China Water Law 2002 (n 51) arts 46 and 47.

55 ibid art 48; Cf. Liping Dai, Marleen van Rijswick and Bram Schmidt, 'Towards a sustainable, balanced and equitable allocation of water use rights' in Erkki J Hollo (ed), *Water Resource Management and the Law* (Edward Elgar 2017) 182-183.

56 ibid

57 Hui Guo and others, 'Joint analysis of water rights trading and water-saving management contracts in China' (2019) 36(4) International Journal of Water Resources Development 716, 717.

are recognized as property rights separated or unbundled from the legal entitlements of land rights.

6.2.2.1. 'Unbundling' public water property rights

In many water law jurisdictions, constitutional and statutory claims of property in water come in the shapes of public or private property rights in the allocation and use of water resources.[58] Likewise, the 1980 Chilean Constitution under article 19(24) provides that 'only the law may establish the manner to acquire property and to use, enjoy and dispose of it' subject to 'the limitations and obligations derived from its social function' such as 'nation's general interests' public use' or 'public benefit'.[59] The last paragraph of the same article 19 (24) stipulates 'the right of individuals over the waters, recognized or constituted in accordance with the law, will grant their holders the property over them'. According to Vergara and Rivera, this provision of the Chilean Constitution recognizes the dual nature of water rights derived from the phrasing of 'recognized or constituted in accordance with the law'.[60]

On the one hand, it is argued that the constitution 'implicitly considers water as a public good' since the wording of 'constituted' entails that only the state can grant water rights over public waters through a concession procedure'.[61] The normative basis of water rights as a creation of state granted legal entitlement emanates from the articles 22 and 140-141 of the Water Code that regulates concessionary procedures that constitute water rights similar to administrative based water permit rights. Yet the public nature of water is mainly argued from the vantage points of articles 595 and 5 of the Chilean Civil Code (1855) and Water Code (1981) respectively for recognizing 'waters as national good or asset for public use' referring to the dominion and use of water in their natural state by the public.[62] As such, water

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58 Hilmer J Bosch and others, 'A water property right inventory of 60 countries' (2021) 30 Review of European, Comparative & International Environmental Law 263.

59 The 'Constitution of the Republic of Chile' 1980 (Rev. 2021) [Text translated by Rodrigo Delaveau Swett, Deputy Justice of the Constitutional Court of Chile]. <https://www2.tribunalconstitucional.cl/wp-content/uploads/2022/04/Chilean_Constitution_2021.pdf.> Accessed 10 March 2024. [Hereinafter 'the Constitution of Chile'].

60 Vergara and Rivera (n 7) 70.

61 ibid

62 ibid 69. Civil Code of Chile (1855) sec 595 (last modified by 'Ley 21671') <https://www.bcn.cl/leychile/navegar?idNorma=172986> accessed 22 May 2024.

property rights in the Chilean water law can be considered as unbundled in the sense that in situ use of water resources constitutes the public good nature of water use rights while off-stream water use for private consumption purposes should be granted by the state administrative authority. On the other hand, it is argued that water rights in the Chilean Constitution and Water Code is 'recognized' as a protected private property rights only subjected to expropriation for the public benefit or national interest legitimately qualified by the law.[63]

Unlike the Chilean Unitary form of government, the Australia federal system was known for its complicated aspects of water property rights governance with states having the lion-share of constitutional responsibility for the administration of water rights.[64] The 1901 Commonwealth Constitution of Australia[65] is silent in defining the property rights aspects of water resources within the domain of public or private water rights as was the case in most constitutional jurisdictions. As Kildea and Williams noted only sections 98 and 100 of the Australian Constitution are dedicated to matters of water resource governance at the federal level 'leaving largely in the hands of the states'.[66]

However, as Poh-Ling Tan argued that despite lack of declaration of property or ownership over water in the Australian Constitution, some federating states declared beds and banks of the river as state property establishing the public property rights framework over water resources.[67] Besides, the private use of water in Australia operates based on the non-priority permit system where water entitlements are granted at the administrative discretion of the government rather than a private right of property ownership to water.[68] Constitutionally

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63 Vergara and Rivera (n 7) 83; For further debate on compensation for expropriation of wáter rights, see Carl J Bauer, *Against the current: privatization, water markets, and the state in Chile* (Springer Science & Business Media 2012) 70.

64 Paul Kildea and George Williams, 'The Constitution and the management of water in Australia's rivers' (2010) 32 (4) Sydney Law Review 595, 597.

65 Commonwealth of Australia Constitution Act (Commonwealth) sec 100; Douglas Fisher, 'Common law and public domain approaches to water governance–an Australian perspective' in Erkki J Hollo (ed), *Water Resource Management and the Law* (Edward Elgar Publishing 2017) 56.

66 P Kildea and Williams (n 64) 602.

67 Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar Publishing Limited 2005) 69.

68 John Tisdell, 'The Evolution of Water Legislation in Australia' in K W Easter and Q Huang (eds), *Water Markets for the 21st Century: What Have We Learned?* (Springer 2014) 164.

speaking, given the fact that states are responsible for the administration of water allocation entitlements falling within their respective territories can be considered as the public property of such federating states.[69]

Unlike the case of Chile, the normative frameworks for water property rights in Australia didn't originate in the constitutional fiat but in the mutual water reform agreement among the member states and the federal government resulting in the 1994 CoAG Framework.[70] The CoAG basically charted out the water resource policy reform of Australia towards sustainable and efficient use of water resources by establishing water rights entitlements in national water act and state water laws.[71] In 2003, the CoAG constituted a National Water Initiative (NWI) 'aimed at building on the 1994 water reform framework'[72] to require states to create separate water property rights from land title and provide 'clear specifications of entitlements in terms of ownership, volume, reliability and transferability.'[73] Though both CoAG and NWI facilitated the enactment of the state's water laws including the 2007 Australian Water Act, states are not obligated to enact or reform their water laws in such a way that water entitlements should have to be recognized as property rights.[74] The Australian Water Act 2007 which was amended several times regulates 'water access entitlements' as tradable water rights without clarifying on the nature of such entitlements or rights as water property rights.[75] For this reason, the nature of water rights as property rights in Australian water law jurisdictions is highly debated among the scholars of water law resonating towards the qualification of property rights.

On the one hand, there are authors who argue that water entitlements acquired through water permit or license' constitutes 'a special form of property rights' despite the seldom use of the term property right by the Australian water administrators referring to such statutory

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69 Stephen Bell and John Quiggin, 'The limits of markets: the politics of water management in rural Australia' (2008) 17 (5) Environmental Politics 712, 716.

70 Sarah Ann Wheeler, Katherine Owens and Alec Zuo, 'Is there public desire for a federal takeover of water resource management in Australia?' (2024) 248 Water Research 120862.

71 Bell and Quiggin (n 69) 714.

72 Michael Mckenzie, 'Water Rights in NSW: Properly Property?' (2009) 31 Sydney Law Review 443, 448.

73 Council of Australian Governments (n 24) 'Attachment A—Water Resources Policy', clause 4(A).

74 McKane and Franssen (n 27) 62.

75 Tian Shi, 'Simplifying complexity: Rationalising water entitlements in the southern connected river Murray system, Australia' (2006) 86(3) Agricultural Water Management 229, 229.

water rights.[76] The common reason advanced to support the qualification of water entitlement as property rights emanates from the attribution that the success stories of water rights trading in Australia is founded on the 'creation of firm property rights to extract water within extraction limits'.[77] It is argued that like the Chilean model of water rights trading experience based on water property rights, it is only when water entitlements are well-defined as property rights and separate from land rights in Australia that it 'has managed to create 'one of the world's most sophisticated water marketing systems'.[78]

Furthermore, the water laws of the states of South Australia and Tasmania explicitly declares water access licenses as the personal property of the license holder. For instance, the Natural Resource Management Act of South Australia stipulates that '[A] license (including the water allocation of the license) is personal property vested in the licensee and will pass to another person (…) in accordance with any other law for the passing of property.'[79] The Water Management Act of the state of Tasmania also declares that water license including the right to a water allocation endorsed on it to be personal property alienable as per the provisions of this Act and any other law relating to the passing of property.[80] Even in Australian states, where water entitlements are not clearly declared as property rights but simple statutory rights, there are authors who strongly argue that there exist important cases where courts in such states consider statutory rights in natural resources can amount to a right of property.[81] For instance, Michael Mckenzie analyzed the decisions of the Supreme Court of Victoria on whether the rights conferred by water license under the Water Act 1969 of Victoria

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76 Michael D Young, 'Unbundling Water Rights as a Means to Improve Water Markets in Australia's Southern Connected Murray-Darling Basin' in Manuel Lago and others (eds.) *Use of Economic Instruments in Water Policy: Insights from International Experience* (Springer International Publishing 2015) 294.

77 C Holley and D Sinclair 'Water Markets and Regulation: Implementation, Successes and Limitations' in Cameron Holley and Darren Sinclair (eds.), *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer Nature, 2018) 145.

78 Janice Gray and Louise Lee, 'Water Entitlements as Property: A Work in Progress or Watertight Now?' in Cameron Holley and Darren Sinclair (eds) *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer Nature 2022) 116; Young (n 76) 279.

79 Landscape South Australia Act 2019 (South Australia) sec 121(7) and sec 127 (7).<http://www.governmentgazette.sa.gov.au/2019/December/2019_063.pdf> accessed May 26 2024

80 Tasmania Water Management Act No 45 of 1999 sec. 60. (as amended by Water Management Amendment (Transfer of Water Allocations) Act 2002)<https://www.legislation.tas.gov.au/view/pdf/authorised/2023-12-11%202023-12-12/act-1999-045/lh> accessed 26 May 2024.

81 D E Fisher, 'Rights of Property in Water: confusion or clarity' (2004) 21 Environmental and Planning Law Journal 215 cited in Mckenzie (n 72) 451.

amounted to a right to property and concludes that water access entitlements based on license can amount to a right to property depending on the nature of such statutory rights exhibiting the attributes of property rights.[82]

On the other hand, there are authors who argue that the nature of water rights under the water legislation need not be declared or characterized as a right to property to determine whether statutory water entitlements are considered as tradable.[83] In analyzing the Water Management Amendment Act 2004 of the Australian state of New South Wales, S Bell and J Quiggin argue that to the extent the nature of water rights 'conveys an analogy with freehold title to land, the notion of property rights for water is misleading'.[84] Gray and Lee argues that the nature of water resources as a public property with the state taking responsibility to allocate water use rights to individuals can rather be tradable access entitlements without their propertization being a pre-condition.[85] These authors argue that 'decoupling property and trade' avoids the problems of propertization of entitlements to support water trading to achieve two basic objectives.[86] First, it allows the state not to create proprietary interests in water resources by recognizing property rights in water trading to overcome the implications of property rights creation with a compensable economic value in the hands of its holder.[87] Second, it allows the state to strike the delicate balance between the desire to create well-defined water property rights to sustain a market for water rights, and the desire to dilute these rights to achieve the vital environmental and social objectives by undertaking different regulatory options.[88] Therefore, the Australian water law jurisdictions exhibit a curious case on how water rights could be considered as a tradable statutory legal entitlements without recognizing the nature of water rights as property rights.

82 Mckenzie (n 72) 451-52.
83 Gray and Lee (n 78).
84 Bell and Quiggin (n 69) 716.
85 Gray and Lee (n 78) 117.
86 ibid.
87 ibid
88 ibid

In South African water law, the nature of water rights as property rights is not clearly declared like the case of the Australian constitution. The property clause of the South African constitution makes general reference to the term 'public interests' in the context of state legislative measures 'to bring about equitable access to all South Africa's natural resources' including 'water'.[89] According to Thomas Coggin, the property clause in the South African constitution 'takes the meaning of property for granted, treating it as self-evident or self-explanatory'.[90] Coggin particularly argues that section 25(8) of the property sub-clause rather articulates the public interest limitations on property rights in situations where water rights constitute constitutionally protected property rights.[91] Hence, in South Africa, except for reference to 'public interests' and the recognition of the duty of the state to ensure the progressive realizations of access to sufficient amount of water for those who are unable to afford water for basic needs,[92] there is no specific constitutional text that declares water resources as a state or public property regime.[93]

The Constitution of South Africa was hailed for providing 'additional legal avenues for the enforcement and protection' of access to water[94] despite lack of proper specification on the nature of constitutional water property rights.[95] Germarié contends that the constitution lacks clarity as to whether water use rights should be regarded as property putting the constitutional protection of property rights in water resources in a legal limbo during state deprivation and expropriation in the public interest.[96]Thus, the question on water resource property regime in general and the nature of water rights as rights in property in particular

[89] The Constitution of the Republic of South Africa 108 of 1996 sec. 25(4.a) *cum* sec. 25(8). [hereinafter 'South African Constitution 1996') (Latest amendment by Act No 3 of 2003).<https://www.gov.za/sites/default/files/images/a108-96.pdf> accessed 28 May 2024.

[90] Thomas Coggin, 'There is no Right to Property: Clarifying the Purpose of the Property Clause' (2021) 11 (1) Constitutional Court Review 1, 2.

[91] ibid 6-7.

[92] N Gabru, 'Some comments on water rights in South Africa' (2005) 8 Potchefstroom Electronic Law Journal 33. <https://www.ajol.info/index.php/pelj/article/view/43456> (Accessed on 22 March 2024).

[93] South African Constitution 1996 (n 89) sec 26(2) and sec 27(2); Patricia Kefilwe Madigele, 'South Africa's water regulatory and policy framework: a new institutional economic review' (2017) 4 (1) Sustainable Water Resources Management 129, 131.

[94] Sarah Hendry, *Frameworks for Water Law Reform* (Cambridge University Press 2015) 104.

[95] Germarié Viljoen, 'The transformed property regime of the National Water Act 36 of 1998' (2019) 52 (2) Law and Politics in Africa, Asia and Latin America 172, 189.

[96] ibid.

should be sought in subsidiary legislations enacted to implement the South African Constitution.

The recognition of water resources as a public or common good used in the interest of the public was eventually clarified in the Water Services Act of 1997 (WSA) and the NWA of 1998.[97] The WSA of 1997 essentially aims to realize the constitutional obligation of the state to ensure access to sufficient amounts of water for basic human needs in a manner that promotes effective water resource management and conservation.[98] The preamble of the NWA recognizes that water is a scarce natural resource that belongs to all people'.[99] More specifically, the NWA establishes 'public trusteeship of a nation's water resources' entrusting the national government with the responsibility to sustainably manage the water resources for the benefit of all persons as per the constitution.[100] By doing so, the NWA provides a foundational basis for the regime of public property over the management of water resources in South Africa with the government taking the primary responsibility to allocate water rights through the water permit system.[101] The relevant question is whether the NWA of South Africa recognizes water rights acquired through water permit or license as rights to property raising similar degree of enquiries like that of the Australian water law experience. It is important to note that Unlike the Chilean and Australian water law approach towards defining the nature of private property rights in the public space of water resources, the NWA of South Africa attempts to reverse the private space of water property rights recognized under the Water Act No 54 of 1956.[102]

The status of water use entitlements granted through water use authorizations or license as rights to property under the NWA was the subject of scholarly debate like the case of Australia. Similar to the Australian Water Act 2007, the NWA of 1998 nowhere declares water

97 D D Tewari, 'A Brief Historical Analysis of Water Rights in South Africa' (2005) 30 (4) Water International 438, 443; Michael Kidd, 'South Africa: The Development of Water Law' in J W Dellapenna and J Gupta (eds), *The Evolution of the Law and Politics of Water* (Springer Science 2009) 95-96.

98 Danwood Mzikenge Chirwa, 'Privatisation of water in Southern Africa: A human rights perspective' (2004) 4(2) African Human Rights Law Journal 218, 237.

99 National Water Act 1998 (n 35).

100 ibid sec 3(1).

101 Barbara van Koppena and Barbara Schreiner, 'Priority General Authorisations in rights-based water use authorisation in South Africa' (2014) 16 Water Policy 60.

102 Viljoen (n 95) 191.

use through permit or license as constituting the rights to property. It is contended that in a legal regime where water resources are put under the public trustee of the state, rights granted through administrative water use license or permit, the status of water use entitlement as property should be defined as constituting property rights 'under the legislation or case law.'[103]

In the Anglo-American water law jurisdictions from which the public trust doctrine of the NWA adopted,[104] a water license creates 'a right to use the water' and regulatory takings claims are not applicable 'as there is no private property interest in public resources, which are owned by the state in trust for the people.'[105] However, it also contends that 'licenses are possible 'new property' rights (…) subject to the limits imposed by the nation of the public trusteeship and the requirement of beneficial use.'[106]The nature of water rights as property rights based on water license or permit under the NWA emanates from three major interpretative legal claims.

The first claim relies on the legal provision of the NWA that ensures payment of compensation in the event of deprivation or expropriation of water use rights for the purposes of public interest.[107] As such, water use rights granted through water use permit or license qualify as 'property' under section 25 of the South African Constitution since deprivation of such property in the interest of the public may enjoy constitutionally guaranteed compensable proprietary interests.

The second claim advanced by Bosch and Gupta also relies on the NWA that provides water rights holders to enjoy compensable, durable and protectable rights through litigation in case of infringements.[108] This similar matter is articulated by Michael Mckenzie in the context

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[103] Hilmer J Bosch and Joyeeta Gupta, 'The tension between state ownership and private quasi-property rights in water' (2023) 10(1) Wiley Interdisciplinary Reviews: Water e1627<https://wires.onlinelibrary.wiley.com/doi/pdf/10.1002/wat2.1621> accessed 20 May 2024.

[104] Viljoen (n 95) 175.

[105] Shelley R Saxer, 'The Fluid Nature of Property Rights in Water' (2010) 21 Duke Environmental Law & Policy Forum 49, 78.

[106] Bosch and Gupta (n 103).

[107] ibid

[108] ibid

of Australian water law jurisdiction suggesting the presence of such property rights characteristics exhibits 'the existence of property rights' in water.[109]

The third related claim to support the argument that water rights in South Africa can be considered as rights in property emanates from the NWA that allows 'existing lawful users' to demand compensation for 'severe prejudice on economic interests' in cases of states regulatory measures aimed at 'rectifying an unfair or disproportionate water use.'[110]Marcatelli and Büscher argue that though the NWA envisages the reallocation of water resources by converting 'existing lawful uses' into water permit systems were not tested by the state since 'local authorities demonstrated a deep sense of respect for existing property relations'.[111] Thus, compared to the Australian experience, existence of constitutional guarantee to compensate water use rights in case of expropriation provides clear normative clarity to qualify the nature of statutory water use permit as rights in property in South Africa.

In China, water property regime is straightforward since the 1982 Constitution, the 2002 Water Law and the 2007 Property Law declares that water resources are 'owned by the state'.[112] The Water Law states that the state 'exercises the right of ownership of water resources'[113]clearly establishing water property regime as state property rights.[114] Unlike the case of Chile and Australia, the taking and use of water in China is additionally regulated under the property law which declares water abstraction rights prescribed by the law as usufructory right of an individual or entity protected under the law.[115] The Property Law

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109 Mckenzie (n 72) 452.

110 Ashwin R Seetal and Gavin Quibell, 'Water Rights Reform in South Africa' in Bryan R Bruns and others (eds), *Water rights reform: lessons for institutional design* (International Food Policy Research Institute 2005) 161-162.

111 Michela Marcatelli and Bram Büscher, 'Liquid violence: The politics of water responsibilisation and dispossession in South Africa' (2019) 12(2) Water Alternatives 760, 769.

112 The Constitution of the People's Republic of China (1982) art. 9; China Water Law 2002 (n 51) art 3; The Property Law of the People's Republic of China (2007) art 46 [hereinafter 'China Property Law 2007'].<https://english.www.gov.cn/services/investment/2014/08/23/content_281474982978047.ht> accessed 25 May 2024.

113 China Water Law 2002 (n 51) art 3.

114 Dajun Shen, 'Water rights and their management: A comparative country study and its implication for China' in Caroline Figuères, Cecilia Tortajada and Johan Rockström (eds), *Rethinking Water Management: Innovative Approaches to Contemporary Issues* (Earthscan Publications Ltd 2003) 156.

115 China Property Law 2007 (n 112) art 117 and art 118.

unbundled the state property ownership of water resources by defines usufructory rights as the right to 'possess, utilize and gain profits from by an entity or individual.'[116] Furthermore, water abstraction rights acquired through water resource fee payment and water abstraction permits creates a legally protected usufructory right with the effect of establishing rights in property.[117] Moreover, the property law of China provides for the payment of compensation in case usufruct rights that emanate from a water permit are extinguished or limited due to expropriation or requisition by the state.[118]

6.2.2.2. Unbundling water rights from land holding rights

As Bauer noted, the unbundling of water rights as a separate private property rights from land had been introduced by the 1979 Decree Law 2, 603 for the first time in the history of Chilean water law subsequently laying the foundation for the 1981 Water Code.[119]Besides the fact that water rights under the 1981 Water Code are acquired through administrative water permit or license and being able to be separately sold free from landownership in the Chilean water market inevitably unbundled water abstraction rights from land.

The water laws of most states in the Australian federation 'tie entitlements to water to a specific parcel of land'[120] until the 1994 national water policy reform program under CoAG.[121] With the purpose of aligning water sector reform with the National Competition Policy, the national framework for the separation of water licenses from land titles was introduced so that it would be possible for people to hold a water license even if they did not own any land.[122] In some Australian states such as that of South Australia, water reform efforts to separate water use entitlements from land began in 1983 with a subsequent legislative consolidation in 2007 following the NWI's call for a comprehensive water reform agenda.[123]

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116 ibid art 118 and art 123.

117 China Water Law 2002 (n 51) art 7 and art 48.

118 ibid art 121.

119 Bauer (n 63) 42; Carl J. Bauer, *Siren Song: Chilean Water Law as a Model for International Reform* (Resources for the Future Press 2004) 44.

120 John J Pigram, 'Property Rights and Water Markets in Australia: An Evolutionary Process Toward Institutional Reform' (1993) 29 (4) Water Resources Research 1313, 1315.

121 Brian Haisman, 'Impacts of Water Rights Reform in Australia' in Bryan RandolphBruns, Claudia Ringler and Ruth Suseela Meinzen-Dick (eds), *Water Rights Reform: Lessons for Institutional Design* (International Food Policy Research Institute 2005) 126-127.

122 Young (n 76) 283-84.

123 McKane and Franssen (n 27) 61.

However, according to Gray and Lee some states in Australia such as Western Australia 'still have not unbundled their water rights despite the promotion of such kinds of water reform agenda by the NWI.[124] Like the Chilean example, surface water use entitlements in Australia emanate from statutory water permit or license separate from land rights or title.[125]

The same legal trend of unbundling water rights from land also defines the case of South Africa where the White Paper on a National Water Policy clearly states that the location of the water resource in relation to land shall not in itself confer preferential rights to usage and that the riparian principle shall not apply anymore.[126] The NWA abolished riparian water rights formerly recognized under the Water Act 54 of 1956 that used to provide exclusive private water rights for landowners on whose land the water originated or over which it flowed.[127] The NWA separated land and water use rights by introducing general authorizations for water use or license resulting in the unbundling of water rights formerly derived from ownership of land over which the source of water is located or flowed.[128]

Finally, the water law of the People's Republic of China similarly follows the path of these three comparative countries except in the context of state land ownership. Despite the existence 'state land ownership in China'[129] the fact that water abstraction rights are acquired essentially based on the administrative water permit system essentially segregates water rights from the pre-conditions of land ownership. Accordingly, the unbundling of water rights from land ownership in China is less complicated given the fact that both land and water ownership rights vest on the same owner—the state. More importantly, the Property Law of China states that the 'types and contents of property rights' are the creations of specific legal stipulations,[130] usufructory rights being one of such property rights that constitutes a protected right to take, use and ripe the fruits from unbundled state ownership

124 Gray and Lee (n 78) 113.
125 ibid.
126 Department of Water Affairs and Forestry: 'White Paper on a National Water Policy for South Africa' (1997) <https://www.gov.za/sites/default/files/gcis_document/201409/nwpwp.pdf> accessed 27 May 2024.
127 Germarié Viljoen, 'South Africa's water crisis: The idea of property as both a cause and solution' (2017) 21 Democracy & Development 176, 187.
128 National Water Act 1998 (n 35) sec 4 and Schedule.
129 China Property Law 2007 (n 112) art 47.
130 ibid art 5.

of water resources. Therefore, unlike the debate on the characterization of statutory water use entitlements as rights in property exemplified by the case of Australian water law jurisdictions, statutory prescription in China is a means to establish property rights that cannot be changed with the whim of the owner or possessor.[131]

6.3. Legal conditions for tradability of water abstraction rights

As indicated in section 6.1 and section 6.2 of this Chapter, the legal recognition of different forms of water rights cannot be the ultimate guarantee for the tradability of water rights. For instance, some forms of water rights are accessed for first users just to abstract and use a reasonable amount of water for specified purposes without contemplating the law and economic possibilities of productive re-allocation. In this context, the role of law is not limited to the functions of defining different forms of acquiring water rights to the use of a specific amount of water or whether such amount is just tradable product in the market but also requires whether the resulting legal regimes create rights that possess the characteristics of property rights. [132] Therefore, given the fact that water rights in all comparative countries emanate from legal rights based on a grant of license, this section further investigates the extent to which such rights may be characterized as tradable property rights.

6.3.1. Quality of water rights title

The condition of quality of title reinforces the extent to which the law regulating water access licenses is well-defined to adequately describe the nature of holders' rights and duties with respect to other titled or untitled water users. Quality of title that enshrines water access right is the mother of all other attributes given the fact that title deeds represent the womb where the fetus of these attributes are originally conceived for a viable birth of well-defined water property rights. In enunciating the pivotal role of legislation in the 'specification of property rights' free from 'significant gaps, ambiguities, vagueness and contradictions', Muradu Abdo aptly noted the following point.

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[131] Mo Zhang, 'From Public to Private: The Newly Enacted Chinese Property Law and the Protection of Property Rights in China' (2008) 5 Berkeley Business Law Journal 317, 317.

[132] Joseph W Dellapenna, 'The Importance of Getting Names Right: The Myth of Markets for Water" (2000) 25 (2) William & Mary Environmental Law & Policy Review 317, 327.

> Well-defined property rights involve clear and comprehensive legal specification of who the holder of a given property is, singling out and characterizing the object of the property, the nature of the property right (e.g., ownership or usufruct), manner of its transfer, restrictions thereof, institutions which are mandated to enforce the right upon infringement and specific remedies attendant to property right violations.[133]

Quality of title aggregates these attributes of property rights through the instrument of title deeds issuance commonly known under the general property law. In particular, quality of title in water right can be mainly manifested in terms of registration of title deeds before relevant water authority responsible for registering water access license similar to land registry to publicize water access entitlements to any interested third parties.[134] Furthermore, quality of title signifies water property rights should specify separation of water entitlements from land title, nature of the resource to be exploited, the timeframe for exploiting such a resource, and the maximum amounts exploitable in a given time.[135] From this vantage point, water access licenses or permits in comparative countries can be assessed as follows.

To begin with Chile, it is discussed in section 6.2.1 of this Chapter that water rights acquired through water license are clearly recognized as property rights under the Constitution and Water Code that ultimately guarantees protection of rights in case of interference or expropriation. This approach of Chile avoids the ambiguity on the legislative specifications of water rights based on license as property right. Second, rights in water as property is specified as 'the absolute volume of water from a source, a fixed amount measured

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133 Muradu Abdo, 'Legislative Protection of Property Rights in Ethiopia: An Overview' (2013) 7(2) Mizan Law Review 165, 166.

134 For further discussion on the importance of title registration under the Ethiopian Property law, see Melkamu B Moges & Alelegn W Agegnehu, 'Issues on the Role of Formal Requirements for Validity of Immovable Transactions in Ethiopia: the Case of Amhara Region' (2015) 6 Bahir Dar University Journal of Law 49, 58-66; Mekonnen Firew Ayano, Rural Land Registration in Ethiopia: Myths and Realities' (2018) 52 (4) Law & Society Review 1060, 1061.

135 Jessica Budds, 'Securing the market: Water security and the internal contradictions of Chile's Water Code' (2020) 113 Geoforum 165.

metrically in liters per second'.[136] According to Bauer, this approach was intended to facilitate water rights trading by making clear exactly how much water a right represented.[137] Thirdly, allocated water rights through water access license is required to be registered in the DGA's Public Water Registry (PWR) to imply legal title in the form of public deed.[138]

Furthermore, Water Users Associations (WUAs) established by water rights holders keep registries of water rights to effectively allocate water among members in proportion to their water rights shares.[139] Likewise, National or Local Real Estate Agencies are required to maintain the 'cadasters of water use rights' for registering water rights transactions and forward to the DGA for record keeping.[140] Hearne and Donoso argue that despite the intention of the Water Law of 1981 to regularize water rights through registration to ensure that water rights have proper titles to resolve potential overlapping claims to water, the different form of water rights registry indicated does not imply legal title to water use rights.[141] Yet failure to register water rights does not impact the legal title and constitutional protection already guaranteed but 'only registered water rights can be bought, sold and mortgaged'[142] in a water market affecting the tradability of such rights.[143]

In Australia, the quality of water rights title lacks clarity on the status of water access license as right in property creating a room for interpretations among scholars and judicial organs creating a shadow of doubts on legal protection in case of attenuation of rights. Unlike the case in Chile where water access license creates compensable proprietary interests during expropriation, there is no unified approach and common consensus in the Australian multi-jurisdictional water law on the status of water rights acquired through water access license

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136 ibid; Bauer argues that theoretically 'all water rights must now be measured in terms of volume per unit of time, such as liters per second, but in practice many older rights are expressed as proportional shares of available flows or by other measures'. See Bauer (n 63) 141 (endnote 4).

137 ibid 42.

138 Guillermo Donoso, 'Chilean Water Rights Markets as a Water Allocation Mechanism' in Manuel Lago and others (eds), *Use of Economic Instruments in Water Policy: Insights from International Experience* (Springer International Publishing 2015) 270; Vergara and Rivera (n 7) 72.

139 Robert Hearne and Guillermo Donoso, 'Water Markets in Chile: Are They Meeting Needs?' in K W Easter and Q Huang (eds.), *Water Markets for the 21st Century: What Have We Learned?* (Springer 2014) 112.

140 ibid 111.

141 ibid 111-112.

142 ibid 112.

143 ibid 123.

as rights in property and imperatives of compensation. Yet legislative or judicial specification of water property rights in some Australian states may not suffice to represent a unified or integrated approach for a well-defined water property rights.[144]

Water entitlements are separated from land title with clear legislative specifications of water access right in water license as an abstraction or use of an ongoing volume or share of water in a consumptive pool within a given catchment in a given water season under specified water resource plan.[145] In exceptional circumstances, the specification of water entitlements to a fixed quantity of water in Australian jurisdiction could be permitted.[146] Furthermore, water allocation right under water access entitlement may risk fluctuations in the available water specified under water license making it unreliable and unpredictable depending on the actual available volume of water as set out in the water sharing plan.[147] For this reason, the Water Management Act of the New South Wales provides that compensation is not available if the reduction in water allocations is for the purpose of restoring water to the environment due to natural reductions in inflow to the water source owing to changes such as climate change or droughts.[148] In Australia's Queensland, a water access right holder is eligible for compensation for any change to a water resource plan during its 10-year life that reduces the value of their entitlement.[149] Thus, clarity of title to a share of the available water resource is not an assurance to a defined quantity of water in perpetuity.[150]

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144 Bradley C Karkkainen, 'Multi-jurisdictional Water Governance in Australia: Muddle or Model?' in Cameron Holley and Darren Sinclair (eds), *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer Nature 2022) 58.

145 Cameron Holley and Darren Sinclair, 'Replenishing Australia's Water Future: From Stagnation to Innovation' in Cameron Holley and Darren Sinclair (eds.), *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer Nature Singapore, 2018, corrected publication 2022) 5;

146 Thomas Garry, 'Water Markets and Water Lessons in the United States: Lessons from Australia' (2007) 4(2) Macquarie Journal of International and Comparative Environmental Law 23, 29.

147 Gray and Lee (n 78)114.

148 New South WalesWater Management Act 2000 of 92 (as amended by Act 2010 of 133) sec. 87AA (3)(c) <https://legislation.nsw.gov.au/view/pdf/asmade/act-2000-92> accessed 28 May 2024.

149 Queensland Water Act 2000, sec 986. <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2000-034> accessed 28 May 2024.

150 Michael Woolston, 'Registration of Water Titles: Key Issues in Developing Systems to Underpin Market Development' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar Publishing Limited 2005) 89.

Water access license and trading of water access entitlement should be registered at responsible authorities in all of the Australian water law jurisdictions despite the vagaries of different forms and stages of implementation.[151] In some Australian states, 'Water Access Licence Register' are kept and administered by the authorities responsible for water resource management while other states use the Land Titles Office for equivalent purposes.[152] In the context of New South Wales, for instance, the Water Management Act of 2000 (WMA) requires that all water access licenses and transactions related to it should be registered in the Water Access Licence Register and made accessible to the public.[153] Under this WMA and dealings or transactions related to water access entitlements are effective or valid only after entered into the record of Water Access Licence Register.[154]

In China, despite state ownership rights, water rights based on water abstraction permits, are defined as usufructory rights legally protected under the property law. The Law of Administrative Licenses of 2004 guarantees that an administrative license which is also applicable to water license is protected by law and administrative organs cannot change an effective license without permission.[155] In case such a license is changed, modified or abolished by the administrative organ to meet the demand of the public interest, damages caused to the properties of citizens, legal persons or other institutions shall be compensated in accordance with the law.[156]

Under the water permit, water abstraction rights are clarified as a fixed volume of water at annual intervals based on a water resource allocation plan that sets a cap on total abstraction which is subject to the supervision by authorities in charge of examining and approving the permits.[157] The annual volume of water fixed under the water abstraction can be restricted due to natural reasons affecting the normal supply, ecological impact and over-extraction

[151] ibid 82
[152] ibid
[153] Water Management Act 2000 (NSW) (n 148) sec 71B; sec 71J and Sec 113(3).
[154] ibid Schedule 1A Part I sec 1-4.
[155] The Administrative License Law of the People's Republic of China (Order of the President of the People's Republic of China No 7 of 2004), art 8.<https://www.cecc.gov/resources/legal-provisions/administrative-licensing-law-chinese-and-english-text> accessed 28 May 2024.
[156] ibid
[157] China Regulation 2006 (n 53) art 24 and art 40.

that causes geographical disasters such as land subsidence.[158] Though water permit holders can abstract the maximum volume of water under condition of the average water availability over the years, water abstraction shares or quotas are set based on recognized standard usage levels for certain industries or crops.[159] Therefore, a water abstraction permit is not a guarantee for the absolute availability of a fixed volume of water for withdrawal as it only defines the maximum amount for water abstraction that serves as a cap for the abstraction.[160]

Water abstraction permits are subject to registration requirements by the responsible authority who examines and approves water permit applications.[161] Primarily, the Ministry of Water Resources (MWR) takes the overall responsibility for the administration and implementation of the water abstraction permits system in the country.[162] Some of the powers and functions of water rights administrations are also delegated to river basin authorities, local, provisional, prefecture and county water departments corresponding to their jurisdictions.[163] The MWR developed a 'standard registration form' applicable across China on which responsible authorities are required to annually report water permits they issued.[164] Despite this effort, Min Jiang noted that China lacks a clear registration system for usufruct water property rights' indicating quality of water rights title that 'take the indefeasibility of title into consideration' is 'yet to be completed'.[165]

The 2007 Property Law of China provides clear provisions for the registration of real estate titles as a validity requirement for the creation, alteration, alienation or termination of the real rights in rem under the law except for registration of natural resources owned by the

158 ibid art 41.

159 ibid art 16; see also Min Jiang, *Towards Tradable Water Rights: Water Law and Policy Reform in China* (Springer 2018) 89.

160 Danjun Shen, *Water Resources Management of the People's Republic of China Framework: Reform and Implementation* (Springer Nature 2021) 136.

161 Jieming Deng, Shaofeng Jia and Zikun Song, 'Institutional Change in Water Rights in China: A Study of Water Rights Confirmation and Registration in Delingha City' (2023) 15 Water 406. <https://www.mdpi.com/2073-4441/15/3/406/pdf?version=1675219020> accessed 10 April 2024.

162 Jiang (n 159) 218. In 2018 government organ restructure 'entitled the Ministry of Natural Resources (MNR) to exercise the ownership of state-owned natural resources, including land, mineral, forest, grassland, wetland, water, and ocean resources'. *See* Shen (n 160)136.

163 Jiang (n 159).

164 ibid 191.

165 ibid 223.

state as per the law.[166] For stronger reasons, Min Jiang contends that the 'registration system applying to real properties in China should also be applicable to water usufructory rights that are recognized as a type of real right in the new Property Law'.[167] On the other hand, water rights registrations as a result of dealings in relation to water permit or water allocation entitlement thereto, as Ming Jiang noted, was at infancy due to the limited practices of water rights transfer. It was only in 2016 that the basic procedures and rules on water rights transfers including applications, assessment and approval, and registration were developed by the 'Provisional Measures on Administration of Water Rights Trading'.[168] Furthermore, 'Natural Resources Unified Clarification and Registration Temporary Method' was developed in 2019 to create a 'unified clarification and registration system for natural resources based on real estate registration' system.[169]

In South Africa, as indicated in section 6.2.1 of this Chapter, water rights acquired through water licenses were not clearly declared as rights in property lacking the quality of well-defined title.[170] However, the guarantee of compensation[171] for expropriating existing water use rights can be vital to redress any loss as regards proprietary interests but may not create a sense of certainty and predictability in terms of securing confidence of the water users to plan for the future and to invest in water dependent economic endeavors.[172] In terms of legislative specification water rights based on general authorization or water use license is specified under the license as a volume or rate of abstraction based on the assessment of available resources, the likelihood of productive use and demand from other users.[173] Yet the NWA provides that the issuance of water licenses does not guarantee water supply indicated in terms of 'statistical probability of supply' and 'the availability of water'.[174]

166 China Property Law 2007 (n 112) art 9.
167 Jiang (n 159) 224.
168 ibid 225.
169 Shen (n 160) 278.
170 See also Viljoen (n 127)196.
171 National Water Act 1998 (n 35) art 29(2).
172 Robert Speed, 'A Comparison of Water Rights Systems in China and Australia' (2009) 25(2) International Journal of Water Resources Development 389, 398.
173 A Anderson and others, 'General authorisations as a tool to promote water allocation reform in South Africa' (2007) 3 Law, Environment and Development Journal 164, 172.
174 National Water Act 1998 (n 35) art 26(1) (b).

Furthermore, the NWA requires that the use of water from a water resource be monitored, measured and recorded.[175] Except all water use above the basic human needs reserve and reasonable domestic water use category, any other licensed water use, general water use authorizations and existing lawful water use should be registered and dispensed with a Registration Certificate.[176] The NWA directs the Minister ('Ministry of Water and Sanitation') to establish a national register for water use authorizations, as soon as practicable.[177] Accordingly, the Water Use Authorization Registration Management System (WARMS) was established and used by the Department of Water and Sanitation (DWS) to store and produce a national water use information system.[178]

6.3.2. Exclusivity of water rights

Water abstraction permits or licenses examined so far generally grants a legal right to abstract and use water under the terms and conditions specified but not to the ownership of water resources per se. As such the holder of water access permit or license is entitled to a fixed volume or a proportional share of available water. As Mckenzie notes 'an access license does not provide exclusivity in a strict sense (…) but 'only entitles the license holder to a proportion of a shared resource'.[179] Hence, except for applicable exemptions, the exclusivity of water rights arises from the fact that only water access license holders may access and abstract the specified amount of water from the available common pool resources creating a degree of exclusivity attached to the rights under an access license.[180]

The degree of exclusive use of water rights in Chile is akin to the attributes of enjoying exclusive rights as is traditionally the case in private property rights.[181] The limited role of public regulation through the imposition of terms and conditions as was the case in other

175 ibid sec 26(1) (c).

176 ibid sec 26 (1) (c) and sec 34(2); see also Synne Movik and Fieke de Jong, 'Licence to Control: Implications of Introducing Administrative Water Use Rights in South Africa' (2011) 7 Law, Environment and Development Journal 66, 73

177 National Water Act 1998 (n 35) sec 139(2) (d).

178 Movik and de Jong (n 176) 73-74.

179 Mckenzie (n 72) 454.

180 ibid

181 Elizabeth Macpherson and others, 'Evolving rights to (and of) water in Chile: a case for relationship-based water law and governance' (2023) *The International Journal of Human Rights* 14-15. <https://www.tandfonline.com/doi/pdf/10.1080/13642987.2023.2266719 >. (Accessed on 10 April 2024); see also Bauer (n 119) 111.

comparative countries.[182] Given that water property rights establish unhinged access to a fixed volume of available public water source capable of mortgage or inheritance makes abstraction of water to be the exclusive domain of private rights to the permanent use of public waters.[183]

In Australia, McKenzie and other authors such as Mascher and Curran examined the exclusivity attributes of water rights under the water laws of some states.[184] In the context of New South Wales, McKenzie identifies that water allocation rights under access license relatively guarantees a certain 'degree of exclusivity' only to a license holder to a specified share in the available water within a specified water source.[185] Similarly, water abstraction entitles license holders to an exclusive right to 'take water at specified times, at specified rates or in specified circumstances (…) and in specified areas or from specified locations'.[186] Therefore, though the mandatory requirement of water access license may have the tendency to exclude non-license holders from the abstraction of water resources, the Australian context of exclusivity underpins the fact that any benefits and costs of the rights under access license only accrue to the license holder.

In China, property rights over water resources are vested in the state, and hence in terms of the 2007 Property Law, no entity or individual may acquire exclusive right to the property that exclusively belongs to the state as prescribed by law.[187] Thus, from the foregoing discussions and given the socialist orientation of public or state property rights ownership in China, the degree of exclusivity in water rights may stretch as far as the amount of 'caped' water for which water fee is paid but not to the 'share of an unknown quantity of the available resource.'[188]

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182 Macpherson and others (n 181) 13.
183 Bauer (n 119) 32.
184 See Mascher and Curran (n 29); Mckenzie (n 72).
185 Water Management Act 2000 (NSW) (n 148) sec 56(1) (a).
186 ibid sec 56(1)(b).
187 Zhang (n 131) 353.
188 Robert Speed, 'Transferring and Trading Water Rights in the People's Republic of China' (2009) 25(2) International Journal of Water Resources Development 269, 278.

In South Africa, water license creates general exclusivity of water use right in the sense that those who are required under the law to hold license to abstract water but have no duly issued license are at least excluded since the unauthorized use of water is illegal under the NWA.[189] Like the case of Australia and China, water license holders in South Africa are entitled the exclusive right to the use of a specified volume of water indicated under the license despite the guarantee of water availability in the common pool sources. In particular, Bosch and Gupta concludes that existing lawful use entitlement and water use license creates '*de facto* ownership' to the holders having 'exclusive title to property' since the entitlements to the allocated water are legally protected through judicial enforcement and claim of compensation for expropriation that accompany the loss of proprietary interests.[190] The authors argue that the existence of deeply rooted private property in water in the past created 'a closed water system' in the 'sense that there is no more water left to be allocated' hindering the state to have 'little control over most of the allocated water for the past 20 years.'[191]

On the other hand, the non-exclusive nature of water use right under the South Australian water license regime is challenged by some authors. S Movik and F de Jong contend that 'existing lawful users did not have ownership rights but they did have clearly specified use rights that derived from their land ownership'.[192] The authors argue that compulsory licensing of existing lawful use of water 'does not represent expropriation' and 'water users did not actually have exclusive property rights to water through the previous legislation'.[193] Most importantly, these authors note that the concept of reasonable use of water signify that water use license could not entitle rights holders to the exclusive property rights to a specified amount of water given the reality that such right is practicable with due regard to the rights of other competing users in the 'closed commons''.[194]

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189 National Water Act 1998 (n 35) sec 151.

190 H J Bosch, and J Gupta, 'Access to and ownership of water in Anglophone Africa and a case study in South Africa' (2020) 13(2) Water Alternatives 205, 216.

191 ibid 217.

192 Movik and de Jong (n 176) 71-72.

193 ibid 72

194 ibid

6.3.3. Durability of water rights

The attribute of water abstraction rights that characterizes as property rights is the duration of rights that aims to secure the proprietary interests of license or permit holders to encourage investment in water resource use.[195] Durability of water rights as Hodgson notes creates a 'legitimate expectation' that boosts the confidence of a water license or permit holders to enjoy the use and fruits of such rights throughout the duration of the license. In other words, the authority that granted the water use permit should not arbitrarily encroach or interfere on the rights created in such a way that modifies, suspends or abolishes it within the period of time indicated under the license.[196] Hence, the longer the duration of water rights is the more it manifests the characteristics of property rights.

In light of the above yardsticks, the duration of water rights under the Chilean Water Code is granted in perpetuity as long as water is available to satisfy the total water flow demanded and the rights of third parties are not affected.[197] This characteristic of water rights under the 1981 Water Code of Chile is criticized for its neoliberal approach to water rights akin to private property providing the right holder with the total freedom to use the allocated water without any time bound of tenure title.[198] However, the Water Code is amended in 2020 to distinguish between water use rights that 'arises by virtue of a concession' as per the provisions of this Code or water use rights that arise 'by the sole operation of the law'.[199] The amendment however specifically mentions a limit on the duration of the rights of exploitation arising from a concession without mentioning as to whether such duration also applies to water use rights arising from the sole operation of the law. As such, the duration of water use for the former is limited to 30 years subject to 'the criteria of availability of the source of supply and sustainability of the aquifer' with the possibility of extension.[200] Thus,

195 Stephen Hodgson, *Land and Water--the Rights Interface* (FAO 2004) 19.
196 ibid
197 Vergara and Rivera (n 7) 72.
198 Carl J Bauer, 'Bringing Water Markets Down to Earth: The Political Economy of Water Rights in Chile, 1976-95' (1997) 25(5) World Development 639, 639
199 Chile Water Code 1981 (n 4) art 6
200 ibid

the holder of the concession water right may submit its application to the DGA to request the extension of the duration within ten years prior to its expiration.[201]

Furthermore, the amendment to the Water Code introduced the 'use it or lose it' principle by regulating the rights of use to totally or partially extinguish in case the holder of the water use license does not make effective use of the resource. Accordingly, the right of consumptive water use license holders extinguish at the end of five years period that begin counting starting from the date of 'publication of resolution that includes them for the first time in the list of exploitation rights subject to the payment of the patent for non-use of the waters'.[202]

In Australia, the duration of licenses varies among the states ranging from as short as one year to as long as fifteen contingent on the water's use and the regulated or unregulated nature of waterway or groundwater sources.[203] However, unlike the reform under the Chilean Water Code, amendments to some of the state's water law in Australian water law jurisdiction, reveals that reversal of time-bound duration where water licenses are now issued for perpetuity. In the absence of termination following a due process by the responsible authority or expiry of time based on the limited nature and purpose of water use specified under the license, the right to use water remains valid for an unlimited period of time. For instance, under the repealing Landscape South Australian Act 2019, where water license and water allocation are declared as personal property, water license duly issued and registered remains in force until the license is terminated by the act or expires under the terms of the license.[204] The Tasmanian Water Management Act also states that 'a license remains in force for such period as the Minister determines and specifies in the license unless revoked earlier.[205]

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201 ibid
202 ibid 6(a).
203 Garry (n 146) 23.
204 Landscape South Australia Act 2019 (n 79) sec 123(e)
205 Water Management Act 1999 (Tas) (n 80) sec 57(1)

Similarly, a water allocation under a water license ceases to have effect on the expiration of the license or on any earlier date specified in the license.[206] In Australian states where water rights under water access license are not declared as rights in property, such as the New South Wales Water Management Act, 'access license ceases to be in force on the date the cancellation of the license is recorded in the Access Register'.[207] Hence, water access licenses in these mentioned Australian states are issued without imposition of a fixed period of time within which the continued entitlement to a perpetual share of available water resources (not a fixed volume of water) come to an end.[208] However, responsible administratively agencies or authorities have the discretionary power to amend or cancel licenses at any time, without compensation.[209]

Unlike some states in Australia and Chile to some extent, water licenses issued under the NWA of South Africa, are time bound and the perpetual use of water resources is not an option. The NWA states that a license period may not exceed 40 years and are subject to review at an interval of not more than five years.[210] Hence, unless a water license is restricted, suspended or terminated for specific reasons stipulated under the NWA, it remains in force until the expiration of the license period with the possibility of extension.[211]

Finally, the duration of water use right in China follows the approach of South Africa but with a shorter period of time compared to the latter water law jurisdiction. In China, the duration of 'water intake permit' is as short as five years and as long as ten years with the possibility of renewal when necessary.[212] However, unlike Chile (arising from concession rights) and South Africa, the renewal of water license after the expiration period is not an extension of existing water rights under the previous license but a new water permit with new duration.[213] The water abstractor in China is required to submit an application to the original examination

206 ibid sec. 57(2).
207 Water Management Act 2000 (NSW) (n 148) sec 69.
208 Mckenzie (n 72) 454.
209 For detailed discussions see Thomas Garry (n 146) at footnote.
210 National Water Act 1998 (n 35) sec 28(1) (e) and sec 28(1)(f).
211 ibid sec 28(2) and sec 28(3).
212 China Regulation 2006 (n 157) art 25.
213 Measures on Administration of Water Abstraction Permits (China Ministry of Water Resources 2008) art. 27 <https://www.gov.cn/flfg/2008-04/17/content_947055.htm> accessed 15 April 2024 [hereinafter. 'Measures on Administration of Water Abstraction Permits 2008'].

and approval authority 45 days before the expiration of the validity period for a decision on whether to extend it before the expiration of the validity period.[214] As Min Jiang noted, the water rights holder whose existing water permit has been renewed would be in a similar position as a new water user whose application for water abstraction permit has been approved resulting in the negation of 'the rule of time-based priority'.[215]Yet in the context of China's Yellow River Basin, a water intake permit that could have a duration of less than five years can have a duration as long as 25 years in transfer agreement under the 2016 Provisional Measures on Administration of Water Rights Trading.[216]

6.3.4. Transferability of water rights

The attributes of transferability in water property law underpins the imperatives of water resource reallocation as it permits 'water to move to its highest value and maximize the economic return from the available water resources'.[217] Michael F. Brewer identifies three aspects of water transfer in discussing 'economic significance of water transfer'.[218] The first aspect relates to the legal aspect that involves the various property rights and forms of contract that are used to facilitate water trading. The second aspect involves the financial issues that refers to the water price or contractual payment arrangements representing the value of exchange. The third feature is concerned with physical infrastructure that allows the conveyance or delivery of water to materialize. The second and third aspects are addressed in terms of the importance of designing and implementing water pricing policy so that costs involved in the physical delivery of water can be fully recovered. Except in Chile, the payment of water resource fee in Australia, South Africa and China is a requirement for the initial allocation or transfer of water rights from public water property rights through water access license.[219] Therefore, the aspects of water transfer discussed under this subsection relate to

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214 China Regulation 2006 (n 157) art 25.

215 Jiang (n 159)158-59.

216 ibid 164-65.

217 Speed (n 188) 270.

218 Michael F Brewer, 'The Economics of Water Transfer' (1965) 4(3) Natural Resources Journal 522, 552.

219 Chris Finney, 'Water Abstraction Charges as a Water Management Tool' (2013) 62(4) Irrigation & Drainage 477, 481; LinCrase, Leo O'Reilly and Brian Dollery 'Water markets as a vehicle for water reform: the case of New South Wales' (2000) 44(2) Australian Journal of Agricultural and Resource Economics 299, 303-04; Lijin Zhong and Arthur P J Mol, 'Water Price Reforms in China: Policy-Making and Implementation' (2010) 24 Water Resource Management 377, 385.

the legal aspects of water rights transferability that facilitates re-allocation of water resources in the water markets.

In light of this understanding, the water laws of Chile and Australia are commonly known as textbook examples and global models for designing and implementing transferable water rights as a means to facilitate water trading.[220] The Chilean Water Code was extensively studied for accommodative norms to enable transferability of water rights as a means to facilitate water markets as a device to allocate scarce water resources.[221] The amendment to the Water Code states that 'the holder of a registered right of use may dispose of it in accordance with the requirements and in the manner prescribed in this Code and other legal provisions'.[222]The Water Code also stipulates 'any transfer of the exercise of the right to use surface water in natural channels and any change in the final point of collection of ground water rights should be carried out by the authorization of the DGA'.[223] The request to transfer water rights may be approved by the DGA provided that the demand is legally admissible, will not affect the rights of third parties and water is available at the new catchment point.[224] This amendment to the Chilean Water Code tied the conditions of water rights transferability to the command and control of the state apparatus reversing the previous approach to the 'free transferability of water rights' left to the 'invisible hand of the market'.[225]

The policy directions to realize transferable water rights in Australia was initiated by the 1994 COAG's agreement requiring states to introduce such a scheme. The Water Act of 2007 provides a national framework that among others relates the 'trading and transfer of tradable water rights' and the 'market for tradeable water rights' in Basin water resources.[226]

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220 Jessica Budds, 'Power, nature and neoliberalism: The political ecology of water in Chile' (2004) 25(3) Singapore Journal of Tropical Geography 322, 323.

221 ibid 326.

222 Chile Water Code (n 4) (as amended 2022) art 20.

223 ibid 163.

224 ibid

225 B Scarborough and L Reed Watson, Tapping Water Markets' in Terry L Anderson and Donald R Leal (eds.), Free Market Environmentalism for the Next Generation (New York: Palgrave Macmillan 2015) 104; Erin O'donnell and Elizabeth Macpherson, 'Challenges and Opportunities for Environmental Water Management in Chile: An Australian Perspective' (2014) 23 Journal of Water Law 24, 25; Donoso (n 138) 265.

226 Water Act 2007 (Cth) (n 21) sec 10(1) (b)(c) and sec 10(2)(h)(i-iv). 'Tradeable water right' under sec 4 of this Act is defined to refer to 'water access rights; water delivery rights; and irrigation rights'.

The Water Act also provides general water trading rules so that tradable water rights are able to be traded and delivered between States in major Australian Basin water resources.[227] The Water Act under section 22 provides mandatory rules for the Basin states to incorporate 'water trading and transfer rules' in their Basin Plan. Accordingly, Basin Plan water trading and transfer rules, among others, should provide matters that govern process, rules, terms, impositions or removals, restrictions, barriers, manners of conducting, specifications of area and availability of information that enable the trading or transfer of tradable water rights.[228]

Based on these national standards, South Australia water law provides detailed trading and transfer rules for water licenses.[229]The holder of a water license may transfer the license or a water access entitlement under the license totally or partly to another person permanently or for a limited period.[230] In later types of transfer under the water license, another person must hold his own license including a license created to receive the transfer or to the Minister or to any other person or the Minister under an Interstate Water Entitlements Transfer Scheme.[231] Similar to Chile, the right to transfer water licenses in the Australian federal state of South Australia requires the approval of the responsible public authority.[232] The public authority may refuse to grant an approval for the application for transfer depending when the licensee is in breach of the conditions set under the license or failed to pay any water levy that has been imposed in relation to the license.[233] Similarly, in the context of New South Wales, McKenzie analyzed the similar nature of transferable water rights under the Water Management Act 2000 and concluded how these rules can strengthen water rights trading.[234]

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227 ibid sec 10(2) and sec 26.

228 ibid sec 26.

229 Landscape South Australia 2019 (n 79) sec 125 and sec 132 (transfer of water allocations); sec 152 (Transfer of delivery capacity entitlements); see Landscape South Australia (Water Management) Regulations 2020 sec. 28.<https://www.legislation.sa.gov.au/__legislation/lz/c/r/landscape%20south%20australia%20(water%20management)%20regulations%202020/current/2020.223.auth.pdf> accessed 20 April 2024.

230 Landscape South Australia 2019 (n 79) sec 125(1 & 3).

231 ibid sec 125(2).

232 ibid sec 125(4-6).

233 ibid sec 125(2).

234 Mckenzie (n 72) 443.

The 2002 Water Law of China doesn't provide for the transfer of water rights at the unit or individual abstractors level. It only mentions 'inter-basin water transfer' to address the basin's demand for water use.[235] But, subsequently, subsidiary rules are formulated to implement the Water Law on the administration of water abstraction systems. In 2006, the Regulation on Administration of Water Abstraction Permits and Water Resources Fee Collection (afterwards 'Water Intake Regulations') was formulated to specify the circumstances under which a water abstraction permit can be transferred.[236] The Water Intake Regulations provides that a permit holder who conserved their water use through measures such as adjusting the product and industrial structure, reforming technology, or saving water may transfer the water resources it has saved for compensation.[237] The transfer of water to another person for consideration is permitted only when the dealings are conducted within the duration of the 'water intake permit and the water intake limit' and approved by the responsible authority.[238] Under the Water Intake Regulations, permit holders are not entitled to transfer surplus water as of right simply because the abstractor no longer demands or needs the water allocated under the abstraction permit. Thus, in contrast to the water transfer rules of Chile and Australia, tradability under the water permit regulation of China is restricted to actual conserved water hindering temporary transaction of water rights.[239]

Furthermore, a closer look at the provision of the Water Intake Regulations reveals that a permit holder is only entitled to transfer saved water from the amount of water specifically allocated under the permit without the right to transfer the water permit itself because a modification of water abstraction permits is prohibited.[240] Thus, the degree of water rights transferability is tied to the abstraction permit with the right to trade only limited to conserved water of the allocation entitlement. However, to address this limitation, matters of transferring water abstraction permit is further clarified in two ways under the 'Measures for the Administration of Water Intake Permits' that was formulated in 2008 (afterwards

235 China Water Law 2002 (n 51) art 22.
236 China Regulation 2006 (n 53) art 27.
237 ibid
238 ibid
239 Jiang (n 159)164.
240 ibid 192.

Water Intake Permits).[241] First, transfer of water abstraction permit to another person can be conducted through change of permit name by simply indicating the new changed name on the original water abstraction permit.[242] Second, the person to whom the water abstraction permit is to be transferred is required to go through the formalities of the right to abstract water due to transfer right to take water during the duration of permit.[243] The formalities for transfer of water permit further requires submission of an application for change to the authority who originally examined and approved the original permit to undertake a similar process before the issuance of a new water abstraction permit.[244]

As can be observed from this discussion, water abstraction permit transfer under the second option of the Water Intake Permits cannot be reasonably considered as the transfer of original rights and entitlements in the proper sense of the term since responsible authorities through examination may create variations to the original rights under the original permit. As such, water abstraction permit transfer under the Water Intake Regulations may not facilitate water rights trading as it replicates the process of initial public water allocation system *ad infinitum*.

The last important normative development to facilitate transferable water rights in China arises under the Interim Measures for the Administration of Water Rights Trading formulated in 2016. This legal document reiterates the need to 'improve the water rights system', nurture the 'water rights trading market' and 'guide the practice of water rights trading' in China 'to be implemented in light of the actual conditions of the region and the unit'.[245] The Interim Measures recognized water abstraction rights trading between entities or individuals who have obtained water abstraction rights and conserved water through water saving measures can transfer part of their water abstraction on the conserved water with compensation within the duration and quota of their water abstraction permits.[246] The

241 Measures on Administration of Water Abstraction Permits 2008 (n 213).
242 ibid art 28
243 ibid
244 ibid
245 Interim Measures for the Administration of Water Rights Trading Interim Measures for the Administration of Water Rights Trading No 156 (Ministry of Water Resources, 2016) preamble Para. 2. <https://www.gov.cn/zhengce/2016-05/22/content_5075679.htm> accessed 10 April 2024)
246 ibid art 3(2).

dealings of the right to abstract water must be carried out between the holders of water abstraction permit or between the abstraction permit holder and the individuals that meet the requirements for applying for water abstraction permit.[247] It is vital to note that regarding the trading of water abstraction rights the 2016 Interim Measures maintained the position of the 2006 Water Intake Regulations limiting transfer of only saved or conserved water within the permit duration and water quota allocated under the permit. Yet, the 2016 Interim Measures is comprehensive to regulate the transfer and trading of water rights to ultimately facilitate tradability of water rights in China.

Under the South African NWA, a person authorized to use water may be allowed, on either temporary or permanent transfer water use authorizations to another person.[248] On a temporary basis, an authorized irrigation water user may be permitted to use some or all of the water allocated for a different purpose, or to allow the use of some or all of the water on another property in the same vicinity for the same or a similar purpose on such conditions as the water management institution may determine.[249] For permanent transfer to occur, a holder of an entitlement to use water in connection with any land is required to surrender that entitlement or part of that entitlement to facilitate license transfer application and approval processes for the new buyer.[250] However, surrender of water license as an aspect of water rights transfer may be effective when a responsible authority or water management institution grants the application.[251] Hence, there is no guarantee that the water use license dealing would be granted to the buyer, or that the conditions set under the original license to use water would remain the same under the newly issued water use authorization.

Furthermore, the NWA provides a general framework for tradable water rights in South Africa.[252] The Act authorizes the 'Minister of Water Affairs and Forestry' (now Department

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247 ibid art 13.

248 National Water Act 1998 (n 35) (as amended by National Water Amendment Act 2014) art 25.

249 ibid art 25(1)

250 ibid art 25(2); South Africa: Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (2017) art 15. <https://www.gov.za/sites/default/files/gcis_document/201703/40713rg10701gon267.pdf> accessed on January 2024.

251 National Water Act 1998 (n 35) art 25(2) (b).

252 ibid art 26.

of Water and Sanitation, DWS) to issue regulation that deals with the circumstances under which a transaction in respect of water use authorizations may be permitted, the conditions subject to which a transaction may take place, and the procedure to deal with the transaction.[253] The NWA authorizes the responsible authority to make the obligation to pay compensation a condition for the license transfer in case a licensee has agreed to pay compensation to another in terms of any arrangement to use water.[254] However, despite the previous practice of trading in water use entitlements,[255] The Department of Water and Sanitation issued a circular in January 2018 stating section 25 of the NWA does not allow trading in water use entitlements.[256] Based on this circular, the approval for application for the transfer of water use entitlement was denied leading to a dispute that ultimately ended in the Constitutional Court (CC). This court rejected the decisions of the lower level courts that ruled in favour of the DWS on the non-transferability of water use entitlements. The CC concludes that the plain readings of the substantive provisions of section 25 contemplated in the procedural provisions of sections 26(1) (l) and 29(2) imposes no impediments on the transfer of water use entitlements with fee arrangements.[257]

6.3.5. Enforceability of water rights

As noted in section 4.1 the degree of quality of title may be measured in terms of the extent to which water use permit or license create legal security for the rights holder to enjoy the property rights without infringement or arbitrary encumbrance. Besides, the fact that legal claims or entitlements to abstract and use water under the water use license are well defined may not necessarily create assurance of enforceability unless mechanisms are put in place to test its justiciability before the court of law. Hence, an effective water rights requires the right holder to access justice to enforce and protect legal claims as defined under the water access

253 ibid art 26(1)(l).

254 ibid 29(2).

255 South Africa: 'Procedural Guideline for Trading in Water Use Entitlements' (Pretoria: Department of Water Affairs and Forestry 2004)

256 Minister of Water and Sanitation and Others v Lotter N.O. and Others; Minister of Water and Sanitation and Others v Wiid and Others; Minister of Water and Sanitation v South African Association for Water Users Associations [2023] ZACC 09. <https://cer.org.za/wp-content/uploads/2023/03/Minister-Water-and-Sanitation-v-Lotter-CC-15-March-2023.pdf> accessed on 02 May 2024).

257 ibid

license. So the relevant issue here is what mechanisms are put in place to enforce water use rights in case disputes arise?

In Chilean water law, claims or disputes arising on the water use rights are generally enforced before the DGA and Ordinary Courts of Law based on their respective jurisdictional competence.[258] As the guardian of public use of water resources, the DGA exercises administrative authority when disputes arise during the constitution of new water rights or the exercise of water rights despite limitations to its power.[259] However, Chilean Water law provides existence of the DGAs administrative competence indicating that administrative decisions rendered by it or other delegated water institutions affecting water use rights can be challenged by an interested party through an appeal for consideration before it.[260] The resolution of termination issued by the DGA in the hearing of an appeal for reconsideration, and any other decisions issued in the exercise of DGA's functions shall be appealable before the Court of Appeals.[261]

The other avenue of access to justice to enforce water rights claims under the Chilean Water Code is a resort to the Board of Directors of WUAs who act as an Arbitral Tribunal to resolve water use disputes arising between its members on water allocation or exercise of their rights or between members and the association.[262]A water right holder who is aggrieved by the awards of the Arbitral Tribunal is entitled to file a complaint before the Ordinary Court of Justice within six months appealable to higher levels of courts.[263]

Finally, some author in the Chiles water law proposes the need to create specialized water Courts constituted of interdisciplinary composition such as law, hydrology and engineering

[258] Diego Rivera and others, 'Legal disputes as a proxy for regional conflicts over water rights in Chile' (2016) 535 Journal of Hydrology 36, 37; Mauricio Herrera and others, 'Understanding water disputes in Chile with text and data mining tools' (2019) 44(3) Water International 302, 303.

[259] Alejandro Vergara and others, 'The water–energy nexus in Chile: a description of the regulatory framework for hydroelectricity' (2017) 35(4) Journal of Energy & Natural Resources Law 463, 476.

[260] Chile Water Code (n 4) art 136.

[261] ibid art 137.

[262] ibid arts 243-246.

[263] ibid art 247.

among others given the legislative practice of establishing specialized courts with administrative jurisdictions in the country.[264]

In Australia, the imperatives of an 'enforceable and enforced' water access entitlement are recognized by the National Water Initiative Agreement (NWI) of the COAG to establish tradable water rights.[265] In the context of some states such as South Australia and New South Wales special courts known as 'Environment Resources and Development Court (ERDC) and Land and Environment Court (LEC) are established respectively to entertain disputes that relate to matters of 'water allocation plan that reduces water for consumptive uses'.[266]The jurisdiction of the ERD Court pertains to serve as a court of appeal to review the administrative decisions of the responsible water authority or Minster on matters specifically referred to it under the Landscape Australia Act 2019. For instance, the holder of a permit may appeal to the ERDC against the variation or revocation of the permit and decisions on the quantity of water allocated.[267] Depending on the types of the matter, the decisions of ERDC can be appealable to the respective Court of Appeal, High Court or the Supreme Courts.[268] On the other hand, legal claims that arise between holders of water use rights are entertained in regular courts having jurisdictional competence.[269]

In South Africa, the NWA established the Water Tribunal as 'an independent body' to regulate 'the use, enjoyment and access to water for commercial purposes'.[270] Despite

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[264] Vergara and Rivera (n 7) 83. For instance Environmental Courts are mentioned but entertains disputes involving claims of water quality issues but not water rights. ibid.

[265] Sarah Robertson, 'A Regulatory Framework for Monitoring and Enforcement of Water Access Rights in Western Australia' (2014) 37(2) University of Western Australia Law Review 215, 215.

[266] Jennifer M McKay, 'Australian water allocation plans and the sustainability objective—conflicts and conflict-resolution measures' (2011) 56(4) Hydrological Sciences Journal 615, 623. See also Landscape South Australia Act 2019 (n 79) sec 112 and Water Management Act 2000 (NSW) (n 148) sec 368 and Land and Environment Court Act 1979 No 204 (NSW) as amended sec 17(c) <https://legislation.nsw.gov.au/view/whole/pdf/inforce/2024-06-20/act-1979-204> accessed 14 April 2024.

[267] Landscape South Australia Act 2019 (n 79) sec 112(15); sec 124(4) and sec 79(9). Water Management Act 2000 (NSW) (n 148) sec 368.

[268] South Australia Environment, Resources and Development Court Act (1993) sec 30 and sec 31; New South Wales Land and Environment Court Act (1979) secs 55-57; see also John E Thorson, 'A Permanent Water Court Proposal for a Post General Stream Adjudication World' (2019) 52(1) Idaho Law Review 17, 34.

[269] Jennifer M McKay, 'Australian water allocation plans and the sustainability objective—conflicts and conflict-resolution measures' (2011) 56(4) Hydrological Sciences Journal 615, 617.

[270] National Water Act (1998) sec 146(1) (2) and sec 147(4).

critiques on members experience, expertise and autonomy in practice,[271] the NWA envisions a kind of specialized administrative tribunal composed of members equipped with the 'knowledge in law, engineering, water resource management or related fields'.[272] The Water Tribunal mainly adjudicates water use claims that arise between water management institutions recognized under the NWA and water users against the formers decisions on the temporary transfer of water use authorizations under section 25(1) and decisions on the verification of water use under section 35 of the NWA.[273] An aggrieved person may appeal to the High Court on questions of law against the decisions of the Water Tribunal on matters falling under its jurisdiction including against the determination of liability for compensation or the amount of compensation under section 22(9) of the NWA.[274] As discussed under section 6.3.4, the recent judicial litigation on the transferability of water use license in different levels of the South African Courts showcase how courts can create enforceable tradable water rights despite stiff regulatory vagaries of water authorities to reverse the legal status quo ante. Finally, the most innovative approach adopted by the NWA is the legal recognition for the application of mediation and negotiation to resolve water rights claims created between water rights holders before resorting to the court of law.[275] Given the public nature of water resources and multiplicity of interests among competing water license holders, the use of mediation and negotiation encourages mutual enforcement of water use rights based on mutually agreeable decisions.[276]

In China, the Water Law provides a range of alternative mechanisms to resolve disputes over water resource use to ensure enforceable water allocation rights. Claims that arise over the use of water between administrative regions must be resolved through consultation.[277] In case a conciliation attempt made between the administrative regions or divisions failed, a

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271 Rashri Baboolal Frank, Civil Litigation in Tribunals in South Africa: Creating a Unified Tribunal System' in Alan Uzelac and C H van Rhee (eds.), Transformation of Civil Justice: Unity and Diversity (Springer International Publishing AG 2018) 94.

272 National Water Act 1998 (n 35) sec 146(4).

273 ibid sec 148(1)(d)(e).

274 ibid sec 149(1)(a)(b).

275 ibid sec 150.

276 Michael Jeffery and Donna Craig, 'Application of environmental conflict resolution to public interest issues in water disputes' (2011) 1 International Journal of Regional, Rural and Remote Law and Policy 1, 5.

277 China Water Law 2002 (n 51) art 56.

further resolution must be sought from the next higher level of government for decisions.[278] Addressing claims or disputes over water resource allocation at regional level is crucial for creating enforceable regional water rights that in turn secures initial allocation of water amongst abstractors and users.[279] Likewise, disputes that arise between organizations and individuals or between individuals over claims to the share of a common pool water resources should be resolved through consultation.[280] In case the consultation failed, disputing parties can apply to local people or county level governments or to a department authorized to mediate the matter or 'institute a civil action directly in the people's court'.[281]

In brief, the Water Law of China offers soft Alternative Dispute Resolution (ADR) mechanisms to amicably settle disputes between individual water abstractors. In other words, individual water abstractors may directly access the regular courts to enforce their water rights claims since recourse to consultation or mediation is purely consensual. There is no specific reference under the Water Law as to whether disputing parties must exhaust the remedy of administrative mediation or reconciliation before instituting judicial remedies in the court of law to enforce their rights. Yet there is no water rights enforceability framework to settle disputes that arise between responsible water management departments and individual water permit holders. Compared to the other comparative countries discussed above, Water Law of China lacks clarity as to whether administrative decisions that affect the usufructory water rights may be appealable to the regular courts.

6.4. The tale of water rights trading in four river basins

Having analyzed sizable efforts of the comparative countries to create tradable water rights or entitlements, it is now propitious to briefly assess empirical studies on how these water rights trading functions in their typically selected river basins context.

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278 ibid; see also Yuhong Zhao, 'Environmental Dispute Resolution in China' (2004) 16(2) Journal of Environmental Law 157, 159.

279 Speed (n 188) 271.

280 China Water Law 2002 (n 51) art 57.

281 ibid; see also Carissa M Wong and Wu Guo, 'Water for Whom? Improving Water Governance in Yunnan China through Environmental Customary Law (2014) 15(2) Vermont Journal of Environmental Law 290-322

6.4.1. Water rights trading in the Limarí River Basin (Chile)

The Limari River Basin has an area of 11,760 km² found in Chile's semi-arid northern-central Coquimbo administrative region.[282] The Limari Valley is well known for its developed export oriented agricultural sector through the efficient utilization of scarce water resources.[283] Scarcity of water resources in the River Basin created a strong competition among water users becoming 'one of the most innovative market based water governance and the most active water rights market' in Chile.[284] Two major reasons are frequently cited for Limari's water rights trading success story.

First, the Limari Basin is considered as 'the most engineered basin in Chile' hosting well developed water infrastructure famously known as the 'Paloma System' built to store and distribute water stretching over more than 435 miles.[285] The Paloma System was built by the national government constituting a network of three dams and multiple interconnected irrigation channels that serves as a 'water bank' regulating access to water resources.[286] The Paloma system determines the overall allocation of water per growing season and the allocation to each private reservoir and canal associations who in turn allocates water rights for its members.[287] Water for irrigation use is conveyed to privatized irrigation districts known as 'Recoleta, Cogotı´, Camarico, and Limarı´' that are geographically interconnected yet separately administered and separately managed by reservoir, canal and river association.[288] WUAs are responsible for the operation and maintenance of the

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[282] Alexandra Nauditt, Justyna Sycz and Lars Ribbe 'The Limarı´ River Basin' in Jurgen Schmandt and others (eds), *Sustainability of Engineered Rivers in Arid Lands: Challenge and Response* (Cambridge University Press 2021) 152.

[283] María Molinos-Senante, Guillermo Donoso, and Ramon Sala-Garrido, 'Are participants in markets for water rights more efficient in the use of water than non-participants? A case study for Limarí Valley (Chile)' (2016) 23(11) Environmental Science and Pollution Research 10665, 10669.

[284] Anahí Urquiza and Marco Billi, 'Water markets and social–ecological resilience to water stress in the context of climate change: an analysis of the Limarí Basin, Chile' (2020) 22 Environment, Development and Sustainability 1929, 1935.

[285] Nauditt and others (n 282);Silvia Borzutzky and Elisabeth F Madden, 'Markets Awash: the Privatization of Chilean water markets' (2013) 25(2) Journal of International Development 251, 257.

[286] ibid 156.

[287] Ereney Hadjigeorgalis and Jay Lillywhite, 'The impact of institutional constraints on the Limari River Valley water market' (2004) 40 Water Resources Research W05501.<https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2003WR002701> accessed 20 April 2024.

[288] ibid;Carl J Bauer, 'Results of Chilean water markets: Empirical Research Since 1990' (2004) 40(9) Water Resources Research

infrastructure, assigning water volumes per water rights within their respective irrigation districts and distributing water to users.[289] Therefore, the Paloma system represents the physical source of the water reservoir from which water is allocated to satisfy the water rights holders.

The second reason widely attributed is the Chilean Water Code for its transformative normative role changing the 'hydro-social relations' in the use of public water resources.[290]The permission of transferable water rights under the Water Code enabled temporary and permanent water use right holders in the Limari Valley to trade a volume or cubic meters of water within a growing season and perpetual surface water rights title respectively.[291]The spot market for the trading of temporary water rights enabled water rights holders who share the Paloma physical water source to freely transfer their water rights within this same physical source.[292] Likewise, permanent water rights enabled water rights holders to permanently trade their share stored in Paloma reservoirs. In both types of water rights trading or transferability right is limited to the physical source of water from which water rights holders are specifically authorized or entitled to take or abstract a specified volume of water under water license. This limitation is considered by some authors as hindering the mobility of water rights trading as long as the water stored in the same physical source moves across irrigation districts or canals that store their water rights in this same distribution reservoirs.[293]

Despite such limitations, water rights trading in the Limari River Basin is considered as the most innovative practice for the use of an electronic water market platform for water volumes real time interchange throughout the spot or temporary market 'to reduce transactions costs and improve market transparency'.[294]This kind of water rights trading

W09S06.<https://agupubs.onlinelibrary.wiley.com/doi/pdfdirect/10.1029/2003WR002838> accessed 25 April 2024.

289 Urquiza and Billi (n 284) 1939.

290 Madelaine Moore, 'Water trading markets: Facilitating financial flows through the hydro-social cycle?'(2024) 150 Geoforum 103977, 103978; Budds (n 135) 166.

291 Hadjigeorgalis and Lillywhite (n 287).

292 ibid; Jonathan E Alevy, Oscar Cristi and Oscar Melo. "Right-to-choose auctions: A field study of water markets in the limari valley of Chile' (2010) 39(2) Agricultural and Resource Economics Review 213, 216.

293 Hadjigeorgalis and Lillywhite (n 287).

294 Urquiza and Billi (n 284) 1935; Hearne and Donoso (n 139) 117.

platform provides water rights holders to regularly access information sources to make informed decisions. The practice of water rights trading is also appraised for promoting efficient use of water resources among trading water rights holders when compared to non-trading water rights holders in the Limari River Basin.[295]John Briscoe and others hailed how water rights trading in the Limari Basin 'behaves exactly as one would wish within a particular area' where water is transferred 'from lower value uses to higher value uses with prices responsive to both seasonal and long term water scarcity'.[296]

6.4.2. Water rights trading in the Murray-Darling Basin (Australia)

The Murray-Darling Basin (MDB) is a 'mostly semiarid basin' located in south-eastern Australia which covers 1.06 million km² and cuts across the land masses of the Australian Capital Territory, and the state governments of South Australia, New South Wales, Queensland and Victoria.[297] The MDB, separated into Northern and Southern Basins, is known as the largest and most regulated river system and 'the most mature and adopted water markets globally' in the most agriculturally significant part of Australia.[298] The Southern MDB dominantly contains highly regulated irrigated farmland and is hydrologically connected in such a way that it allows water trade to transpire amongst the administrative boundaries of South Australia, Victoria, and New South Wales.[299] The Southern MDB hosts 'the largest water market in Australia in terms of geographic area and volumes or number of water entitlements' compared to the Northern MDB with 'less hydrologically connectivity and less regulated water use entitlements'.[300] Grafton and Horne noted that trade in water

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295 Molinos-Senante and others (n 283).

296 John Briscoe and others, 'Managing water as an economic resource: reflections on the Chilean experience' (the World Bank 1998) Paper No 62 Environmental Economics Series 5.<https://documents1.worldbank.org/curated/zh/535281468768723989/pdf/multi-page.pdf> accessed 15 April 2024.

297 Rebecca Doble and others, 'An Overview of Groundwater Response to a Changing Climate in the Murray-Darling Basin, Australia: Potential Implications for the Basin System and Opportunities for Management' (2024) 32 Hydrogeology Journal 59, 60.

298 Sarah Ann Wheeler, 'Debunking Murray-Darling Basin water trade myths' (2022) 66(4) Australian Journal of Agricultural and Resource Economics 797, 797.

299 Juliane Haensch, 'Examining the importance of spatial influences on irrigators' water trading behaviour in the Southern Murray-Darling Basin' (PhD Dissertation, University of Adelaide 2017) 112;Sarah AnnWheeler and others, 'Water market literature review and empirical analysis' (Report Prepared for the Australian Competition and Consumer Commission 2020).<https://digital.library.adelaide.edu.au/dspace/handle/2440/138207> accessed 20 April 2024.

300 Wheeler (n 298) 800.

use entitlement and allocation rights within the MDB represents about 80 percent of all such trade in Australia.[301]

As an inter-state river basin, located in different state governments and a federal territory of the Australian Federal arrangement, issues of water rights trading matters in the MDB definitely falls within the responsibilities of six administrative jurisdictions. Accordingly, the Water Act 2007 at the federal level (setting national frameworks) and the Water Management Acts of four state governments interplay for the regulation of water trading activities. In order to regulate the allocation of water resources of the Basin in an integrated manner, the MDB Agreement was signed among these governments. The Water Act re-established the MDB Commission as the Murray-Darling Basin Authority (MDBA) as a single body responsible to oversee the water resource planning of the basin and avoid fragmented approaches of different states.[302]Hence, the MDBA can be considered as 'an exemplar of the hydrological institutional model of catchment management'[303] as it assists to overcome the troubles of political boundaries in federal systems to effectively coordinate state governments towards an integrated management of water resources.

The MDB is equipped with shared water storage reservoirs infrastructure capable of storing more than 3 years' average flow of the Murray and Darling rivers.[304] This shared water infrastructure across the Southern MDB created a hydrologically connected water conveyance system that enabled irrigation schemes to link and trade water rights in the Basin states of New South Wales, Victoria and South Australia.[305] Hence, the physical water

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301 R Quentin Grafton and James Horne, 'Water markets in the Murray-Darling Basin' in R Quentin Grafton and others (eds), *Global Water: Issues and Insights* (Australian University Press 2014) 38.

302 Dustin Garrick and others, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray–Darling Basin' (2011) 30(2) Economic Papers 167, 182.

303 Lin Crase, Phil Pagan and Brian Dollery, 'Water markets as a vehicle for reforming water resource allocation in the Murray-Darling Basin of Australia' (2004) 40 (8) Water Resources ResearchW08S05. <https://agupubs.onlinelibrary.wiley.com/doi/pdfdirect/10.1029/2003WR002786> accessed April 2024.

304 Jamie Pittock, 'The Murray–Darling Basin: Climate Change, Infrastructure, and Water' in Cecilia Tortajada (eds.), Increasing Resilience to Climate Variability and Change: The Roles of Infrastructure and Governance in the Context of Adaptation (Springer 2016) 44.

305 Adam Loch and others, 'Private Transaction Costs of Water Trade in the Murray–Darling Basin' (2018) 146 Ecological Economics 560, 561.

source for much of this water rights trading pertains to regulated surface water allocations delivered from dam storages under delivery and storage rights of the water rights holders.[306]

Similar to the Chilean Limari River Basin, water rights trading in the MDB constitutes temporary and permanent water rights transfer between entitled irrigation water users.[307] Temporary water rights trading as practiced in the MDB involves 'short-term sale or lease of water obtainable' under irrigation water use entitlement among irrigation water users 'to make up for short term overestimates or underestimates or changes in irrigation requirements' without transferring water use license.[308] On the other hand, permanent water trading involves the permanent sale or transfer of part or all of the entitlement designed to chiefly facilitate the inter-sectoral use of water because of a shift from agriculture to industry.[309] Unlike the Chilean Limari River Basin, water rights trading in MDB can also involve the voluntary sale of water to users who need extra water for residential, agricultural or industrial use to encourage 'a higher value use for the purchased water than does the seller'.[310]

Compared to water rights trading constraints under the Chilean single water law, the Australia's federal system obviously encounter more challenging regulatory landscape in implementing water trading across state borders owing to the difference in vagaries of approaches under their respective water law impacting water use entitlements and consequent variations in the security and predictability of water allocations.[311] To a certain extent, the national framework for water allocation plan and water trading and transfer rules required under the Water Act 2007 may assist to integrate the application and implementation of temporary or permanent water trading practices across MDB states.[312]

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306 R Quentin Grafton and Sarah Ann Wheeler, 'Economics of Water Recovery in the Murray-Darling Basin, Australia' (2018), 10 Annual Review of Resource Economics 487, 495.

307 R Quentin Grafton and others, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) Review of Environmental Economics and Policy 219–239

308 HN Turral and others, 'Water trading at the margin: The evolution of water markets in the Murray-Darling Basin' (2005) 41 Water Resources Research W07011. <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2004WR003463> accessed 5 January 2024

309 ibid

310 R Quentin Grafton and James Horne, 'Water markets in the Murray-Darling Basin' (2014) 145 (2) Agricultural Water Management 61, 62.

311 Dustin Garrick and others, 'Environmental water governance in federal rivers: opportunities and limits for subsidiarity in Australia's Murray–Darling River' (2012) 14 Water Policy 915, 919.

312 Crase and others (n 303).

But some states in the MDB may broaden or narrow the nature of water use entitlements by imposing terms and conditions on water allocation rights under the water license.

For instance, in MDB state of Victoria, irrigation water rights holders who for different reasons failed to use their seasonal allocation are not entitled to 'carryover' right and use it in the following seasons while irrigators in New South Wales are allowed to carryover part of the unused seasonal allocations for use in the following season.[313] However, in Chile, a surplus water rights holders who failed to use water because of lack of 'the infrastructure required to make effective use of water' is responsible to pay 'non-use fee' taking 'elevation difference between the abstraction point, the return flow point and the length of the non-use period' in to consideration.[314]It is argued that the purpose of such non-use charge is 'to 'correct' the distortions that were generated by the initial allocations'.[315]

Finally, like the Limari Basin, which introduced access to information on the temporary trading of seasonal water rights in the spot market, the trading of seasonal allocations in some major irrigation districts of the MDB are also supported with 'electronic exchanges and brokers facilitating trade'.[316] The major exchanges and brokerage services that operate to 'match buyers and sellers, either through an automated process or a bulletin board' include 'Water Exchange, Murrumbidgee Water Exchange, Murray Irrigation Water Exchange, and Waterfind'.[317]

6.4.3. Water rights trading in Yellow River Basin (China)

The Yellow River is the second longest river in China stretching for 5,464 km and flowing from the Tibetan plateau in Qinghai to the Bohai Sea in Shandong Province.[318]The Yellow River

313 ibid

314 Alberto Garrido and others, Economic instruments for allocating water and financing services' in Bárbara A Willaarts and others (eds), *Water for Food and Wellbeing in Latin America and the Caribbean: Social and Environmental Implications for a Globalized Economy* (Routledge 2014) 347.

315 ibid

316 Daniel Connell and R Quentin Grafton, 'Water reform in the Murray-Darling Basin' (2011) 47 Water Resources Research W00G03.<https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2010WR009820> accessed 22 April 2024.

317 Cited in Min Jiang, *Towards Tradable Water Rights: Water Law and Policy Reform in China* (Springer 2018) 210.

318 Yan Chen, Yuhan Yan and Tingju Zhu, 'Water Market Development in the Yellow River Basin: Challenges and Opportunities' (2024) 16(6) Water 894, 894.

Basin (YRB) lies in arid and semi arid climatic zones with a catchment of about 795,000 km² and cuts across nine riparian provinces constituting 35 percent of the country's total water resources used by some of the most economically advanced parts of China.[319] According to Robert Speed, the Yellow River 'has been at the forefront of innovations in China's water allocation' to address the problems of a once 'drying up' stream in China's water scarce north.[320] The first water allocation plan in China was primarily introduced with the approval of the Yellow River Water Resource Allocation Plan in 1987 with the view to apportion an average yearly volume of 37 billion m^3 between the administrative regions that utilize water from the basin.[321] Dajun Shen notes that this Water Allocation Plan was considered historically important due to its long-term impacts on modern water rights development in China.[322]

Like Australia's MDBA, the Yellow River Conservancy Commission (YRCC) in China was mandated to create a unified water allocation system throughout the YRB.[323] In order to implement water rights trading in the basin, the 'Trial Implementing Measures on Administration of Water Rights Transfer in the YRB' were developed.[324] According to this document the YRCC is responsible for 'examining and approving water rights transfers on water abstraction permits issued by itself according to its jurisdiction, and water rights transfers in provinces directly under the State Council whose water use quota has been exhausted'.[325] Hence, as Min Jiang aptly put it, 'water rights transfer practices in the YRB were predominantly driven by government involvement, river basin authorities, and local water authorities with insignificant degree of water trading practice at individual abstractors level.[326]

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319 Yangbo Sun and Xinfeng Fu, 'Yellow River: Re-operation of the Infrastructure System to Increase Resilience to Climate Variability and Changes' in Cecilia Tortajada (eds.), Increasing Resilience to Climate Variability and Change: The Roles of Infrastructure and Governance in the Context of Adaptation (Springer 2016) 113. See also Yan Chen and others (n 318).

320 Robert Speed, 'Transferring and Trading Water Rights in the People's Republic of China' (2009) 25(2) International Journal of Water Resources Development 269, 273; Dajun Shen, *Water Resources Management of the People's Republic of China Framework: Reform and Implementation* (Springer Nature Switzerland AG 2021) 42.

321 Speed (n 188) 274.

322 Shen (n 160) 130.

323 Chen and others (n 318) 896.

324 Jiang (n 159) 193.

325 ibid.

326 ibid

Dajun Shen also noted a similar observation indicating how water rights trading in the Yellow River is known for its government induced water rights transfer system based on saved water allocations.[327] For instance, a pilot water trading project in Hangjin Irrigation District on the south bank of the Yellow River in the Inner Mongolia Autonomous Region has traded some of its saved irrigation 'water in the canal lining' to lower riparian industries for the purpose of satisfying 'the growing water needs of downstream industrial users'.[328]The water rights trading is known as 'irrigation water-saving supported by industrial investment, with saved water traded to industry'.[329] Therefore, despite the possibilities for water abstraction rights trading and irrigation water rights trading as envisaged before, the actual implementation is limited to 'government repurchase of water rights and the auctioning of water rights reserved by the government'.[330]

6.4.4. Water rights trading in the Lower Orange River (South Africa)

The Orange River rises in Lesotho Highlands known as the Sinqu River and constitutes Lesotho, South Africa, Namibia and Botswana sharing its Basin.[331]The Orange River Basin drains a catchment area of about 964,000 km^2 with a total length of 2,300 km until it finally terminates in the Atlantic Ocean.[332]South Africa contributes 55 percent of the total mean annual runoff to the Orange River, the Vaal River, being the most important tributary.[333] In short the Orange River is considered as South Africa's 'most important surface water source' and 'Southern Africa's, most developed river' fully exploited resources.[334] With a climate

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327 Shen (n 160) 305.

328 Hang Zheng and others, 'Water Rights Allocation, Management and Trading in an Irrigation District: A Case Study of Northwestern China' in Manish Kumar (ed.), Problems, Perspectives and Challenges of Agricultural Water Management (Croatia: Intech 2012) 66.

329 ibid

330 Hui Guo and others, 'Joint analysis of water rights trading and water-saving management contracts in China' (2020)36(4) International Journal of Water Resources Development 716, 723; Robert Speed discusses how farmers within the 'Liyuan Irrigation District in the Hei River Basin freely trade their 'Water tickets' (allocated volume) purchased from 'irrigation district management agency'. See Speed (n 188) 275.

331 Richard Meissner, *Interest Groups, Water Politics and Governance: The Case of the Lesotho Highlands Water Project* (Springer 2015) 21.

332 C G Gillitt, W L Nieuwoudt and G R Backeberg 'Water Markets in the Lower Orange River Catchment of South Africa' (2005) 44(3) Agrekon 363, 367.

333 Meissner (n 331) 22.

334 ibid; MK Mahlakeng, 'The Orange–Senqu River Basin' (2020) 21(1) World Affairs: The Journal of International Issues 142, 152.

condition of 'harsh and semi-desert'[335]and predominantly used for agricultural irrigation, the Lower Orange river is often cited as an example where water rights trading is relatively active in the African continent.[336]

However, few empirical studies can be cited on the assessment of water rights trading in Boegoeberg and Kakamas Irrigation Schemes along Lower Orange River.[337]Armitage et al noted that water market has been 'advocated as one means of reallocating scarce water supplies in South Africa' and 'promotes efficiency by assigning water in the most highly valued uses through voluntary and compensated transfer.[338] However, water rights trading along the Lower Orange River strived 'within a centralized nonmarket water allocation system that was highly controlled and regulated by the Department of Water Affairs and Forestry.'[339]

Thus, in the 'absence of legal institutional support' and clarity of thought on the trade promoting status of the NWA of South Africa, the legal entitlement to transfer water rights suffers the caprice of water management institutions who are the ultimate decision makers on setting discretionary terms.[340] This makes water rights trading a negotiated outcome of the water rights holder, the buyer and responsible water authorities rather than voluntary process of the relevant parties to the transactions. Despite these limitations, the performance of responsible water authorities in the Lower Orange River was praised as pivotal to successfully establish a regulated but functioning water market since the specified process of water rights transfer was clearly defined and well understood by potential market participants.[341]

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335 Caroline A Sullivan, 'Challenges for Management of the Orange/Senqu River Basin' in Victor R. Squires and others (eds), *River Basin Management in the Twenty-first Century: Understanding People and Place* (CRC Press Taylor & Francis Group 2015) 190

336 WL Nieuwoudt and others, 'Implication of Risk in Irrigation Water Transfers, South Africa' in Proceedings of the 5th WSEAS International Conference on Environment, Ecosystems and Development (Venice, Italy 2006) 65.<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=5a1aed712d61829fee7b66e7dcab4691371c47c3> accessed 5 May 2024.

337 RM Armitage, WL Nieuwoudt and GR Backeberg, 'Establishing tradable water rights: Case studies of two irrigation districts in South Africa' (1999) 25(3) Water SA 301, 302.

338 ibid 301.

339 ibid 303

340 Gerhard R Backeberg, 'Water Institutional Reforms in South Africa' (2005) 7 Water Policy 107, 115.

341 Armitage and others (n 337) 304.

Water trading that involves a permanent transfer of water use entitlement should fulfill the following conditions set by the responsible water authorities. First, the water rights holder is required to prove that it is technically possible to deliver transferred amounts of water rights to the property of the transferee and whether the purchaser bears any costs intrinsic to such water conveyance.[342] Of course, the fulfillment of such conditions depends on the existence of hydrological linkage of the water sources and well-built irrigation schemes like the case of the Paloma system in Chilean Limari River Basin. This condition creates a costly transaction process in the exchange for water rights in the absence of irrigation infrastructure that should have been built by the state in the first place.

The second condition is existence of sufficient irrigable land on the property to which the water is to be transferred.[343] This condition bundles water use licenses with water use rights as was the case in the Australian irrigation water rights trading practice unless the title to the land is also transferred simultaneously.[344] Essentially, the nature of the irrigation water use license requires irrigable land to use allocated water resources for this specific purpose making it difficult to permanently transfer water use entitlement to a person without land title.

The third condition is that the transfer should have a blessing from the DWS, Department of Agricultural Development and local extension officers from an agricultural perspective'.[345] The fourth condition is that the property from which water rights are to be transferred should be free from encumbrance of the Land Bank.[346] Seen from the perspectives of the buyer, these regulatory controls can be viewed as a means to ensure the security of the water rights once the process of transfer is validated by the responsible water authority.

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342 ibid

343 ibid

344 Grafton and Horne (n 310).

345 W L Nieuwoudt and R M Armitage, 'Water market transfers in South Africa: Two case studies' (2004) 40 Water Resources Research W09S05. <https://agupubs.onlinelibrary.wiley.com/doi/pdfdirect/10.1029/2003WR002840> accessed 5 May 2024.

346 ibid

Furthermore, Gillitt and others also found that access to information about sales prices of water use entitlements is not freely available because DWS failed to keep records of prices of previous transactions and that arrangement for the compensation is made between the parties to the water rights trading.[347] However, as noted in section 4.4, the NWA under section 29(2) states that in case payment of compensation for the transfer of water rights is arranged between the parties such term may be considered as the conditions for approval of transfer by the DWS implying the possibility of access to prices of previous trading practice.

On the other hand, studies also found that temporary trading of water rights has been absent in the Lower Orange River due to 'the high fixed costs of transporting water to the irrigable land', and 'the high fixed administrative costs of employing a lawyer in the process of the transfer'.[348] The reason for absence of temporary water rights trading could also be attributed to the prohibition of inter-sectoral water trading of water through the transfer of water from the irrigation canal.[349] Finally, the Lower Orange River's water rights trading practice in South Africa shows an indication of skeptic progress towards full-fledged establishment of tradable water rights. In particular, the progress of water rights trading in Lower Orange River at the time, when state water resources institutions are undecidedly at the crossroads, hints the importance of tradable water rights to reallocate scarce water resources.

6.5. Chapter summary: comparative analysis and reflection

As indicated in the preceding comparative analysis, the ideals of promoting tradable water rights underpins the instrumental role of water market to ensure economic efficiency and sustainable use of scarce water resources. In all of the comparative countries, a water use permit system is introduced with varying degrees of proprietary interests to protect water rights entitlements arising under the permit. In all of the comparative countries there exists a consensus on the imperatives of creating normative conditions to facilitate water rights trading as a means to re-allocate scarce water resources. To achieve this objective

347 CG Gillitt and others (n 332) 373.

348 Armitage and others (n 337) 307; D Datt Tewari and S Baba Oumar, 'Is the water permit system a panacea or a bed of inefficiency? The case of South Africa' (2013) 15 Water Policy 570, 578.

349 ibid 578.

recognizing water use permits or licenses as property rights was introduced with varying degrees of attributes. This chapter analyzed how these comparative countries designed property rights in water resources as a condition for implementing tradable water rights and draws the following lessons.

An important lesson that can be drawn from the water rights trading approach of Chile and Australia can be revealed in terms of how well-designed legal frameworks that protect proprietary interests arising under the water use permit or license facilitates water right trading among water rights holders. Particularly, the Chilean water trading approach can be said to have succeeded in terms of harnessing the economic potential of water by creating incentives for the major expansion of irrigated land for an export-oriented economy.[350] It is well established in the water law and economics literature that Chile's approach to water trading 'has taken up to a fever pitch [on] the notion of private water use rights' where the high level of legal security attached to right allocation has driven an investment in the water resources sector.[351] For this reason, Chile's approach to water rights trading has been criticized for no or little concerns for the environment 'suggesting that Chilean model is something for other countries to learn from rather than to copy'.[352] Yet as revealed in this chapter, Chile has heeded to such critique by recently reforming its Water Code showcasing that it is possible to reverse from the consequences of 'progressed' neoliberal property rights commodification of water resources by introducing water rights priority for human consumption and environmental flow. A good lesson to be drawn from Chile`s experiment is that allocation of water resources should not be entirely left for 'private bargaining and market transactions' even if that would lead to an economically efficient use of scarce resources.

Similarly, Australia's water trading regime delivers a clear message on how to handle water resource allocation challenges complicated by political boundaries of federal arrangements through mutually agreed minimum standards and policy frameworks designed to efficiently use scarce resources. Most importantly, Australia's lesson on how to deal with water right

[350] Bauer (n 198) 651.

[351] Gonzalo Delacámara and Carlos M Gómez, 'Water Trading: An Introduction' in Manuel Lago and others (eds), *Use of Economic Instruments in Water Policy: Insights from International Experience* (Springer 2015) 204.

[352] Bauer (n 198) 651.

trading in inter-state river basin context by setting rules for establishing River Basin Authority, well-defined water allocation plan, water rights transfer and trading rules assisted policy makers and implementers to strike a delicate balance between concerns of environmental flow and security of water use entitlements among water rights holders.

Likewise, China's recent move towards water market development as alternative means to re-allocate public water resources by progressively applying water rights trading at inter-basin level and slowly moving towards individual abstraction level provides a crucial lesson on hands-on approach to create a sustainable trading practice in a cautiously optimistic manner. Most importantly, water rights trading approach that primarily facilitates conservation based water rights transfer underpins the where to begin water policy direction in case water rights trading is adopted to promote wise use of scarce resources.

Last but not least, South Africa's skeptic approach to water rights trading reveals how countries in a constitutionally guaranteed human rights to water grapples with the trust deficit of water market as a means to equitably re-allocate water resources without appropriate regulatory intervention put in place. Yet South Africa's water law approach that creates a clear distinctions on aspects of water supply service and over all water resources governance through mutually reinforcing Water Service Act and National Water Act is a commendable approach for countries like Ethiopia who is struggling with blurring states role of water supply services and water resource use management in both its legal and institutional design.

Having summarized and reflected on important lessons of this chapter's comparative analysis, the next chapter critically evaluates whether Ethiopia has taken a similar strides in designing and implementing tradable water rights in light of these countries` comparative assessment.

CHAPTER 7

Conceptual comparisons of water property rights tradability in Ethiopia

7.1. Introduction

As examined under Chapters 4 and 5, the normative recognition of water as economic good and water pricing in Ethiopia as an integral part the domestic water policy and law signaled an instrumental imperatives of allocating water as scarce and valuable economic resources with a price assigned in all its competing uses. This in turn further signaled the creation of proprietary entitlements to the use of water indicating a major normative leap in the creation of enabling conditions for marketable water property rights.

Yet the fact that water is treated as an economic good alone may not ultimately guarantee that there exist tradable water rights in Ethiopia. For instance, though capturing and supplying water as a trade activity carried out for 'professional gain'[1] has been recognized under the repealed and current Ethiopian Commercial Code, to what extent the existing water policy and law creates an enabling normative conditions for the tradability of water as an economic good requires an investigation. The legal status of capturing and supplying water as an act of commerce under the present Commercial Code of Ethiopia may indicate the legislative intent towards commercialization of water abstraction rights with the intended consequences of efficient allocation and use of water resources. Thus, to better understand Ethiopia's approach, Chapter 6 discussed the nature and functions of property rights in water in comparative perspectives to draw lessons on how tradable water abstraction rights are designed as a means to efficient allocation of water resources under water use permit or license.

[1] Commercial Code of Ethiopia (1960) art 5(12); Revised Commercial Code art. 5(14).

In light of this understanding, this Chapter aims to assess the tradability of water abstraction under the Ethiopian water resource law in comparative perspectives to determine whether the water resource law puts in place enabling legal conditions to realize the objectives of economically efficient utilization of water resources. Thus, based on the conceptual and theoretical frameworks articulated in Chapter 2 as a 'neutral *tertium comparationis*,'[2] and comparative lessons drawn on the analysis of selected countries under Chapter 6, the present Chapter examines the current WRM Proclamation and WRM Regulation to determine whether water abstraction rights arising from water use permit system creates an enabling conditions for designing and implementing tradable water rights. Furthermore, based on the secondary data gleaned from empirical literature, the extent to which the attributes of tradable property rights are reflected is also modestly examined in the context of ARB's water use permit administration as compared to the River Basins of comparative countries examined under Chapter 6.

7.2. Assessment of water property rights attributes

7.2.1. Quality of title: water abstraction permit

As discussed in section 2.4.1 of Chapter 2 and section 6.3.1 of Chapter, quality of title in the context of water permit reinforces the attributes of a well-defined water use right under the water use permit by describing the nature of rights to ensure amiability the force of legal protection in case of encumbrance. Hence, analysis on the quality of well-defined title under the water permit and whether such title of the permit is unbundled from landholding title is critical in characterizing the attributes of water property rights in Ethiopia.

7.2.1.1. Well-defined water rights

As discussed under Chapter 5, the nature of water use permit under the Water Resource Management Proclamation and Regulation does not distinguish between consumptive or non-consumptive use of water as defines the necessity of permit in terms of 'performing an activities' on the water resources.[3] As the saying 'You know it When You see it' goes, it

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[2] Oliver Brand, Conceptual Comparisons: Towards a Coherent Methodology of Comparative Legal Studies (2007) 32 Brooklyn Journal of International Law 438-439.

[3] Water Resource Management Proclamation No 197 of 1997 [hereinafter Water Resource Management

requires one to look at what constitutes the legal definition of 'water use' to understand what constitutes consumptive or non-consumptive listed in terms of different categories of use.[4] For instance, under the South African NWA, water use is clearly defined in terms of 'taking water from water resources', 'storing water', impeding or diverting the flow of water in a water course' but not in terms of purposes of water use.[5] In light of this fact, the nature of water use permit is similar with terms of 'general authorization' under the South African NWA and 'water abstraction permit' under China's 2002 Water Law with lesser normative force. Hence, water use permit in the Ethiopian context simply refers to the authorization to use water to imply the state is in control of the resources and as such very soft when compared to the legal context of 'license' or 'entitlement' discussed in comparative countries referring to the same functions of water use authorizations.

The degree of normative force compared to China's recognition of administrative permit or license as legally protected usufructory right is totally absent under the Ethiopian legal context of water use permit. More importantly, the WRMP and WRMR in Ethiopia makes no specific reference to the property rights nature of rights granted under the water use permit as was the case in Chile and some states in Australian water law jurisdictions. Therefore, it can be argued that the nature of water use permit under the Ethiopian water resource legislation is ambiguously defined and can be characterized as a '*laissez passer'* to the body of water resources as a manifestation of states sovereign power to command access to water resources under its control.

7.2.1.2. Unbundling of water rights

The unbundling of water rights in theory and comparative perspective implicates both separation of water use rights from land holding title and untying different forms of water use entitlements and allocation rights under the water permit as is the case in Australian water law jurisdiction. From this vantage point, unlike the case in the comparative countries, there is no similar policy or legal position on the unbundling of water use entailments from

Proclamation (1997)'] art 12

4 Council of Ministers Water Resources Management Regulation No 115 of 2005 [hereinafter 'Water Resource Management Regulation (2005)'] art 2(6).

5 South Africa National Water Act (No 36 of 1998) sec 21.

land holding title under Ethiopian Water Resource Management (WRM) Policy and WRM Proclamation. Consequently, one has to simply make inferences as follows and argue for implied recognition of water-land rights unbundling in Ethiopian legal context.

Firstly, Ethiopia adopted separate and unified MRM Policy and WRM Proclamation to regulate the allocation of water resources compared to the absence of a unified or comprehensive policy document on the allocation of land.[6] As such, except for irrigable land water allocation, there is no specific reference to water allocation under water resource policy and law that creates water use permits dependent on land holding rights, implicating the untying of water use rights from land holding rights.[7] Secondly, the introduction of water use permit under the water policy and law per se establishes the fact that the right to abstract water emanates from administrative prerogatives to even authorize a person holding title to a given land to use both surface and ground water sources overlying or crossing such landholding. Thirdly, the WRM Proclamation and Irrigation Water Users Associations (IWUAs) Proclamation recognize servitude to obligate land possessors to give the 'right of way' to a person holding water use permit to ensure abstraction of surface water overlying or crossing the land.[8] Fourthly, an investor who holds an 'investment certificate' or investment permit as commonly known under the Investment Proclamation may be entitled under the investment agreement to access water sources that may not necessarily overly or flow across the landholding of such permit holders.[9]

From the preceding analysis, it can be strongly argued that the water use permit system under Ethiopian water law and policy recognizes the untying of water use rights from land holding rights. However, in so far as groundwater, and surface water abstraction for

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6 Recently an attempt is underway to adopt a comprehensive land policy. For detailed discussion on Ethiopian land policy see, Muradu Abdo Srur, 'State Policy and Law in Relation to Land Alienation in Ethiopia' (PhD Dissertation, University of Warwick 2014).

7 Federal Rural Land Administration and Land Use Proclamation (No 456 of 2005) art 13(2)(currently amended). This is the only provision under this proclamation referring to water allocation right: 'An equitable water use system shall be established between upper and lower watershed communities'.

8 Water Resource Management Proclamation (1997) arts 23-24; Irrigation Water Users' Associations Proclamation No 841 of 2014 [hereinafter 'Irrigation Water Users' Association Proclamation (2014)'] art 50.

9 Investment Proclamation No 1180 of 2020, art 10; Water Resource Management Proclamation (1997) art 3(f).

irrigation purposes, a certificate of landholding or lease agreement establishing the right to use land can inherently be a condition for acquiring water use permit.[10] In this regard, Addis Ababa Water and Sewerage Authority (AAWSA) issued a Directive that aims to regulate groundwater abstraction specifically requiring land holding certificate for granting water use permit.[11] In the context of rural irrigation water use, the IWUAs Proclamation also requires a landholding certificate to be a member of the association to use water from the irrigation infrastructure.[12]

But there is no specific provision under the IWUAs Proclamation that requires irrigation water users to produce a water use permit to join the membership of the association to benefit from the allocation of water controlled under the mandate of such association. Unless, it is assumed that all members of the irrigation water users are exempted from the requirement of water use permit, the non-requirement of water use permit under the IWUAs Proclamation in general amounts to blank check for unexempted irrigation water users to use water without the payment of permit fee.[13] This is because, the WRM Regulation clearly specifies that WUAs or Water Users Cooperative Societies (WUCS) may be established from 'holders of the water use permits or persons exempted from the requirement of permit'.[14] Hence, failure to require water use permit from non-exempted water users as a condition to join the irrigation WUAs contradicts the policy objectives of water use permit as a means to facilitate initial allocation of water resources under the WRM Proclamation and WRM Regulation.

The implication of such noted legal gap under the Irrigations WUAs Proclamation is twofold. First, unless there exists enforcement and compliance mechanisms put in place during the

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[10] Interview with Shiferaw Demissie, Water Resource Utilization and Permit Desk Head, Ministry of Water and Energy (Addis Ababa, 16 February 2024).

[11] የከርሰ ምድር ውሃ ጉድጓድ ቁፋሮና አጠቃቀም ፈቃድ አሰጣጥ እና አፈጻጸም መመሪያቁጥር *156/2016 (translated as* '***G***roundwater Well-Drilling and Use Permit Procedure and Implementation Directive No 156 of 2016' (Addis Ababa Water Supply and Sewerage Authority, AWSSA) arts 6—12.There is no such similar implementing Directive adopted at the Ministry of Water and Energy including Oromia Water and Energy Bureau).

[12] Irrigation Water Users' Associations Proclamation (2014) art 10(4) (d).

[13] Ibid art 9(1)(b)

[14] Water Resources Management Regulation 2005 (n 4) art 28(1) and Water Resource Management Proclamation (1997) art 27(2).

registration of WUAs non-exempted water users are entitled to the use of water under the umbrella of 'use certificate' issued to the association or cooperative societies.[15] Second, from the side of water users, absence of a water use permit affects the security of water allocation rights that should have been specified in the permit in the first place.[16] As noted under the discussions of the Chilean normative experience in section 6.2.1 of Chapter 6, allocation of water by the WUAs to its members in proportion to their share originates from the determined amount of water specified under the water use license. As such, irrigation water delivery rights may be unreliable for non-permit holders as those who hold water use permits may claim exclusive use right against such odds.

The other point is whether the WRM Proclamation and WRM Regulation unbundled water use permit into 'share component' and 'extraction component'. As discussed in the context of Australian water use license system, a share component entitles water use license holder to 'an allocation of a specified share in the available water within specified water source' while an abstraction component entitles the water use license holder to extract water at definite periods, rates, conditions and in identified areas or sites.[17] In this regard, WRM Regulation only hints at the abstraction component of water use permit indicating the applicant to specify the location of water and intended place of use, the volume of water required monthly and annually and the intended method and manner of use of water when applying for water use permit.[18] Hence, it can be argued that a water use permit in the Ethiopian legal context does not entitle the permit holder to the allocation of a specified share of water available within the specified body of water.

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15 Irrigation WUAs are authorized to abstract water for irrigation purposes through WUA 'Use Certificate'. Ibid, see Schedule attachment to this Regulation at No. 14.

16 Irrigation Water Users' Association Proclamation (2014) art 4(5). It is indicated that the consumption of irrigation water use is determined by the internal rules of the WUAs which is less imposing and less reliable compared to the amount of water specified under the water use permit granted under water use permit by responsible federal or regional water resource authorities.

17 M Mckenzie, 'Water rights in NSW : Properly Property?' (2009) 31(3)The Sydney Law Review

18 Water Resources Management Regulation (2005) art 3(d).

7.2.1.3. Registration

The Supervisory Body (SB) in the Ministry of Water and Energy (MoWE) in Ethiopia is institutionally comparable to Chile's DGA and South Africa's DWS as the formers mandate also pertains to 'the allocation of water resources, issuance of permits and water use restrictions in situations of water shortage emergency'.[19] Like Australia, the federal arrangement also poses formidable challenges to the effective administration of water resources due to politico-legal and hydrological complexities inherent in the nature of two levels of governments to manage such resources.[20] The Federal Democratic Republic of Ethiopian (FDRE) Constitution creates division of power regarding legislative and administrative responsibilities in water resources.[21] The FDRE Constitution specifies that the federal government (i.e., MoWE) is mandated to 'determine and administer the utilization of the waters or rivers or lakes linking two or more states or crossing the boundaries of the national territorial jurisdiction'.[22] Furthermore, the federal government is also responsible to enact laws for the utilization and conservation of natural resources that include water whereas state governments are responsible 'to administer such resources in accordance with Federal laws'.[23]

On the other hand, it is also argued that ground water sources or lakes that do not link two or more states fall under the residual power of regional states since powers that are not expressly given to the federal government are reserved for the states.[24] Unlike the Australian federal model, where state governments exercise broader powers, the federal government in Ethiopia exercises centralized water policy and legislative powers including the

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[19] Water Resource Management Proclamation (1997) art 8.

[20] Imiru Tamerat, 'Overview and Assessment of the Legal Framework for Water Resources Management in Ethiopia (2008) 63; Abiy Chelkeba, 'Competing Water Resource Demands in Ethiopia's Federal System: Infancy of the Law toward Integrated Management' 2018) 12(2) Mizan Law Review 240.

[21] The Federal Democratic Republic of Ethiopia Constitution (Proclamation No 1 of 1995) [hereinafter 'FDRE Constitution'].

[22] ibid 55(11).

[23] ibid art 51(5) and art. 52(2) (d).

[24] ibid 52(1); *see* Mekete Bekele Tekle, 'Policy, regulatory and institutional frameworks relevant to Ethiopian water governance' in Patricia Kameri-Mbote and others (eds.), *Law, Environment, Africa* (Baden-Baden: Nomos 2019) 521.

administration of inter-state water resources. As shortly noted, state governments do not have water resource management acts which is the case in Australia's state governments. However, the residual powers claim posed coordination failures as regards the administration of water use permit system becoming problems for generating ambiguities as to who should be the responsible body to administer the issuance and registration of water use permit for groundwater abstraction.[25] It is based on such an ambiguous understanding that the regional states including the federal capital, Addis Ababa have engaged in the practice of administration of water use permit issuance for groundwater abstraction in their administrative boundaries.[26]

Despite the preceding ambiguities in practice, the WRM Proclamation is clear in stating which federal institution is responsible for issuance and registration of water use permit. The WRM Proclamation states the SB at the MoWE is responsible 'to establish and maintain 'registers' of all actions and other information pertaining to the applications for the use of water resources '*at all levels'*.[27] The use of the term 'at levels' is critical as it shatters the shadow of water use permit issuance and registration at the regional or city administration levels irrespective of whether the permit relates to groundwater or surface water. In fact, the WRM Proclamation also introduced a delegation framework to ensure when necessary delegate its powers to the 'appropriate bodies' for the 'efficient execution of its duties'.[28] Based on this principle, the WRM Regulation stipulates that registration of WUCS

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[25] 'The Study of Water Use and Treated Wastewater Discharge Charge' (Final Report for Legal Framework and Institutional Arrangements, October 2018) (On file with the author). This study together with other package studies was commissioned by Awash Basin Authority in which I participated as legal expert. The study was conducted in the context of Awash River Basin to aid in the preparation of National Water Abstraction and Waste Discharge Tariff.

[26] There is no similar directive issued by the Ministry of Water and Energy and other regional states to regulate this matter. Interview with Belayneh Yirdaw, Integrated Water Resource Management Lead Executive, Ministry of Water and Energy (Addis Ababa, 15 May 2024); Interview with Chaluma Ragasa, AAWSA groundwater production and control administration sub-process head (Addis Ababa, 16 February 2024); Interview with Keradin Dadhi, Oromia Regional State Water Resource Administration Team Leader (Finfinne/Addis Ababa, 16 February 2014).

[27] Water Resource Management Proclamation (1997) art 10(2). See also Definition of Powers and Duties of the Executive Organs Proclamation (No 1263 of 2021) art 32(1) (g), (h) & (o). The MoWE is responsible to issue permits for usage of water relating to water bodies (trans-regional, crossing or bordering two or more states and trans-boundary) and follow-up the relevance related to the usage of water; issue competent authentication relating to water works.

[28] ibid art 8(2).

established to undertake medium and large scale irrigation shall be undertaken at the MoWE level while those involved in small scale irrigation shall be registered at regional states or city administration levels.[29] It is required that information or records as to the registration of WUCS at regional or city administrations should be transmitted to the SB at the MoWE.[30] It is vital to distinguish that what is delegated is registration of WUCS not registration of their water use permit per se. Furthermore, in addition to the registration of all decisions with respect to an application for a permit to use water[31], actions for termination, suspension, variation and transfer of water use permit should be registered at the MoWE.[32]

Similar to comparative countries 'Water Access Registry' used to register water use rights, Ethiopia's water Resource regulation also introduced 'Water Abstraction Permit Registry' (referred in *amahric* as 'በውሃ የመጠቀም ፈቃድ መዝገብ').[33] Hence, based on these legal premises, it can be strongly argued that registration of water abstraction right in Ethiopia can serve as a 'legal instrument held as evidence of the right' that 'give certainty to the legal existence of property right' over the 'economic value' of water use under the permit.[34]

7.2.1.4. Security and compensability

The other crucial property rights attributes to evaluate the quality of title in water use permit relates to whether an interest attached to it is not subjected to arbitrary administrative caprice in such a way that it diminishes or abolishes its economic value without due process and payment of compensation for any proprietary loss. As indicated in the comparative section, the reluctance of some Australian states to legally declare water use licenses is purposefully attributed to the need to avoid compensation payment for administrative actions that may impact the enjoyment of rights recognized under the entitlement. Given

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29 Water Resources Management Regulation (2005) art 29(1)(2).

30 ibid art 29(3).

31 ibid art 4(4).

32 ibid 6(7).

33 ibid

34 Michael Woolston, 'Registration of Water Titles: Key Issues in Developing Systems to Underpin Market Development' in Jeff Bennett (ed.), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar Publishing Limited 2005) 80.

the fact that the nature of public interest in water resources demands administrative flexibility that even goes to the extent of abolishing or amending the statutory water use right itself, the guarantee of security for water use permit holders depends on the compensability of proprietary interests attached to it. The degree for the compensability of proprietary interests attached to water use can be strong in case permit holders also hold an investment permit that inherently involves the use of water for undertaking the investment operation.[35] The WRM Proclamation sets out the compensation clause as follows.

> The Supervising body may amend a permit on account of change of environmental conditions, or an increase in the demand for water, or where adjustment of allocation of water becomes necessary on any other satisfactory grounds, by giving sixty (60) days prior written notice to the holder; provided, however, that *compensation shall be payable to the permit holder in accordance with the civil code, for damages he incurred as a result of the amendment*, except where the amendment is made due to occurrence of natural changes in the environment.[36]

This approach is similar to Australia's New South Wale risk sharing approach to compensation payment that absolves an administrative authority to take liability for the reduction of water allocation due natural occurrence. Most importantly, the reference to the Civil Code for compensation clearly indicates the degree of legal protection a permit holder exercises against arbitrary acts of permit amendment that is not justified by *force majeure* or the occurrence factors beyond the control of the amending authority.

7.2.2. Exclusivity

In the context of ground water abstraction, a water use permit establishes exclusive use of the specified amount of water since the permit is issued to the use of water physically sourced from the underground landholding of the water use permit holder who is exclusively entitled to use such land based on land title. However, since ground water sources are hydrologically linked and 'well interference conflicts' may occur, the exclusive nature of water abstraction permits may be limited.[37] First, ground water abstraction right under the

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[35] Hilmer J Bosch, and Joyeeta Gupta, 'Water property rights in investor-state contracts on extractive activities, affects water governance: An empirical assessment of 80 contracts in Africa and Asia' (2022) 31(2*)* Review of European, Comparative & International Environmental 295, 303.

[36] Water Resource Management Proclamation (1997) art 16(3).

[37] David J Aiken, 'Nebraska GroundWater Law and Administration' (1980) 59 Nebraska Law Review 917, 927.

permit may be restricted in terms of depth of extraction, time of extraction and water pumping methods to avoid the occurrence of 'harmful effect on the water source and the environment'.[38] Second, in case groundwater abstraction permit holders share similar source of groundwater aquifers and the well interference occurs affecting water yielding capacity of other well-owners, the abstraction right of an infringing permit holder may be restricted to protect the 'legitimate interest' of the other permit holder upon the water.[39] In case a water use permit specifies rivers, lakes or water reservoirs such as dams as the location of water resources abstraction, the exclusivity of water use permit relates to the right to access the allocated amount of water specified under such permit.[40]

Furthermore, the attributes of non-rivalry may also generally apply to exclude other competing non-permit holders in case the right of a permit holder to a specified amount of water could be infringed by the unauthorized use of water from a water source under strict water allocation plan. The water allocation plan document accessed from Water Resource Utilization and Permit Desk at MoWE indicates the specified amount of dry season water allocated for each water user.[41] However, according to an archival study conducted at the MoWE, sample water use permits (annexed) issued to water users do not show a specified monthly or yearly amount of water to be abstracted or diverted from the river or irrigation canal system.[42] This is because except for the recent introduction of water metering measurements planted at the irrigation canal gates in selected locations at the Awash River Basin (AwRB), most surface and groundwater abstractions lack water metering to control and quantify the volume of water and charge for water use.[43] Despite such institutional limitation, it can be generally argued that water use permits provide a degree of exclusivity for permit use holders similar to the water use licenses examined under the water laws of the comparative countries.

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38 Water Resource Management Proclamation (1997) art 14(1)(b).

39 ibid art 14(1)(a).

40 ibid art 3(b)(d).

41 Awash River Basin Dry Season Water Allocation Plan (MoWE, Dec 2023).

42 Permit Issued to Utilization of Surface or Groundwater (Addis Ababa, MoWE, 15 May 2024) [on file]

43 Interview with Michael Birhane, Water Resource Information and GIS Desk Head, MoWE (Addis Ababa, 15 May 2024)

7.2.3. Durability

The WRM Proclamation makes a cross reference to WRM Regulation to set the 'duration and appropriate time limit for the renewal of water use permit.[44] A closer look at the WRM Regulation reveals that there is no specific duration or time limit within which the validity or effective force of the permit comes to an end. In terms of duration of permit, the WRM Regulation only refers to 'duration and extension of permit in reference to 'water works permit'.[45] The WRM Regulation states that 'the terms of validity of water works construction permit shall be fixed by the SB taking into account the useful life time of the project'.[46] Hence, in case a water works permit involves water use, the duration of the water use permit becomes the duration of the lifetime of the project as determined by the SB of the WoME. As discussed in Chapter 5, private investors may engage in water works with the intention to utilize the water in various modes of PPP arrangement. For instance, a Directive issued by the Federal Ministry of Finance to implement PPP limits the duration of PPP project to be 20—30 years subject to the type and nature of the project.[47] In such cases, the SB may extend the time limit for water works permit taking the nature of such a project.[48]

Regarding water use permit renewal, there is no specific rule that sets an appropriate time limit under both the WRM Proclamation and WRM Regulation.[49] Despite mentioning that the permit is subject to renewal there is no indication as to the period within which a permit issued for the use of water should be renewed.[50] A look at a service fee for different types of permits, Schedule one attached to the WRM Regulation lists service fee for water use permit (87 Birr) and for water use permit cancellation, transfer and alteration (55 Birr) and no other fee list for water use permit fee.[51] However, in the case of waste discharge permit, service

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44 Water Resource Management Proclamation (1997) art 15(1).

45 Ibid arts 7-10.

46 Ibid art 8(1)

47 Directive issued to implement Public Private Partnership (No 55/2010/2018) art 26(1).

48 Water Resource Management Proclamation (1997) art 8(2)

49 ibid

50 ibid art 15.

51 Water Resource Management Regulation (No 115 of 2005) Schedule Attachment No 8 &11.

fees are assigned for waste discharge permit (81 Birr), waste discharge permit alternation or cancellation (41 Birr), and waste discharge permit renewal (74 Birr).[52] Most importantly, a time limit for a renewal of waste discharge permit is set as 'every two years starting from the date of its issuance'.[53]

In the absence of a time limit for the renewal of water use permit under the WRM Regulation, there is no possibility for the cancellation of such permit based on non-renewal as envisaged under 15(3) of the WRM Proclamation.[54] Unless water use permit is canceled or revoked for violations of terms and conditions specified under the permit and the law,[55] a water use permit in Ethiopia grants a permit holder perceptual abstraction of available water similar to the experiences of Australia's New South Wales and South Australian states. Thus, the durability of water abstraction permit under the Ethiopian water law is by far comparable to Australia who promotes 'making water rights perpetual' under its NWI for robust 'water trading market'.[56]

7.2.4. Transferability

The status on the transferability of water use permit is another pivotal enabling condition for the tradability of water property rights in Ethiopia. The WRMP states that 'a water resource use permit may *legally be transferred to another person at the request of the permit holder and upon approval by the supervising body*'.[57] The WRM Regulation also elaborates on this provision and states as follows:

> The holder of a water use permit may apply to the SB to vary or to transfer the permit in whole or in part. In such a situation the application shall state the reasons for the

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52 ibid Schedule Attachment No 7, 13 & 21.

53 ibid art 13(1)

54 In practice water use permits are renewed every year by paying renewal service fees of 54 Birr. Interview with Shiferaw Demissie (n 10); Interview with Tasew Zawudie, Water Use and Permit Desk Head, Awash Basin Administration Office (at WoWE, 15 May 2024). The water use permit accessed through archival study also indicates yearly renewal spaces on it.

55 Water Resource Management Proclamation (1997) art 6.

56 Mckenzie (n 17) 448.

57 Water Resource Management Proclamation (1997) art 16(4) (Emphasis added).

variation or transfer and it shall indicate the terms and conditions under where the variation or transfer is to be effected.[58]

The two provisions stated above are similar to the features of water rights transfer under the Water Laws of comparative countries in four major ways. First, it allows a permit holder to permanently transfer a water use permit to another person by transferring the permit 'in whole'. This feature of water transfer is similar with South Africa's NWA water use license transfer that requires for the surrender of such license to the DWS to facilitate the effective transfer of the permit to a transferee creating a condition for permanent water rights trading to occur. The provision stated under WRMR also hints as to the possibility of compensation arrangement between the two parties by stating 'indicate terms and conditions under which transfer is to be effected' which is also the case under South Africa's NWA.

Second, it allows permit holders to transfer water use right under the permit partially without necessarily surrendering the permit as a whole. This is also similar with the transfer of allocation water rights under water use entitlement of the permit as recognized in Australia's water laws jurisdiction. In other words if the transfer of water permit is not in whole, a partial transfer could only mean a transfer of water allocation rights on a temporary basis.

Third, it makes transfer conditional on the authorization by the SB at the MoWE similar to the comparative countries counterparts. As indicated in section 5 of this chapter, the requirement of approval to validly transfer water rights is common in the comparative countries and represents states' role to make sure that the act of transfer may not jeopardize broader environmental objectives. As such, the act of transferring water use permit in part or in whole without the authorization of the SB MRMR is the reason for the termination of the permit.[59] Hence, an approval of water rights transfer under the permit is a validity requirement for transferability.

The fourth feature of the cited provision under the WRM Regulation is the right of permit holders to vary water use permit in part or in whole creating enabling conditions for the divisibility of water rights. The WRM Proclamation also sets the rule for flexibility of water

[58] Water Resource Management Regulation (2005) art 6(6).

[59] ibid 6(3) (b).

use permit by allowing amendment or variation where 'a permit holder may apply for a decrease or increase of the quantity of water permitted or to be allowed to '*use the water for other beneficial use'*.[60] This flexibility allows the permit holder to adjust its allocated water to short term overestimates by requesting for the decrease of its quantity that would otherwise result in termination of the permit for not utilizing it within the fixed period.[61] This provision recognizes the 'use it or lose it rule' which Chile overcame through an introduction of 'non-use charge' rather than a more stringent approach for terminating the right to use water under the permit.

Finally, from the preceding analysis, the gist of the Ethiopian Water Law for the tradability of water rights under the legal conditions of transferability of water use permit stems from article 11(1)(c) of the MRM Proclamation. This provision states that a permit is required to 'transfer of water abstracted from water resources or received from another supplier'. Hence, as long as a person holds a water use permit and water abstracted from water resources or received from a water supplier is used for 'beneficial use', the type of use specifically indicated in the permit in the first place cannot be a hindrance. By any earthly measurement, a transfer of water rights for consideration to another person who values it the most is definitely the use of water for beneficial purposes. Yet as we shall see in the next two sections the extent to which such right is enforceable provides a flesh to the bone of transferability. Therefore, the degree of transferability, divisibility and flexibility of water use permit examined above are not mere suggestions of rights of property but a display of typical property rights characterization of water use permit under Ethiopian Water Law.

7.2.5. Enforceability

The enforceability of water rights under the Water Law of Ethiopia shares similar characteristics with each of the comparative countries examined so far. Generally, the MRM Proclamation and WRM Regulation provides a three stage enforceability for resolving water

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60 Water Resource Management Proclamation (1997) art 16(1). (Emphasis added)

61 Water Resource Management Regulation (2005) art 6(3)(a).

rights claims that arises between the SB and permit holders, between water use permit holders and third parties[62] as briefly discussed below.

7.2.5.1. Use of negotiation and arbitration

The enforceability of water use rights through negotiation and arbitration methods aims to resolve any disputes, controversy or claim between the SB and the water use permit holders.[63] As such, the use of negotiation between water rights holders and the regulatory body responsible for water rights allocation is similar to China's conciliation approach. As was the case in China, the use of negotiation under Ethiopia's water law can be an expression of finding mutually agreeable common solutions to claims arising from the use of common property resources.

In case of unsuccessful negotiation attempt, a resort to arbitration is in order for the SB and water use permit holder.[64] Yet the use of arbitration to umpire water rights claims under water use permit is unique to Ethiopia and highly resembles the Arbitral Tribunal in Chile and the Water Tribunal in South Africa as examined in section 6.3.4-5 of Chapter 6. Even compared to Chile's Arbitral Tribunal which is limited to resolving claims of water rights arising between members of the WUAs, Ethiopia's 'Arbitral Tribunal' presents a unique case for enabling arbitrability of administrative decisions on water use rights in the context of claims pertaining to environmental resources.[65] Given the fact that 'all land cases including lease' and administrative contracts are non-arbitrable cases in Ethiopia[66], arbitrability of water use rights claims between water regulatory and supervising authority and a private permit holder is both innovative and concerning. This is because it introduces application of arbitration to the once traditionally reserved method to resolve disputes of commercial nature to the arena of water resources that prioritizes public interests over private

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62 Water Resource Management Proclamation (1997) art 9(1); Water Resource Management Regulation (2005) art 35(1).

63 Water Resource Management Proclamation (1997) art 9(3)

64 ibid art 9(4) and Water Resource Management Regulation(2005) art 36(1).

65 Doug Jones, 'The Importance of Arbitration to the Resources Sector' in Gabriël A Moens and Philip Evans (eds.), *Arbitration and Dispute Resolution in the Resources Sector: An Australian Perspective* (Springer International Publishing Switzerland 2015) 23.

66 Arbitration and Conciliation, Working Procedure Proclamation (No 1237 of 2021) art 7(6)

commercial objectives. Most importantly, the statutory arbitration introduced under the WRM Proclamation delivers public water rights allocation decision making to the fingertip of a private umpire with the applicability of private law like any other commercial disputes.[67] Thus, it can be argued that the recognition of statutory arbitrability of claims or rights arising from water use permits implies a high degree of water property rights attributes that can promote tradable water abstraction rights in Ethiopia.

7.2.5.2. Use of quasi-administrative tribunal

The SB is mandated to enforce any claims and duties over water use that may arise between water use permit holders, as well as between permit holders and third parties.[68] The administrative competence of the SB can be assimilated to a status of quasi-administrative tribunal as it manifests features of separately established administrative tribunals that follow the dispute settlement procedures applicable to the regular courts.[69] To a limited degree, the role of SB in examining and deciding on the claims that arises between private water permit holders and third parties can be comparable to Chile's DGA administrative 'considerations for appeal' and South Africa's Water Tribunal that decides on matters of use and access to water for commercial purposes as indicated under section 6.3.5 of Chapter 6. Compared to South Africa's Water Tribunal, the SB lacks autonomy as it simply constitutes the MoWE with members whose expertise and specializations are not prescribed under the WRM Proclamation.[70]

Finally, the most important competence of the SB relates to '*the power to determine and execute compensation to be paid by one party to the other*'.[71]Thus, it can be argued that this specific prescription guarantees enforceability water use rights as it underpins a degree of security to proprietary claims arising from water use permit in case of potential

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67 Water Resource Management Regulation (2005) art 36(2).

68 Water Resource Management Proclamation (1997) art 9(1).

69 Water Resource Management Regulation (2005) art 35.

70 Water Resource Management Proclamation (1997) art 2(7): 'Supervising Body means the Ministry [MoWE] where it pertains to water resources at the central level, or any organ delegated by the Ministry pursuant to article 8(2) of this proclamation'.

71 ibid art 9(1). (Emphasis added)

disagreements as to the compensation arrangements made between water use permit holders during the trading and transfer of such rights.

7.2.5.3. Use of regular courts

The right to appeal against administrative or arbitral decisions provides additional layers of access to justice to ensure the enforceability of water use rights. Regular courts provide an important judicial forum to ensure observance of minimum substantive and procedural guarantees by reviewing administrative and arbitral decisions that negatively affect the enforceability of water use rights. As indicated in section 6.3.5 of Chapter 6, appealability of water right claims pertaining to water use license against administrative decisions or arbitral awards is common practice in all of the comparative countries. The variation is also observable on the scope of appealable water rights and whether appellate courts are limited to entertain questions of law or questions of fact as indicated in South Africa's appeal right against the decisions of the Water Tribunal.

In a similar approach, Ethiopia's WRM Proclamation and WRM Regulation guarantees appealability against the administrative decision on passed on the disputes or claims between water permit holders. The WRM Proclamation clearly states that disputing water use permit holders are entitled to appeal against the decisions rendered by the SB to the court of competent jurisdictions within 60 days of the receipts of the decision.[72] In the case of arbitral awards rendered on the SB and water use permit holders, the WRM Regulation similarly states that a 'party disfavoured by such decision shall have the right to appeal to the court having jurisdiction.[73] In both types of appeal rights, there are no limitations on the scope of appellable decisions or awards and questions of law or facts providing broader breadth of enforceable rights to claiming water users compared the comparative countries examined.

Finally, it is important to note that an archival study at the MoWE legal service department and water use and permit administration departments indicates that water related claims or

[72] ibid art 9(2).

[73] Water Resource Management Regulation (2005) art 35(1)(e).

disputes currently handled by the Ministry only relates to claims of extra contractual liabilities for flooding flowing out of the canals. According to an interview with a key informant at the Legal Service Department of the MoWE, there is no ongoing negotiation, arbitration or litigation cases related to claims arising out of water use permits so far.[74] Despite the existence of limited registration of water use permits, there is no disaggregated data on the registration of canceled, suspended or terminated water use permits by the SB at the MoWE.[75]

7.3. Status of water rights trading in Awash River Basin

7.3.1. Description of case study area

Awash River originates near *Ginchi* highlands of Ethiopia and flows north-east traveling a length of about 1200 km covering a total catchment area of 116,000km^2.[76] The river flows across Oromia, Afar, Amhara, former Southern Nations Nationalities and Peoples (SNNPR) and Somali and city administrations of Addis Ababa and Dire Dawa as seen in Figure 1.[77] Awash River Basin (ARB) is 'most utilized river basin' where the first modern large scale and private irrigated farms started in Ethiopia.[78] With inhabitants of more than 15 million, ARB hosts about 60 percent of large-scale irrigated agriculture and more than 65 percent of industries in the country.[79] Major cities in Ethiopia like Addis Ababa and its environs, Adama and Matahara utilize ground or surface water resources for domestic, commercial and industrial purposes. For instance, Addis Ababa city uses 80 percent of surface water from its two major reservoirs of *Gafersa* and *Lagadadi* and 20-25 percent from groundwater of the *Akaki* aquifer.[80] Recent data estimates Gafersa, Lagadadi and Akaki groundwater aquifer

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74 Interview with Naima Yusuf Ahimad, Legal Service Executive Officer (Addis Ababa, MoWE, 15 May 2024).

75 Interview with Shiferaw Demissie (n 10); Interview with Tasew Zawudie (n 54).

76 Kebede Nanesa Tufa, 'Review on Status, Opportunities and Challenges of Irrigation Practices in Awash River Basin, Ethiopia' (2021) 10 (4) Agrotechnology 207.

77 Adey Nigatu Mersha and others, 'Integrated Water Resources Management: contrasting principles, policy, and practice, Awash River Basin, Ethiopia' (2016) 18 Water Policy 335, 337

78 Mohammed Gedefaw and others, 'Water Resources Allocation Systems under Irrigation Expansion and Climate Change Scenario in Awash River Basin of Ethiopia' (2019) 11 Water 1966, 1967

79 Tufa (n 76) 207.

80 Amare Haileslassie and others, 'Diversity and tradeoffs of water values in the Akaki River system in Ethiopia: context of urban–rural linkage' (2024) 10 Sustainable Water Resources Management 101;

reservoirs supplies about 30,000m^3 195,000 m^3 and 70,000 m^3 of water per day respectively.[81] Regarding, irrigation water use, Koka, Tendaho and Kessem constitutes the three major dam reservoirs with a total 'storage capacity of 3.16 billion m^3' and 'more than 2,500 equipped irrigation schemes' providing as a physical sources of water during dry seasons for both permit exempt and non-exempt irrigation water users in the ARB.[82]

In general, water use for irrigation purposes in the ARB constitutes the largest water abstracting sector similar to the four river basins of the comparative countries examined under Chapter 6. However, unlike the river basins of the comparative countries with a developed and developing formal water rights transferring and trading practices, formal water rights trading is non-existence for the following major reasons except for limited cases of formal water use right trading. The first reason is attributable to lack of a regularized water use permit system with the overwhelming majority of water users in the ARB still constituting non-permit holders (table 1 and 2 below). The second reason is attributable to the limitations of specifying or assigning an amount or volume of water to be utilized by the permit holders within a specified period of time even for those limited number of holders. The third reason is attributable to the absence of measures that promote water rights transfer and trading as was the case in comparative countries such as Australia and China.

7.3.2. Lack of water rights regularization program

It is well noted under the comparative discussion that success and failure of formal water rights transfer and trading practice essentially depends on the robustness of the water use permit registration system. Nevertheless, despite adoption of Water Abstraction Registry under the MRM Proclamation and MRM Regulation, its practical implementation is limited to the few issuance of water use permit system making permit registration very insignificant

Mesfin Benti Tolera and Il-Moon Chung, 'Integrated Hydrological Analysis of Little Akaki Watershed Using SWAT-MODFLOW, Ethiopia' (2021) 11 Applied Sciences 6011

81 Haileslassie and others (n 78); Dereje Adeba, ML Kansal and Sumit Sen, 'Assessment of water scarcity and its impacts on sustainable development in Awash basin, Ethiopia' (2015) Sustain. Water Resource Management 71, 72

82 Yusuf Kedir and others, 'Comparative Efficiency Analysis of Irrigation Scheme Categories of Awash River Basin, Ethiopia' (2021) 79 Journal of Resources Development and Management 21, 23; Awash River Basin Dry season Water Allocation Plan (Awash Basin Administration Office Water Resource Use and Permit Desk, Nov 2023). According to this water allocation plan for water users located in ARB, the total storage capacity of the three dams combined is estimated to 2.35 BCM as of November 2023.

to promote security in water rights transfer arising under such registered permit in the ARB.[83] As can be seen from Table 2 below, the most recent Water Audit study conducted by the MoWE on irrigation and industrial water users in the ARB, the overwhelming majority of water users ARB do not have water use permit. This study also (see table 2) reveals the stage of Ethiopia's groundwater use permit system even in the capital city where the MoWE headquartered.

Basin State/City	Water User Sector	Scale	Permit	No Permit	Missing	Total	Registering Body
Afar	Irrigation	Small	4	2	0	6	ABAO and WCoop
		Medium	1	1	0	2	ABAO
		Large	1	1	0	2	Missing
Amhara	Irrigation	Small	29	99	34	162	Woreda WSO/WCoop
		Medium	4	2	4	10	Woreda WSO/WCoop
Dire-Dawa	Irrigation	Small	0	14	2	16	-
	Irrigation	Small	63	83	29	175	-
Oromia		Medium	7	12	3	22	OIDA
		Large	6	0	0	6	ABAO/OWEB
Somali	Irrigation	Small	0	11	3	14	
		Medium	0	4	2	6	
Grand Total			115	229	77	421	
OIDA (Oromia Irrigation Development Agency)							
OWEB (Oromia Water and Energy Bureau)							
ABAO (Awash Basin Adminstrative Office)							
Wcoop (Woreda Cooperatives Office)							

Table 2: Irrigation Water Use permit Audit in ARB (MoWE, 15 May 2024) (own tabulation)

As can be seen from *table 1,* permit based users constitute 27.3 percent of the total irrigation water users while 54.4 percent of irrigation water users lack permits to use water resources in the ARB. There are also water users who did not want to identify their permit status constituting 18.3 percent of the total irrigation water users. Considering the latter group as non-permit holders raises the percentage of total non-permit holders to 72.7 indicating the low level of water use rights state of water use rights registration in the ARB. In terms of water rights registering bodies, there is no uniformity as both regional states administrative units and Awash Basin Administration Office involve in the registration of both surface or groundwater abstraction for irrigation use. In the Amhara region, even W*oreda* water supply offices are involved in the issuance of irrigation water use permits. Hence, with such low level

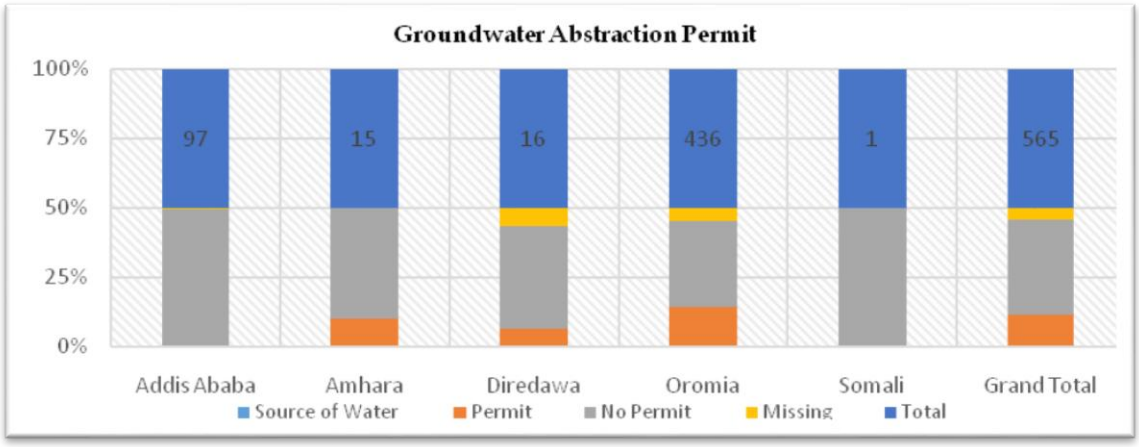
[83] Interview with Shiferaw Demissie (n 10); Interview with Tasew Zawudie (n 54).

of water use regularization, the development of water right transfer and trading among irrigation water users is a less likely endeavor.

Basin State/City	Source	Total	Permit	No Permit	Missing	Registering Body
Addis Ababa	Groundwater	97	0	96	1	MoWE/AAWSA
Amhara	Groundwater	15	3	12	0	ABAO/AWEB
Diredawa	Groundwater	16	2	12	2	Missing
Oromia	Groundwater	436	125	269	42	OWEB
Somali	Groundwater	1	0	1	0	-
Grand Total		565	130	390	45	

Table 3: Industrial Water Use permit Audit in ARB (MoWE, 15 May 2024) (own tabulation)

As can be seen from *Table 2*, the highest number of groundwater abstraction in ARB is located in Oromia Regional state with 77.2 percent of water users with 28.7 percent of water use permit holders. In other basin states and the more advanced cities of Addis Ababa and Dire-Dawa where supervisory and regulatory have relative access, water use permit is almost totally absent for groundwater abstraction. (See the following Chart for comparison).



Illustrative Chart 1 based on **Table 3.**

Hence, absence of water use permit means absence of formally transferable water use rights as one cannot transfer illegally abstracted water as a legal right in the context discussed so

far. This situation could be referred to as illegal informal water markets since the 'transfer of water abstracted from water resources or received from another supplier' should be based on a water use permit formally recognized as registered at appropriate water authority. Unless one is to make reference to the informal water trading in ARB, which is not within the scope of this dissertation, it is very difficult to conclude that the normative frameworks on the attributes of water property rights as analyzed in section 6 is actually put to practice. This remark brings us to the legal and practical merits of article 5(14) of the New Commercial Code (NCC) that considers 'capturing and supplying water' as a tradable economic activity. Yet such a provision of the NCC further merits to see the legal contexts of addressing such similar issues.

The Repealed Commercial Code (RCC) under article 5(12) lists 'Capturing, distributing and supplying water' as an act of trade that determines the status of someone as a 'trader'. The RCC reinforces the previous legal status of private water appropriation rights recognized under the CCE discussed under section 5.1.2 of Chapter 5. In that context, a person is not required to hold a water use permit to capture or abstract and distribute water 'for gain' given the CCE and RCC predates the current water use permit system. Under the current permit based water abstraction system, the provision of the NCC that refers to 'capturing and supplying water' as a trade activity cannot be taken for granted to establish the tradability status of water abstraction and supply as of right. In other words, the implementability of this provision depends on the conditions stated under article 11(1) (c) of the MRM Proclamation that requires a water use permit to formally 'transfer water abstracted from water resources or received from another supplier' as a tradable activity for gain.

7.3.3. Lack of well-defined water allocation plan

Unlike comparative countries such as China and Australia with well-defined Water Allocation Plan as a source for determining the amount of water allocation rights among water use permit holders, there exists a serious constraint in the Water Allocation Plan in the context of ARB. The significance of the annual water allocation plan in the context of ARB for assigning specified amounts of water for water use permit holders is limited for the following major reasons.

First, as examined under the comparative context, the practicality of water rights transfer and water rights trading depends on a clear specification of the amount of water allocated to water users under the water use license. However, in the Ethiopian ARB context, it is indicated that the applicant for a water use permit is required to specify the amount of water to be abstracted either monthly or annually. Based on this water demand, the MoWE prepares an annual Water Allocation Plan based on the requested amount of water by water users 'without taking the availability of water in the reservoir into account'.[84]

Second, the first problem is further exacerbated by the fact that the water demands of unregistered water users is not precisely known affecting the practicability of the water allocation plan in the ARB. The irony as mentioned in the Water Allocation Plan is that the MoWE knows those unregistered water users and proposes to make 'an effort to get water users registered, or at least have an accurate number of the water use of unregistered users'.[85] Thus, the implication of such a water allocation plan discourages water use permit holders since it is okay for the SB to plan an allocation of water for non-permit holders as long as the precise amount of water they demand is known. Hence, such practice of water allocation plan basically erodes the policy objectives of water use permit and user registration that in turn affect the degree of exclusivity of allocated water use rights of the permit holders. Therefore, the current practice of water allocation plan is neither situated to encourage registered water users nor designed to create an enabling condition for promoting water rights transfer or trading among water permit holders and non-permit holders if not among permit holders.

7.3.4. Lack of water rights transfer programs

In the context of ARB, there are no clear guidelines to implement formalization of water rights transfer and trading to implement the water policy objectives of treating 'water as an economic good that requires allocation of water with all its competing uses' as discussed in Chapter 3 and 4.[86] Although ARB is the only example where water pricing or water

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[84] Awash River Basin Dry season Water Allocation Plan (Awash Basin Administration Office Water Resource Use and Permit Desk, Nov 2023).

[85] ibid

[86] Interview with Belayneh Yirdaw, Integrated Water Resource Management Lead Executive, Ministry of

abstraction charge was introduced among the 12 river basins,[87] there is no comprehensive national water abstraction charge that serves as a benchmark price for the initial allocation of water resources among competing water users in the river basin. As noted in Chapter 6, payment of water abstraction charge is a condition for issuance of water use permits in Australia, South Africa and China. While the water abstraction charge adopted in the 1990s is still operational for the allocation of irrigation water from irrigation infrastructures maintained by IWUAs and Awash Basin Administration, there is no water abstraction charges for other types of non-permit exempted water users affecting the development of initial water allocation system based water use permit holders willingness and ability to pay for the volume of water consumed.

Furthermore, unlike the case of Australia's MDBA that sets manage water rights transfer and trading in an integrated manner, Awash Basin Authority (AwBA) previously designed to serve similar purpose was abrogated and reduced to the technicality of 'administrative office' primarily dealing with water resource use and permit administration in the basin restructured as an unit in the MoWE.[88] Compared to China either, there is no attempt made so far to implement water rights transfer and trading to at least encourage conservation based water rights trading at least in terms of regional water transfers through the schemes of inter-basin water transfers.[89]

Finally, having analyzed the status of water rights trading in ARB one may conclude that formal tradable water rights currently in practice is dominated by the practice of bottled water trading. It can be argued that as long as a 'bottled up' water emanates from a water abstracted based on water use permit, water bottling squarely fits to the requirement of

Water and Energy (Addis Ababa, 15 May 2024).

87 The Water abstraction Charge was introduced in 1994 where water users are required to pay 3 birr/1000m3 of water. See Mekonen Ayana and others, 'Irrigation water pricing in Awash River Basin of Ethiopia: Evaluation of its impact on scheme-level irrigation performances and willingness to pay' (2015) 10(6) African Journal of Agricultural Research 554, 563. There is a draft 'Council of Ministers Water Use Charge Regulation' prepared based on the study I also participated in, still awaiting approval by the Councils of Ministers.

88 Interview with Belayneh Yirdaw, Integrated Water Resource Management Lead Executive, Ministry of Water and Energy (Addis Ababa, 15 May 2024).

89 The Water Resource management Policy (1999) promotes 'inter-basin transfer of water' as basic principles for the development of water resources to address the disparity of available water amongst the different basins and the erratic devastations due to the extremities of drought and floods.

capture, supply or distribute (transfer) conditions of article 5(14) and article 11(1) (c) of the NCC and MRMP respectively. As can be observable, the scope of these two articles are limited to the tradability of water abstraction rights only when someone captures or abstract and distributes water 'for gain' with the status of a trader. To that extent one can conclude that water abstraction rights in Ethiopia qualify for the status of tradable water property rights. Yet as far as tradability of water abstraction rights in the context of non-trader status such as in irrigation or industrial water use sectors is concerned, the status of tradable water abstraction property rights is limited to the normative space with absent formal application and development of water rights trading in practice.

7.4. Chapter summary

Whether water use rights under water use permit system confers rights of property on a permit holder is a vital normative condition to facilitate tradable water rights. Theoretically, tradability of water abstraction rights depends on the extent to which law characterizes such rights as property rights that can be tradable like a commodity or product in commerce. This chapter has employed the conceptual frameworks of property rights attributes to analyze the extent to which water rights arising under water use permit are tradable in Ethiopia. The chapter also analyzed the nature of water use permits under the Ethiopian WRM Proclamation and WRM Regulation in comparison with the attributes of water use license of comparative countries to see to what extent it theoretically confers the attributes of tradable water property rights.

Furthermore, the functionality of tradable water rights is also compared in light of four river basin case studies to compare status of water rights tradability in the context of ARB. Thus, based on critical analysis of the property rights characteristics of water use permit and reflections of the comparative countries, the chapter draws the following four major concluding remarks on the tradability of water abstraction rights under the Ethiopian WRM Proclamation and WRM Regulation.

Firstly, the WRM Proclamation and WRM Regulation formally creates an enabling normative conditions for a tradability of water abstraction rights since legal rights under water use permit can be characterized as property rights. Despite an existing ambiguity on what constitutes 'water use' under the WRM Regulation, a closer look at the quality of water use permit reveals well-defined attributes of property rights creating transferable water rights. It is concluded that such manifestations of water use permit implies that water abstraction rights arising from permit title is an indication of its normative status as tradable property rights.

Secondly, the functional implementation of tradable water abstraction rights based on water use permit has not taken off the ground and can be considered as a still born child whose viability is yet to be determined in the future. Tradability of water abstraction rights as it stands now remains theoretical and paper based water property rights in the absence of (a) up-to-date water abstraction charge, and (b) clearly defined water allocation plan and (c) in the context of slow or limited pace of water use permit registration and (d) lack of formal practice on the transfer of water rights. Hence, despite the ideals of treating water as an economic good as espoused in water policy and law, putting into practice through tradable water rights allocation is lagging behind at least and has not taken off the ground at most.

Thirdly, a closer reading of the WRM Proclamation and WRM Regulation reveals that much of the provisions are dedicated to water work permits and professional certificates associated with it, making water resource regulation trapped in supply-driven and engineering matters. As such, it can be concluded that the water policy and law reform ideals of treating water as an economic good under the WRM Policy and WRM Proclamation is an 'isomorphic mimicry'[90] designed to lure the WB and international financial institutions without the intended consequences of the government of Ethiopia to put these policy imperatives into function. Therefore, the manifestations of water property rights attributes under the legal provisions of the WRM Proclamation and WRM Regulation represent

[90] Matt Andrews, Lant Pritchett and Michael Woolcock, Building State Capability: Evidence, Analysis, Action (Oxford University Press 2017) 31.

theoretical and normative rhetoric of progress and reform to enhance external legitimacy and support despite lack of functional capability to implement it.[91]

[91] Matt Andrews, Lant Pritchett, Michael Woolcock, 'Escaping Capability Traps through Problem Driven Iterative Adaptation (PDIA)' CID Working Paper No. 240 June 2012.

CHAPTER 8

Conclusion and Recommendations

'There is no shortcut for a poor society to morph its informal water economy into a formal one'.[1]

8.1. Introduction

The allocation of freshwater resources in the face of increasing global and domestic demand has created two competing tensions: public allocation of water as public good vis-a-vis private allocation of water as an economic good. On the one hand, the significance of water as a valuable natural resource to sustain life on earth essentially legitimized the government as the only trusted authority to dominate the supply and allocation of water resources in the interest of the public. In the Ethiopia setting, this claim is basically entrenched in the normative recognition of water resources as a state or public property vesting the state to exclusively manage and allocate water for the common benefit of the people. On the other hand, the inability of the state to adequately finance water supply and efficiently allocate water resources has forced the government to open up alternative water policy space to overcome those challenges. The financial loan conditionalities and knowledge powerhouse impact of international financial institutions and their sponsored water policy think tanks, has also directly or indirectly influenced the Ethiopian water policy to adopt the following three major global policy imperatives.

First, the government has adopted a water resource management policy that recognizes water as an economic good in all its competing use with the price assigned for its initial allocation. Second, in order to overcome the challenges of financial constraints in water supply services, the water policy of the Country promotes self-supply or abstraction of water and private sector involvement as an additional option for the development and use of water.

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[1] Tushaar Shah and Barbara van Koppen, 'The Precept and Practice of Integrated Water Resources Management (IWRM) in India' in Vishal Narain and Annasamy Narayanamoorthy (eds), *India Water Policy at the Crossroads: Resources, Technology and Reforms* (Springer International Publishing 2016) 29-30.

Third, managing water rights as usufruct property rights to promote efficient use and encourage private investment in water resources. These three global water policy imperatives can be considered as the major tenets recurring in Ethiopia's water policy and law that has served as a normative basis for private allocation of water as an economic good with overarching policy objectives of ensuring efficient use of scarce resources.

Hence, this dissertation has set-out to examine first, how property rights in water is conceptually and theoretically understood, and why global and continental water policy imperatives treat water as an economic good—the status of water as a good or resource over which one can exercise rights to such good or resource with or without conferring property rights. The literature review in Chapter 2 has shown that putting water resources under public property regime and the contentions that water is fugitive in nature does not warrant the absence of property rights in the abstraction and use of specified amounts of water.

Based on the literature review of Chapter 3 and Chapter 4 two gaps in knowledge have been identified in the Ethiopian context. The first gap in knowledge is that there is limited scholarship in establishing how the recognition of water as an economic good interacts with legal rights to its access viewed through the lens of property rights theory. The existing body of legal scholarship is confined to the debate on determining the status of water as a good/product or services under domestic, regional or international trade or investment legal regimes without clarifying how the status of water as economic good creates property rights over such 'good'. In this regard, the existing body of knowledge is ambiguously crafted as to whether the recognition of water as an economic good also entails the recognition of property rights in water or vice versa.

The second gap in knowledge is that there exists limited insight on how recognizing water as an economic good promotes efficient use of water resources with or without well-defined and transferable property rights in the allocation of water resources. This gap in knowledge has become a major strain in water policy and law that requires one to test the theory of tradability as a means to achieve the objectives of efficient allocation or reallocation of water resources through well-crafted and implementable property rights in water as the intended policy consequences of recognizing water as an economic good. On that account, this dissertation addresses the central question:

How are water abstraction rights recognized under the water use permit system in Ethiopia normatively structured when compared to selected comparative countries? Does it create tradable water property rights as an intended consequence of treating 'water as an economic good' for efficient allocation and exploitation of water resources?

This chapter in Section 8.2 answers the research question and concludes the lessons learnt from the analysis of:

(a) how the different forms and nature of water abstraction rights are rooted in the existing water resource normative instruments;

(b) the extent to which water use permit/license or water use entitlements in selected comparative countries and Ethiopia manifests attributes of property rights to determine tradability of water abstraction; and

(c) how water abstraction rights are tradable or non-tradable chiefly leaning on water rights trading experiences from comparative countries and Ethiopia's selected river basins.

Section 8.3 concludes the major findings of the dissertation. Section 8.4 outlines policy recommendations on the implications of tradable water abstraction property rights to ensure efficient allocation and exploration of Ethiopia's water resources. Section 8.5 discusses the contribution of this dissertation and forward ideas for further research.

8.2. Answering the research questions

This dissertation has aimed to understand whether the recognition of water as an economic good in Ethiopia, as part of the global water commodification and water property rights reform, reinforces or impedes the tradability of water abstraction rights as instruments of ensuring efficient allocation of water resources. In order to answer the central research question and sub-questions, the dissertation has adopted a doctrinal legal research method to qualitatively analyze the primary data of water policies and legislation based on functional comparative legal research approach.

In answering the research questions, I have undertaken a review of literature on the understanding of property rights in water resources and assessed the nexus between the

treatment of water as an economic good and water abstraction property rights in global and comparative contexts. Furthermore, the legal status and nature of water resource property rights ownership and the attendant attributes of water abstraction property rights in the comparative normative contexts of Chile, Australia, China and South Africa were analyzed with reference to experiences of water rights trading in their respective river basins. Finally, the similar comparative analysis on attributes of water abstraction property rights to determine the legal status of its tradability in the context of Ethiopia. An effort is also made to complement related issues of the research questions through key informant interview, archival document analysis and empirical literature review of water rights trading in ARB on the administration of water use permit. The following subsections provide major concluding remarks on the research questions raised under the dissertation.

8.2.1. Water as 'abstracted economic good' and its nature as property rights

In this dissertation, whether water abstraction rights in Ethiopia is either tradable or non-tradable is addressed based on three perspectives.

First, I have used the concepts and theory of unbundling of property rights in such a way that the private actors can exercise legitimate authority over certain aspects of property rights in public property regimes of water resources in a way that such rights could be formally tradable in the water market. The tradable status of water abstraction rights is anchored in the conceptions of property rights as a legal creation despite the competing arguments for the insusceptibility of water resources to the attributes of property. From this perspective, the dissertation espoused the task of anchoring the nature of water abstraction right as conferring property right as a legal creation based on the notion that 'property rights are typified by ordering of relations among persons with respect to resources'.[2]

The insusceptibility debate of water abstraction right to the nature of property rights is debunked by examining the legal status of water rights as property right in the sense that property rights in water does not necessarily take someone to own the corpus of the water resources itself but to use and benefit from a specific amount of it. The kernel of promoting

[2] Amnon Lehavi, *The Construction of Property: Norms, Institutions, Challenges* (Cambridge University Press 2013) 23

property rights in water is not to only create normative conditions for private consumption of water abstracted from water sources, but also to facilitate a tradable water rights as an instrument of allocation and reallocation to ensure that the objectives of efficient allocation and use of scarce water resources are achieved.

Second, I have examined the question from the perspective of commodity approach as espoused by global soft and hard norms that pushes for the treatment of water as a 'good' or 'product' subject to the rules of commerce or trade for its valuable exchange in the domestic or cross-border trade. In this perspective, the dissertation examined NAFTA (and its replacement USMCA)where its member states are cautious in treating trade in bulk water abstraction as a trade in goods under such free trade agreement depending on its domestic trade in water or services practice and normative recognition as good in commerce. Based on such understanding, the normativity of tradable water abstraction property rights is anchored in the domestic recognition of water as a 'good' or product with an amplification of water market and private actors to play an instrumental role for optimal allocation of scarce water resources.[3] From this vantage point, the dissertation discussed how treating water as economic good becomes a water policy tool in Ethiopia to promote efficient use of water resources among competing water users and assist to wither away with the thinking that water is a freely available natural resource without incurring cost, at least theoretically.

The dissertation further complemented the nature of water abstraction property rights from two mutually reinforcing perspectives. On the one hand, the policy of water abstraction charge is promoted in Ethiopia and comparative countries (except Chile) to signal an initial exchange value for a volume of water abstracted thereby creating proprietary interest to the specified amount of water to be claimed as water allocation right for which price is paid. Despite the outdated and absence of a national water abstraction charge in Ethiopia, the water policy foundation for it inevitably facilitates the development of high value water allocation among water users who need it the most for purposes other than basic domestic and stock demands. On the other hand, treating water as an economic good with price set for its consumption ignites water to constitute as a commodity in commerce with an

[3] see Chapter 3 and 4

exchange market value for its future re-allocation. Ultimately, treating water as 'a commodity par-excellence' is set to promote the efficient use of water with the consequences of the water market as a means for facilitating water re-allocation among initial water allocation rights holders.

Based on such analytical approach, a bridge of normative continuum is established between the consequences of treating water as an economic good and its attendant result of property rights creation that legally confers water abstractors to specified amount of water with a quality of 'good' amenable to the characteristics of a 'thing' depending on how it further manifests attributes of property rights. Yet it is shown in this dissertation that the water policy understanding of treating water as an economic good is limited, introducing water pricing and cost recovery schemes in water supply side context characterizing Ethiopia as predominantly hydraulic state.

Thirdly, I have employed a conceptual and comparative framework to understand the nature of water abstraction rights tradability since not all water abstraction rights recognized as property rights (conferring usufruct rights to water resources) are amenable to the water rights market.[4]

This third perspective is an original contribution to the discussions of water resources property law in Ethiopia as it sets out the 'golden threads' with which to objectively assess the nature of water property rights tradability. In this approach, what is sought is a systematic answer to the second research question - the extent to which water abstraction property rights in Ethiopia and comparative countries confer a tradable water abstraction property as an instrument to realize efficient allocation and exploitation of water resources. As addressed in the next subsection, an answer to this question and sub-questions is analyzed in comparative perspectives based on well-established attributes of property rights that normatively determines the status of water as tradable and non-tradable property rights.

[4] see Chapters 4–7

8.2.2. Water abstraction property rights and its tradability status

The dissertation established that recognition of water abstraction rights does not necessarily warrant its status as an ultimate tradable property rights. In examining whether water abstraction rights may or may not be amenable to tradable status in Ethiopia, the dissertation approached it as follows.

First, I have identified and defined five attributes of property rights as common conceptual and normative standards to systematically guide my qualitative analysis on the tradability of water abstraction property rights.[5] These attributes of water abstraction property rights designed to test or evaluate water use permit or license include:

- *Quality of title:* the extent to which legal rights to a specified amount of water abstraction is well-defined and registered to secure and protect proprietary interests of the right holder under the water use permits;
- *Exclusivity*: the extent to which water use permit guarantee exclusive use of the specified amount of water by the rights holders;
- *Durability:* the extent to which the period of time for the expiration of water use permit enables water use permit holders reasonably encourages investment in water resource use taking into account the nature of the investment (a water use permit with longer duration or no expiration period considered to manifest a high degree of property rights);
- *Transferability*: whether water rights acquired under water use permit including the permit itself is transferable to other persons on either temporary or permanent basis; and
- *Enforceability*: whether holders of water use rights created under water use permit or license can bring legal actions or claims for an infringement on the right to exercise water property rights due to encumbrance by the administrative bodies, other permit holders, or third parties.

Second, I have qualitatively tested how these common normative standards are functionally structured in water laws of comparative countries given their exemplar status as countries with widely researched and globally recognized models for designing and implementing tradable water rights. The dissertation in this regard introduced the importance of learning

[5] See Chapter 2, Chapter 6 and Chapter 7.

from the parallel comparative analysis of selected countries` water laws to draw a cumulative comparative lesson in analysis of Ethiopia's context. In this approach, the dissertation attempted to minimize if not avoid country bias of 'best practice' isomorphic approach by relying on common threads across countries for finding similar functional solutions to common water resource use efficiency problems across compared countries.

Third, the dissertation assessed the examples of water rights trading in selected river basins of comparative countries and that of Ethiopia to look into how some elements of property rights in water are put in place to implement tradable water rights.

8.2.2.1. Attributes of quality of title

Predominantly, quality of water abstraction permit title in all of the comparative countries and Ethiopia is expressed in terms of unbundling of water rights from land title, registration of water use permit and payment of compensation. Regarding unbundling of water rights from land title, it is shown that all comparative countries and Ethiopia alike introduced a water use permit system decoupling water rights from land holding title. Though water abstraction rights in all comparative countries and Ethiopia is predominantly irrigation water use that inevitably attaches water use permit to landholding irrigable land, the permit based water rights creates separate titles to the use of land and water resources.

Similarly, given that a water use permit establishes the right to access and abstract water from water sources, registration plays a pivotal role in the regularizations of water rights that assists to facilitate water rights trading. It is shown that while all comparative countries and Ethiopia established water use registry, none of these countries' water resource laws specifically indicate that water rights registry implies legal title to water use rights. In comparative countries and Ethiopia's water laws, water permit holders, registration of water abstraction rights become a condition for the formal water rights trading since transfer of water allocation rights or water use permit require approval of the responsible water authority. Thus, registration or non-registration of water use permit determines whether water rights could be tradable or non-tradable. Therefore, based on such functional attributes of registration, the fact that water rights registration is normatively

recognized and practiced in Ethiopia, albeit to a limited extent, sets out a condition for tradable water use permit similar to all of the comparative countries.

In terms of promoting water allocation efficiency, making registration of water use permit as a condition for tradable water rights encourages informal water users to register their water use that in return assists formalization of unregulated access to water resources. As can be learned from the experiences of comparative countries, registration of water use permits can assist responsible water authorities to collect water consumption data from registered water users to design water allocation plans based on the reasonable water demands of water users. In this regard, it is shown that a significant number of non-permit water users in the ARB informs how non-registration of water use permit affected governments water resource allocation plan in such a way that available water resources are allocated in economically efficient and productive manner.[6]

Regarding compensability as key attributes of property rights in water abstraction, it is shown that there is no similar and unified approach in all comparative countries. It is shown that except for a few Australian federating states, the recognition of compensable water use entitlements in case of potential infringements is cautiously approached. Essentially, the reluctance of some states in Australia to recognize water use entitlements as tradable water rights but not property rights in the strict sense of the term is attributable to a strategy of 'no retreat or surrender' to the benefits of promoting trade as an instrument of water resource reallocation and the burden of compensation payment respectively. It is revealed that examples of some states in Australia to recognize tradable water rights without the need to declare it as rights in property provides important water policy advice for those countries who are skeptic about the recognition of compensable property rights in water resources. The outright recognition of tradable water rights shows that it is functionally possible to promote efficient reallocation of water resources without the hustle of recognizing water use entitlements as property rights.

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6 see Chapter 7, Section 7.3

Yet the water laws of other comparative countries and Ethiopia directly or indirectly refers to the compensable nature of water rights in case of economic or proprietary losses resulting from state expropriation or third party infringements. The implications of the varying approach in the context of Australia and other comparative countries can be weighed depending on how these countries desired to encourage investment in the water resources sector with or without the instrumental role of property rights. Given the level of economic development and financial constraints in the water sector, countries like South Africa, China and Ethiopia may find it imperative to recognize compensable property rights in water resources to attract foreign direct investment in the water sector. Because foreign investors may demand investment guarantee for the protection of their property rights before sinking their financial leverage into water sector long term projects.

8.2.2.2. Attributes of exclusivity

In Chapters 6 and 7, the dissertation has shown that water abstraction property rights attribute both in comparative perspectives and Ethiopian context is defined in terms of the degree of exclusive allocation rights a permit holder can enjoy to the specified amount of water as per the available water allocation plan. Like any other limitations imposed on the attributes of private property rights in general, the exclusive nature of water abstraction rights under water use permit is not absolute and could be subjected to the constraints of natural exigencies, human and environmental rights prioritizations. However, despite the normative basis of water use permits exclusivity under the water law, its applicability in practice is affected by lack of well-defined water allocation rights and limited institutional capacity of the MoWE to effectively promote registration of non-permit water users in ARB.

In a condition of the annual water allocation plan that failed to exclude non-permit water users in the ARB, applicability of exclusive use of water allocation rights granted for permit holders is highly constrained. This situation ultimately affects the creation of water rights trading among permit holders who may be able to transfer their exclusive surplus water allocation rights at times of unmet water demands. Therefore, in a current situation where non-permit water users are easy riders for benefiting from the annual water allocation plan capable of reducing the amount of water allocated to water permit holders, the

crystallization of tradable water rights with the attributes of exclusively transferable water allocation right is an unlikely incident.

8.2.2.3. Attributes of durability

Depending on the length of time, duration of water use permit provides a degree of property rights attributes to determine whether water abstraction rights arising under the permit are tradable or non-tradable. On the one hand, it is a commonly established rule of property law that a longer duration for exercising property right over certain valuable resources creates a greater degree of certainty and predictability to make rational decisions as to what and what not to do with such resources. On other hand, a shorter water use permit indicates a lesser degree of water abstraction property rights that may discourage water rights trading.

In this dissertation, it is shown that since duration of the water use permit determines the period of time to enjoy water rights, a lesser or greater duration tends to either discourage or facilitate water rights trading affecting efficient allocation of water resources in the following ways. A short duration of water abstraction permit as is the case of China (5—10 Years) may create lesser security of property rights and affects the pace of water right trading which in turn affects the objectives of efficient water resource allocation through tradable water rights. A longer or unlimited duration of water use permit contributes to a high degree of property rights security and certainty which encourages private parties to invest in long return water sector investment facilitating initial public water allocation and reallocation through tradable water rights.

It is revealed that the water laws of Chile, Australia and Ethiopia create indefinite duration for water use permits which creates enabling conditions for tradable water rights. This implies that the durability of water use permits contributes to a high degree of water abstraction property rights in Ethiopia that consequently imply the fulfillment of conditions for tradable rights in water resources. Yet, the example of South Africa draws particular attention since the limited duration of water use permit to 40 years (with possibility of extension) provides a middle ground as it creates regulatory flexibility to re-distribute scarce water to ensure that scarce water resources are not only re-allocated to achieve efficiency but also needs to be allocated to ensure equitable access to common natural resources.

8.2.2.4. Attributes of transferability

The right to transfer water use permit in 'partial or in whole' establishes the normative hallmark of Ethiopia's water law that can assist to situate tradable water abstraction rights as an instrument of efficiency in allocation and reallocation of water resources. Like all comparative countries, transfer of water use permit under the water law of Ethiopia can be undertaken on a permanent or temporary basis subject to the approval of appropriate water management authorities. In comparative countries such as Chile, Australia and South Africa, it is shown that temporary transfer under water use permit facilitated seasonal allocation of irrigation water rights that in turn facilitated the reallocation of water resources to other water users who demands or needs water where water resources are already allocated to water users as per the annual water allocation plan. These attributes of temporary water right transfer in the river basins of the three comparative countries mentioned promoted flexibility in the reallocation of water resources to overcome limited period demand for water resources.

However, it is found out that absence of water rights transfer program like China and Australia to promote water rights transfer and trading, absence of monitoring and registration of water rights transfer among water use permit holders diminished the normative relevance of Ethiopia's water law that allows the transferability of water use permits either on temporary or permanent basis. In particular, though the water law sets out the condition of approval to validly transfer water use permits to other persons, there are no specific administrative procedures or directives to guide the process of transfers. In principle, the legal status of water rights as transferable rights in Ethiopia can allow water use permit holders to re-allocate a share of their specified water allocation as long as the conditions of the water use permit are observed.

8.2.2.5. Attributes of enforceability

Enforceable water rights creates security of property rights to the water use permit holders through protection of their rights against arbitrary infringement or violation of property interests by other users or government. The degree of water abstraction rights as property is determined not only by simple exercise of property rights but also by the level of guarantee for protection before judicial or quasi-judicial bodies in case of rights encroachment. This

dissertation has shown that water use permit holders in all comparative countries and Ethiopia alike can access various avenues of justice to bring legal action to challenge administrative decisions of water resource management authorities that negatively affect their legitimate interests arising under the permit.

The right to bring legal action to enforce rights or claims arising under water use permit involves a continuum of access to justice ranging from the use of negotiation or conciliation for mutually agreeable settlement of water rights claims to the use of arbitration or regular courts for umpires decisions. Given that regular courts are supposed to represent the ultimate guardians of property rights protection in many judicial systems, it is shown that the water laws of all countries of the comparative study and Ethiopia alike envisage enforcement of water rights before the regular courts through appeal rights.

More specifically, the comparative analysis has shown that countries such as South Africa and Australia's federating states created specialized environmental courts or water tribunal to entertain enforcement of claims arising under water use permit or license. However, unlike the judicial enforcement practices of water rights as shown by the examples of the South African water rights transfer and trading before different hierarchies of courts, there is no similarly accessible judicial practice in the context of Ethiopia.[7]

8.3. Conclusions

Ethiopian water resources management law is normatively structured to functionally confer tradable water abstraction property rights on permit holders. It is shown, in Chapters 3 and 4, that Ethiopian WRM Policy mimics that of the WB's WRM Policy paper both in form and appearance and has been designed in response to the incentives of development assistance and loan conditionalities to put policies, laws and institutional architectures in place. However, despite the treatment of water as an economic good and the creation of normatively structured tradable water abstraction property rights under Ethiopian water

[7] See chapter 6, sec. 6.3. I have also investigated published case decisions of the Federal Supreme Court Cassation volumes that didn't found out disputes of water abstraction rights arising under water use permit.

law, absence of its implementation is an evidence of normative 'isomorphic mimicry'.[8] As aptly explained by DiMaggio and Powell, the concept of 'isomorphic mimicry' can be used to explain how Ethiopia's water resources policies, institutions, and legal frameworks 'mimic the shape and appearance' of global water policy imperatives and 'best practice' without putting the underpinning functionality in place.[9]

More specifically, to use what Philipp Krause refers to as 'insincere mimicry', an absence to implement formal tradable water abstraction rights can be the consequences of the 'gaming' by the Ethiopian government with the WB or other similar international or regional financial institutions simply to implement *de jure* tradable water property rights as 'idealized set of principles and best practices' without bothering for its *de facto* functional improvements.[10] Garthwaite and others also partially attribute such a limitation to the WB water legal framework audit tool showing 'whether a country possesses a law' without an assessment of 'the degree of implementation of that law'.

It should nevertheless be noted concerning the adoption of normative 'isomorphic mimicry' that a country cannot progress along the stages of legal comprehensiveness until basic components of implementation are in place and are functioning'. A caveat is in order though. Adopting countries` best practices of tradable water abstraction rights to achieve the objectives of efficient water allocation as a tool is not necessarily undesirable in itself. In fact, formulating *de jure* tradable water abstraction property rights that reflect assumed isomorphic mimicry can be considered as a deliberate design for least developed countries like Ethiopia to mobilize resources from international development and creditors. In the current context of Ethiopia what is undesirable is the kind of 'isomorphic mimicry' that creates the appearance of form featuring normatively sophisticated water policy and law in the absence of intended consequences to implement these norms to functionally improve

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8 Paul J DiMaggio and Walter W. Powell, 'The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields' (1983) 48(2) American Sociological Review 147, 150.

9 Anna Mdee and Elizabeth Harrison, 'Critical governance problems for farmer-led irrigation: Isomorphic mimicry and capability traps' (2019) 12(1) Water Alternatives 30, 32.

10 Daniel Antonio Narzetti and Rui Cunha Marques, 'Isomorphic mimicry and the effectiveness of water-sector reforms in Brazil' (2021) 70 Utilities Policy 101217.

the current state of informal and fragmented water economy. It is worth quoting the following to transcend the conclusion made under this chapter.

> [e]vidence across the world suggests that there is no shortcut for a poor society to morph its informal water economy into a formal one; the process by which this happens is organically tied to wider processes of economic growth. When countries try to force the pace of formalization, as they will no doubt do, interventions come unstuck. Interventions are more likely to work if they aim to improve the working of a water economy while it is informal.[11]

In the Ethiopian scenario, to avoid or at least minimize the undesirable consequences of isomorphic mimicry, the following policy recommendations and thematic areas for future research are provided as a way forward.

8.4. Recommendations: tradable water abstraction property rights?

8.4.1. Perspectives

This dissertation has revealed that the isomorphic mimicry of treating water as economic good and the attendant normative structure of tradable water abstraction property rights without formal implementation so far puts Ethiopia in a condition of 'capability traps'.[12] In the face of globally increasing demand for fresh water resources, it is time for Ethiopia to decide on how to smoothly navigate through the crossroads and impasse to make sure that the objectives under the current water policy and law were originally designed with the intended consequences to realize efficient allocation and exploitation of its abundant but economically scarce water resources.

The first inescapable step to the smooth navigation out of troubled water and its turbulent waves requires a full grasp of the legacy of WRM policy and law. This is a crucial step to begin with—understanding what went wrong with the cosmetic water policy and law reforms in the 1990s under the international commitments help (such as MDGs or subsequent SDGs) and donor aid or loan driven mimicry adoption. The dissertation in this regard can assist to hint and chart out a new water policy directions to solve the current legal and institutional

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[11] Shah and van Koppen (n 1).

[12] Muhammad Arfan and others, 'Agenda Setting in Water and IWRM: Discourse Analysis of Water Policy Debate in Pakistan' (2020) 12 Water 1656, 1659.

trap contented with creating aid and loan dependent water supply service by relegating the bigger picture of allocating such financial resources to facilitate Ethiopia's strategic use of its abundant water resource for economic development. This in turn requires thinking out of the box of the current global conformity agenda predominantly preoccupied with WASH programs specifically limited to address equitable and sustainable access to water supply, sanitation and hygiene practices. In minding the knowledge gap why international financial institutions care less in the degree of implementation, Ethiopia can rewind or rewire its water policy and law beyond the narrow focus of the water supply side hydraulic paradigm.

The second step should look into what can be cautiously learned from the experiences of countries in formulating and implementing property rights in water to facilitate economically efficient use of Ethiopia's water resources. This step can capitalize on the current strengths and weaknesses of normative frameworks regulating tradable water abstraction property rights. Though the level of Ethiopia's economic growth could pose a major constraint, lessons can be learned from the experiences of Australia and Chile in the design and implementation of tradable water rights for two major reasons. On the one hand, Chile succeeded in mimicking WB Water Resource Policy but formulated and implemented tradable water property rights not for the sake of isomorphic mimicry but to deliberately harness the economic potential of its water resources in such a way that water is allocated to irrigation land to support its export-oriented economy. It is not the intention of this dissertation to recommend the whole package of Chilean tradable water rights as a 'siren song' to use the expression of Carl J Bauer who cautions that the 'Chilean model is something for other countries to learn from rather than to copy'.[13]

Likewise, Australia's tradable water rights design and implementation is internally driven capability rather than international development or donor-driven policy influence to shape its water resource policy and law. In this regard, a lesson can be learned from Australia who adroitly blends principles of capitalist free market water economy with minimalist state intervention for public water resource allocation. A lesson learnt is that Ethiopia's neoliberal

[13] See chapter 6 section 7.

trap into water resource privatization that limits the regulatory role of the state can be effectively checked and balanced through the design and implementation of tradable water rights (with all the attributes of property rights) without necessarily declaring wholesale property rights in water.

On the other hand, the experience of South Africa and China can be sought given their early stage efforts to a progress of tradable water rights development to achieve the objectives of equitable and efficient use of scarce water resources. However, to avoid arbitrary administrative reversal of water rights trading practice as witnessed by the example of South Africa and limited scope of water rights trading as is the case in China, water market readiness should be empirically assessed in Ethiopia to 'organically tie' existing informal water market to a functionally structured normative frameworks of tradable water use permit systems.

Based on the above perspectives, policy recommendations are put forward to bridge the existing gap in knowledge to better harness the economic benefits of Ethiopia's water resources. The following set of recommendations shows that existing water policy and law remain a 'mimicry' or a 'feel good document' normative standards for creating tradable water property rights without little practical relevance in the absence of implementation. The first batch of recommendations aims to address some of the major ambiguities identified under the existing water resource management law that regulates tradable water use permits. The second batch of recommendations articulates what ought to be done in order to elevate the practical relevance of tradable water abstraction rights under the water resource law.

8.4.2. Law reform needs to refine tradable water use permit system

First, as shown in the comparative analysis, countries tend to clearly specify a set of water use entitlements and allocation rights to ensure effective enforcement rather than leaving room for interpretation of what constitutes water rights under water use permit. Hence, the existing WRM Policy, Proclamation and Regulation should be amended to create clarity on

the nature of water use by defining what constitutes water use rights under water use permit or whether such rights confer a usufruct rights.

Second, the existing water resource management policy and legislation should be amended to avoid ambiguity whether water usufruct rights are unbundled and transferable separate from land holding rights. Though inference can be drawn from the fact that modern water rights in Ethiopia emanates from the water use permit system, legislative specification of such status is beneficial for security and protection of water rights for encouraging water sector investment and accounting for the opportunity cost of using water resources separate from land title. This solution can avoid the problems of water grabbing for free though land grabbing trends.

Third, the existing water use permit registration system should be amended in such a way that the role of registering water use permit is shared responsibility between the MoWE and the regional water authorities or administrative city councils to avoid fragmentation of water rights registration systems. In this regard, clarity must be created in terms of identifying the types of water use permit granted by the regions or city councils by distinguishing depending on the scale of water abstraction and source of abstraction.

Fourth, the duration of water use permit and the time framework within which it should be renewed should be clearly specified. Though determining the time period of water use permit expiration based on the life expectancy or the nature of investment operation in water resources, the experiences of China and South Africa hints that countries with infant stage water rights allocation system should avoid the trap of granting water use permit in perpetuity as is the example in Chile and recently in Australia. In general, it is recommended that 10-15 years should be specified as the duration of a water use permit. In any case, the duration of water use permit should be at least equal to or greater than the duration of contract or lease period for the use of land. In addition, depending on the nature of water sector investment projects, discretion should be given to responsible water use granting authority to grant a water use permit to the maximum of 25 years.

Similarly, it is also recommended that the renewal period of water use permit should be differentiated based on the purpose and types of water use depending on its extraction or consumption level. As such, it is commendable to specify and keep the current de facto practice of water use permit to one year limit for water high scale commercial and industrial water users while a maximum of five years should be specified for domestic water service suppliers on commercial basis. This may reduce the administrative burdens for dealing with shorter period renewal while warranting a degree of security for water use permit holders.

Fifth, it is recommended to establish a specialized water tribunal or water court to guarantee functionally enforceable water use rights like the case of South Africa and some of the Australian states. As the water resource law stands now, the authority who grants water use permit with unknown composition and unspecified expertise is responsible to umpire water use rights claims arising between and among water users and third parties. While there exists a room to test the legality of this authority through appeal rights before the regular courts, establishing an institutional independent 'water rights administrative tribunal' within the MoWE or its regional counterparts is a commendable step facilitating tradable water rights. Meanwhile, the use of arbitration to settle claims arising between the authorities who grant, cancel or terminate water use permit is a bit stretched may impact regulatory flexibilities of the state to respond to exigencies in water resources allocation. None of the comparative countries have the experience of arbitrating administrative decisions on claims of water rights before a private arbitral umpire. The experience of Chile is limited to arbitration of water rights that arises between water use permit holders.

8.4.3. Make tradable water right practically relevant

First, it is shown that the nature of water resources as an 'uncooperative commodity' can pose serious challenges for implementing tradable water rights as it involves vexed socio-legal, cultural, ecological and hydrological complexities. Hence, to avoid or minimize such concerns and complexities, it is recommended to undertake 'water market readiness assessment' based on scientifically established frameworks taking these matters into account. The contribution of this dissertation in this regard can be resourceful in the effort to

articulate the legal and policy aspects of water property rights arrangement under the existing water use permit administration system.

Second, given the rich water use and allocation experiences of Awash River Basin compared to other river basins, a pilot water rights transfer and water rights trading study should be undertaken to identify early implementation bottlenecks. However, like China and Australia, water rights transfer and trading rules are crucial to prescribe detailed guidelines to effectively handle the dealings of parties to the transactions. Thus, a directive with clear and consistent trading rules including administrative measures for ensuring compliance and enforcement should be enacted.

Third, the determination of water allocation rights under water use permit should take the availability of water resources into account. Hence, the current Water Allocation Plan prepared based on the demands of water permit holders should be revisited. Though it is commendable to start a real-time smart water meter system to track user consumption information at the limited irrigation gates in ARB, similar measures should be made to monitor large scale surface and groundwater abstractors by issuing mandatory rules for water use permit holders to introduce such meters. Compliance for these rules can be enforced through strict legal sanctions for non-compliance including cancellation of water use permit during extension and renewal of water use permit.

Fourth, it is recommended that the MoWE should predominantly re-focus on the water resources management and exploitation as a strategic national resource rather than preoccupied with water supply services which can be left to the regional states and private sector water supply service providers. Thus, it is commendable to undertake legal and institutional reform to avoid mandate overlap and conflation of water supply service responsibilities and regulatory authorities where the former simply refers to water users and service providers regulated by the latter. Similar institutional setup should be replicated at regional states or autonomous city council levels to also address overlapping regulatory

mandate and water supply service roles in single agency, bureaus or authority as is currently the case.[14]

Fifth, drawing on lessons of South Africa, a separate '*water supply service'* regulation should be enacted. The new water supply service law should also mutually reinforce the existing water resources management policy and law. This recommendation also reinforces the recommendation indicated under number four of this subsection and addresses two major problems that run through Ethiopia's current water resource management. From one angle, it helps to solve the problem of mandate overlap as responsibilities for water resource management and water supply water services are distinguished based on this newly created water supply service regulation. Alternatively, it also allows responsible water resource authorities to emphasize on strategic aspects of water resource allocation and rededicate resources to regulate the trade and service aspects of water use permits. This solution further assists to separate regulatory, operational and commercial functions in the water resources that enable effective implementation of water right trading.

Six, it is shown in this dissertation that the existing water abstraction charge is outdated and does not reasonably represent the economic value of water per volume of water consumed. In order to promote wise use of water with price assigned to for its competing use and to initially allocate water to water use permit holders, the currently on draft water abstraction charge regulation should be adopted.

8.5. Promote or not to promote?: positing tradable water property rights

As posited under Section 1.6.5 of Chapter one, it should be noted here that the dissertation is not written with the intention to promote neoliberal version of tradable water property rights in Ethiopia as was done by the Chilean 'Chicago Boys' who advanced this position during the 1980's Chilean water law reform resulting in critiques for creating ideation to facilitate the caprice of private 'capital accumulation' in water resources. As hinted in the

[14] For instance, Addis Ababa Water and Sewerage Authority (AWSSA) and Water and Energy Bureaus of regional states are currently structured and mandated to manage and allocate water resources while also considered as water users entrusted to provide water supply services for rural or urban populations.

following final section, two issues are at stake in the present state of water resource exploitation in Ethiopia that squarely posits the contribution of this dissertation.

On the one hand, the position of treating water as an economic good to facilitate the allocation of public water resources for private sectors has been already taken in the 1990s which as revealed under this dissertation derives its binding legal force under Ethiopia's WRM legislations that structured water abstraction rights as tradable water property rights. Hence, it is up to the policy or lawmaker to re-think any unintended consequences of conferring tradable water property rights in Ethiopia if it deems necessary to reckon with any real or perceived negative implications on the sustainable and equitable exploitation of public water resources. In this regard, this dissertation provides an input for informed policy decision making as it sheds light of water abstraction rights as tradable water property rights.

On the other hand, for economically disadvantaged countries like Ethiopia, a prudent water resources allocation policy is imperative to facilitate tradable water property rights by striking the delicate balance between achieving the objectives of efficient, sustainable and equitable use of water resources. To that extent, the current global economic order that sets rules of the game by promoting tradable property rights in water resources, puts Ethiopia in a position of comparative advantage as it legitimizes the economic exploitation of its abundant water resources as strategic and valuable natural resources making the approach of this dissertation more compelling for revealing the blessings in disguise. By defining minimum natural water flow and recognizing the reserve amount of freshwater for basic human and agricultural production needs, Ethiopia can economically benefit from promoting trade in bulk water resources by exporting it as a tradable good or product to those countries with high demand for water resources such as the Middle East to mention an example. If such a position of this dissertation makes it smell like a neoliberal contribution in approach so be it as reason will have little room to tolerate the lamentation of crying fool for Ethiopia's inability to harness the economic benefit from its abundant water resources.

8.6. Contributions and future research

This dissertation has made three major contributions to the enhancement of existing property rights theory by operationalizing attributes of water property rights in the context of public water ownership.

First, as shown in Chapter 1 of the dissertation and as far I am able to access the existing body of literature on the policy and legal aspects of Ethiopian water resource management, there is no systematic study that operationalized the abstract concepts of property rights in water into measurable legal doctrines. This domain of theory and conceptualization in Ethiopian property rights discussions is reserved for land property rights. By having analyzed relevant provisions of policy and legal texts regulating water use permits in Ethiopia in a more specific and systematic approach, I was able to determine the key attributes of property rights in water to further demonstrate its tradability status. These attributes or characteristics of water abstraction property rights are primarily tested in four selected jurisdictions—Chile, Australia, China and South Africa. Furthermore, I was able to complement, to a limited extent, the functionality of water rights transfer and water rights trading in these countries' case study river basins based on the review of empirical literature.

Second, I was able to demonstrate how water resources under exclusive state property rights can be separable into bundles of rights susceptible to the creation of private water property rights that can be further amenable to tradable rights. In light of this, the dissertation contributed to the legal scholarship of tradable water property rights as instruments of water resource allocation. In the context of Ethiopia, the dissertation contributed by exposing the field of water property rights to future in-depth empirical research as a stepping stone for researchers in the fields of water economics, trade law, investment law, water law, property law and environmental law..

The third contribution is a wakeup call for Ethiopia to economically utilize its natural water endowments as strategically scarce, valuable and tradable resources. In this regard, the dissertation contributes to knowledge by bridging gaps in the inadequate understandings of

how to treat or allocate water as an economic good through the instrumentality of tradable water property rights. For Ethiopia, who is considered as 'the Water Tower of East Africa' due to the fact that almost 97 percent of shared water resources flows from its highlands down hills to the neighboring countries, allocating water as economic good and tradable water rights might be a blessing in disguise. Maybe as the saying goes: 'water flows uphill to money' where private property rights 'will defy nature and gravity' enabling mankind to invest in the infrastructure and technology that moves water up the hill.[15] So far, Ethiopia is known for its water abundance surrounded by highly water stressed neighbors and it is too early to prophesize what Mark Twain said 'Whiskey is for drinking; water is for fighting over'[16] may describe our current conditions. Yet Ethiopians cannot afford to drink whisky and fight over water. The philosophical contribution of property rights underpins that disputes or conflicts can be prevented by creating orderly relationships between persons with respect to certain valuable resources. That is to say a person who is able to voluntarily pay for a whisky can willingly pay for the water without a fight.

To understand the empirical implications of tradable water abstraction property for water resources law in particular and property law in general, this dissertation suggests two key areas for future research in the Ethiopian context.

Firstly, the findings on the tradable status of water abstraction rights provides opportunities to further examine how water use permit holders understand its implications on their investment decisions which directly or indirectly impacts their ability to conduct economic or trade activities in water resources. Likewise, a further in-depth empirical study is also required since regulators or implementers as it stands now may not well understand the consequences of tradable water abstraction rights on the overall allocation of water resources.

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[15] Vinod Raina, 'War Over Water: 'Water flows Uphill to Money'' (2000) 16(1) Asian Exchange 64, 64.

[16] Quoted in Christopher N Brown, 'River Conservation in the 1980s' (1983) 9(2) Western Wildlands: A Natural Resource Journal 26, 26.

Secondly, the findings on the status of water as property rights amenable to tradable commodity and its theoretical and conceptual bases creates dialogue among legal academia, legal practitioners and policy makers opening a room for debate as well research to challenge the arguments and assumption of this work.

Thirdly, the viability of implementing tradable water abstraction property rights requires water market readiness assessment. It is noticeable from the analysis and perspectives of this dissertation that the creation of water use permit as a tradable water property rights under the water law do not warrant the existence of a water market enabling institutional arrangements in practice. Hence, future research on water market readiness may assess institutional bottlenecks, potential advantages and disadvantages of implementing water rights trading to further understand its impacts on the overall water resources allocation and development. This research target can facilitate evidence-based policy reform as it may provide inputs for informed decisions making in order to channel informal water suppliers into formal water rights traders through a step by step registration process.

Finally, the questions and philosophical debates on water property rights examined under this dissertation have built on the existing understanding gained by major thinkers who have gone before or alive to make an intellectual progress in the legal science of water and property law. The issues, concerns and debates on water property rights are no-stop like a flowing river as states at local and international levels are struggling to continuously search for viable alternative solutions to address problems associated with water resource allocation. This dissertation, with its emphasis on the normative evaluation of water property rights tradability and its implication for water resource allocation, is hoped to assist to bring those issues and concerns to the spotlight.

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Annexes

Annex I

Key Informant Interview Guides

1. **Administration and Registration of Water Rights**

- Is information on water rights registration available disaggregated in terms of source and purpose of water use in the Awash River Basin?
- What is the time framework for renewal of water use permit?
- What mechanisms are put in place to register water users at different federal, state and city levels in the Awash River Basin? Are there overlapping mandates?
- Are there any directive or working manual/procedures enacted to guide the registration of water use permits?
- What measures are taken to register unregistered water users in the Awash River Basin?

2. **Allocation of water rights**

- Is there water allocation plan based on which a specified volume of water is allocated to water use permit holders?
- What mechanisms are put in place to control and manage the abstraction of specified amount of water by water use permit holders? Are there water metering system to control the amount of water abstraction from surface or ground water sources?
- What are the compliance mechanisms that are put in place to control access to water resources by non-exempted but unregistered water users in the Awash River Basin?

3. **Transfer of Water Rights**

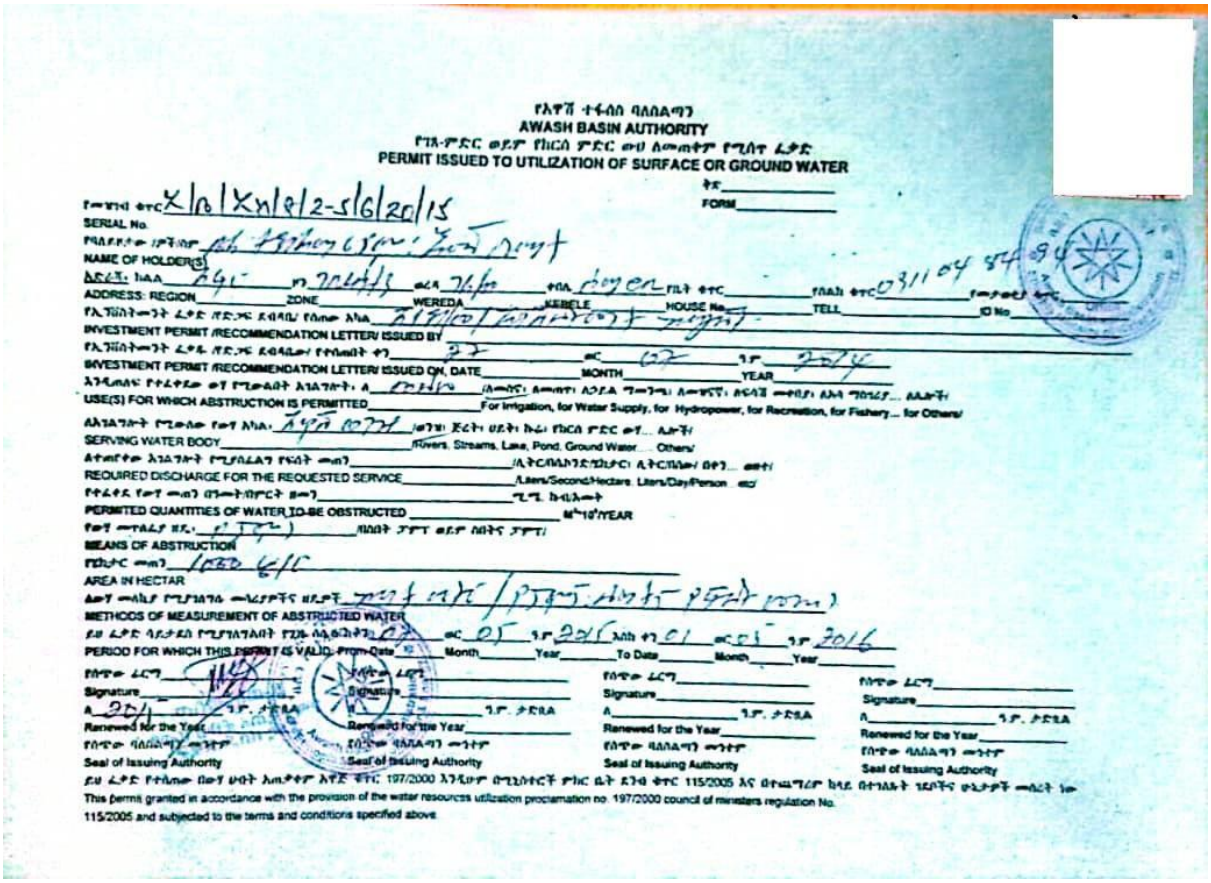
- Is there a data on the registration of water rights transfer among water use permit holders in the Awash River Basin?
- What mechanisms or procedures are put in place to register the transfer of water rights among water users at different federal, state and city levels?

4. **Enforcement of Water rights**

- Is there a data on complaints or grievances on the claims of water use rights among water use permit holders, water use permit holders and third parties or water use permit holders the Supervisory Body?
- Is there any decided or pending negotiation or arbitration cases on water use rights claims or disputes so far?
- Is there any decided or pending court cases on water rights claims among water use permit holders and the Supervisory Body so far?

Annex II

Sample Water Use Permit



የአዋሽ ተፋሰስ ባለስልጣን
AWASH BASIN AUTHORITY
የገጸ-ምድር ወይም የከርሰ ምድር ውሀ ለመጠቀም የሚሰጥ ፈቃድ
PERMIT ISSUED TO UTILIZATION OF SURFACE OR GROUND WATER

ተ.ቁ FORM
የመጽደቂያ ቁጥር SERIAL No. X/a/Xn/e/2-s/6/20/15
የባለይዞታው ሙሉ ስም NAME OF HOLDER(S)
አድራሻ፡ ክልል ADDRESS: REGION ZONE WEREDA KEBELE HOUSE No. TEL. ID No.
የኢንቨስትመንት ፈቃዱ ተጽ.ሚ ደብዳቤው የተሰጠበት አካል INVESTMENT PERMIT /RECOMMENDATION LETTER/ ISSUED BY
የኢንቨስትመንት ፈቃዱ ተጽ.ሚ ደብዳቤው የተሰጠበት ቀን INVESTMENT PERMIT /RECOMMENDATION LETTER/ ISSUED ON, DATE MONTH YEAR
እንዲጠቀሙ የተፈቀደው ውሃ የሚውልበት አገልግሎት፡ ለ USE(S) FOR WHICH ABSTRUCTION IS PERMITTED For Irrigation, for Water Supply, for Hydropower, for Recreation, for Fishery... for Others/
ለአገልግሎት የሚውለው የውሃ አካል፡ SERVING WATER BODY /Rivers, Streams, Lake, Pond, Ground Water.... Others/
ለተጠየቀው አገልግሎት የሚያስፈልግ የፍሰት መጠን REQUIRED DISCHARGE FOR THE REQUESTED SERVICE /Liters/Second/Hectare Liters/Day/Person etc/
የተፈቀደ የውሃ መጠን በኩቦች ሜትር PERMITTED QUANTITIES OF WATER TO BE OBSTRUCTED ሜ³በ/YEAR
የውሃ መጥለፊያ ዘዴ፡ MEANS OF ABSTRUCTION
የሽፋኖር መጠን AREA IN HECTAR
ለውሃ መለኪያ የሚያገለግሉ መሳሪያዎችና ዘዴዎች METHODS OF MEASUREMENT OF ABSTRUCTED WATER
ይህ ፈቃድ ላይታደስ የሚገባግልበት የጊዜ ሰሌዳ PERIOD FOR WHICH THIS PERMIT IS VALID From-Date Month Year To Date Month Year
የሰጭው ፊርማ Signature
ዓ.ም. ታድሷል Renewed for the Year
የሰጭው ባለስልጣን መጠሪያ Seal of Issuing Authority

ይህ ፈቃድ የተሰጠው በውሃ ሀብት አጠቃቀም አዋጅ ቁጥር 197/2000 እንዲሁም በሚኒስትሮች ምክር ቤት ደንብ ቁጥር 115/2005 እና በተጨማሪም ከዛ በተገለጹት ገደቦችና ቁጥጥሮች መሰረት ነው
This permit granted in accordance with the provision of the water resources utilization proclamation no. 197/2000 council of ministers regulation No. 115/2005 and subjected to the terms and conditions specified above

school of law