

REVISITING THE CONCEPT OF WATER TENURE:

Filling the gap between water rights and water governance



By María Querol

This study has been prepared by WaterLex and commissioned by FAO¹, who is hereby acknowledged as the source and copyright owner, with the purpose to: 1) revisit the concept of water tenure; 2) set clearly the dimensions of water security and insecurity; 3) adopt a broader more rights-perspective approach to the subject; 4) bring into light water tenure as a governance instrument and its contribution to the 2030 Agenda; and 5) set the stage for multi-stakeholder dialogue on the concept and the definition of guidelines on water tenure.

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FOREWORD

The “tenure” concept has been well defined and explored within FAO. At its 38th Session on 11 May 2012, the Committee on World Food Security endorsed the “Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the context of National Security” (VGGT). Building on the VGGT, the report on “Water Governance for Agriculture and Food Security” for the 24th session of the Committee on Agriculture (COAG/2014/6) recognized that water tenure is an important facet of water governance, which requires further work and exploration, together with key stakeholders. The report stated:

“The concept of water tenure can be a useful tool to extend the debate beyond water rights and administration and to understand linkages with land tenure, resources use efficiency and food security. FAO will gather evidence and engage in reviews, reflections and discussions with key stakeholders on the concept of water tenure and seek to develop a common understanding of its use as a governance instrument. This could, at a later stage, lead to a better integration of approaches to water tenure rights with recognized mechanisms such as the VGGT.”

An initial publication entitled “Exploring the concept of water tenure” was published by FAO (Hodgson, 2016), based on an expert consultation. The definition of water tenure was proposed to be “the relationship, whether legally or customarily defined between people, as individuals or groups, with respect to water resources”.

In a world of increasing water scarcity, variability and competition over water, water tenure can contribute in an important way to the underlying pledge of the 2030 Agenda for Sustainable Development: “no one will be left behind” (UN Resolution A/RES/70/1, 2015). The human rights to water and sanitation are closely linked to the right to food. Developing water tenure is a way of supporting farmers to become more water secure and water efficient, as well as supporting rural women, marginalized communities and indigenous people in gaining access to the water they need for their livelihoods. It is worth noting, that urban water needs are not hereby addressed, since they fall out of the scope of the present report.

This paper is meant to set the stage for future multi-stakeholder and intergovernmental discussions on the concept and the definition of its guidelines. The conclusions and guidelines that result from this process are expected to provide a pathway for greater acceptance of the need to look after vulnerable people and to protect their rights to the very basic need for water and go further and recognize the productive uses of water for livelihoods as included within this right.

EXECUTIVE SUMMARY

According to FAO's Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) adopted in May 2012 at the 38th Session of the Committee on World Food Security (CFS), tenure arrangements determine how people, communities and organizations gain access to, and use, natural resources. Whilst the VGGT state that they may be used for the governance of all forms of tenure they do not contemplate water tenure.

A publication entitled "Exploring the concept of water tenure" was published by FAO in 2016, based on an expert consultation, which proposed a definition of the concept based on that of land tenure. It defines water tenure as *"the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources"*. Still, in the context of the pledge of leaving No one behind of the 2030 Agenda for Sustainable Development, it was understood that the notion of water tenure can indeed support farmers to become more water secure and water efficient and duly consider rural women, indigenous communities and other marginalised groups in gaining access to water to sustain their livelihoods.

Water security can be analysed through the prism of three dimensions, which involves all aspects and possible issues related to water: social equity, environmental sustainability and economic efficiency. Improved water governance is indeed a prerequisite of water security. In this context, the question of how to allocate and manage freshwater resources comes to be all the more crucial. Tenure, rights and access issues are central elements in any system of governance.

As duly acknowledged by United Nations General Assembly (UNGA) Resolution 64/292, which recognises the human rights to water and sanitation, all human rights are interlinked and interdependent. Thus, the human right to water cannot be addressed separately from other human rights such as the right to food and other rights placing specific demands on water use for agriculture. Water governance, especially through integrated water resources management (IWRM) as its cornerstone, is essential for the realisation of human rights. Inasmuch as human rights provide the highest level of security, a human rights-based approach to water governance and to water tenure in particular, becomes an essential means to ensure water security.

The concept of water tenure can indeed be a useful tool to understand linkages with land tenure, fisheries and other natural resources, in a resource use-efficient way towards achieving food security. IWRM is an inclusive tool of all the mentioned linkages as an integral part of water management. Despite the obvious

advantages of an IWRM approach, there is a gap between such an approach and the Human Right to Water (HRW), which can be filled by water tenure. Water tenure provides an opportunity to remedy the mentioned imbalance. In addition, whilst debates on the right to water are clearly focused on access to water for personal and domestic use, they have largely disregarded the importance of access to water for agriculture. As recognised by General Comment 15 on the Right to Water, the rights-based approach needs to go much further to include productive uses of water for livelihood. Approaching IWRM and water tenure as constituent elements of water governance from a Human Rights Based Approach (HRBA) or rights perspective, is doing so as a tool for the realisation of Human Rights. Still, a HRBA to IWRM would remain elusive to customary water rights and other types of informal or not recognised water tenure. Consequently, a revisited notion of water tenure in light of a HRBA can constitute a paradigm to include all those tenure arrangements within an IWRM framework. In so doing, water tenure provides a link to resolve the apparent scission between water governance and the HRW, reflecting the actual relationships of access to water at a range of different scales.

Access to water is indeed a prerequisite to sustain basic human needs and livelihoods. Water tenure helps to protect all individuals and their livelihoods, especially vulnerable groups, by including the different spheres and elements on the management of water. Indeed, the notion of water tenure needs to acknowledge all the dimensions involved in water access for productive uses, such as its hydro-physical characteristics and related issues and the environmental threats and requirements ensuing from such use. In addition, the social dimensions of gender equality and the protection of the linkages and needs of indigenous communities and pastoral and nomadic groups in the tenure of water must be contemplated.

It would thus be possible to revisit the current definition of water tenure and suggest a more comprehensive one. Enjoying tenure over something, means to be able to hold it and naturally control it. Still, water in itself and by its very nature cannot be 'held'; it is accessed, managed and used. As to the definition of water tenure as a "relationship, 'whether legally or customarily defined' (...) with respect to water resources", it is worth noting that customary norms are as 'legal' as statutory or formal ones. They can both be part of a certain, or several, legal order(s). The only difference is their mode of creation: whilst statutory norms are created by formal sources of law, customary ones are not and manifest spontaneously. In addition, water tenure does not only comprise legally created tenure such as water rights, but other forms of tenure which are informal by nature or are not necessarily 'legal', as being originated in a legal norm, whether statutory or customary.

In light of the above said a more comprehensive definition is proposed of water tenure as **the act or right by which people, as individuals or groups, access and use water resources.**

Such definition is compatible with biophysical, social as well as human rights-based perspectives on water. Furthermore, it allows for all water users to more easily assert their rights and particular modes of water access. Such definition of water tenure is sufficiently all-encompassing to recognise both legally created water rights, whether statutory or customary, and other particular types of managing and using water based on actual practice. Additionally, it allows for the development of new tenure options that could provide greater water security to the most vulnerable and marginalised people among the water users. Also, such a definition is compatible with a human rights perspective to water access, as encompassing the right to water both for domestic and productive purposes. Finally, it also favours the recognition of the current particular practices and modes of access to freshwater of the most unprotected sectors of the society. In so doing, it involves all water users, thus leaving no one behind.

ABBREVIATIONS AND ACRONYMS

CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CFS	Committee on World Food Security
FAO	United Nations Food and Agricultural Organization
GWP	Global Water Partnership
HLPW	High-Level Panel on Water
HRBA	Human Rights-Based Approach
HRW	Human Right to Water
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
OECD	Organisation for Economic Co-operation and Development
REDICA	Red Centroamericana de Instituciones de Ingeniería (Cap-Net)
SDGs	Sustainable Development Goals
SIWI	Stockholm International Water Institute
TRA	Tenure, Rights and Access
UNDRIP	UN Declaration on the Rights of Indigenous Peoples
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNGA	United Nations General Assembly
UNPFII	United Nations Permanent Forum on Indigenous Peoples
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
WUOs	Water Users' Organisations

1. BACKGROUND

1.1. DIMENSIONS OF WATER SECURITY AND INSECURITY

Water security has been defined as the capacity of a population to safeguard sustainable access to adequate quantities of and acceptable quality water for sustaining livelihoods, human wellbeing, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability². As such, it is key to human survival and well-being and it expresses the main goal of water management: to improve the quality of life for everyone.

Water use has been growing at more than twice the rate of population increase in the last century, and an increasing number of regions are reaching the limit at which reliable water services can be delivered. Demographic growth, economic development, urbanization and pollution are putting unprecedented pressure on renewable water resources, especially in semiarid and arid regions. In addition, environmental services and ecosystem functions should no longer be treated as residual water uses. Climate change gives a further twist to the already complex relationship between development and water demand³. By 2025, 1800 million people are expected to be living in countries or regions with “absolute” water scarcity (<500 m³ per year per capita), and two-thirds of the world population could be under “stress” conditions (between 500 and 1000 m³ per year per capita)⁴.

Contributing factors or dimensions to water insecurity may be classified as follows: (i) diminished water supply or quality; (ii) increased water demand and (iii) extreme events⁵. Both quantity and quality of water supply may be affected by droughts, water pollution, diversion of freshwater courses, or land degradation. All of the above-mentioned water related risks compromise human well-being and development and favour instability, conflict, human displacement and forced migration and severe food insecurity. Consequently, they can imperil national, regional and global security. When those water-related incidents occur within transboundary river basins, they can even trigger international disputes among the States concerned.

² UN-WATER, *Water Security and the Global Water Agenda, A UN-Water Analytical Brief*, 2013, p. 1.

³ FAO, *Coping with Water Scarcity. An Action Framework for Agriculture and Food Security*, FAO Water Reports 38, 2008, p. 11.

⁴ Cf. FAO & WORLD WATER COUNCIL, *Towards a Water and Food Secure Future: Critical Perspectives for Policy-makers*, Rome-Marseille, 2015, p. 8.

⁵ GLEICK, P. & ICELAND, Ch., *Water, Security and Conflict*, Issue Brief, World Resources Institute – Pacific Institute, August 2018, pp. 5-8.

In light of the above-described threats, water security can be analysed through the prism of three dimensions: social equity, environmental sustainability, and economic efficiency⁶. These dimensions involve all aspects and possible issues related to water (Table 1.1).

Table 1.1: Water security dimensions

Social Equity	Environmental sustainability	Economic efficiency
<p>Water security seeks to achieve social equity ensuring equitable access to water services and resources for all through solid policies and legal frameworks at all levels.</p> <p>Water security aims to build resilience in communities in the face of extreme events through both hard and soft measures.</p>	<p>Managing water sustainably, as part of a green economy, and restoring ecosystem services in fresh watercourses to improve water health contribute to environmental sustainability.</p>	<p>Water security can be achieved through optimization: increasing water productivity and conservation in all water-using sectors and sharing economic, social and environmental benefits in managing fresh watercourses (rivers, lakes and aquifers).</p>

Despite increases in water use by sectors other than agriculture, irrigation continues to be the main water user globally, and agriculture is responsible for 70 percent of all freshwater withdrawals worldwide. Thus, there is an urgent need to use water more efficiently in agriculture. On the other hand, irrigation is one of the main ways to increase food production and rural incomes. It is imperative, therefore, to improve water management to achieve both high water productivity and increase rural incomes.

Improved water governance is a prerequisite to achieving water security. In this context, the question of how to allocate and manage freshwater resources comes to be all the more crucial. Tenure, rights and access issues are central elements in any system of governance. As in the case of water rights, water tenure is also a key component in the water allocation picture. Inasmuch as it deals with access to freshwater resources, their use and management, water tenure can constitute a governance tool towards ensuring water security, as will be analysed down below.

⁶ These dimensions are also known as the three Ps: people, planet and profit. VAN BEEK, E. & ARRIENS, W., *Water Security: Putting the Concept into Practice*, TEC Background Papers No. 20, Global Water Partnership, p. 12.

1.2. THE NOTION OF WATER TENURE: CURRENT STATUS OF THE ISSUE

Water governance relates to the enabling environment in which water management actions take place. It is understood as “the set of rules, practices, and processes through which decisions for the management of water resources and services are taken and implemented, and decision-makers are held accountable”⁷. This includes comprehensive policies, strategies, plans, finances and incentive structures that concern or influence water resources; the relevant legal and regulatory frameworks and institutions; and planning, decision-making and monitoring processes.

In many places, formal and informal water governance regimes have not kept pace with growing competition for water and are not conducive to its efficient and equitable management⁸. Moreover, the water-use rights held by farmers are often not protected by law or formally registered.

According to FAO’s Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) adopted in May 2012 at the 38th Session of the Committee on World Food Security (CFS), tenure arrangements determine how people, communities and organisations gain access to, and use, natural resources.

BOX 1.1: FAO’s Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT)

The VGGT define, among other things, who can use the resource, how much of it can be used, for how long, for what purpose and under what conditions⁹. Generally, they also determine the decision-making process with regards to allocation and sometimes even management of natural resources, the administration of the rights thereby created and the set-up of mechanisms for conflict resolution. The VGGT constitute a set of principles to provide guidance and information on internationally accepted practices to improve the governance of tenure of land, fisheries and forests. Whilst not legally binding upon States, they aim at contributing to the improvement

⁷ Cf. *OECD Principles on Water Governance*, 2015, p. 5. Available at: <http://www.oecd.org/cfe/regional-policy/water-governance-initiative.htm>

⁸ FAO’s approach to water governance is context-specific, in the sense that there is not a predefined model or governance that would be suitable for all countries.

⁹ Indeed, other definitions of ‘tenure’ have been provided by doctrine, such as that of Burke, who understands tenure as the bundle of rights that individuals, groups, communities, corporations or the state hold in a particular resource. BRUCE, J., “Strengthening property rights for the poor”, in: MEINZEN, D. & DI GREGORIO, M. (eds.), *Collective action and property rights for sustainable development*, International Food Policy Research Institute (IFPRI), Washington, DC, pp. 33-34.

Available at: http://www.ifpri.org/2020/focus/focus11/focus11_16.pdf. Cf. SANGKAPITUX, C., & NEEF, A. “Assessing water tenure security and livelihoods of highland people in Northern Thailand”, in: *Quarterly Journal of International Agriculture*, Vol. 45, No 4, 2000, p. 377.

and development of the legal, policy and institutional frameworks regulating the currently existing tenure rights over those natural resources and improve its transparency. In addition, they seek to strengthen capacities at all levels of the implementation of tenure and improve the cooperation among different actors, with an emphasis on vulnerable and marginalized people¹⁰. In this context, the VGGT recognise that all actions to improve governance of tenure should be consistent with the States' existing obligations under international law, including the Universal Declaration of Human Rights and other international human rights instruments.

Whilst the VGGT state that, taking into consideration the national context, they may be used “for the governance of all forms of tenure, including public, private, communal, collective, indigenous and customary”¹¹, they do not contemplate water tenure. During the first stages of the proceedings to develop the VGGT it was envisaged that water tenure would be included within the mentioned guidelines. Nevertheless, it ended up being excluded from consideration, the main reason being the absence, at the time, of a common understanding of the term ‘water tenure’, of its meaning and scope¹².

Still, FAO concluded that tenure, rights and access challenges and opportunities are of importance in many of the water issues dealt with by the various UN agencies dealing with water. Furthermore, it qualified tenure, rights and access to water as an important aspect of its water scarcity work¹³.

Pursuant to this idea, FAO's Land and Water Discussion Paper No 10 on the concept of water tenure examines the notion of tenure in connection with water resources and explores whether that concept has the potential to make a useful contribution towards resolving the world's water resources challenges¹⁴. The paper proposes a definition of water tenure based on that of land tenure as: **“the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources”**

This definition is based on the definition of land tenure, which is understood by FAO as: **“the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to land”**¹⁵

¹⁰ FAO, *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*, Rome, 2012, p. 1.

¹¹ *Ibid.*, p. 2.

¹² Cf. FAO, *Strategic Evaluation of FAO work on tenure, rights to land and other natural resources*, Rome, 2012, pp. 49-50 and 56-62, paragraphs 189-192 and 216 -242 respectively.

¹³ *Ibid.*, p. 62, paragraphs 239 and 240.

¹⁴ HODGSON, S., *Exploring the concept of water tenure*, Land and Water Discussion Paper No. 10, FAO, Rome, 2016 p. xii.

¹⁵ FAO, *Land tenure and rural development*, Land Tenure Studies No 3, Rome, 2002, p. 7. Also available at: <http://www.fao.org/3/a-y4307e.pdf>

Whilst the debate over the allocation of water is typically couched in terms of ‘water rights’, there are in practice numerous and diverse types of relationships with water, which do not qualify as such. In other words, there are in practice examples of access and use of water, which are not based on a formally recognised water right. The concept of water tenure does take into account those latter relationships, including all of the actual relationships with freshwater resources in practice, regardless of their origin.

Actually, the types of water tenure may well vary, depending on the hydro-geological conditions of each freshwater resource and on its level of social and economic development. In addition, the varieties of water tenure may differ according to the uses to which water is intended¹⁶. Indeed, one important point about water tenure is the fact that it is indifferent to the purpose for which water is used.

Whereas, water tenure is always context-specific, FAO Paper No 10 presents an abundant typology of water tenure, classifying water tenure relationships based on whether they are defined by formal law or not¹⁷. On one hand, there are water tenure arrangements defined by formal or statutory law, understood as the body of norms created by the legal acts duly recognised by each State as sources of law¹⁸. Such water tenure arrangements are presented in Table 1.2 (first column). On the other hand, there are in practice cases of water tenure, which are not formally recognised by law, where there is no tenure arrangement predefined by law. Those cases are presented in Table 1.2 (second column).

Table 1.2: Cases of water tenure with and without tenure arrangements predefined by law

Water tenure arrangements defined by formal or statutory law	Cases of water tenure where there is no tenure arrangement predefined by law
<ul style="list-style-type: none"> • ‘Traditional’ formal water rights (where the rights to use water derive from land tenure rights); • ‘Modern’ formal water rights (permit-based long-term rights, of 12 to 30 years, not depending on land tenure); • Regulatory licences (short term licences to use water based on a command and control approach); • Agency control (whereas extensive legal powers are granted to an irrigation/water agency to abstract and use water resources) 	<ul style="list-style-type: none"> • Customary water tenure (Rights to abstract and/or use water resources based on customary/local law); • Religious Law (rights on use and protection of water resources based on religious teachings) • Informal water tenure (use of water that is not legally recognised) • Assumed rights and impossible rights (formal water rights are wrongly assumed to exist or are impossible to hold due to the lack of legal personality by the organisations holding them)

¹⁶ HODGSON, *op. cit.*, p. 35.

¹⁷ HODGSON, *op. cit.*, p. 11-36.

¹⁸ Hodgson understands formal law as “the body of rules that are created on the basis of laws or acts of parliament adopted by the legislature (and in some jurisdictions derive from decisions of the courts) and are capable of being asserted before the courts and implemented through the power of the state”, *ibid.*, p. 13.

<ul style="list-style-type: none"> • Water supply contracts (contracts, which are usually written for the bulk supply of water for irrigation, industry or/and other purposes using water infrastructure); • Common-hold water tenure (rights to water held in common by a community of users such as water user organisations (WUOs)); • Investment contracts • <i>De minimis</i> rights (rights to abstract and use small quantities of water without administrative formalities for non-commercial uses such as drinking and meeting basic needs) • Exempt commercial uses (right to use specified quantities of water in specified areas for specified commercial purposes) • Reserve/minimum flow requirements (which specify mandatory amounts of water to be left within water bodies, generally to satisfy basic human needs and to protect aquatic ecosystems) • Grey water and wastewater reuse 	<ul style="list-style-type: none"> • Unrecognised water tenure (a range of economic and livelihood activities that relate to the use of water resources such as inland fisheries, use of wetland resources etc. that are not typically regulated by water law)¹⁹ • Grey water and wastewater reuse²⁰.
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FAO Paper No 10 analyses the human right to water in order to define water tenure as a relationship with ‘water resources’ as opposed to one with ‘water’. The Paper states that the human right to water is a relationship with water in the abstract, rather than a relationship with water as a resource²¹. In addition, Paper 10 contends that the human right to water is implemented through the delivery of water supply services. According to this view, since water supply services would be generally provided by private or public water utilities that are under a formal or statutory duty to supply clean water to consumers within a specified area, that human right would be equalled to “a right to a service and not to a share of a specific water resource”²². Furthermore, the quantity of water needed to satisfy personal needs would be relatively small compared to other needs such as those of irrigation, for example. Hence, it concludes that it is hard to characterise such a relationship as one of tenure. Thus, water tenure would be concerned with claims over specific water resources: streams, rivers, lakes and groundwater sources. Each tenure case would amount to a relationship with water contained in a specific source.

¹⁹ For a description of this latter type of water tenure relationships see HODGSON, *op. cit.*, pp. 26-29.

²⁰ This latter type of water tenure was not foreseen by Paper No 10 and has been added as a result of the suggestion duly formulated during the expert consultation held on November 2019 on this topic.

²¹ *Ibid.*, pp. 11-13.

²² *Ibid.*, p. 12.

The reference to ‘water resources’ as opposed to ‘water’ does not succeed to distinguish the discussion on water tenure from that on the human right to water. Actually, both individuals and groups might access water resources not only for productive purposes but for domestic purposes too. Such would be the case of people collecting water directly from rivers, lakes or wells for human consumption.

Indeed, water rights do differ from the human right to water but for quite distinct reasons. In water law, a water right refers to the right of a user to use water. A water right is an alienable right, which can be provided to an individual and which can also be withdrawn. On the contrary, the human right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water personal and domestic use. It is not temporary. Neither is it subject to State’s approval and surely, cannot be withdrawn as it is an inalienable right²³. These differences between a water right and the right to water do not render them incompatible, though.

With regards to allocation, General Comment No 15 on the Right to Water stresses: “Water is declared for a range of different purposes, besides personal and domestic uses, to realize many of the covenant rights. For instance, water is necessary to produce food (right to adequate food) and ensure environmental hygiene (right to health). Water is essential for securing livelihoods (right to gain a living by work) and enjoying certain cultural practices (right to take part in cultural life). Nevertheless, priority in the allocation of water must be given to the right to water for personal and domestic uses. Priority should also be given to the water resources required to prevent starvation and disease”²⁴. Still, as duly acknowledged by UNGA Resolution 64/292, which recognises the human rights to water and sanitation, all human rights are interlinked and interdependent. Thus, the human right to water cannot be addressed separately from other human rights such as the right to food and other rights placing specific demands on water use for agriculture. Only after these rights are satisfied, that water allocation should consider other types of water uses.

Water governance, especially through Integrated Water Resources Management (IWRM) as its cornerstone, is essential for the realisation of human rights. Conversely, as duly stressed by the former UN Special Rapporteur on the Rights to Water and Sanitation already in 2013, “it will be critical to integrate human rights standards and principles into goals on water resources (...). The broader water resource

²³ CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX, *Human Rights-Based Approach to Integrated Water Resources Management, Training Manual and Facilitator’s Guide*, Geneva, 2016, p. 44 et seq.

²⁴ CESCR, *General Comment No 15 (2002), E/C.12/2002/11*, paragraph 6.

management (...) target(s) must not be approached from a purely environmental or economic perspective”²⁵.

Actually, the momentum created by the UNGA resolution on the human right to water and sanitation brought the larger water security agenda to the attention of the international community. Inasmuch as human rights provide the highest level of security, a human right-based approach to water tenure becomes an essential means to ensure social equity, environmental sustainability and economic efficiency (this latter understood as the optimal allocation of water resources)²⁶.

In accordance with this view, a set of recommendations issued on the occasion of the 42nd Session of the CFS in September 2015 stressed the promotion and implementation of human rights obligations, closely linking access to water to food security and nutrition²⁷. In line with what had previously been put forward by the VGGT, it was recommended that particular attention should be given to vulnerable groups, their use of natural resources, their needs and tenure rights.

Thus, the concept of water tenure needs to be revisited in order to meet the demands of all the water users and provide them with security. This can only be achieved through a comprehensive and integrated perspective, which duly articulates a top-down view of water rights with a bottom-up human rights-based approach that contemplates the social dimensions of gender equality and the protection of the linkages and needs of indigenous communities and pastoral and nomadic groups.

In this context, the concept of water tenure can amount to a pathway for greater acceptance of the need to look after vulnerable people and to protect their rights to the very basic need for water use and go further and recognize the productive uses of water for livelihoods as included within this right.

²⁵ A/68/264, *Report of the Special Rapporteur on the human right to safe drinking water and sanitation*, p. 21, paragraph 81. Cf. BOURQUAIN, K., *Freshwater Access from a Human Rights Perspective: A Challenge to International Water Law and Human Rights Law*, Leiden, Martinus Nijhoff, 2008, pp. 205-231.

²⁶ Cap-Net, REDICA, SIWI, the Water Governance Facility and WaterLex all coincide: “[t]he human rights system offers a moral and legal framework that is accepted almost everywhere. It sets minimum standards for governance in different areas of work – such as water management – and it defines rights and obligations of different categories of institutions. And because water has been recognised as a human right, the human rights system offers opportunities to streamline global and national water governance and to provide coherence both in terms of environmental sustainability and in terms of human development”. CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX *op. cit.*, p. 42.

²⁷ FAO, *CFS 2015/42/2, Summary and Recommendations of The High-Level Panel Of Experts (Hlpe) Report on Water for Food Security and Nutrition*, Rome, October 2015, p. 10, paragraph 60.

Throughout this work, the conceptual framework developed by FAO for water tenure will be presented and examined. Such conceptual framework sets the motivation, holds together and ultimately endorses an integrated approach to the topic and provides the basis for a new more comprehensive concept of water tenure (Table 1.3).

Table 1.3: Development of conceptual framework

Spatial scales	Land Governance Issues	Water Governance Issues	Benefits of Water Tenure	Benefits of an Integrated Approach
Individual	Unequal access to land	Unequal access to water for productive use	Secure access to water for domestic and productive purposes	Secure access to land rights and access to water for domestic and productive use
Local/Community	Land overexploitation Conflicts	Water degradation and overexploitation Conflicts	Clear resource-community relationship preventing overexploitation Bottom up approach recognizing normative and cultural differences	Secure land rights tied to water use avoiding land-water conflicts (upstream downstream water-land users)
Basin	Undefined responsibility of land governance organizations High occurrence of conflicts	Undefined basin management responsibilities High occurrence of conflicts	Defined rights and obligations for basin management	Prevention of conflicts in trans-border land and water use
National	Unequal land access Inconsistencies in land and agrarian reforms	Unequal water access Inconsistencies in water law reforms	Defined rights and more equitable access Tenure Security	Coherent policy platform for water and food security especially in agrarian economies
Global	Absence of national territorial sovereignty	Ill-managed transboundary water resources Conflicts	Political and economic power devices from Water Tenure	Concerted land-water global policies Joint collaborative efforts to address land-water challenges
Interplay between Scales	Discordance across scales	Discordance across scales	Harmony across scales	Harmony across different land-water interplays as a result of bottom-up approach

To this end, the scalar dimensions of water governance need to be duly considered. Indeed, many challenges in contemporary water governance are rooted in scalar complexity²⁸. Therefore, an analysis of water tenure and the governance issues shall take into consideration each of the spatial or administrative scales involved in land and water governance: from the individual scale, the local or community scale, to the basin scale, the national scale and the global or international scale²⁹.

Accordingly, Principle 2 of the OECD Principles on Water Governance, adopted in June 2015, which aims at enhancing the effectiveness of water governance urges to: “manage water at the appropriate scale(s) within integrated basin governance systems to reflect the local conditions, and foster coordination between the different scales”³⁰. The 12 Principles are centred around three dimensions: effectiveness, efficiency and trust and engagement. Whilst the OECD Principles on Water Governance are not legally binding for the subjects of the international community since they amount to *soft law* standards, they still produce certain legal effects, which should not be underestimated. Above all, soft law standards can both contribute to the interpretation of existing legal norms and may also foster and accelerate the formation of international legal norms. Moreover, “soft law” rules and standards play a role in the application of international legal norms. Standards operate as directives for an adequate fulfillment of international obligations³¹. The Principles undoubtedly serve as guidance for governments to design and implement effective, efficient and inclusive water policies³². In addition, the Principles provide a useful tool to evaluate the performance of water governance systems at local, basin, national and international scales³³.

Thus, it is incumbent to note how the contributing factors to water insecurity above analysed translate into pressing water governance issues at each of the mentioned scales, ultimately compromising human security. At the individual scale, the existing legal and institutional framework more often than not translates into unequal access to water for productive purposes. In such cases, marginalised groups

²⁸ COHEN, A., “Why Scale Matters: Borderless Water and Bordered Thinking”, in: *The Oxford Handbook of Water Politics and Policy*, Oxford, Oxford University Press, 2018, p. 279.

²⁹ Cf. DANIELL, K. A & BARRETEAU, O., “Water governance across competing scales: coupling land and water management” in: *Journal of Hydrology*, 2014, Vol. 519, pp. 2372 and 2374-2375.

³⁰ AKMOUCH, A. *et al.*, *OECD Principles on Water Governance: From Policy Standards to Practice*, IWRA, OECD, London, Routledge, 2019, p. 7.

³¹ Cf. QUEROL, M., “The Human Right to Water and Sanitation: The Challenges of its Application in Latin America”, in: REY CARO, E. *et al* (eds.), *Estudios de derecho internacional en homenaje de la Dra. Zlata Drnas de Clément*, Córdoba, Advocatus, 2014, pp. 768-769.

³² More than 170 stakeholder groups and governments have endorsed them. MAHER, S. *et al.*, *Land and Water Governance to Achieve the SDGs in Fragile Systems: Background Paper Prepared for the Plenary Session on Land and Water Governance*, Cairo, FAO, 2019, p. 22.

³³ MENARD, C., JIMENEZ, A, & TROPP, H., “Addressing the policy-implementation gaps in water services: the key role of meso-institutions”, in: AKMOUCH, A. *et al.*, *op. cit.*, p. 15 *et seq.*

including indigenous people, pastoral and nomadic groups, fishers, forest communities, smallholders and landless farmers are in most cases not guaranteed access to the water they need for their subsistence. In particular, in several parts of the world, women do not enjoy the same level of access to water for productive purposes as men. At the local or communitarian scale, the absence of an articulated approach to water management results in water degradation and overexploitation. Furthermore, conflicts arise both over competing uses and even over right to access and use freshwaters for food production. Unfortunately, such conflicts are also very likely to occur at the basin level, either between cross-river or between upstream and downstream users. The absence of defined basin management responsibilities at the institutional level clearly does not contribute to this scenario. With no clearly defined responsibilities, there can hardly be any cooperation at the basin scale. Also at the basin scale, territorial sovereignties clashing with each other constrain water cooperation for addressing food sovereignty. From a national standpoint, the incongruences and inconsistencies of water law reforms often hinder equal access to water by all. Mainly, even in the cases where a human right to water is expressly recognised, the absence of a human rights-based approach to water governance results in flagrant inequalities in access to water both for domestic and for productive use. At the international level, the absence of proper norms regulating the uses of the fresh watercourses in question and not taking into account the particularities of each watercourse result in ill-managed transboundary water resources and pave the way for international disputes over those watercourses. In addition, a 'silo' approach to water governance brings about discordance across scales.

2. THE SPECIFICITY OF WATER AS A NATURAL RESOURCE

2.1. WATER AS A SHARED NATURAL RESOURCE

Both land and water are natural resources. The term 'resources' refer to those elements to which the human being resorts to satisfy its needs. Those resources are natural when they exist without human intervention. Natural resources are those elements of Nature that are susceptible to being somewhat grabbed and consequently modified. Water, soil and flora are natural resources³⁴.

International law distinguishes three categories of natural resources:

- natural resources that belong to one State,
- natural resources that belong to the international community, and

³⁴ BARBERIS, J., *Los recursos naturales compartidos y el derecho internacional*, Madrid, Tecnos, 1979, p. 146.

- natural resources shared between two or more States.

Natural resources belonging to one State are those that lie entirely within its confines – a forest, a lake, or a sulphur or silver mine, for example - their working being governed by the laws of that State. Natural resources belonging to the international community are those that are met with outside the territories of States and whose working is governed by international law. Example of this category is the seabed (See article 137 of the UN Convention on the Law of the Sea)³⁵.

Whilst land is a natural resource that belongs to one State, fresh watercourses can also amount to a shared natural resource. Shared natural resources are those natural resources, which are under the jurisdiction of two or more States sharing the resource to the exclusion of any other State. It is the nature of things and not the will of States that determines the shared character of a natural resource. For this reason, they have more precisely been classified as a natural resource to be shared.³⁶ Shared natural resources are subject to the exclusive jurisdiction of the State in whose territory they lie³⁷. Shared natural resources comprise two groups of elements of Nature: on the one hand, fluid substances – either in liquid or gaseous form – that run through the territory of more than one State, and on the other hand, animals, which migrate from one country to another or whose habitat includes the territory of more than one State. As a result, migratory animals, transboundary freshwater courses such as transboundary rivers, transboundary lakes and transboundary aquifers, the atmosphere, and gas, oil and geothermic energy fields, which cross an international boundary³⁸.

³⁵ BARBERIS, J., *International groundwater resources law*, FAO Legislative Study 40, FAO, Rome, 1986, p. 23.

³⁶ CAFLISCH, L., "Règles générales du droit des cours d'eaux internationaux", *Recueil des cours de l'Académie de droit international de la Haye*, Vol. 219 (1989-VII), p. 134.

³⁷ This conforms to UNGA Resolution 1803 (XXVI) of 14 december 1962, which declares the permanent sovereignty of States over their natural resources. UNITED NATIONS, *A/RES/1803 (XVII)*

³⁸ BARBERIS, J., "El condominio internacional", in: SANCHEZ RODRÍGUEZ, L. I., *Pacis artes. Obra homenaje al Profesor Julio D. González Campos*, Universidad Autónoma de Madrid, Madrid, 2005, 2005, p. 166.

The shared natural resource character of transboundary freshwater courses has been recognised by international practice, where both treaties and resolutions of international organisations and academic institutions resort to broad terms such as 'basin', 'freshwater resources' or 'freshwater courses' to cover both superficial and groundwater. See specially Article 2, a) of the UN Convention of 1997 on the Law of the non-navigational uses of international watercourses, Article 3 of the 1994 United Nations Convention The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa and Chapter 1, A.1) of the United Nations Water Conference (Mar del Plata, 1977). Cf. Also Article 3 of the 1966 Helsinki Rules of the *International Law Association*, the 1986 Seoul Rules on international groundwaters and Article 3 of the 2004 Berlin Rules by the same institution. Cf. BURCHI, S., *Groundwater in international law. Compilation of treaties and other legal instruments*, FAO, Roma, 2005, 566 p.

Nevertheless, when looking for a concept comprising all of the freshwater resources by virtue of their physical relationship, it seems more suitable to refer to the notion of 'system'. Cf. QUEROL, M., *Estudio sobre los convenios y*

This special characteristic of freshwater courses as shared natural resources provide them with their specificity, which must be duly considered when defining water tenure and when analysing the connection between land and water tenure due to their intrinsic differences and the consequences such differences entail in practice despite their obvious linkages.

2.2. LINKAGES WITH LAND, FISHERIES AND OTHER NATURAL RESOURCES

It cannot be disputed that water is essential for the sustainable management of natural resources. It is indeed present in all aspects of human development – poverty reduction, food security and health – and in sustaining economic growth in agriculture and other productive activities, such as industry and energy generation³⁹. This linkage between water and other natural resources is acknowledged in the preface of FAO’s VGGT: “[t]he responsible governance of tenure of land, fisheries and forests is inextricably linked with access to and management of other natural resources, such as water and mineral resources”.

2.2.1. LAND

Productive uses of land often require the use of water. As a result, land management directly affects water availability and quality. By way of illustration, salinity, pesticide pollution and eutrophication due to nutrient influx may have strong impacts in medium- to large- scale river basins. In turn, those impacts may affect several downstream uses such as provision of drinking water for human consumption, industries, fisheries and other agricultural uses⁴⁰. Conversely, water management may directly affect productive uses of land. As a result, decisions on the use and allocation of one natural resource have direct and/or indirect consequences in the use and allocation of the other⁴¹. The land and water interphase does exist and “failure to take account of this interdependence can undermine land tenure security, foster land disputes and contribute to resource degradation”⁴². Not only can it undermine land tenure security but water

acuerdos de cooperación entre los países de América Latina y el Caribe, en relación con sistemas hídricos y cuerpos de agua transfronterizos, CEPAL, Santiago de Chile, 2003, pp. 8-9.

This latter notion has been expressly incorporated in the 1997 UN Convention on the Law of the non - navigational uses of international watercourses, whereas ‘watercourse’ is defined as “a system of surface water and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus” (Article 2, paragraph a of the Convention). Comment to Article 2 of the draft articles that lead to the adoption of the Convention specifies that the allusion to groundwater as being part of a fresh watercourse together with superficial waters makes reference to the hydrological cycle composed of different elements through which water flows. UNITED NATIONS, *Yearbook of the International Law Commission 1994*, Vol. II, Part Two, p. 90.

³⁹ VAN BEEK & ARRIENS, *op. cit.*, p. 12.

⁴⁰ FAO, *Land-water linkages in rural watersheds*, FAO Land and Water Bulletin, Rome, 2004, p. 43.

⁴¹ HODGSON, Stephen, *Land and water-the rights interface*, FAO Legislative Study No 84, FAO, Rome, 2004, p. 1.

⁴² COTULA, L., *Land and water rights in the Sahel, Tenure challenges of improving access to water for agriculture*, Issue Paper No 139, IIED, SIDA, FAO, March 2006, p. 80.

tenure security and water security as well. In actuality, acknowledging the mentioned interphase between land and water was a pivotal element on the emergence of the concepts and principles of “Integrated Water Resources Management,” “Integrated Watershed Management” “Integrated River Basin Management” among others⁴³. Such notions clearly take into account water and land tenure rights and access challenges and opportunities at the landscape level.

Despite the above-mentioned linkages, it is important to stress the differences between land and water as natural resources and, in turn, between land and water rights and tenure⁴⁴. Whilst land is a fixed and immobile stock resource, water flows; it is fluid. Whereas land tenure or land rights can be vested upon an individual or another legal person to dispose of a certain parcel of land, water tenure or water rights allow an individual or another legal person to use a limited amount of water from a freshwater resource during a limited amount of time. Furthermore, land tenure or rights address the administration of individual parcels of land. On the contrary, water tenure or rights deal with allocation of water in the context of available water resources as a whole. Natural fluctuations in the availability of freshwater resources call for active management and measurement of water quality and of water quantity and even then, water security cannot always be guaranteed. This is a major concern in the context of irrigation schemes, where the water right or tenure is vested upon the scheme’s management and derive from ownership or use of land for irrigation. In addition, the enjoyment of individual water rights to use water from a natural freshwater source is contingent on the actual availability of the required quantity and quality of water and ultimately depends on the management of that resource at the basin level.

In a world where arable land is becoming increasingly scarce, land governance issues ensue in practice thus jeopardising food security. Both at the individual and national scales, integrated landscape management approaches are hampered by unequal access to land⁴⁵. Latin America, in particular, endures the highest levels of inequality in land distribution worldwide, most especially amongst indigenous peoples⁴⁶. In addition, albeit the increasing feminisation of farm labour, it is estimated that less than 5 per cent of women have access to secure land rights⁴⁷. Closing the gender gap in this respect would encompass

⁴³ GREGERSEN, H. ET AL., *Integrated Watershed Management: Connecting People to Their Land and Water*, Wallingford, CAB International, 2007.

⁴⁴ Cf. FAO, *Strategic Evaluation*, *op. cit.*, pp. 56-57.

⁴⁵ Cf. *supra*, Table 1.3.

⁴⁶ ZIADAT, F. *et al.*, *Land resource planning for sustainable land management*, Land and Water Division Working Paper No 14, FAO, Rome, 2017, pp. 27-28.

⁴⁷ NIASSE, M., “Gender equality: it’s smart and it’s right”, in; MANZI, M. & ZWART, G. (eds.), *The Future of Agriculture*, Oxfam Discussion Papers, 2013, pp. 51-53. Available at: <https://www.oxfamamerica.org/static/media/files/the-future-of-agriculture-synthesis-of-an-online-debate.pdf>

a substantial increase in crop yield in land owned by women and, consequently, a 2.5 to 4 per cent increase in domestic food production. This, in turn, would result in a 10 to 20 decrease in the number of undernourished people across the world, since it would be benefiting 100 to 150 million of the estimated 821 undernourished people in the world, a number that has been on the rise since 2014⁴⁸.

At the local or community level, unsustainable use of land encompasses land overexploitation and degradation. In fact, it has been concluded that about 20 per cent (12 to 20 million ha) of the world's cropland has degraded over a 25-year period. If such current persists, 320 million ha, which amounts to the combined arable land of India and China, will be lost by 2050⁴⁹. Article 1, paragraph (f) of the 1994 United Nations Convention to Combat Desertification, defines land degradation as the "means reduction or loss, in arid, semi-arid and dry sub-humid areas, of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as: (i) soil erosion caused by wind and/or water; (ii) deterioration of the physical, chemical and biological or economic properties of soil; and (iii) long-term loss of natural vegetation"⁵⁰. It should be noted that this Convention is, at present, the only legally binding agreement connecting environment and development to sustainable land management.

Both at the basin and at the community level, a high occurrence of conflicts in trans-border land use (cross-river or upstream downstream land users) evidences a fundamental problem of weak land governance and compromise tenure security⁵¹. Conversely, tenure insecurity also leads to precarious land rights and subsequent land conflicts⁵². Among the various negative effects of land conflicts, farm productivity is undermined, which directly compromises food security⁵³.

⁴⁸ FAO, IFAD, UNICEF, WFP & WHO, *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition*, Rome, FAO, 2018, p. 3.

⁴⁹ NIASSE, M. & CHERLET, J., *Coordinating land and water governance – An essential part of achieving food security*, GWP, December 2014, p. 6. Available at: https://www.gwp.org/globalassets/global/toolbox/publications/perspective-papers/07_perspectives_paper_land_water_governance.pdf

⁵⁰ *United Nations Treaty Series*, Vol. 1954, p. 3 *et seq.* In force since 26 December 1996, there are at present 197 State Parties to the Convention.

⁵¹ FAO, *Good Governance in Land Tenure and Administration*, Land Tenure Studies 9, Rome, FAO, 2007, p. 19.

⁵² MUSHINGE, A., *Role of Land Governance in Improving Tenure Security in Zambia: Towards a Strategic Framework for Preventing Land Conflicts*, Technical University of Munich, Munich, 2017, pp. 52-53. Available at: <https://pdfs.semanticscholar.org/628e/0c24d571fb3751d20c52226ebe49511b602c.pdf>

⁵³ Cf. FAO, *Good Governance*, *op. cit.*, pp. 16-20. See also WEHRMANN, B., *Land Conflicts: A Practical Guide to Dealing with Land Disputes*, Eschborn, Deutsche Gesellschaft für, Technische Zusammenarbeit (GTZ) GmbH, 2008, p. 31 *et seq.*

Also, at the basin scale, another land governance issue is certainly the existence of undefined responsibilities of land governance organisations. In fact, organisations of farmers and small-scale producers – this also stands for organisations of fishers and forest users – are often disregarded from the decision-making processes. Effective governance at this scale can only be achieved through a multi-stakeholder land management- approach (SLM). To be able to work together, actors should reach a common understanding of SLM and of their respective roles and responsibilities⁵⁴. Bringing together SLM requires knowledge creation and increased collaboration and information sharing on all sides. This can be achieved by linking landscape governance with a rights perspective. This fosters the creation of a decision-making space through the structures, institutions and processes through which land governance operates, which can enable the recognition of rights by right-holders and stakeholders⁵⁵.

From a national standpoint, fragmented institutional arrangements, weak institutions, ambiguous laws and a weak judiciary aggravate the situation⁵⁶. A key precondition for land reform to be feasible and effective in improving beneficiaries' livelihoods is that such programs fit into a broader policy aimed at reducing poverty and establishing a favourable environment for the development of productive smallholder agriculture by beneficiaries⁵⁷.

At the global level, weak land governance would denote an absence of national territorial sovereignty in some cases⁵⁸. As in the case of water governance issues above analysed, there is also a large discordance across scales as a result of feeble land governance. Such lack of coordinated action between scales further contributes to food insecurity.

⁵⁴ FAO, *Stakeholder Land Management in practice the Kagera Basin: Lessons learned from scaling up at the landscape level*, Rome, FAO, 2017, p. 84.

⁵⁵ BLOMLEY, T. & WALTERS, G. (eds.), *A Landscape for Everyone: Integrating Rights-Based and Landscape Governance Approaches*, Gland, IUCN, 2019, pp. 8-9.

⁵⁶ FAO, *Good Governance*, *op. cit.*, p. 13.

⁵⁷ DEININGER, K., *Land Policies for Growth and Poverty Reduction*, World Bank & Oxford University Press, 2003, p. 154. For the characteristics of good land reform see pp. 155-156. Cf. PALMER, D. *et al.*, *Towards Improved Land Governance*, Land Tenure Working Paper 11, FAO-UN-HABITAT, 2009, p. 33.

⁵⁸ This author has requested further clarification from FAO on this point of the conceptual framework. If it refers to international disputes about sovereignty over a certain territory, it would then also amount to a conflict as in the case of the local/community and basin levels, albeit an international one. If not, there are at present no unclaimed territories in the world, and consequently, no territories where the territorial sovereignty of a country would not be applicable. They would either be included within a certain country's sovereignty or disputed by two or more countries (there would be a case of clashing territorial "sovereignties"). This point needs to be elucidated before publication of the present study.

2.2.2. FISHERIES

In addition to its connection to land, water is inherently linked to fisheries. Fishers and fish workers first and foremost need access to fishery resources to pursue their livelihood strategies but, they also need other resources such as land – for the physical access to the water, storage of boats and gear, housing, among other uses. Similarly, fish processors and traders also need access to water – together with access to land – to set up their businesses. Moreover, in many small-scale fishing communities, livelihoods are diverse, and households may be involved in other economic activities (e.g. farming or tourism) in parallel with fisheries activities requiring access to the relevant resources for these activities⁵⁹.

For most small-scale fishing communities, indigenous and others, fishing (and related activities) amounts to much more than a source of income: it is a way of life. As such, securing rights to their traditional way of living becomes a question of social justice. Tenure and user rights in fisheries deals with how marine and inland capture fisheries are accessed, used, and managed using various types of rights-based approaches. While access to fishery resources is a key consideration, it is important to understand that fishing communities also depend on access to other resources, in particular water and land, for accessory activities and for housing and other livelihood support.

Fishing communities are in a particular situation with regard to tenure and access to the shore area. If other sectors and economic activities, which may have strong political support, make claims to the area, they may be threatened by eviction if they do not have formal tenure of the land they occupy as well as to their fishing grounds. Hence, fishing communities' access to both water and land needs to be protected as well.

Flow regime changes and pollution both affect inland freshwater fisheries. Interactions with a water body influence the living organisms inside of it, which can – in turn – result in changes to the ecosystem. Increased sedimentation, intensified aquatic plant growth and encroachment of agriculture into the margins, have all negative consequences on ecosystems and fish⁶⁰. Irrigation can have especially adversely impact on fisheries. Not only can it alter environmental flows. It can also, affect fish quantity during water abstraction (especially through irrigation diversions) and introduce barriers to fish movement or

⁵⁹ FAO, *Implementing Improved Tenure Governance in Fisheries*, Rome, FAO, 2013, p. 5.

⁶⁰ While occasionally changes to the aquatic ecosystem can have positive effects on fish production in certain extensive culture systems (e.g., through nutrient enrichment), this is more of an exception than a rule. UNVER, O. *et al.*, "Water Governance and Management for Sustainable Development", in: TAYLOR, W. W. *et al.* (eds.), *Freshwater, fish and the future: proceedings of the global cross-sectoral conference*, Rome/Maryland, FAO & Michigan State University, 2016, p. 16.

migration⁶¹. In this context, an ecosystem approach to fisheries in the context of irrigation systems can definitely contribute towards the modernization of irrigation governance⁶².

2.2.3. FORESTS

Besides its interconnection with land and fisheries, water is linked to other natural resources such as forests⁶³. Water security is dependent on forests. Indeed, forests play a crucial role in the hydrological cycle, both at the local and global levels. Approximately 75 percent of the world's accessible freshwater for agricultural, domestic, industrial and environmental uses comes from forests. Forests and trees are essential to maintaining resilient production systems, communities and ecosystems. They are vital to our water supply, providing high quality water resources: they intercept atmospheric moisture, contribute to cloud and rain formation, reduce erosion and recharge groundwater. However, changes in climate and land use are contributing to altered groundwater and base flows locally, and precipitation regionally. Global hydro sheds - major watersheds - have experienced a high percentage of tree cover loss, resulting in increased risk to water stress, erosion and forest fires.

In this context, an understanding of forest and water interactions and the importance of trees and forests for the regulation and supply of high-quality water becomes all the more paramount⁶⁴. Water quality, essential to the health and life of both rural and urban populations, is directly related to forest management. Forests generally improve water quality through their root systems and stable soil profiles which can act as a natural filter, reducing soil erosion and sedimentation. With regards to water quantity, changes in land cover, use and management have grave implications on a nation's water supply. Trees and forests influence the hydrological cycle, by regulating and affecting basin flows through interception, uptake, evapotranspiration, reducing run-off and improving soil infiltration and groundwater recharge. Forests do not always improve water yield; this is dependent on location, forest type and age scale (both

⁶¹ GREGORY, R. *et al.*, *An ecosystem approach to promote the integration and coexistence of fisheries within irrigation systems*, FAO Fisheries and Aquaculture Circular No.1169, Rome, Fao, 2018, pp. 7-13.

⁶² Accordingly, FAO and Michigan University's Rome Declaration on 10 Steps to Responsible Inland Fisheries promotes the development of collaborative approaches to cross-sectoral integration in Development Goals. See FAO & MICHIGAN UNIVERSITY, *The Rome Declaration: 10 Steps to Responsible Inland Fisheries*, Rome, East Lansing, 2016.

⁶³ The concept of 'forest' is defined by FAO as the "[I]and spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use." Cf. FAO, *Forest Resources Assessment Working Paper 180*, Rome, FAO, 2015, p. 3. Available at: <http://www.fao.org/3/ap862e/ap862e00.pdf>

⁶⁴ FAO, *Forests and Water: A Five-year Action Plan*, Rome, FAO, Rome, 2014. Available at: <http://www.fao.org/forestry/43810-05bc28890480b481d4310a3c5fe8a1003.pdf>

physical and temporal). Evapotranspiration from forests can have a positive effect on downwind precipitation. Forest-water relationships are complex and highly contextual⁶⁵.

Due to the complex nature of forests, the ecosystem services they provide – especially water-related services – are often misunderstood, undervalued, and therefore overlooked. Forests have a crucial role in building and strengthening resilience. When sustainably managed, forests contribute significantly to reducing soil erosion and the risk of landslides and avalanches, natural disasters which can disrupt the source and supply of freshwater⁶⁶. Forests protect and rehabilitate areas prone to soil degradation and erosion in upland areas. In other words, changes in land and forest use or management are highly likely to bring about change to hydrology, in terms of both water quantity and quality. Recognising the impacts of such use and management on water – including reforestation, afforestation and restoration – plus maximizing benefits and minimizing negative effects on water supply and quality is fundamental to achieving SDG 6. It indirectly contributes to other SDGs, as well.

All in all, effective management of the forest-water interface requires a combination of technical and policy measures, which duly considers the main linkages and interactions between forests and water. Furthermore, it needs to integrate tools to make up for risks in Integrated Water Resources Management, as including both sustainable land and forest management too. With approximately 80 percent of the world population facing water insecurity, the management of forests for water is increasingly important. Using forests to produce high quality water can cost as low as US\$2 per person per year. Yet, 75 percent of the world's forests are not managed for water conservation. The relationship between forest and water resources needs to be addressed through integrated management and policies, supported by scientific understanding.

⁶⁵SPRINGGAY, E. *et al.*, *Championing the Forest-Water Nexus: Report of the Meeting of Key Forest and Water Stakeholders*, Stockholm, SIWI, 2018, p. 10. Cf. Tobella, A.B. *et al.*, “The effect of trees on preferential flow and soil infiltrability in an agroforestry parkland in semiarid Burkina Faso”, in: *Water Resources Research*, Vol. 50, 2014, pp. 3342–3354. See also,

⁶⁶ FAO, *The State of the World's Forests 2018: Forests Pathways to Sustainable Development*, Rome, FAO, 2018., p. xi.

3. GAPS BETWEEN AN IWRM APPROACH AND THE HRW

Since the approval of the Dublin Principles in 1992 at the Dublin International Conference on Water and the Environment⁶⁷, and all the more so over the last years, IWRM has become a tool for comprehensive water management that balances competing economic, social and environmental needs. A generally accepted definition of IWRM has been provided by the Global Water Partnership (GWP):

“Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”⁶⁸.

IWRM constitutes an endeavour to integrate all aspects of water resource interventions into a management framework at the catchment or basin level⁶⁹. One of the keystones of IWRM is that the fundamental management unit for water should be the river basin. Such approach favours a more comprehensive and sustainable management of water resources and the achievement of more social, economic and environmental benefits⁷⁰.

Land - and related resources - is embedded in the principle of IWRM as an integral part of water management. However, it would still need to be effectively implemented.

An integrated approach to land and water management actually coordinates envision, planning, government and management of these strategic resources. Conversely, a ‘silo’ approach becomes a serious obstacle within a scenario of resource scarcity. As above described, the availability and quality of farmland and water are interconnected. The way the land is managed affects water use and quality and vice versa⁷¹.

⁶⁷ The Dublin Principles are:

1. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment
2. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels
3. Women play a central part in the provision, management and safeguarding of water
4. Water has an economic value in all its competing uses and should be recognized as an economic good.

⁶⁸ See <https://www.gwp.org/en/About/why/the-need-for-an-integrated-approach/>

⁶⁹ Cf. CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX, *op. cit.* p. 11.

⁷⁰ UNESCO, *Introduction to IWRM Guidelines at River Basin Level, Part I, Principles, The United Nations World Water Assessment Programme*, 2009, p. 4 *et seq.*

Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000186417>

⁷¹ NIASSE, M. & CHERLET, J., *Coordinating land and water governance*, *op. cit.*, p. 7.

Indeed, immense benefits ensue from coordinating land, other resources and water governance into one integrated approach⁷². From an individual standpoint, it translates in secure access to land rights and to water both for domestic and productive use. This is true within a revisited – more rights oriented - notion of water tenure as a governance tool.

An example in this regard can be found in Articles 1052 to 1058 of the Iraqi Civil Code, which codifies the rights under Islamic law of landowners to use water. It is worth noting in this respect under Islamic Law, domestic use of water takes priority over other uses (Box 3.1).

BOX 3.1: Integrated approach – the case of Iraq

Article 1052 of the Civil Code provides regulations about rainfall, which cannot be stored in any dam and the flow should be free. In addition, the owner of the land may use the rain that falls in her land and the water of natural springs emanating from her land without causing harm to the downstream landowners. Compensation is stipulated in case of harm⁷³. Every person may irrigate his land from rivers and public canals and may dig a passage to obtain water, which must be in accordance with the specific laws and regulations⁷⁴. Specific norms also regulate the use of land where there are channels and the right of passage to access water and to provide the mechanisms to allow water to run into neighbouring land⁷⁵. In addition, the farmer or landowner has the right over the water available on the farm. Such right is further regulated by regulation number 1 issued in 2015, whereby farmers have the right to obtain and provide water for their lands after the approval is given by the department of water resources⁷⁶.

At the local or communitarian scale, an integrated approach secures land rights tied to water use, thus avoiding land-water conflicts between upstream downstream water-land users. Such conflicts are also prevented in trans-border land and water use at a basin level. From a national standpoint, it provides a coherent policy platform for water and food security. Such an approach also promotes more concerted

⁷² Cf. Table 1.3 of this work.

⁷³ Cf. Article 1053 of the *Iraqi Civil Code* of 1951.

⁷⁴ *Ibid.*, Article 1055.

⁷⁵ *Ibid.*, Articles 1057 and 1058.

⁷⁶ Furthermore, Iraqi Law No 59 of 15 October 2012 on Modern Farmer Families regulates the establishment of modern agricultural villages with a view to achieving food security; and increasing green areas, combating desertification and improving the environment. Among its main functions to achieve these objectives, the Ministry of Agriculture shall allocate agricultural land and cooperate with the competent authorities to provide water quota. It is worth noting that high level graduates and non-beneficiaries of agricultural land and houses in the past shall be privileged beneficiaries. Cf. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC149787>

land-water global policies as well as international joint collaborative efforts to address land-water challenges. Another explanatory case is that of South Africa summarized in Box 3.2.

BOX 3.2: Integrated approach – the case of South Africa

Section 27(1)(b) of its Constitution provides specifically that “[e]veryone has the right to have access to ... sufficient food and water”. This provision explicitly recognises both the right to food and the right to water. It does not specify if it refers to water for domestic and productive purposes but since it recognises the right to food, it could be concluded that productive uses to ensure food security are protected too. Moreover, Section 24 of the same legal instrument provides that: “[e]veryone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that (i) prevent pollution and ecological degradation;(ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”⁷⁷. With clear redistributive goals and the provision of a system of ‘modern’ formal water rights, National Water Act No 36 of 1998, as amended by the 2014 National Water Amendment Act seeks to safeguard the interests of small-scale and disadvantaged water users and protect the aquatic environment. The purpose of the National Water Act, as set forth Chapter 1, Section 2, is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors, “including (a) meeting the basic human needs of present and future generations. The highest priority for the abstraction and allocation of water is to ensure that sufficient quantities of raw water are available to provide for the basic water needs of people”⁷⁸. This norm contains particular provisions for the national, local and basin scales of water management respectively. Also, it adopts an integrated approach to land and water management⁷⁹.

As above shown, an integrated water management process is scale dependent. It integrates multiple levels of stakeholders and sectors. Above all, people should be at the centre of the process and governance and enabling policies and institutions should support the achievement of resource-use.

⁷⁷ *Constitution of the Republic of South Africa No. 108*, 18 December 1996. Available at: <http://extwprlegs1.fao.org/docs/pdf/saf127487.pdf>

⁷⁸ National Water Act No 36 of 20 August 1998, as amended by National Water Amendment Act No 27 of 30 May 2014. Available at: <http://extwprlegs1.fao.org/docs/pdf/saf123836.pdf>

⁷⁹ Hodgson argues that despite its many benefits in written form, such norm does not correspond to reality. He states: “Water tenure in South Africa today does not necessarily align with what the law says it should be. This is likely to be the case everywhere, with different levels of discrepancy depending on the law and the prevailing tenure situation”. HODGSON, S., op. cit., p. 57.

Policies and institutional support are crucial at all scales to match global, national and subnational economic, social and environmental goals with the needs of stakeholders – from the public and the private sectors – and to manage trade-offs and inequalities between sectors and actors⁸⁰. Overall, within an integrated approach there is a harmonious interplay across the different land-water scales as a result of a bottom-up approach. Not only does such multi-level governance take into account the interaction between scales. It is also open to the multiplicity of references that are borne by the various actors involved in particular land and water related issues⁸¹.

Accordingly, SDG Target 6.5 aims to implement IWRM at all levels. To this end, SDG Indicator 6.5.1 tracks the degree of IWRM implementation, by assessing the four key components of IWRM: a) Enabling environment; b) Institutions and participation; c) Management instruments, and d) Financing. It takes into account the various users and uses of water, with the aim of promoting positive social, economic and environmental impacts at all levels, including the transboundary level, where appropriate. However, there is a demonstrable gap between water governance approaches on the one hand, such as IWRM, as referred to in SDG 6.5.1, and the universal human right to water, which confers the right to water for domestic purposes, on the other hand⁸².

First, FAO Paper No 10 argues that in the very definition of IWRM there is no reference to the water users, the people who actually depend on those water resources⁸³. It is worth noticing in this regard, that the human rights - based approach or rights perspective materialised in this century much later than the Dublin Principles. Since 2000, with the recognition of water and sanitation as human rights under international law, the water debate has started considerably shifting towards a more “human-oriented” approach. In any case, water tenure provides an opportunity to remedy the mentioned imbalance, reorienting water users in a more responsive bottom up manner. At the end of the day, the only thing that matters for a water user is if she/he will receive her/his water. IWRM would be, in itself, unable to provide for a high level of water security in this respect⁸⁴.

⁸⁰ Cf. FAO, *Land Resource Planning for Sustainable Land Management*, *op. cit.*, p. 9.

⁸¹ Cf. DANIELL K. A & BARRETEAU, O., “Water governance across competing scales: coupling land and water management”, *op. cit.*, pp. 29-30.

⁸² CULLET, Ph., “Innovation and Trends in Water Law”, in: CONCA, K. & WEINTHAL, E. (eds.), *The Oxford Handbook of Water Politics and Policy*, Oxford, Oxford University Press, 2018, p. 333. Cf. VAN KOPPEN, B., “Water Allocation, Customary Practice and the Human Right to Water”, in: LANGFORD, M. & RUSSELL, A. F. S., *The Human Right to Water: Theory, Practice and Prospects*, Cambridge, Cambridge University Press, 2017, p. 57.

⁸³ HODGSON, *op. cit.*, p. 63.

⁸⁴ Cf. CULLET, *op. cit.*, pp. 338-339.

In addition, whilst debates on the right to water are clearly focused on access to water for personal and domestic use, they have largely disregarded the importance of access to water for agriculture⁸⁵. The implementation of the right to water in agriculture brings along very different issues to those raised by water access for personal and domestic use. Furthermore, such implementation must take into account the resource tenure needs of local production systems. For instance, programmes ensuring free access to water in Niger had negative impacts on local pastoral land and water tenure systems. Furthermore, they triggered conflict and caused land degradation. As a result, those particularities should be mainstreamed in the international debate on the human right to water⁸⁶.

General Comment No 15 on the Right to Water recognises that the rights-based approach needs to go much further to include productive uses of water for livelihood: “The Committee notes the importance of ensuring sustainable access to water resources for agriculture to realize the right to adequate food (see General Comment No 12 (1999)”. Attention should be given to ensuring that disadvantaged and marginalized farmers, including women farmers, have equitable access to water and water management systems, including sustainable rain harvesting and irrigation technology. Taking note of the duty in article 1, paragraph 2, of the Covenant, which provides that people may not “be deprived of its means of subsistence”, adequate access to water for subsistence farming and for securing the livelihoods of indigenous peoples should be ensured⁸⁷. This, however, would be the desirable path *de lege ferenda*, and does not constitute the core content of the right to water as a binding norm⁸⁸.

⁸⁵ In a similar vein, it has been argued that a HRBA in the water sector “must deal with conflicts in allocating water resources to satisfy different human needs that generate tensions between various human rights, such as the right to drinking water versus the right to food”. TREMBLAY, H., “A Clash of Paradigms in the Water Sector- Tensions and Synergies between Integrated Resources Management and the Human Rights Based Approach to Development”, in: *Natural Resources Journal*, Vol. 51, No. 2, p. 339.

⁸⁶ COTULA, L. *op. cit.*, pp. 79-80. Winkler opposes this view and claims that if water for producing food for basic consumption was taken to be guaranteed by the right to water there would be no reason not to include water for food production more broadly. It would be difficult to draw a line between subsistence farming and agriculture on a larger scale. As a result, all water uses necessary to realise any human right would be combined into one all embracing human right to water, which would result the human right to water would be undermined and would become less tangible and focused. WINKLER, I., *The Human Right to Water: Significance, Legal Status and Implications for Water Allocations*, Oxford, Hart Publishing, 2012, p. 130. For a critique of this view see TREMBLAY, H., “The Implications of Human Needs for Human Rights-Based Water Allocation: Review of The Human Right to Water”, in: *McGill International Journal of Sustainable Development Law and Policy* (JSDLP), Vol. 8, Issue 2, pp. 261-271.

⁸⁷ CESCR, *General Comment No 15 (2002)*, E/C.12/2002/11, pp. 3-4.

⁸⁸ RIEDEL, E., “The Human Right to Water” in: DICKE, K. *et al.* (eds.) *Weltinnenrecht: Liber Amicorum Jöst Delbrück*, Berlin, Duncker & Humblot, 2005, pp. 603-605. Cf. RIEDEL, E., “The Human Right to Water and General Comment No. 15 of the CESCR”, in: RIEDEL, E. & ROTHEN, P. (eds.), *The Human Right to Water*, Berlin, BWV, 2006, pp. 34-35.

Hence, water for subsistence farming is provided with a specific value above traditional irrigation rights to avoid any negative impact on livelihoods including customary water rights. Water allocation for subsistence production and water availability protection in that context are, thus, crucial to the implementation of IWRM through a human rights-based approach (HRBA).

Along this line, the Statement of Understanding accompanying the United Nations Convention on the Law of Non-Navigational Uses of Watercourses (A/51/869 of 11 April 1997) declared that, in determining vital human needs in the event of conflicts over the use of watercourses “special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation”⁸⁹. Still, the connotations surrounding the application of a HRBA to ensuring water access for agriculture should be more distinctly established in order to translate the principles above addressed by General Comment No 15 into operational directives. In this context, it has been argued that rather than stipulating a specific human right to water for food production, access to water for subsistence farming is an important means to achieve the right to food⁹⁰.

IWRM and water tenure are constituent elements of water governance. Approaching them from a HRBA is doing so as a tool for the realisation of human rights. Human rights are the point of reference, and the assessment of the performance of IWRM is conducted through a human rights lens. The HRBA builds on the standards contained in, and the principles derived from the 1948 Universal Declaration of Human Rights and other international, regional and domestic human rights instruments. These core principles are universality and inalienability, indivisibility, interdependence and inter-relatedness, equality and non-discrimination, participation and inclusion and accountability and rule of law⁹¹.

Notwithstanding the benefits of a HRBA to IWRM, customary water rights, particularly those which are unrecorded or undocumented, as well as other types of informal and not recognised water tenure, remain elusive to analyse from a HRBA to IWRM perspective. The non-codified and unwritten nature of customary water law arrangements would constitute the main impediment in this regard. In line with this view, Cotula denounces the existence of a gap between the law and the needs of local resource users⁹².

⁸⁹ *International Legal Materials*, Vol. 36, 1997, p. 719 *et seq.*

⁹⁰ WINKLER, I., “Water for Food: A Human Rights Perspective”, in: LANGFORD, M. & RUSSELL, A.F.S., *The Human Right to Water: Theory, Practice and Prospects*, Cambridge, Cambridge University Press, 2017, p. 143.

⁹¹ For an analysis of the HRBA principles in more detail see CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX, *op. cit.*, p. 23 *et seq.*

⁹² COTULA, *op. cit.*, p. 75.

Even in those cases where governments do undertake water sector reform and take into account customary water rights that have been duly claimed and proven, there is a danger of leaving behind those right holders and stakeholders who do not come forward. This puts the legitimacy of the statutory law at stake as well as the State’s ability to enforce it⁹³. Such models neither satisfy the HRBA nor the IWRM. Along this line, it has been put forward that “[w]hen States take the necessary steps to realize human rights, it is imperative that they build these on a comprehensive picture of the water rights that apply within their jurisdictions, including rural and indigenous communities’ customary arrangements for water allocation. While doing this, they must ensure that principles, standards of inclusion and participation, equality and non-discrimination are reflected in the water rights in question”⁹⁴. A revisited notion of water tenure in light of a HRBA can constitute a paradigm to include within a IWRM framework the mentioned customary arrangements as well as other types of tenure arrangements not included within the scope of statutory water law.

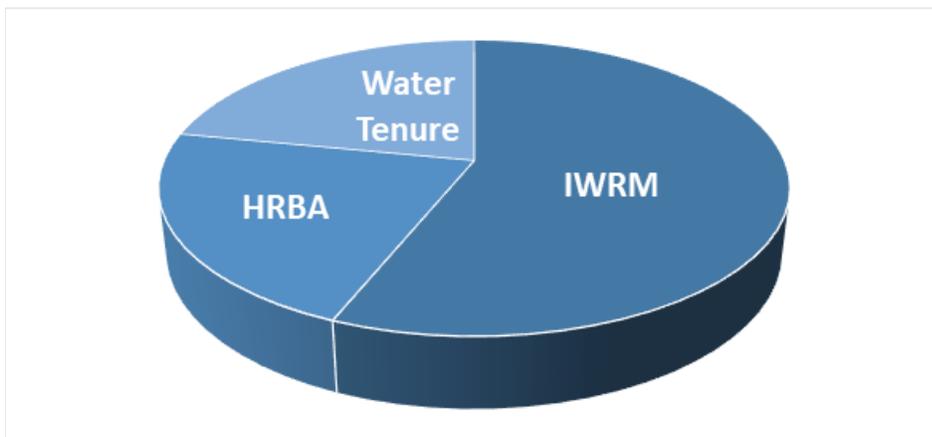


Figure 3.1: Conceptual relationship among IWRM, a human rights-based approach and water tenure.

As above explained, the existing gap between an IWRM approach and the human right to water often results in tensions in the application of such perspectives. Water tenure provides a link to resolve this apparent scission reflecting the actual relationships of people to water at a range of different scales. Water tenure is conducive to the realisation of fundamental human rights such as the human right to water and the human right to food. Taking a HRBA to water tenure entails bridging the gap between the practical

⁹³ Cf. CULLET, Ph., “International Water Law in a Globalised World. The Need for a New Conceptual Framework”, in: *Journal of Environmental Law*, Vol. 23, Issue 2, 2011, pp. 252-253.

⁹⁴ CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX, *op. cit.*, p. 73.

implementation of water rights and the existing international processes to promote the realisation of human rights (Figure 3.1).

4. THE DIFFERENT DIMENSIONS OF WATER ACCESS

Both land and water governance play a crucial role in the equitable distribution of land and water. In this context, inasmuch as it determines how people, communities and organisations gain access to and use natural resources, the notion of tenure – and particularly, that of water tenure – proves a practical tool in ensuring equal access to natural resources for productive purposes. Whereas tenure focuses on access and use of natural resources, governance deals with social and economic processes – the distinction between both concepts is important and has often been overlooked.

Access to water is indeed a prerequisite to sustain basic human needs and livelihoods. It is a condition for human development. Water tenure helps to protect all individuals and their livelihoods, especially vulnerable groups, by also taking into consideration small scale uses of water, whose access to water for productive purposes is excluded from formal or statutory water laws, and in some cases even from customary laws, in various legal systems.

The concept of water tenure includes the different spheres and elements of the management of water. It incorporates a more accurate knowledge and comprehensive understanding of existing arrangements concerning access, management and use of water, especially since it is indifferent to the purpose for which water is used.

Certainly, a conceptual approach of water tenure needs to be broad looking into hydro-physical, environmental, social, legal and institutional aspects of access to water and its management. People's access to water for productive uses takes a number of forms and includes dimensions of risk and sustainability such as climate change and variability, water quality and the critical environmental flow requirements for maintaining water sources, wetland ecosystems and biodiversity. Furthermore, the social dimensions of water tenure with regard to gender equality, specific livelihoods and spiritual linkages of indigenous communities with the water bodies on which they depend, the needs of nomadic and pastoral groups must be included in water tenure.

4.1. THE HYDRO-PHYSICAL DIMENSION

As above stated, a river basin approach to improved water governance is more all-inclusive and provides more benefits at the social, economic and environmental level. Contrary to the case of human determined

water management areas, a river basin is a natural physical entity; it is provided by Nature. As such, each basin possesses its own geographical and hydro-geological characteristics. As explained when addressing the linkages with land, cumulative land-uses in a river basin, such as the case of agriculture among others, can profoundly impact basin freshwater resources and vice versa. Land and water are ecologically linked in a natural system known as river basin or system, as defined by the 1997 UN Convention on the law on the non-navigational uses of international watercourses.

A basin-level perspective enables the practical integration of downstream, upstream and basin-wide needs, water quantity and water quality, surface water and groundwater and land use and water resources. Such an approach permits water managers and users to address the linkages of water resources and land management respectively in a more effective manner.

Addressing sustainable water governance and water tenure within a human rights framework requires understanding, respecting and restoring the diverse water cycles. In hydrology, water balance is conceived as a relation that characterises the circulation of water within a given system (mainly in a basin or in parts of a basin). It amounts to the relationship between elements entering a system (i.e. precipitation) and elements leaving the system (i.e. evaporation and surface or underground runoff). A third, and often neglected element between the two other elements, is the change in the volume of water in a system⁹⁵. Hydrological, chemical and biological balance of a river basin's ecosystem impacts the social, economic and environmental spheres and vice versa. It is, thus, crucial to understand and include such interdependency in the water tenure debate and within the context of water management. Adapting management plans designed to respond to changes at river basin level requires a sound understanding of the present hydrological cycle, and the range of human activities affected by and affecting this latter, as well as the cultures dependent on the basin resources. In this regard, IWRM should emphasise the inclusion of different users in national policy and law-making processes. In addition, it can foster improved water governance through effective institutional and regulatory arrangements in order to secure more equitable and sustainable water use and management. By guaranteeing the inclusion of those different

⁹⁵ CAP-NET, REDICA, WATER GOVERNANCE FACILITY, WATERLEX, *op. cit.*, p. 16. The authors of this manual explain that, as interventions in natural watercourses expand and land cover changes induce increased outflows of water, considerable volumes of water are highly likely to be lost to the system. In turn, part of those volumes of water leads to increase volumes in the ocean (having subtracted the increased evaporation from the oceans), and along with water from the glaciers, contributes to sea level rise. Whilst such variations may seem small on an annual basis, it can well lead to the drying of a country without hydrologists necessarily noting the reason behind it.

water users, water tenure is indeed the tool to achieve that improvement in water governance⁹⁶. All stakeholders should be involved in the process and water tenure ensures that they are, leaving no water user behind.

Most of the freshwater courses in the world possess a transboundary nature⁹⁷. They are shared natural resources, as above analysed. When water systems, such as river or lake basins and aquifer systems, are shared across internal or external political boundaries, it becomes necessary to address emerging water issues through a coordinated process and fluid dialogue between the States concerned, which may possess competing interests⁹⁸. In this respect, participation of non-State actors in transboundary water management has been identified as key for improved water governance systems and achieving water security. Actually, community groups in border areas, individual and community right holders and water users possess deep knowledge and expertise, which can provide input on potential risks to livelihoods and ecosystems. Also, they legitimate decision-making processes with regards to transboundary water management. This is also true for transboundary aquifers, whose governance has been largely overlooked despite their significant contribution to the availability of water. Their special hydro-physical features make them more vulnerable to contamination, over-exploitation and to the consequences of climate change. These unique characteristics must be provided for to ensure their sustainable use at all levels of water access, be it national, sub-national or local. In addition, a conjunctive management of surface and groundwater in transboundary basins as a “unitary whole” based on uses can prove indeed beneficial in the water allocation debate⁹⁹. Hence, a revisited notion of water tenure must take due regard of all of

⁹⁶ Along this line, water-user organisations or associations are known to have a key role in solving community-level problems of access to water in areas where the local government has limited capacity. These associations have first-hand knowledge of the local hydrodynamics, environmental and political challenges, which can prove extremely useful at the sub-basin level.

⁹⁷ Around the world, there are some 276 major transboundary watersheds, crossing the territories of 145 countries and covering almost half of the land surface of the Earth. MACQUARRIE, P. & WOLF, A., “Understanding Water Security” in: FLOYD, R & MATTHEW, R., (eds.), *Environmental Security: Approaches and Issues*, pp. 169-186.2013. In addition, there are more than 300 transboundary aquifers, most of which are shared by two or more States. PURI, S. & AURELI, A., *Atlas of Transboundary Aquifers. Global Maps, Regional Cooperation and Local Inventories*, UNESCO-IHP ISARM Programme, Paris, 2009. Available at: <http://www.isarm.org/publications/3222009>.

⁹⁸ GWP, *International Law – Facilitating Transboundary Cooperation*, TEC Background Paper No.17, Stockholm, Sweden, 2013, p. 6 *et seq.*

⁹⁹ Along this line, Milanes Murcia proposes water banking as the legal and institutional framework for conjunctive management of freshwater resources. MILANES MURCIA, M., “Proposed International Legal and Institutional Framework for Conjunctive Management of Surface and Groundwater Along the US-Mexico Border Region”, in: *Management of Transboundary Water Resources under Scarcity: A Multidisciplinary Approach*, World Scientific Publishers, 2017, pp. 117-157. Whilst this may provide a very good solution for water rights, most other types of water tenure are not so. Hodgson argues that: “by their very nature only a few distinct types of water tenure arrangement have the potential to be traded in the manner in which land tenure rights are so freely bought and sold.

these above described hydro-physical characteristics of freshwater resources both in their surface and groundwater form.

Since water tenure relationships are present and involve stakeholders at all levels - basin (transboundary and national), sub-national, and local, they are necessary to sound water governance and to economic efficiency, enabling a more efficient use of water resources. Furthermore, recognising the water tenure of all water users translates into a more efficient investment of governments in productive uses of water, thus ensuring water security.

4.2. THE ENVIRONMENTAL DIMENSION

The 2018 Report of the Intergovernmental Panel on Climate Change states that future climate-related risks depend on the rate, peak and duration of warming. Their effects also vary according to the geographic location where they occur. In the aggregate, they are larger if global warming exceeds 1.5°C before returning to that level by 2100 than if global warming gradually stabilizes at 1.5°C, especially if the peak temperature is high (e.g., about 2°C). Some impacts may be long-lasting or irreversible, such as the loss of some ecosystems¹⁰⁰. These risks directly have impact on freshwater resources and, thus, compromise water security.

Evidence of observed climate change impacts is strongest and most comprehensive for natural systems. In many regions, changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality. Assessment of many studies covering a wide range of regions and crops shows that negative impacts of climate change on crop yields have been more common than positive impacts¹⁰¹.

Since it includes all stakeholders in the water allocation spectrum, water tenure favours the sharing of traditional knowledge by water users who might have been disregarded within a purely statutory water rights – oriented framework. That traditional knowledge can inform adaptive actions and procedures to

Furthermore, transaction costs will necessarily arise due to the need to take third party and environmental impacts into account". HODGSON, *op. cit.*, pp. 33-34. See also p. 49.

¹⁰⁰ IPCC, *Global Warming of 1.5° C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, Summary for Policy-makers*, 2018, p. 7, paragraph A.3.2.

Available at: https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf

¹⁰¹ IPCC, *Climate Change 2014: Synthesis Report*, p. 6.

mitigate climate change related threats and consequently address water insecurity at all levels of implementation of water management: basin, national, sub-national and local levels¹⁰².

In addition, the conservation of inland water ecosystems plays a role in the minimization of the impacts of water-related hazards and may contribute to climate change adaptation¹⁰³. Both Nature and people rely on ecosystems as vital to sustaining the quantity and quality of water available within a freshwater basin. When such ecosystems are no longer capable of providing such water services, they directly affect human and water security. Ecosystem and environmental services constitute the processes by which the natural environment produces resources and services that benefit human society¹⁰⁴.

Whilst, in general, ecosystems can adapt easily to variations in conditions, significant changes in water quantity, quality and timing increase their stress and compromise their continued functioning and the life they support. Freshwater conservation considerations that take due regard of the value and benefits of ecosystems must be included in water management decisions, implementation and monitoring at all levels of water use. Water tenure is not exempted from this necessity. Along this line, reserves and minimum flows amount to types of water tenure, which specify the amount of water that must remain in a certain freshwater body that is being used or managed to preserve aquatic ecosystems. In so doing, it guarantees that there is enough water available for environmental services and small-scale and inland non-consumptive livelihood uses. For example, the South African, Water Act establishes what it qualifies as a

¹⁰² Cf. BLOMLEY & WALTERS, *op. cit.*, pp. 62-63.

¹⁰³ Cf. MCCAFFREY, S., "Environmental Law and Freshwater Ecosystems", in: SOBENES OBREGON, E & SAMSON, B., *Nicaragua Before the International Court of Justice: Impacts on International Law*, Cham, Springer, 2018, p. 348. In this context, the United Nations General Assembly has declared 2021-2030 the UN Decade of Ecosystem Restoration. This, with the aim to massively upscale on ground restoration actions, which will combat climate change, enhance food and water security and restore biodiversity. UNITED NATIONS, A/RES/73/284, p. 5. The UNGA resolution emphasizes that ecosystem restoration and conservation contribute to the implementation of the 2030 Agenda, the Paris Agreement on climate change, and the achievement of the Aichi Biodiversity Targets and the post-2020 global biodiversity framework. Adopted on 1 March 2019, the UNGA invited the UN Environment Programme (UNEP) and the Food and Agriculture Organization of the UN (FAO) to lead the implementation of the Decade, in collaboration with the secretariats of the Rio conventions and other relevant multilateral environmental agreements and entities of the UN system.

¹⁰⁴ Cf. SALZMAN, J., "Valuing Ecosystem Services" Symposium – The Ecosystem Approach: New Departures for Land and Water, *Ecology Law Quarterly*, Vol. 24, 1997, p. 887 *et seq.*

In addition to the water purification qualities of wetlands, other ecosystem and environmental services include: water purification via aquifers; bulk water storage in aquifers, lakes, permafrost, snowpack, icebergs, and glaciers; detoxification and decomposition of waste through functioning wetlands and aquifers; protection against floods, storm surges, and land erosion from maintained wetlands that absorb runoff and flood waters; and moderation of weather extremes as a result of balanced ecosystems.

‘reserve’, consisting of two parts: the reserve for basic human needs and the ecological reserve. In so doing, it ensures the delivery of aquatic ecosystem services¹⁰⁵.

The idea of ensuring a minimum volume of water in a watercourse is well-established in the domestic laws of many nations worldwide and is now emerging as an international principle of both international environmental and international water law. It recognizes the viability of the watercourse as a protectable interest, albeit often justified by economic and human health reasons as well as on intrinsic environmental principles. Despite competing demands, there is a common understanding that society can no longer allow rivers to be fully appropriated and, consequently, to run dry¹⁰⁶. Therefore, minimum flows must be guaranteed on watercourses to secure the viability of water flow-dependent activities¹⁰⁷.

It is worth noting that a HRBA to IWRM calls for the consideration of all types of water tenure in the light of all human rights as interlinked and interdependent. In this context, they cannot be regarded in isolation of the human right to a healthy environment. Along this line, the first report to the General Assembly of the Special Rapporteur on the issue of human rights obligations related to the enjoyment of a safe, clean, healthy and sustainable environment of 19 July 2018, stresses what had already been put forward by his predecessor on the subject: “A safe, clean, healthy and sustainable environment is necessary for the full enjoyment of a vast range of human rights, including the rights to life, health, food, water and development. At the same time, the exercise of human rights, including the rights to information, participation and remedy, is vital to the protection of the environment”¹⁰⁸.

International environmental law has progressively permeated the management of freshwater resources since the 1972 Stockholm Conference. Many of the principles contained in the Dublin Principles and in the

¹⁰⁵ REPUBLIC OF SOUTH AFRICA, *National Water Act, Act No 36 of 1998*. Available at: http://portal.unesco.org/en/files/47385/12670886571NWA_1998.pdf/NWA%2B1998.pdf Reserve is hereby defined as: “(xviii)(...) the quantity and quality of water required - (a) to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act, 1997 (Act No. 108 of 1997), for people who are now or who will, in the reasonably near future, be - (i) relying upon; (ii) taking water from; or (iii) being supplied from, the relevant water resource; and (b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource” (Article I). See also Part III of the same instrument.

¹⁰⁶ On the difference between minimum flows and reserve see ECKSTEIN, G., *The Greening of International Law: Managing Freshwater Resources for People and the Environment*, UNEP, 2010, pp. 98-104. Available at: http://www.unep.org/delc/Portals/119/UNEP_Greening_water_law.pdf.

¹⁰⁷ UTTON, A. E. & UTTON, J., “International Law of Minimum Stream Flows”, in: *Colorado Journal of International Environmental Law and Policy*, Vol. 10, No. 1, 1999, pp. 7-37.

¹⁰⁸ UNITED NATIONS, A/73/188, p.

Available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N18/231/04/PDF/N1823104.pdf?OpenElement>
The Special Rapporteur provides the case of the Matanza-Riachuelo as a leading example of progress made in respecting the right to a healthy environment of impoverished communities in the heavily polluted Matanza-Riachuelo watershed in Argentina following a decision of the Supreme Court of Justice in Argentina in 2008.

1992 Rio Declaration on Environment and Development are nowadays included in international agreements and other arrangements dealing with freshwater management and protection. The inclusion of the environmental dimension in the management of freshwater courses has been reinforced by the 1997 UN Watercourses Convention, where protection is recognised as an essential component of equitable and reasonable utilisation¹⁰⁹. The International Law Commission's (ILC) Draft Articles on the Law of Transboundary Aquifers also adopts an ecosystem approach and takes up the main provisions of the UN Watercourses Convention on protection of the environment and ecosystem of watercourses.

A related point to consider is the contribution of multilateral environmental agreements (MEAs) to the protection and management of fresh watercourses. These conventions add to the body of norms regulating the protection and utilisation of freshwater courses. They are: the Convention Concerning the Protection of the World Cultural and Natural Heritage, the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), the Convention on Biological Diversity, the Convention to Combat Desertification, the Framework Convention on Climate Change and the Kyoto Protocol, and the Convention on Persistent Organic Pollutants and the Convention on the Conservation of Migratory Species of Wild Animals. The rights and obligations arising from water treaties should be interpreted taking due regard to the development of international environmental law. The International Court of Justice has confirmed this view when it stated that international instruments "have to be interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation"¹¹⁰.

4.3. THE SOCIAL DIMENSION

4.3.1. GENDER EQUALITY

In many parts of the world, farming and irrigation practices are associated with masculinity and identified as male jobs. Though many women farm and irrigate, they are seldom regarded as farmers by either water management agencies or even by their own communities. Consequently, they are seldom endowed with

¹⁰⁹ Cf. Articles 5 and 6, paragraphs (a) and (f). For an analysis of the ecosystem approach of the UN Watercourses Convention see BOISSON DE CHAZOURNES, L., *Freshwater in International Law*, Oxford, Oxford University Press, 2013, p. 119-121.

¹¹⁰ *Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276 (1970)*, Advisory Opinion, ICJ Reports, 1971, paragraph. 53.

the associated rights or tenure to those resources. Gender bias refers both to unequal access to resources and to gender-differentiated access to the process of making and implementing decisions¹¹¹.

Women make essential contributions to the rural economy of all developing countries as farmers, labourers and entrepreneurs. On average, they comprise 43 per cent of the agricultural labour force in developing countries. This ranges from 20 percent in Latin America to 50 percent in parts of Africa and Asia, but it exceeds 60 per cent in only a few countries¹¹².

The importance of involving both women and men in the management of water and access-related questions has been recognized at the global level, starting from the 1977 United Nations Water Conference at Mar del Plata, the International Drinking Water and Sanitation Decade (1981-90) and the International Conference on Water and the Environment in Dublin (January 1992), which explicitly recognizes the central role of women in the provision, management, and safeguarding of water. Reference is also made to the involvement of women in water management in Agenda 21 (Chapter 18) and the Johannesburg Plan of Implementation. Furthermore, the combined implementation of SDG 6 (access to water and sanitation) and SDG 5 (gender equality) of Agenda 2030 offers a great opportunity to break the vicious circle of exclusion of women in water governance.

The 1992 Dublin Principles state that “Women play a central part in the provision, management and safeguarding of water. This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women’s specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them (Principle 3)”. However, more than 25 years later, only 15 percent of countries had a gender policy in their water ministry, and only 35 percent of countries had included gender considerations in their water-related policies and programmes¹¹³. Along this line, Article 14, paragraph 2 of the Convention on the Elimination

¹¹¹ ZWARTEVEEN, M., & BENNET, V., “The Connection Between Gender and Water Management”, in: BENNET, V. ET AL., *Opposing Currents: The Politics of Water and Gender in Latin America*, Pittsburgh, University of Pittsburgh, 2005, pp. 13-14.

¹¹² Estimates of the time contribution of women to agricultural activities ranges from about 30 percent in Gambia to 60 to 80 per cent in Cameroon, while in Asia it varies from 32 percent in India to over 50 per cent in China, and in Latin America it is lower, but it exceeds 30 per cent in Peru. FAO, *Passport to mainstreaming gender water programmes; Key questions for interventions in the agricultural sector*, Rome, 2012, p. 8.

¹¹³ FAUCONNIER, I. ET AL., *Women as change-makers in the governance of shared waters*, IUCN, Gland, 2018, pp. 9-10.

of All Forms of Discrimination Against Women (CEDAW) prescribes that: States Parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development¹¹⁴.

National and local water governance frameworks are not evolving fast enough to genuinely drive gender equality, resulting in less meaningful participation of women than men in formal water governance processes both at the national and the transboundary levels¹¹⁵. In many parts of the world, stereotypes and cultural norms about the roles of women impede their meaningful participation in local to transboundary water governance institutions and processes, which overlay already existing gender-unequal governance systems around land, natural resources and economic planning¹¹⁶.

At all levels of water management and use, women are key holders of knowledge on water use and sharing. They play major roles in knowledge dissemination and awareness raising through their networks and educating the next generation, and in motivation building. As a result, ensuring gender equality in both formal and informal decision-making mechanisms related to water management translates into higher policy attention to social and environmental issues and improved economic revenues for all stakeholders.

¹¹⁴ In particular, it shall ensure to such women the right: (a) To participate in the elaboration and implementation of development planning at all levels ... (d) To obtain all types of training and education, formal and non-formal, including that relating to functional literacy, as well as, inter alia, the benefit of all community and extension services, in order to increase their technical proficiency; (e) To organize self-help groups and co-operatives in order to obtain equal access to economic opportunities through employment or self-employment; (f) To participate in all community activities; and (g) To have access to agricultural credit and loans, marketing facilities, appropriate technology and equal treatment in land and agrarian reform as well as in land resettlement schemes (...). *United Nations Treaty Series*, Vol. 1249, p. 13 *et seq.* There are at present 189 State Parties to this Convention, which entered into force on 3 September 1981.

¹¹⁵ Cf. ZWARTEVEEN, M., "The politics of gender in water and the gender of water politics", in: WEGERICH, K. & WAGNER, J., *The Politics of Water: A Survey*, London, Routledge, 2010, p. 196. See also BARNES, J., "Who is a Water User? The Politics of Gender in Egypt's Water User Associations", in: HARRIS, L. ET AL., *Contemporary Water Governance in the Global South: Scarcity, Marketization and Participation*, Earthscan, 2013, pp.

¹¹⁶ Cf. FAO, *Le rôle des femmes dans la gestion des ressources en eau en générale et de l'eau agricole en particulier. Expérience de l'Algérie, du Maroc et de la Tunisie*, Rome, 2014, p. 86. This report concludes that women in the region concerned are generally regarded as helpers and not as partners in agricultural production. Although they participate in the work, they are more often than not absent in the decision-making processes and platforms particularly with regards to water management and irrigation. Cf. ONYANGO, L. ET AL., "Coping with History and Hydrology: How Kenya's Settlement and Land Tenure Patterns Shape Contemporary Water Rights and Gender Relations in Water" in: VAN KOPPEN, B. ET AL., *Community-based Water Law and Water Resource Management Reform in Developing Countries*, London, CABI International, 2007, pp. 186 and 190.

The High-Level Panel on Water in 2018¹¹⁷ strongly recommended to strengthen water governance and to ensure gender and social inclusion alongside the implementation of integrated approaches to water management at local, national and transboundary levels¹¹⁸. It recognises four areas where changes are needed: (1) leadership, (2) analysis, (3) participation, and (4) resource ownership. In this context, water tenure can be a significant tool to provide for gender equality in water management, building pathways to more participation in the pertinent institutions and benefit-sharing measures that can be more stakeholder-inclusive and gender-equal.

4.3.2. INDIGENOUS COMMUNITIES

Indigenous Communities around the world total approximately 370 million people, in some 5 000 groups and living in 90 different countries¹¹⁹. Each group has its own distinct language, cultural traditions, customary laws and ancestral lands. However, there is no universally adopted definition of indigenous peoples. Pursuant to the 2007 UN Declaration on the Rights of Indigenous Peoples, indigenous peoples can be identified by the principle of self-determination, according to which, they have the right to determine their own identity or membership in accordance with their customs and traditions. They possess strong links to surrounding ecosystems and ecosystem services; and a distinct set of rights, because of their ancestry and stewardship of their lands, territories and resources¹²⁰. Along this line, the impacts of climate change have further elevated water management to an urgent issue for indigenous communities, whose subsistence actually depend on their close link with freshwater resources¹²¹.

¹¹⁷ The main focus of the Panel was the commitment to ensure availability and sustainable management of water and sanitation for all, Sustainable Development Goal (SDG) 6, as well as to contribute to the achievement of the other SDGs that rely on the development and management of water resources.

¹¹⁸ Water governance institutions can demonstrate leadership by making gender equality and inclusion a core goal. In addition, water management decisions need to be informed by gender and social inclusion analysis, to reveal the different uses and knowledge of water by women, girls and others. Furthermore, meaningful and inclusive participation in decision-making and partnerships in water management institutions including river basin organisations, irrigation associations and water ministries, through adopting a ‘nothing about them without them’ approach, is needed. Finally, and especially important to the subject of this work, it is necessary to change discriminatory policies which cut women out of owning water and land resources. HLPW Outcome Report, *Every Drop Counts*, 2018, pp. 19 and 21.

Available at: https://sustainabledevelopment.un.org/content/documents/17825HLPW_Outcome.pdf

¹¹⁹ UNPFI, *State of the World’s Indigenous Peoples*, Vol. 1, 2019, p. 1.

¹²⁰ CAP-NET & UNDP, *Indigenous Peoples and Integrated Water Resources Management*, 2018, p. 13.

¹²¹ A/HRC/4/32, *Report of the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people, Rodolfo Stavenhagen*, 27 February 2007, p. 13, paragraph 51. See also SHELTON, D., “Water rights of indigenous peoples and local communities”, in: BOISSON DE CHAZOURNES, L. ET AL., *International Law and Freshwater*, *op. cit.*, p. 72. Cf.

The right of indigenous communities to own, use and develop their natural resources and their water resources in particular, is very strong under international law. The 1992 Indigenous and Tribal Peoples Convention (ILO Convention No 169) and the 2007 UN Declaration on the Rights of Indigenous Peoples (UNDRIP) provide the specific legal framework to protect indigenous communities¹²². By virtue of this framework, indigenous communities possess the following rights¹²³:

- i. the right to own, use, develop and control their traditional lands and resources (Article 26 of UNDRIP);
- ii. the right to maintain spiritual relationships with their traditional lands, territories, waters and coastal seas (Article 25 of UNDRIP); and
- iii. States are obliged to give legal recognition and protection to these lands and natural resources (Article 26.3 of UNDRIP and Article 15 of the ILO 169 Convention).

Concerning their participation in freshwater systems management processes, they possess the following additional concrete rights:

- i. they must be consulted and represented through their own institution, in conformity with their customs and traditions when resource management projects are applied to them (Articles 3, 4, 5, 13, 18, 19, 23, 27 and 32 of UNDRIP; Articles 7 and 15 of the ILO 169 Convention);
- ii. they shall have the right to decide their own priorities for the process of development which affects their territories. (Article 7 of the ILO 169 Convention); and
- iii. States must conduct an impact assessment, in relation with indigenous peoples, concerning plans and projects affecting them (Article 7.3 of the ILO 169 Convention).

In addition, by virtue of the principle of 'Free, Prior and Informed Consent', States must obtain the consent of the indigenous communities before embarking in several actions forming part of the implementation of IWRM processes:

- iv. the adoption of legislation or administrative policies, including water-related policies that may affect indigenous peoples (Article 19 of UNDRIP);
- v. the undertaking of projects that impact upon indigenous peoples' rights to land, territory and resources, including water resources (Article 32 of UNDRIP); and

¹²² MISIEDJAN, D. & GUPTA, J., "Indigenous Communities: Analyzing their Right to Water under Different International Legal Regimes", *Utrecht Law Review*, Vol. 10, No. 2, 2014, p. 77 *et seq.*

¹²³ Cf. CAP-NET & UNDP, *op. cit.*, pp. 38-39.

- vi. the storage or disposal of hazardous materials on indigenous peoples' lands or territories – including territories containing water resources (Article 29 of UNDRIP).

Furthermore, UNDRIP provides a restitution or other appropriate redress for indigenous communities who have had their lands “confiscated, taken, occupied or damaged without their 'Free, Prior and Informed Consent'” (Article 28 of UNDRIP). In this respect, the ILO 169 Convention prescribes that “the consultations carried out in application of the convention shall be undertaken, in good faith and [...] with the objective of achieving agreement or consent to the proposed measures.” (Article 6, paragraph 2).

In summary, water rights and other types of tenure are critical for indigenous rights and rural development programs¹²⁴. It includes not only access to water but also decision-making powers on water management. More often than not the cultural pluralism, which is inherent to indigenous water rights and practices is overlooked and replaced with externally controlled, allocations, organisations and institutions. Through an all-inclusive approach, which takes into consideration the said pluralism, water tenure proves especially useful to protect the water rights and practices of indigenous communities, which would otherwise be undermined. The inclusion of indigenous water rights within the water tenure debate favours participatory approaches in IWRM, providing indigenous communities as local stakeholders with a voice and vote to ensure that water system interventions are negotiated in their public interest.

Indigenous communities might develop valuable traditional ecological knowledge (TEK) embodied in religious ceremonies and teachings that promote sustainable water management. By sharing environmentally beneficial TEK, indigenous communities may contribute to sustainability by mitigating threats posed to environmental quality of traditional indigenous lands and waters¹²⁵. Water tenure incorporates an intercultural approach into the water management cycle through the provision of tools to address issues within the IWRM framework in an equitable manner. In line with this view, designing management structures adapted to existing indigenous systems can help spread the benefits equally among different water-user groups. The importance of open dialogue, active participation, and the 'Free,

¹²⁴ BOELENS, R., “From Universal Prescriptions to Living Rights: Local and Indigenous Water Rights Confront Public-Private Partnerships in the Andes”, in: *Journal of International Affairs*, Vol. 61, 2008, p. 127.

¹²⁵ Traditional ecological knowledge (TEK) is hereby understood as the body of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings with one another and with the environment. By means of example, such traditional knowledge can be implemented in innovative solutions such as: rainwater harvesting, floating vegetable gardens, supplementary irrigation, traditional farming techniques to protect watersheds, among others. LARSON, R., “Water, Worship and Wisdom: Indigenous Traditional Ecological Knowledge and the Human Right to Water”, in: *ILSA Journal of International and Comparative Law*, Vol. 19, No 1, p. 55.

Prior and Informed Consent' of indigenous peoples regarding decisions concerning their water resources becomes even more significant in this context¹²⁶.

4.3.3. NOMADIC AND PASTORAL GROUPS

Pastoralism is practised on more than one-third of the world's land surface by up to 500 million people, although this population estimate is highly dependent on how different countries classify and count pastoralists. The labels vary from place to place, and pastoralists may be known as, inter alia, shepherds, herders or nomads¹²⁷.

Pastoralists worldwide rely on a rich legacy of traditional knowledge and mobility to survive in some of the harshest environments on the planet. They produce meat and milk, as well as providing essential ecosystem services. Pastoral production supports the livelihoods of rural populations on almost half of the world's land. Yet, they have traditionally suffered from poor understanding, marginalisation and exclusion from dialogue. As in the case of indigenous communities, pastoral and nomadic groups rely closely on access to water for subsistence.

Historically, pastoral uses of land and resources have been given low priority. Along this line, in Niger, in the Sahel region, for example, access to rangelands is affected by control over water points. This has long been neglected by water infrastructure programmes, which have often not taken resource tenure aspects into account. Similarly, more often than not, both water and land tenure have been regulated through badly coordinated sectorial laws. As a result, several well-intentioned water programmes have ended up undermining local water management arrangements, fostering conflict over those resources and contributing to land and water degradation. Under these circumstances, local elites in the region have taken control over public wells and built private ones, excluding in particular the most vulnerable sectors¹²⁸. Accordingly, there is a need to involve local people when designing development water management actions since development models cannot be defined from outside and imported for implementation without taking due regard of the specificities of the region and of the local practices of pastoralists in particular¹²⁹.

¹²⁶ CAP-NET & UNDP, *op. cit.*, p. 21.

¹²⁷ MCGAHEY, D. ET AL., *Pastoralism and the green economy – A natural nexus?* Nairobi, IUCN –UNEP, 2014, 58 pp.

¹²⁸ THÉBAUD, B. ET AL., "The Implications of Water Rights for Pastoral Land Tenure: The Case of Niger", in: COTULA, L., *op. cit.*, p. 41.

¹²⁹ In areas where pastoralism exists, any planned water management measure must previously consider and protect the socio-cultural practices of pastoralists such as their migratory patterns and the location of their access to

In the FAO's VGGT, pastoralists are identified along with “historically disadvantaged groups, marginalized groups, indigenous peoples” (paragraph 15.5)¹³⁰. More recently, pastoral societies have increasingly self-identified as indigenous peoples, although the terminology may not be adopted by all governments. Two major indigenous rights instruments directly address issues related to pastoralism: the ILO No. 169 Convention and the UNDRIP. Both seem to be limited in scope to indigenous peoples; nevertheless, they encompass a number of pasture users.

ILO Convention No. 169 provides that measures should be taken to safeguard “the right of the peoples concerned to use lands not exclusively occupied by them, but to which they have traditionally had access for their subsistence and traditional activities” (Article 14, paragraph 1). It states that “subsistence economy and traditional activities of the peoples concerned, such as hunting, fishing, trapping and gathering, shall be recognised as important factors in the maintenance of their cultures and in their economic self-reliance and development” (Article 23). It also stipulates recognition of legal pluralism, stating that, in applying national laws to indigenous peoples, “due regard shall be had to their customs or customary laws” (Article 8). It does not address transboundary pastoral movement, but does provide that “governments shall take appropriate measures, including by means of international agreements, to facilitate contacts and cooperation between indigenous and tribal peoples across borders, including activities in the economic, social, cultural, spiritual and environmental fields” (Article 32).

The UNDRIP, adopted by the UN General Assembly in 2007, contains similar provisions. It provides that indigenous peoples “have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired” and requires States to give legal recognition and protection to these lands and resources, “with due respect to the customs, traditions and land tenure systems of the indigenous people concerned” (Article 26).

Concerning soft law instruments, the 2016 Report of the Committee on Food Security provides a series of recommendations touching on the rights and responsibilities of pastoralist communities. Article Vd recommends the need to “[r]ecognize, respect and protect those traditional production systems, including

groundwater, especially through, “range boreholes”, since this has an impact on their grazing resources. Detailed long-term surveys to document the number of people and livestock accessing specified strategic water points are also necessary, especially to capture the most critical drought periods. MATI, B. ET AL., *Assessing Water Availability under Pastoral Livestock Systems in Drought-prone Isiolo District, Kenya*, Working Paper No 106, International Water Management Institute (IWMI), 2006, p. 24. Cf. OMOSA, E., *The Impact of Water Conflicts on Pastoral Livelihoods: The Case of the Wajir District in Kenya*, IISD, 2005, p. 16.

¹³⁰ For an analysis of the legal framework for pastoralism see FAO & IUCN, *Crossing boundaries: Legal and policy arrangements for cross-border pastoralism*, Rome, 2018, pp. 38-53.

pastoral systems and their mobility strategies, that use ecosystems sustainably and contribute significantly to the food security and nutrition of their communities and associated ways of life". Also, Article IXb recommends to "[e]nable pastoralists' mobility, including transboundary passage as appropriate; securing access to land, water, markets and services, adaptive land management, and facilitate responsible governance of common resources, in accordance with national and international laws".

Understanding pastoral water rights poses, no doubt, considerable challenges, which often have unclear boundaries and multiple overlapping or nested layers. However, there is growing legal support and increasing opportunity in many countries to secure tenure, including communal tenure and open-access rights. This may include systems of legal pluralism that combine statutory and customary law as well as other types of water tenure.

In recent decades, legislation has started to recognise mobile pastoralism as a legitimate and desirable form of land use. The Constitution of Ethiopia, which entered into force in 1995, states: "Ethiopian pastoralists have the right to free land for grazing and cultivation as well as the right not to be displaced from their own lands" (Article 40, paragraph 5). In the late 1990s and early 2000s, Niger, Guinea, Mauritania, Mali and Burkina Faso passed legislation granting pastoralists certain rights to land use and movement¹³¹. This legislation variously gives herders rights to move with their herds to meet their productive needs, protects grazing land and corridors from conflicting land uses, secures herder access to seasonal resources, and provides for local conflict management¹³². Similar legislation has been adopted elsewhere in the world.

Water is a critical resource that determines success of pastoralism as a way of life in arid and semi-arid lands. Availability of water determines where people and livestock settle in during the different months of any given year. Over-concentration of pastoralists in a few areas leads to competition for the limited water, resulting in conflicts, directly affecting pastoral livelihoods. Hence, developing the pastoral sector, the local people's livelihoods, calls for consultations and collaboration among local people, government and other development agencies. By recognizing their particular way of accessing and managing water resources, water tenure can ensure that the needs of pastoral and nomadic communities are included in the water

¹³¹ TOULMIN, C. ET AL, "Pastoral commons sense: Lessons from recent developments in policy, law and practice for the management of grazing lands" in: *Forests, Trees and Livelihoods*, Vol. 14, 2004, pp. 243–262.

¹³² COTULA, L., "Securing land rights in Africa: Trends in national and international law" in: OTTO, J. M. & HOEKEMA, A. (eds.), *Fair land governance: How to legalise land rights for rural development*, Leiden, Leiden University Press, 2012, p. 57.

management ‘picture’. In addition, within a water tenure framework, each case of pastoralist or nomad using freshwater resources counts.

5. A NEW COMPREHENSIVE APPROACH TO WATER TENURE

People’s access to water both for human consumption and for productive uses adopts different forms, which must be duly recognised and included in the water governance scenario. Such inclusion is provided by water tenure, which acknowledges the existence of different types of tenure ranging from statutory and customary rights to other practices or types of tenure. In so doing, it not only recognises legal pluralism but local practice of all the stakeholders involved in water management¹³³. States are, thus, needed to acknowledge that existence within their respective jurisdictions. In fact, the International Court of Justice has certainly done it. An example is the express recognition of the local customary right of fishing for subsistence purposes of the inhabitants of the Costa Rican bank of the San Juan River. In so doing, it has also recognised – even implicitly – the existence of a certain type of water tenure and its importance to ensure water access for productive purposes. “[T]he Parties agree that the practice of subsistence fishing is long established. (...) The Court observes that the practice, by its very nature, especially given the remoteness of the area and the small, thinly spread population, is not likely to be documented in any formal way in any official record. (...) The Court accordingly concludes that Costa Rica has a customary right. That right would be subject to any Nicaraguan regulatory measures relating to fishing adopted for proper purposes, particularly for the protection of resources and the environment”, states the said tribunal. This *dictum* of the International Court of Justice is indeed paradigmatic. It represents a significant milestone, a before and after in the water management discourse. Whilst it can be argued that it is only binding for the Parties to the dispute, Costa Rica and Nicaragua, it still paves the way to its progressive and ultimate recognition in successive jurisprudence and its ultimate consecration as an international customary norm¹³⁴.

¹³³ Cf. MEINZEN-DICK, R. & NKONYA, L., “Understanding Legal Pluralism in Water and Land Rights: Lessons from Africa and Asia” in: VAN KOPPEN, B. ET AL., *op. cit.*, p. 23.

¹³⁴ While disregarded in the past, human considerations – i.e. human freshwater needs – have indeed permeated international water law and consequently water governance. Cf. QUEROL, M., *Freshwater Boundaries Revisited: Recent Developments in International River and Lake Delimitation*, International Water Law, Brill Research Perspectives, Brill, Boston, 2016, p. 60-65. See also MERON, Th., “International Law in the Age of Human Rights. General Course of Public International Law”, *Recueil des cours de l’Académie de droit international de la Haye*, Vol. 301 (2003), CASSESSE, A., *The Human Dimension of International Law: Selected Papers*, Oxford, Oxford University Press, 2008, 642 p. and WEISS, N. & THOUVENIN, J.-M. (eds.), *The Influence of Human Rights in International Law*, Cham, Springer, 2015, 248 p.

The concept of water tenure can be articulated through a human rights-based approach (HRBA). In this context, the HRBA needs to go much further than its protection for domestic purposes to include productive uses of secure water for livelihoods¹³⁵.

The benefits of such a more encompassing notion of water tenure are manifold. Above all, it secures access to water both for domestic and productive purposes for all, including all sectors of society. At the local level, it fosters a clearer resource-community relationship thus preventing natural resource overexploitation. Indeed, through water tenure, local communities are ensured water access for their productive uses. Not only does such guarantee empower them; it also encourages them to protect the fresh watercourses they depend on for their livelihoods. In addition, water tenure provides a bottom-up approach, which recognises normative and cultural differences within a certain community.

All of the above favours defined rights and equitable access to water at the national level. It provides States with tenure security, which in turn contributes to water security and food security, within their respective territories. In protecting each and every member of their population by ensuring access and use of water

The *Dispute Regarding Navigational and Related Rights* case between Costa Rica and Nicaragua is emblematic in the matter under study. Not only did the International Court of Justice expressly recognize the right of fishing for subsistence purposes of the inhabitants of the Costa Rican bank of the San Juan River, but it also went even further and declared it constituted a local customary right, thus, a type of water tenure. *Dispute regarding Navigational and Related Rights (Costa Rica v. Nicaragua)*, Judgment, I.C.J. Reports 2009, pp. 265–266, para. 141. With regard to the right of navigation foreseen in Article VI of the 1858 Treaty of Limits between the two States, the Court added that while its wording only expressly mentioned navigation for commercial purposes: “it cannot have been the intention of the authors of the 1858 Treaty to deprive the inhabitants of the Costa Rican bank of the river, where that bank constitutes the boundary between the two States, of the right to use the river to the extent necessary to meet their essential requirements, even for activities of a non-commercial nature, given the geography of the area”. *Ibid.*, p. 246, para. 79. This was later reaffirmed in the *Costa Rica v. Nicaragua* and *Nicaragua v. Costa Rica* cases. *Costa Rica v. Nicaragua and Nicaragua v. Costa Rica cases*, Judgment of 16 December 2015, p. 53, para. 133.

The recognition of access to the waters of an international river or lake by the local communities of riparian states was again expressly reaffirmed in the *Frontier Dispute (Burkina Faso/Niger)*. The Court further expressed its wish that both states take into consideration the needs of the populations concerned, in particular those of the nomadic and semi-nomadic populations and the necessity to overcome the difficulties that may arise for them because of the frontier. *Frontier Dispute (Burkina Faso/Niger)*, Judgment of 16 April 2013, I.C.J. Reports 2013, p. 85, para. 112. Hence, both international and regional tribunals readily take due regard of the practices of riparian inhabitants of international fresh watercourses and the need to ensure their access to water for subsistence purposes. In this respect see also, IACTHR, *Case of the Yakye Axa Indigenous Community v. Paraguay* (Merits, Reparations and Costs), 17 June 2005. Series C No. 125, pp. 85–86, para. 167 and IACTHR, *Case of the Sawhoyamaya Indigenous Community v. Paraguay* (Merits, Reparations and Costs), 29 March 2006. Series C No. 146, p. 83, para. 164. Other regional jurisdictions such as the European Court of Human Rights and the African Commission on Human and People’s Rights as well as numerous national tribunals have also included human considerations of access to water as a basis to their decisions. For examples in this respect see WATERLEX & WASH UNITED, *The Human Rights to Water and Sanitation in Courts Worldwide: A Selection of National, Regional and International Case Law*, WaterLex, Geneva, 2014, pp. 12 (non-discrimination and equality), 15 (participation), 19-20 (sustainability), 22-23 (availability), 31-32 (water quality).

¹³⁵ Cf. BOISSON DE CHAZOURNES, L., *Fresh Water in International Law*, *op. cit.*, p. 175.

for domestic and productive purposes, clear political and economic power derives from water tenure at a global scale. Above all, ensuring secure and equitable access to water in this context encompasses harmonious interaction and coordination across scales. At the basin scale, both the rights and obligations for basin management are more clearly defined within a water tenure model. An illustrative case of water tenure at a range of different scales is that of Australia (Box 6.1).

BOX 6.1: Water tenure at a range of different scales – the case of Australia

Section 100 of its *Magna Carta* prescribes: “The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of its residents therein to the reasonable use of the waters of rivers for conservation and irrigation”¹³⁶. If the reference to conservation means human conservation, then this Constitution would be pioneering in its recognition of water access and use both for domestic and productive purposes. In any case, inasmuch as it expressly recognises and protects a productive use of water, such norm is indeed progressive.

Indigenous communities’ special linkages with land and water are recognised in the 1902 Constitution Act of New South Wales, which relates to the recognition of aboriginal people and their spiritual, social, cultural and economic relationship with their traditional lands and waters¹³⁷. In addition, at the national level, Australia has adopted the 1993 Native Title Act, which Section 223(1) recognises native title rights and interests of Aboriginal peoples or Torres Strait Islanders in relation to land or waters, where: (a) the rights and interests are possessed under the traditional laws acknowledged, and the traditional customs observed, by the Aboriginal peoples or Torres Strait Islanders; and (b) the Aboriginal peoples or Torres Strait Islanders, by those laws and customs, have a connection with the land or waters; and (c) the rights and interests are recognised by the common law of Australia”¹³⁸. Furthermore, in New South Wales, by virtue of the Water Management Act 2000 no 92 a native titleholder is entitled, without the need for an access licence, water supply work approval or water use approval to take and use water in the exercise of native title rights. The maximum yearly amount of water is prescribed in regulations¹³⁹. The harmonious interaction between communitarian and national scales through the inclusion of water tenure provisions is hereby evident¹⁴⁰.

¹³⁶ *Commonwealth of Australia Constitution Act*, 9 April 1900. Compilation prepared on 25 July 2003 taking into account alterations up to Act No. 84 of 1977. Available at: <http://extwprlegs1.fao.org/docs/pdf/aus97341.pdf>

¹³⁷ NEW SOUTH WALES GOVERNMENT, *Constitution Act 1902 No. 32*. Current version for 1 July 2018. Available at: <https://www.legislation.nsw.gov.au/#/view/act/1902/32/part1/sec1>

¹³⁸ *Native Title Act 1993*, Original text of 24 December 1993. Date of consolidation/reprint: 22 June 2017. Available at: <http://extwprlegs1.fao.org/docs/pdf/aus15378.pdf>

¹³⁹ Cf. Section 55. NSW GOVERNMENT, *Water Management Act 2000 No. 92*. Available at: <https://legislation.nsw.gov.au/#/view/act/2000/92>

¹⁴⁰ It is also worth noting Environmental Planning and Assessment Act 1979 No 203 for New South Wales, whose Section 9 (1) (b) gives priority of water allocation for environment-support purposes. NSW GOVERNMENT,

At the basin level, the management of Murray-Darling Basin is covered in Commonwealth legislation, rather than State legislation. In particular, Section 3 of the Water Act 2007 No 137 aims at ensuring the return to environmentally sustainable levels of extraction for water resources, and to protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin. The Murray Darling Basin Authority operates the Murray River system and delivers water to users on behalf of partner governments, measures, monitors and record the quality and quantity of basin's water resources and provides water rights information to facilitate water trading across the basin Departments of Industry-Water (DPI) ¹⁴¹.

The notion of water tenure needs to acknowledge all the dimensions involved in water access for productive uses, such as its hydro-physical characteristics and related issues and the environmental threats and requirements ensuing from such use. In addition, the social dimensions of gender equality and the protection of the linkages and needs of indigenous communities and pastoral and nomadic groups in the tenure of water must be included.

It would, therefore, be needed to revise the current definition of water tenure and suggest a more comprehensive one.

Tenure derives from the Latin word 'tenere', which means 'to hold'. It has been defined as "the mode by which an individual holds an estate in land"¹⁴². The thing is the tenement, the occupant is the tenant and the manner of holding is the tenure. It is thus a "mode or system of holding"¹⁴³ something (in this case, natural resources). Hence, it may not be a relationship; rather, the accent is hereby set on a factual act of holding. Enjoying tenure over something, means to be able to hold it and naturally control it. Still, water in itself and by its very nature cannot be 'held'; it is accessed, managed and used. Hence, it could be more fitting to describe it as **a right** (if it derives from a statutory or customary water right) or **an act** (in the case of other informal types of water tenure, of using water).

It is at this stage worth noting that addressing water tenure as a bundle of rights, as has been put forward recently, begs the question¹⁴⁴. Such notion was coined in Real Property Law, where different rights to the

Environmental Planning and Assessment Act 1979 No 2003. Date of text: 21 December 1979. Available at: <http://www.austlii.edu.au/>

¹⁴¹ Cf. <https://www.industry.nsw.gov.au/water-reform>

¹⁴² BOUVIER, J., *Bouvier's Law Dictionary and Concise Encyclopedia*, Vol. III, Kansas City, Vernon Law Book Company, 1914, pp. 3258-3259.

¹⁴³ BLACK, H.C., *Law Dictionary Containing Definitions of the Terms and Phrases of American and English Jurisprudence, Ancient and Modern, 1860-1927*, New Jersey, The Lawbook Exchange, 1995, p. 1145.

¹⁴⁴ Cf. RIGHTS AND RESOURCES INITIATIVE, *What Rights? A Comparative Analysis of Developing Countries' National Legislation on Community and Indigenous Peoples' Forest Tenure Rights*, 2012, p. 14. It is interesting to note that this study explicitly states: "This study does not endorse the notion that recognizing the entire bundle of rights is always

same parcel of land, such as the right to sell the land, the right to use the land through a lease, or the right to travel across the land, may be pictured as “sticks in the bundle”. Each right may be held by a different party¹⁴⁵. A bundle of rights approach to water tenure only takes into account water rights, whether statutorily or customarily recognised, thus not succeeding to take into consideration those water tenure types that do not amount to rights. Whilst it is true that water rights amount to a type of water tenure indeed – in the sense that the water tenure provides water rights with their factual basis – the former cannot certainly be equated to the latter.

Neither can water tenure be assimilated to water entitlements¹⁴⁶. They are different concepts, with different legal effects. In particular, an entitlement is a guarantee of access to benefits based on established rights or legislation, whereas water tenure is much more comprehensive. The concept of entitlement stems as well from Real Property Law, where the title is the means whereby the owner of lands has the right possession of a certain property. On the contrary, in the case of water tenure, access to benefits are not necessarily based on established rights or legislation, as already shown in the typology presented by FAO Paper 10.

As to the definition of water tenure as a “relationship, ‘whether legally or customarily defined’ (...) with respect to water resources”, it is worth noting that customary norms are as ‘legal’ as statutory or formal ones. They can both be part of a certain, or several, legal order(s). The only difference is their mode of creation: whilst statutory norms are created by formal sources of law, customary ones are not and manifest spontaneously¹⁴⁷. Water tenure does not only comprise legally created tenure such as water rights, but other forms of tenure which are informal by nature or are not necessarily ‘legal’, as being originated in a legal norm, whether statutory or customary.

the optimal outcome for all community tenure regimes. Rather, the parameters of particular tenure frameworks must be based upon the more fundamental political human and civil rights of citizens and be negotiated contextually” (*Ibid.*, p. 15).

¹⁴⁵ Cf. FAO, *Land tenure and rural development*, Land Tenure Studies Vol. 3, Rome, FAO, 2002, p. 9.

The concept of the ‘bundle of rights’ would help to unpack the complex power relations and land uses found on a particular landscape. Individuals and groups may hold different sets of rights in the resources within a particular system. These distinct sets of rights would be known as a tenure. A tenure system would therefore amount to the framework that facilitates the allocation of rights, enforces rules and manages relations amongst different rights-holders and interactions with other systems. Cf. SCHLAGER, E. & OSTROM, E., “Property-rights regimes and natural resources: A conceptual analysis”, in: *Land Economics*, Vol. 68 (3), 1992, pp. 249–62.

¹⁴⁶ For a study on water entitlements see GLOBAL WATER PARTNERSHIP, *Sharing water: The role of robust water-sharing arrangements in integrated water resources management*, GWP Perspectives Papers, 2019. Available at: <https://www.gwp.org/globalassets/global/toolbox/publications/perspective-papers/gwp-sharing-water.pdf>

¹⁴⁷ BARBERIS, J. *Formación del derecho internacional actual*, Buenos Aires, Abaco, 1994, p. 74 *et seq.*

A revisited definition should then be compatible with biophysical, social and human rights-based perspectives on water. Furthermore, it should allow for all water users to more easily assert their rights and particular modes of water access. Such definition of water tenure should be sufficiently all encompassing to recognise both legally created water rights, whether statutory or customary, and other particular types of managing and using water based in actual practice. Additionally, it should allow for the development of new tenure options that could provide greater water security to the most vulnerable and marginalised people among the water users¹⁴⁸.

Water tenure can thus be defined as:

the act or right by which people, as individuals or groups, access and use water resources.

Such definition is indeed sufficiently inclusive to encompass all types of water tenure, regardless of its origin. It takes due regard of the factual basis of water tenure and includes both informal types of actually accessing and using water for productive purposes in practice as well as water rights.

Good water governance is an essential pillar for implementing SDG 6. Good water governance comprises many elements, but it principally includes effective, responsive and accountable State institutions that respond to change; openness and transparency providing stakeholders with information; and giving citizens and communities a say and role in decision-making. Good water governance is the key to implementing IWRM, which is now embedded in the 2030 Agenda as target 6.5. IWRM is a relatively simple concept but putting it into practice is complex. There is no universal solution, and each country must seek its own unique approach. Good water governance underpins the elimination of inequalities.

In such context, a HRBA to water governance calls for water tenure, which embodies all of the HRBA principles: universality and inalienability, indivisibility, interdependence and inter-relatedness, equality and non-discrimination, participation and inclusion, accountability and rule of law. In line with this view, Shelton proposes a number of measures to address the water crisis from a human rights perspective: (1) Integrate human rights into development decisions, recognising the indivisibility and equal importance of human rights; (2) Bring the targets of development into the decision-making process as active participants; (3) Adopt more democratic and transparent procedures consistent with human rights; (4) Promote accountability and capacity-building; and (5) Recognise human rights as ends in themselves, even if evidence-based evaluation of progress is not always possible¹⁴⁹.

¹⁴⁸ Cf. COTULA, *Land and water rights in the Sahel*, *op. cit.*, p. 81.

¹⁴⁹ SHELTON, *op. cit.*, p. 94.

In this regard, such a revisited notion of water tenure should also favour the recognition of the current particular practices and modes of access to freshwater of the most unprotected sectors of society. Thus, a revisited definition of water tenure should involve all water users; it leaves no one behind.

6. CONCLUSIONS AND RECOMMENDATIONS

The concept of water tenure can indeed make a useful contribution towards resolving the world's water security challenges, as already advanced by FAO Paper No. 10 "Exploring the concept of water tenure". Nevertheless, a definition, which almost solely included legally, or customarily defined tenure of water, does not succeed to meet the demands of all the water users and consequently provide them with legal security. In this respect, the typology presented by FAO Paper No. 10 including formal and informal tenure – this latter encompassing various and diverse types of tenure, both legally recognised and not – calls for a more comprehensive definition of the concept under analysis. This can be achieved through a comprehensive and integrated perspective, which duly articulates a top-down view of water rights with a bottom-up human rights-based approach to different types of water tenure.

Along this line, it is worth noting that a human rights-based approach to water tenure does not entail neither equating all forms of water tenure to water rights nor a human right to water both for domestic and productive purposes. Water rights, as well as other forms of water tenure, and the human right to water are essentially different. Whilst water rights are alienable and as such can be withdrawn at any time, the human right to water is an inalienable right. It is neither subject to the State's approval nor can it be annulled. Such highest level of security provided by human rights justifies a human rights-based approach (HRBA) both to water governance, as the social and economic processes for the equitable distribution of water, and to water tenure, as the practical tool ensuring equal access to and use of water for productive purposes. Through an HRBA to water governance, water tenure favours social equity, environmental sustainability and economic efficiency: the three dimensions of water security. Therefore, water tenure can provide a useful and transformative paradigm to fill the gap between water rights and water governance, reflecting the actual relationships of people to water at a range of different scales, including the community level, the basin scale, and the national level. It does include all stakeholders in the water sector, even the most under-represented groups and, thus, legitimising each of their particular modes of accessing and using water for both human consumption and productive purposes. In so doing, and given the interrelatedness of human rights, it realises the human right to water, the human right to food and other human rights directly related to access and use of water.

Hence, future multi-stakeholder and intergovernmental discussions should integrate a human rights-based approach when discussing the concept of water tenure. Despite its non-binding character from an international legal standpoint, the formulation of guidelines on water tenure, specifying its meaning and scope, would indeed foster and assist in its inclusion within national water frameworks, providing all water users with security at every level of water access. Such endeavour should take into account the contextual specificity of different types of water tenure in practice, thus, allowing States to further define its contours in accordance with their own particular geographic, hydrological, social and economic circumstances. International tribunals have already considered and even legally recognised such particular types of water tenure of riparian communities of transboundary fresh watercourses in their decisions. In addition, the mentioned guidelines should duly consider the need to ensure the sustainable use of water resources.

A revisited concept of water tenure understood as the act or right by which people, as individuals or groups, access and use water resources, duly acknowledges all the dimensions involved in water use for productive purposes, such as its hydro-physical characteristics and related issues and the environmental threats and requirements ensuing from such use. In addition, the social dimensions of gender equality and the protection of the linkages and needs of indigenous communities and pastoral and nomadic groups in the tenure of water are thereby rightly included.

Such concept of water tenure is sufficiently all-encompassing to recognise both legally created water rights, whether statutory or customary, and other particular types of managing and using freshwater resources existing in practice. It also accommodates the development of new tenure options that could provide greater water security to the most vulnerable and marginalised people among the water users.

In the context of an HRBA to IWRM, water tenure highly contributes towards the achievement of SDG 6 and other SDGs, given their interdependency¹⁵⁰. Through an all-inclusive approach to access to water, it promotes public participation, a crucial aspect of water management. By recognising other more informal types of tenure of water, it eliminates inequalities, and in so doing, it favours gender equality (SDG 5) and the protection of vulnerable and marginalised groups such as indigenous communities and pastoral and nomadic groups. In other words, it contributes to the underlying pledge of the 2030 Agenda of Leaving No One Behind.

¹⁵⁰ Cf. SPIJKERS, O., "The Sustainable Development Goals as Catalyst for the Sustainable Management of Water Resources" in: *The Journal of Water Law*, Vol. 24, No. 3-4, p. 120.

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