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DOI

[10.1111/reel.12397](https://doi.org/10.1111/reel.12397)

Publication date

2021

Document Version

Final published version

Published in

Review of European, Comparative & International Environmental Law

License

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Citation for published version (APA):

Bosch, H. J., Gupta, J., & Verrest, H. (2021). A water property right inventory of 60 countries. *Review of European, Comparative & International Environmental Law*, 30(2), 263-274. <https://doi.org/10.1111/reel.12397>

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A water property right inventory of 60 countries

Hilmer J. Bosch  | Joyeeta Gupta  | Hebe Verrest 

Correspondence

Email: h.j.bosch@uva.nl

Abstract

Through history, property rights in water have been treated differently worldwide. Given the current global trend promoting water allocation through permits, and the lack of comparative literature on how property rights are changing in the global South, this article asks: How have property rights in water evolved including through granting water use permits in Anglophone and Francophone Africa and Asia? We analyse 220 policies and laws of 60 Anglophone/Francophone African and Asian countries. We conclude that (i) these States have put water in the public domain; (ii) this implies expropriating existing customary, private and riparian water rights, and States are struggling to do this democratically; (iii) having taken 'control' over water, these States then use, among others, permits to allocate water and (iv) the rules of permit allocation may undermine States' ability to reallocate water if the need arises.

1 | INTRODUCTION

'The history of water law is the history of the struggle to control water'.¹ Over 4,000 years, diverse property theories have developed that apply specifically to water. In national legal regimes today, the right to use water is defined 'in terms of the relationship of the use to the water source'.² These rights are often characterized as property rights:³ they can be treated as a species of common property (each common owner can use water, with no collective decision making, considering the rights of other users), private property (similar to other forms of private property) and public property (different water users collectively manage water). Over time, concepts

crystallized around riparian use, prior appropriation, water use permits and, more recently, tradable water rights.⁴

In recent decades, the gap between the demand for and supply of water and climate variability and change have made States conscious of the urgency of improving water allocation systems. Countries worldwide are reforming water law, including by introducing some sort of 'modern' permit system.⁵ While the literature assesses case studies and theories, there is little systematic comparative analysis of laws on property rights in water and the role of permits in them, especially in the global South. Hence, this article addresses the question: How have property rights in water evolved including through granting water use permits in Anglophone and Francophone Africa and Asia? Permits are water allocations or entitlements granted by the State subject to specific conditions and are grounded in national laws. This article does not assess the

¹J Gupta and JW Dellapenna, 'The Challenges for the Twenty-First Century: A Critical Approach' in JW Dellapenna and J Gupta (eds), *The Evolution of the Law and Politics of Water* (Springer 2009) 408.

²JW Dellapenna and J Gupta, 'Fundamental Concepts of Property in Water and the Role of Markets in Water Governance' in JW Dellapenna and J Gupta (eds), *Water Law* (Edward Elgar fc).

³L Godden, 'Governing Common Resources: Environmental Markets and Property in Water' in A McHarg et al (eds), *Property and the Law in Energy and Natural Resources* (Oxford University Press 2010) 413

⁴J Gupta and JW Dellapenna, 'Water Law and Rights' in JJ Bogardi et al (eds), *Handbook of Water Resources Management: Discourses, Concepts and Examples* (Springer fc).

⁵S Hodgson, *Exploring the Concept of Water Tenure* (Food and Agriculture Organization of the United Nations (FAO) 2016).

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degree to which water permits are considered property in water, but the extent to which these permits may exhibit 'property-like' rights.

Assigned property rights are difficult to expropriate as is evident from the struggles of Spain and India to regain control over groundwater⁶ and of South Africa to regain control over water from holders of 'existing lawful uses'.⁷ State capacity to reallocate water among users is a key concern, as demand for and supply of water is subject to constant change in response to climate variability and change; economic, agricultural and industrial policy; and the recognition of water for the environment.⁸

We analyse 220 national water laws, constitutions and relevant policy documents of 20 Anglophone⁹ and 21 Francophone African countries,¹⁰ as well as 19 Asian countries (with water laws in English)¹¹. We exclude small island States, as their water problems differ from mainland countries, have small surface areas and fewer people. To identify how property rights have evolved through granting water use permits, we systematically analysed the documents through an inductive recursive and iterative coding process.¹² We found that by granting water use permits, States allocate 13 'property' elements, which we categorized in five categories of 'property-like' rights, including (i) the right the use water for a specified period; (ii) the right to alienate or to transfer the permit; (iii) the right of legal protection; (iv) the right to compensation and (v) the right to have their interest protected by the State.

We excluded other laws (e.g. on mining, indigenous people, the human right to water) and precedents that may influence water and compare the trends against a more in-depth study on different legal traditions. We selected Africa and Asia, as Africa is approaching economic take-off,¹³ while Asian growth may contribute to 60% of global growth by 2030 and 91% of global population

growth will take place in these regions.¹⁴ This implies new demands on water.¹⁵

Section 2 discusses how water ownership is organized in the researched countries. Section 3 presents the different water allocation instruments available to the States. Section 4 analyses what 'property' rights are allocated by the State through the granting of water use permits. Section 5 draws the conclusions.

2 | WATER OWNERSHIP IN AFRICA AND ASIA

The researched Anglophone African countries were British colonies or protectorates¹⁶ and inherited or were influenced by English common law. Francophone African countries were either French colonies, protectorates or mandates,¹⁷ and inherited or were influenced by the French civil law. In both traditions, the use or ownership of land or structures built on the land gave the right to use water.¹⁸ The civil law tradition distinguished between public and private water, where public water use required administrative permission.¹⁹ Asian countries were under British,²⁰ Dutch,²¹ French²² or Spanish rule,²³ or part of the Soviet Union²⁴ or the Chinese empire.²⁵ The civil law tradition applied to the former Soviet Union (before it nationalized water under Communism), the Philippines and Indonesia.²⁶ We now discuss how post-independence these States have organized water ownership.

2.1 | *De jure* water ownership vested in the State

Following independence, most countries have put surface and groundwater resources in the public domain.²⁷ In Anglophone Africa, States take back control by abolishing private rights to

⁶A Closasa et al. 'Sticks and Carrots to Manage Groundwater Over-Abstraction in La Mancha, Spain' (2017) 194 *Agricultural Water Management* 113; D Aguilar, 'Groundwater Reform in India: An Equity and Sustainability Dilemma' (2011) 46 *Texas International Law Journal* 623.

⁷HJ Bosch and J Gupta, 'Access to and Ownership of Water in Anglophone Africa and a Case Study in South Africa' (2020) 13 *Water Alternatives* 205.

⁸R Slaughter and J Wiener, 'Water, Adaptation, and Property Rights on the Snake and Klamath Rivers' (2007) 43 *Journal of the American Water Resources Association* 308.

⁹Botswana, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Namibia, Nigeria, Sierra Leone, South Africa, South Sudan, Sudan, Tanzania, Uganda, Zambia and Zimbabwe. Excluding the island nation of Mauritius.

¹⁰Benin, Burkina Faso, Burundi, Cameroon, Central African Republic (CAR), Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo (DRC), Djibouti, Equatorial Guinea, Gabon, Guinea, Mali, Mauritania, Niger, Rwanda, Senegal, Togo. Excluding Comoros, Madagascar, Seychelles (islands). Algeria and Morocco are included because their laws are written in French.

¹¹Armenia, Azerbaijan, Bangladesh, Bhutan, Cambodia, Georgia, Indonesia, Kyrgyzstan, Lao, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Vietnam.

¹²S Friese, *Qualitative Data Analysis with ATLAS.ti* (3rd edn, Sage 2019).

¹³A Boretti and L Rosa, 'Reassessing the Projections of the World Water Development Report' (2019) 2 *npj Clean Water* 1.

¹⁴United Nations Department of Economic and Social Affairs, *World Population Prospects* (United Nations 2017).

¹⁵Boretti and Rosa (n 13); World Water Assessment Programme (WWAP), *The United Nations World Water Development Report 2018* (UNESCO 2018).

¹⁶Ethiopia was never colonized.

¹⁷E Huillery, 'The Black Man's Burden: The Cost of Colonization of French West Africa' (2014) 74 *Journal of Economic History* 1; E Hirschman and M Touzani, 'Consumer Acculturation in Situ: The Continuing Legacy of French Colonization in North Africa' in Ö Sandıkcı and G Rice (eds), *Handbook of Islamic Marketing* (Edward Elgar 2011) 114; P Magnarella, 'The Background and Causes of the Genocide in Rwanda' (2005) 3 *Journal of International Criminal Justice* 801; T Lumumba-Kasongo, 'Zaire's Ties to Belgium: Persistence and Future Prospects in Political Economy' (1992) 39 *Africa Today* 23.

¹⁸S Hodgson, *Modern Water Rights - Theory and Practice* (FAO 2006) 10.

¹⁹*ibid*; Hodgson (n 5).

²⁰Malaysia, Myanmar, Pakistan, Sri Lanka.

²¹Indonesia.

²²Cambodia, Lao, Vietnam.

²³Philippines.

²⁴Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan.

²⁵Mongolia.

²⁶Hodgson (n 5).

²⁷Except Malaysia.

water;²⁸ announcing State ownership;²⁹ vesting water property in the State,³⁰ president, government or nation;³¹ seeing water as a national resource;³² managing water in public trust³³ and recognizing water as the people's common property.³⁴ Similarly, Francophone African countries see water resources as part of the public (hydraulic) domain,³⁵ as the common heritage of the nation³⁶ or public property.³⁷ Unlike Anglophone Africa, the water laws of Francophone African countries do not refer to 'water ownership', 'water (property) vested in State, president, government or nation', 'trusteeship/ trust for the people or nation', 'rights vested in the State' or 'State ownership'. As in Africa, the Asian States either state that water resources are State-owned,³⁸ vested in the State, president, government, or nation³⁹, the common property of people⁴⁰, or 'controlled by the State and used for the optimal welfare of the people'.⁴¹

2.2 | Exceptions to State water ownership

There are exceptions to State water ownership: in Malawi, public water is subject to 'any rights of a user granted by or under this Act or any other written law'.⁴² In Botswana, public water does not include lawfully appropriated water use or water for extracting minerals.⁴³ In Ghana and Sierra Leone, State control excludes 'any stagnant pan or swamp wholly contained within the boundaries of any private land'.⁴⁴ In South Sudan, natural water resources are 'commonly owned by all riparian people'.⁴⁵ In Zimbabwe, a water use permit for mining purposes is issued by the mining commissioner of the mining district,⁴⁶ and the water law does not affect the ground water use rights conferred on holders of mining locations or prospectors by the Mines and Minerals Act.⁴⁷

²⁸Botswana, Eswatini, Zambia, Zimbabwe.

²⁹Eritrea, Lesotho, Namibia.

³⁰Nigeria and Uganda.

³¹Ethiopia, Gambia, Ghana, Kenya, Liberia, Malawi, Sierra Leone, Tanzania, Zambia, Zimbabwe.

³²Eswatini.

³³Botswana, Ghana, Kenya, Lesotho, South Africa, Tanzania.

³⁴Ethiopia, South Sudan.

³⁵Algeria, Benin, Burkina Faso, CAR, DRC, Chad, Congo, Djibouti, Guinea, Mauritania, Morocco, Niger, Senegal, Togo.

³⁶Benin, Burkina Faso, Cameroon, Côte d'Ivoire.

³⁷Mali.

³⁸Armenia, Azerbaijan, Cambodia, Myanmar, Nepal, Philippines.

³⁹Bangladesh, Bhutan, Georgia, Kyrgyzstan, Malaysia, Mongolia, Tajikistan.

⁴⁰Lao, Vietnam.

⁴¹Law No 7/2004 on Water Resources 2004 (Indonesia) art 6(1).

⁴²Water Resources Act 2013 (Malawi) art 5.

⁴³Water Act 1968 (Botswana) art 2.

⁴⁴The National Water Resources Management Agency Act 2017 (Sierra Leone) arts 1 and 3(1); Water Resources Commission Act 1996 (Ghana) arts 12 and 37.

⁴⁵South Sudan, 'Water Policy' (2007) <<http://extwprlegs1.fao.org/docs/pdf/ssd147091.pdf>> 8; the policy does not define 'riparian people'.

⁴⁶Water Act 1998 (Zimbabwe) art 34(3).

⁴⁷ibid art 5.

In Francophone Africa, exceptions include water collected in private works,⁴⁸ water intended for domestic use,⁴⁹ rainwater that falls on, and ponds created by, rainwater or overflows from watercourses on private land,⁵⁰ sources emerging from private land⁵¹ and structures (e.g. swimming pools, ponds, cisterns, artificial water reservoirs and watercourses, wells, boreholes and irrigation or drainage canals) built by individuals on private land.⁵² In Togo, these structures need ministerial authorization. In Morocco, historical rights that have been recognized are excluded from the public domain.⁵³

In Asia, there are various exceptions in the public interest. In Azerbaijan, for instance, water bodies that are considered municipal property can be granted for use, lease and ownership to citizens and legal entities of the Azerbaijan Republic.⁵⁴ In Bangladesh, 'all rights over the surface water on any private land shall remain with the owner of such land and such rights to use the water shall, subject to the provisions of this Act, be continued to be enjoyed'.⁵⁵ In Lao, 'individuals, legal entities, or organizations shall have the right to possess and use any natural water and water resource in any activity, provided that they have received approval from relevant authorised agencies'.⁵⁶ And any person in the Philippines 'who captures or collects water by means of cisterns, tanks, or pools, shall have exclusive control over such water and the right to dispose of the same'.⁵⁷

2.3 | Customary law and water ownership

By putting water in the public domain, States expropriated existing water rights including customary rights and rights of colonists owning land, unless there were explicit exclusionary clauses. Customary law includes the long-standing historical traditional norms, rules and practices at the local level⁵⁸ and is a basis for claiming individual or collective property rights⁵⁹ (even though many indigenous communities use the language of responsibilities rather than that of rights).

⁴⁸Benin, Burkina Faso.

⁴⁹Benin, Burkina Faso, Niger.

⁵⁰CAR, Niger.

⁵¹CAR.

⁵²CAR, Niger, Togo.

⁵³Loi N° 36-15 Du 10 Aout 2016 Relative à l'eau' 2016 (Morocco) art 2.

⁵⁴Water Code of the Azerbaijan Republic 1997 art 13(2).

⁵⁵Bangladesh Water Act 2013 art 3(3).

⁵⁶Law on Water and Water Resource 1996 (Lao) art 4.

⁵⁷The Water Code of the Philippines 1976 art 7.

⁵⁸S Burchi, 'The Interface between Customary and Statutory Water Rights: A Statutory Perspective' (2005) *International Workshop on 'African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa'*, 26-28 January 2005, Johannesburg, South Africa; F von Benda-Beckmann, K von Benda-Beckmann and HJL Spiertz, 'Local Law and Customary Practices in the Study of Water Rights' in R Pradhan et al (eds), *Water Rights, Conflict and Policy* (International Irrigation Management Institute 1997) 221.

⁵⁹RS Meinzen-Dick and R Pradhan, 'Legal Pluralism and Dynamic Property Rights' (2002) 3 *Food Policy* 537.

Prior to colonization, customary and/or Islamic law prevailed in Africa.⁶⁰ In African customary law, communities collectively owned the water resources, which was under the chief's control.⁶¹ Some countries had customary law subject to Islamic influences⁶² where water was a 'substance that cannot be owned unless it is taken in full possession' and was considered a 'gift of God' and thus belonging to 'His community'.⁶³ In many Asian countries, water belonged to the local communities under different elements of Hindu or Islamic law.⁶⁴

2.3.1 | Recognition of customary law in the constitutions

Post-independence constitutions in 18 out of 20 Anglophone African countries mention customary law.⁶⁵ In all, 11 countries⁶⁶ explicitly recognize customary law in their constitutions subject to other constitutional provisions. Eswatini's Constitution, for example, reads: 'Subject to the provisions of this constitution, the principles of Swazi customary law (Swazi law and custom) are hereby recognised and adopted and shall be applied and enforced'.⁶⁷ Namibia's Constitution states that the 'customary law and the common law ... shall remain valid to the extent to which such customary or common law does not conflict with this Constitution or any other statutory law'.⁶⁸ And in South Africa, the 'Bill of Rights does not deny the existence of any other rights or freedoms that are recognised or conferred by common law, customary law or legislation, to the extent that they are consistent with the Bill'.⁶⁹

Six countries indirectly recognize customary law, by recognizing customary (appeal⁷⁰) courts,⁷¹ by requiring formal courts to also apply customary laws,⁷² by seeing 'customs and traditions' as a source of law,⁷³ by acknowledging land ownership through custom-

ary land tenure systems⁷⁴ and/or installing a House of Chiefs advising on customary matters.⁷⁵

Unlike Anglophone Africa, only one Francophone country explicitly recognizes customary law in its constitution and six countries indirectly refer to customary law. Rwanda's Constitution reads: 'Unwritten customary law remains applicable provided it has not been replaced by written law, is not inconsistent with the Constitution, laws, and orders, and neither violates human rights nor prejudices public security or good morals'.⁷⁶ Countries that indirectly refer to customary law are for example Chad, which recognizes the customary and traditional rules that are only applicable in the communities where they are recognized, until codified.⁷⁷ Burkina Faso and Niger both recognize traditional leadership as a depository of customs and traditions⁷⁸ or customary authority.⁷⁹ The constitutions of most Francophone African countries do not mention customary law.⁸⁰

As in Francophone Africa, only 5 out of 20 Asian countries refer to customary law. The Constitution of Indonesia 'recognises and respects traditional communities along with their traditional customary rights'.⁸¹ The Philippines states that '[t]he Congress may provide for the applicability of customary laws governing property rights or relations in determining the ownership and extent of ancestral domain'.⁸² The constitutions of three other countries⁸³ recognize custom or usage as having the force of law.

2.3.2 | Recognition of customary law in the water laws

While in Anglophone Africa, nine countries acknowledge customary law as part of law, this is not reflected in their water laws. Only Tanzania explicitly recognizes customary rights, stating that '[c]ustomary rights held by any person or community in a watercourse shall be recognised and is in every respect of equal status and effect to a granted right'.⁸⁴ Sierra Leone allows the continuation of a customary use as an existing lawful water use.⁸⁵ Other countries refer indirectly to customary rights. For instance, Malawi and Namibia consider customary water rights and practices in issuing water use

⁶⁰M Ramazzotti, *Readings in African Customary Water Law – Anthologie du Droit Coutumier de l'Eau en Afrique* (FAO 1996); D Caponera, *Water Law in Selected African Countries* (FAO 1979); Dellapenna and Gupta, *The Evolution of the Law and Politics of Water* (n 1).

⁶¹D Tewari, 'A Detailed Analysis of Evolution of Water Rights in South Africa: An Account of Three and a Half Centuries from 1652 AD to Present' (2009) 35 *Water SA* 693.

⁶²See Ramazzotti (n 60).

⁶³T Naff, 'Islamic Law and the Politics of Water' in Dellapenna and Gupta, *The Evolution of the Law and Politics of Water* (n 1) 40, 42.

⁶⁴P Cullet and J Gupta, 'India: Evolution of Water Law and Policy' in Dellapenna and Gupta, *The Evolution of the Law and Politics of Water* (n 1) 157.

⁶⁵The constitutions of Eritrea and Tanzania do not make reference to customary law.

⁶⁶Botswana, Eswatini, Gambia, Ghana, Kenya, Lesotho, Malawi, Namibia, Sierra Leone, South Africa, Zimbabwe.

⁶⁷Swaziland's Constitution of 2005 (Eswatini) art 252(2).

⁶⁸Namibia's Constitution of 1990 with Amendments through 2014 art 66.

⁶⁹South Africa's Constitution of 1996 with Amendments through 2012 art 39(2)-(3).

⁷⁰Nigeria.

⁷¹Ethiopia.

⁷²Liberia.

⁷³South Sudan.

⁷⁴Uganda.

⁷⁵Zambia.

⁷⁶Rwanda's Constitution of 2003 with Amendments through 2015 art 176.

⁷⁷Chad's Constitution of 2018 art 161.

⁷⁸Burkina Faso's Constitution of 1991 with Amendments through 2015 preamble.

⁷⁹Niger's Constitution of 2010 with Amendments through 2017 art 167.

⁸⁰Algeria, Burundi, Cameroon, Congo, Côte d'Ivoire, Djibouti, Guinea, Mali, Mauritania, Morocco, Senegal and Togo.

⁸¹Indonesia's Constitution of 1945, Reinstated in 1959, with Amendments through 2002 art 18B(2).

⁸²Philippines's Constitution of 1987 art 5.

⁸³Bangladesh, Malaysia and Pakistan.

⁸⁴Water Resources Management Act 2009 (Tanzania) art 52(1).

⁸⁵The National Water Resources Management Agency Act 2017 (n 44) art 3(4).

licences.⁸⁶ In Eswatini, permits may not divert, store or use water from a 'sacred' water course.⁸⁷ Zambian authorities recognize 'traditional practices as recognised in customary areas and which are beneficial to water resource management'.⁸⁸ South Sudan supports allocation based on 'water resources availability and existing uses (including customary uses)'.⁸⁹

Seven Francophone Africa countries discuss customary law: for example, water exploitation in Chad via a declaration or authorization has to comply with customary law.⁹⁰ In Mali, customary rights should be respected when appropriating water,⁹¹ and in Niger and Benin, the authorities should consider customary practices in water management.⁹² Three Asian countries consider customary rights. Bhutan allows for the continuation of customary water allocation practices, if they do not deny others of water and if this is acknowledged by a water users association.⁹³ Indonesia recognizes traditional community rights if they do not contradict national interests and legislative regulations and their existence is confirmed by local regulations.⁹⁴ While rights in water vest in the Bangladeshi State, this does not prevent a person from using water allowed earlier under customs or rituals having the force of law.⁹⁵

Thus, in all analysed countries, pre-colonization, customary or religious law prevailed, colonial rule allowed private water ownership, and post-colonization, water has been put in the public domain with few exceptions. Many Anglophone African countries recognize customary law but the interaction between customary and State water entitlements remains complex.

3 | INVENTORY OF WATER GOVERNANCE INSTRUMENTS

Having taken 'control' over water, governments allocate the water in five different ways through (i) recognizing existing (historical) water use (pre-independence uses); (ii) domestic water use (small volumes for non-commercial purposes); (iii) allowing limited water withdrawal above domestic use without a water use permit; (iv) water use permits (see Section 1) and (v) contracts, leases and concessions, allowing States to enter into public-private partnerships. These instruments will be discussed in turn.

3.1 | Existing water use

With putting water in the public domain, States expropriated existing customary and riparian (associated with land ownership rights) water rights.⁹⁶ Anglophone (except Nigeria) and Francophone African countries with a water law, and seven Asian countries⁹⁷ regulate existing water use. In most countries, the existing pre-independence water use and rights are continued under the water permit system. In Anglophone Africa, States deal with existing water uses by (i) requiring permit application within a specified period⁹⁸ (1–2 years) or recording the right and issuing a permit with conditions⁹⁹ and (ii) allowing continued use by regarding the existing use or right as issued under the new Act.¹⁰⁰ South Africa allows existing water use to be continued under 'existing lawful use' (to the extent that it is not limited, prohibited or terminated by the new Act), until the holders are required to apply for a licence under compulsory licensing.¹⁰¹ In Ghana, users have to notify the Water Resources Commission of an existing use or right which is then investigated and decided upon by this Commission.

In nine Francophone African countries,¹⁰² the existing water rights, use, works or authorizations have to be brought into conformity with the law within 1–2 years. In four countries,¹⁰³ existing water uses are regarded as a right issued under the new law and users have to declare this to the authority. Other countries¹⁰⁴ require existing water use or works to declare and/or to apply for an authorization within 6 months after the promulgation of the new law. In Burundi, the Water Code does not affect the rights acquired and exercised pursuant to former laws.¹⁰⁵ In Asia, seven countries recognize existing water use or rights. In four countries, water use prior to the commencement of the new water law is recognized without the need for a new permit.¹⁰⁶ Two States require a permit application,¹⁰⁷ while in Bangladesh water permits remain valid until restricted, controlled or cancelled by the State.

3.2 | Domestic water use

In most countries considered, people can abstract water for domestic water use without a permit. In 15 out of 16 Anglophone

⁸⁶The Water Resources Act 2013 (n 42) art 41(1)(i); Water Resources Management Act 2013 (Namibia) art 45(2)(j).

⁸⁷The Water Act 2003 (Eswatini) art 45.

⁸⁸The Water Resources Management Act 2011 (Zambia) art 5.

⁸⁹South Sudan (n 45) 10.

⁹⁰Loi N° 98-005 Portant Régime de l'Eau 1998 (Chad) art 1.

⁹¹Loi N° 02-006 Portant Code de l'Eau 2002 (Mali) art 3.

⁹²Loi N°2010-44 Du 24 Novembre 2010 Portant Gestion de l'Eau En République Du Benin 2010 art 13; Ordonnance N°2010-09 Du 1er Avril 2010 Portant Code de l'Eau Au Niger 2010 art 11.

⁹³The Water Regulation of Bhutan 2014 art 40.

⁹⁴Law No 7/2004 on Water Resources 2004 (n 41) art 6.

⁹⁵Bangladesh Water Act 2013 (n 55) art 3(1) and (4).

⁹⁶L Teclaff, 'What You Have Always Wanted to Know about Riparian Rights, but Were Afraid to Ask' (1972) 12 *Natural Resources Journal* 30.

⁹⁷Armenia, Bangladesh, Indonesia, Nepal, Philippines, Vietnam.

⁹⁸Eswatini, Ethiopia, Namibia, Rwanda, Tanzania.

⁹⁹Malawi, Zambia.

¹⁰⁰Botswana, Kenya, Lesotho, Sierra Leone, Uganda, Zimbabwe.

¹⁰¹National Water Act 1998 (South Africa) art 34.

¹⁰²Algeria, Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Djibouti, DRC, Guinea, Morocco.

¹⁰³CAR, Chad, Mali, Mauritania.

¹⁰⁴Congo, Niger, Senegal, Togo.

¹⁰⁵Loi N°1/02 Du 26 Mars 2012 Portant Code de l'Eau au Burundi 2012 art 153.

¹⁰⁶Bhutan, Indonesia, Philippines, Vietnam.

¹⁰⁷Armenia, Nepal.

African countries¹⁰⁸ domestic water use is exempted; the only exception is Lesotho.¹⁰⁹ In 11 out of 19 Francophone Africa countries,¹¹⁰ domestic use is generally, if not explicitly, exempted from permits.¹¹¹ The water law of three countries ambiguously state that permits or authorizations are needed for activities and installations that will, for example, change the water flow and level, degrade water quality, or threaten the environment or public health.¹¹² Four countries recognize that individuals may use water for basic needs.¹¹³ Fourteen out of 16 Asian countries with a water law in place exempt domestic water use from permit requirements.¹¹⁴ Bangladesh and Lao do not have a permit system and people have a right to potable water.

3.3 | Exempt water use

Authorities in two countries can specify a level of water use that is exempt from requiring a licence: under a 'general authorization' in South Africa,¹¹⁵ and in Sierra Leone.¹¹⁶ Three countries have a provision in place that allows the authority to exempt a class of water users or works from the licence requirement.¹¹⁷ Francophone countries do not exempt water uses above domestic use, but some countries require water users to inform an authority, rather than requiring an authorization.

3.4 | Water use permits

In relation to water permits, all researched African countries with a water law have either strengthened the colonial permit system or introduced a modern permit system. Unlike Anglophone Africa, 12 Francophone African countries allow water use subject to a declaration¹¹⁸ and/or permit.¹¹⁹ A declaration requires individuals to inform the competent administration of the water works the person plans to carry out, or the intended use of water. The distinction between an authorization and declaration depends on the nature, location,

importance or seriousness of the effects of these water works on water resources and aquatic ecosystems. Waterworks or water use that does not result in pollution, hazards or adverse impacts on water and aquatic ecosystems are subject to prior notification to the local authority. Similar to Africa, most Asian countries have adopted or strengthened a water permit system¹²⁰ except Bangladesh (which allocates water based on rules),¹²¹ Lao (which has approvals, not permits¹²²) and Azerbaijan (which uses contracts).¹²³

3.5 | Contracts, leases and concessions

States can allocate water through contracts, leases and concessions for water service provision and the organization of water use and abstraction. These may also take the form of public-private partnerships.¹²⁴ In Francophone Africa and part of Asia, there is a greater use of water contracts than in Anglophone Africa.

3.5.1 | Water service provision

Five Anglophone African countries allow governments to partner up with private companies.¹²⁵ These include Uganda¹²⁶ and Kenya.¹²⁷ All Francophone countries (except Morocco and Gabon) may award contracts, lease and/or concession agreements regarding public service provision.¹²⁸ Generally, a public authority can entrust a natural or legal person (the concessionaire) with the rights to operate and manage a public service through an agreement. Such an agreement can include investing in service provision at the concessionaire's own expense and risk, for a fixed and generally long period, under contractual conditions, and in return for the right to collect charges from service users. As in Francophone Africa, seven Asian countries¹²⁹ with a water law enable private sector involvement in public service management. For example, in Armenia 'state-owned water systems can be under state and/or private management'.¹³⁰ Bhutan, Cambodia and Nepal enable the State to enter into contracts or agreements with the private sector for providing and managing public services. Nepal specifically states that this can be with national or foreign companies.¹³¹

¹⁰⁸Gambia, Liberia and South Sudan do not have a water law in place. Sudan's water law is written in Arabic.

¹⁰⁹The Water Act 2008 (Lesotho) art 20(1).

¹¹⁰Gabon does not have a water law in place. Equatorial Guinea's water law is written in Spanish.

¹¹¹Burundi, Cameroon, Congo, Djibouti, DRC, Guinea, Mali, Mauritania, Niger, Senegal, Togo.

¹¹²CAR, Côte d'Ivoire, Rwanda.

¹¹³Algeria, Benin, Burkina Faso, Morocco.

¹¹⁴Myanmar, Pakistan, Sri Lanka and Thailand do not have a water law in place.

¹¹⁵Department of Water and Sanitation, 'Digital Map Library: RSA Drainage Region Boundaries & 2012WMA' (2012) <<http://www.dwa.gov.za/SLIM/DML.aspx>>.

¹¹⁶The National Water Resources Management Agency Act 2017 (n 44) art 28.

¹¹⁷Water Code of the Republic of Armenia 2002 art 22; Water Resources Act 2013 (n 42) art 45; Water Act 1995 (Uganda) art 19.

¹¹⁸Benin, Burkina Faso, CAR, Chad, Congo, Côte d'Ivoire, Djibouti, DRC, Mauritania, Niger, Senegal, Togo.

¹¹⁹Francophone countries use the word 'authorization'.

¹²⁰Armenia, Azerbaijan, Bhutan, Cambodia, Georgia, Indonesia, Kyrgyzstan, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Tajikistan, Vietnam.

¹²¹Ministry of Water Resources, Government of the People's Republic of Bangladesh, 'National Water Policy' (1999) <<http://extwprlegs1.fao.org/docs/pdf/bgd146075.pdf>>.

¹²²Law on Water and Water Resource 1996 (n 56) art 18.

¹²³Water Code of the Azerbaijan Republic 1997 (n 54) art 30.

¹²⁴M de Jong et al, 'Introducing Public-Private Partnerships for Metropolitan Subways in China: What is the Evidence?' (2010) 18 *Journal of Transport Geography* 301.

¹²⁵Ghana, Kenya, Namibia, Nigeria, Uganda.

¹²⁶Water Act 1995 (n 117) art 89.

¹²⁷Water Act 2016 (Kenya) art 93(1).

¹²⁸Algeria, Benin, Burkina Faso, Burundi, Cameroon, CAR, Chad, Congo, Côte d'Ivoire, Djibouti, DRC, Guinea, Mali, Mauritania, Niger, Senegal, Togo.

¹²⁹Armenia, Bangladesh, Bhutan, Cambodia, Nepal, Philippines, Tajikistan.

¹³⁰Water Code of the Republic of Armenia 2002 (n 117) art 48.

¹³¹Water Resources Act, 2049 (1992) (Nepal) art 12.

3.5.2 | Water use

Five Francophone African countries and four Asian countries¹³² allow water use allocation through permits and/or contracts. In DRC and Guinea, water use of a more permanent nature (e.g. for agriculture, mining or industry) is subject to a concession. In Mali, groundwater withdrawals are subject to the concession regime if they are large and likely to present a danger to public health and safety, cause significant harm to the free flow of water, reduce water quantity or impair the aquatic environment.

We see that in all analysed countries there are similarities in the way water resources are allocated: (i) in most countries, domestic use is exempted, while five countries exempt specified uses or users from the permit requirement; (ii) most post-independence water laws allow for the continuation of existing water use, by bringing it into conformity with the 'new' water laws; (iii) some countries, mainly in Francophone Africa, may award contracts, leases and/or concessions to the private sector and (iv) all countries allocate water uses through permits as the main instrument.

4 | ALLOCATING 'PROPERTY' RIGHTS THROUGH PERMITS

Since water use permits are the main instrument through which States allocate water, we look at these permits in more detail by examining 13 'property' elements clustered into five issues indicating property-like rights (see Table 1). These include:

1. The temporal dimension: (i) the period for which the permit is valid; (ii) the possibility to renew permits when expired and (iii) the possibility to intermediately change permit conditions.
2. Alienation: (i) the possibility to transfer the permit and (ii) whether the permit is granted *appurtenant* to land or industrial undertaking.
3. Legal action: the possibility (i) to object against a State's decision; (ii) to appeal against a State's decision or (iii) to settle disputes when permit holders' interests are violated.
4. Compensation: (i) whether the State has to compensate if a permit is withdrawn; (ii) whether a permit applicant has to compensate the permit holder that beneficially used the water from whom the water is reallocated; (iii) the possibility to be financially compensated for any (financial) loss suffered in case of damage and (iv) the possibility to sue the State.
5. The protection of interests: whether organizations or individuals' interest are protected by the state.

The elements are further explained below.

4.1 | Temporal dimension

Water use permits allow a holder to use water for a specified period to guarantee reliability of supply, subject to hydrological changes. Permits cover from 5,¹³³ 10,¹³⁴ 15,¹³⁵ 20,¹³⁶ 25,¹³⁷ 40¹³⁸ and up to 75¹³⁹ years. In five countries, permit holders can use water for an unspecified period: an indefinite period;¹⁴⁰ permanently,¹⁴¹ in perpetuity;¹⁴² as long as water is beneficially used,¹⁴³ and sometimes no term is specified as in the case of a farm use permit.¹⁴⁴ Some water laws have no maximum limit, stating that the permit will specify the licence period.¹⁴⁵

This period can be renewed or extended on the request of the permit holder. Some water laws allow holders to request the responsible authority to amend or renew the permit conditions. All Anglophone African countries, half of the Francophone African countries, and most Asian countries allow for permit renewal, mostly through an application¹⁴⁶ subject to certain conditions. Some laws state that a renewal shall not be declined without a good reason.¹⁴⁷ Others state that a permit shall be renewed if the terms, conditions and obligations have been upheld and the renewal does not contravene the law.¹⁴⁸ In South Africa, permits are renewed in a general review process.

In 19 out of 47 countries, permit holders can request a permit amendment.¹⁴⁹ In a few countries, any permit condition can be amended.¹⁵⁰ In other countries, the law specifies the conditions that cannot be amended¹⁵¹ or states that only the water volume can be modified.¹⁵² Such amendments follow a request or reapplication to the responsible authority to amend the permit.¹⁵³ In most countries, the amendment applies permanently, in others the permit conditions

¹³³Cameroon, Eswatini, Lesotho, Namibia.

¹³⁴Eritrea, Mongolia, Morocco.

¹³⁵Kyrgyzstan, 50 years for an irrigation system.

¹³⁶Georgia, Vietnam.

¹³⁷Zambia, Zimbabwe.

¹³⁸Armenia, South Africa.

¹³⁹Cambodia, Djibouti.

¹⁴⁰Botswana.

¹⁴¹Tajikistan allows for both permanent and temporary use (from 3 up to 25 years).

¹⁴²Bhutan.

¹⁴³Philippines.

¹⁴⁴Georgia.

¹⁴⁵Benin, Burundi, CAR, Chad, Côte d'Ivoire, Ethiopia, Kenya, Malawi, Malaysia, Mali, Nepal, Niger, Senegal, Sierra Leone, Tanzania, Togo, Uganda.

¹⁴⁶Cameroon, Chad, Djibouti, Eswatini, Georgia, Guinea, Malawi, Namibia, Zambia.

¹⁴⁷Eswatini, Namibia.

¹⁴⁸Armenia, Ethiopia, Zambia.

¹⁴⁹Armenia, Botswana, Chad, Côte d'Ivoire, Eritrea, Eswatini, Ethiopia, Georgia, Guinea, Kenya, Kyrgyzstan, Malawi, Philippines, Senegal, South Africa, Uganda, Vietnam, Zambia, Zimbabwe.

¹⁵⁰Botswana, Malawi, Kenya, Uganda, Zambia.

¹⁵¹That is, increase in the volume of water; Philippines.

¹⁵²Ethiopia.

¹⁵³Armenia.

¹³²Azerbaijan, DRC, Guinea, Kyrgyzstan, Lao, Mali, Mauritania, Mongolia, Morocco.

TABLE 1 Allocation of property-like rights through permits

	Temporal			Alienation		Compensation			Legal Action			State protec.	
	Temporal	Renew conditions	Change conditions	Alienation	Permit appurtenant to	Compensation by State	Compensation by applicant	Compensation damage/dispute	Object	Appeal	Dispute settlement	Sue	State protection of interests
Botswana	✓	✓	✓	✓	✓	✓			✓	✓			✓
Eritrea	✓	✓	✓	✓		✓				✓	✓		
Eswatini	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		
Ethiopia	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		
Ghana	✓	✓		✓		✓			✓	✓		✓	
Kenya	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Lesotho	✓	✓		✓						✓			
Malawi	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Namibia	✓	✓		✓				✓	✓	✓	✓		
Nigeria	✓												
Sierra Leone	✓							✓	✓	✓		✓	
South Africa	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Tanzania	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		
Uganda	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
Zambia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zimbabwe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Algeria				✓	✓								
Benin	✓											✓	
Burkina Faso													
Burundi	✓			✓		✓		✓					
Cameroon	✓	✓				✓				✓			
CAR	✓			✓		✓		✓					
Chad	✓	✓	✓	✓	✓	✓				✓			
Congo						✓							
Côte d'Ivoire	✓	✓	✓			✓		✓					
Djibouti	✓	✓		✓	✓	✓		✓		✓			
DRC				✓									
Guinea		✓	✓	✓		✓							
Mali	✓					✓							
Mauritania				✓									
Morocco	✓	✓		✓	✓	✓							

(Continues)

are changed for a certain period of time.¹⁵⁴ Amendments are subject to criteria, including that the modification of the permit does not impair the public interest, the rights of others¹⁵⁵ including other permittees¹⁵⁶ or impacts public health.¹⁵⁷ Some States require a valid reason (e.g. changing conditions, greater water efficiency).¹⁵⁸

4.2 | Alienation

Another element is the right to sell (alienate) the permit. This right includes the right to lease, trade, sell, transfer, temporary transfer, pass on to a named licensee as a successor-in-title at death, and the transfer, partition, lease or sale of land or industrial undertaking to which a permit has been appurtenant to.¹⁵⁹ Most Anglophone (14 out of 16), Francophone (13 out of 19) African countries and Asian countries (8 out of 12) allow permit alienation. While no State sees such alienation as the start of a nationwide water market, in many countries water use permits can be transferred to another user either with or without being subject to State approval. In cases of the transfer, partition, lease or sale of land or specified industry to which a permit has been appurtenant to, the water laws do not mention the need for State approval.

In 14 countries where a water right has been declared to be appurtenant to land, the benefit of the right is enjoyed by the person who possesses the land.¹⁶⁰ The water use permit passes in the case of changing proprietorship (i.e. transfer, lease, partition or devolution of property, by will or on intestacy, or otherwise) of the land. For example, Chad's water law states 'The authorization to use water granted especially or specifically for agricultural, livestock, industrial or tourist purposes is a real right which remains attached to this exploitation, whoever the beneficiary may be'.¹⁶¹ A water permit can also pass with the proprietorship of an industrial undertaking;¹⁶² transfer of any premises¹⁶³ and transfer of water construction to other water users.¹⁶⁴ The transfer may come with conditions.

In other cases, a water permit can be transferred without the alienation of land. If the authorization is personal, it may be transferred to the heirs;¹⁶⁵ a licence may be passed on to a named licensee

as a successor-in-title at death;¹⁶⁶ and/or the transfer is possible with approval or written consent of the responsible authority.¹⁶⁷ For instance, Zimbabwe's Water Law enables a permit holder, without the alienation of land, to 'cede, sell or otherwise alienate a permit except with the consent of the catchment council concerned'.¹⁶⁸ In Djibouti, Malawi and the Philippines, a permit holder may lease the permit to another person for a maximum period: in Malawi, this period generally cannot exceed 6 months and in the Philippines a maximum continuous period cannot exceed 5 years.¹⁶⁹ Some countries allow a holder to trade a water permit subject to approval,¹⁷⁰ or sell the water permit.¹⁷¹ In Malawi, saved water may be transferred to another person, free or for a price. Djibouti comes the closest to a water market, stating that 'water rights are freely transferable insofar as their purpose and the conditions for which they were granted are not substantially modified'.¹⁷² Four countries forbid permit transfers.¹⁷³

4.3 | Legal action

Legal action refers to recourse to courts by entities seeking protection of their rights. Legal permits may be subject to legal action which includes the rights to object, appeal, sue and settle disputes in court when permit holder's interests are allegedly violated by the State. Most countries in Anglophone Africa (15 out of 16) and Asia (11 out of 12) allow legal action while this is not so in Francophone Africa (5 out of 19).

Having the right to object allows a permit holder to object against a State's decision. In half the Anglophone countries, and in four Asian countries permit holders can object against the granting of a water permit to a new applicant.¹⁷⁴ In most Anglophone African (14 out of 16) and Asian (9 out of 12) countries, any person who is dissatisfied by the authority's decision may appeal to the appellate authority (e.g. Minister, Commission, Court, High Court, Water Tribunal, etc.). This may include an appeal against the authorized body exceeding its jurisdiction; the decision that no compensation was payable; the refusal to issue a licence; the refusal to grant approval for the transfer of a licence; the imposition of a discretionary condition on a licence; the refusal to renew a licence; the amendment of a licence and the suspension or cancelling of a licence.¹⁷⁵ Some countries allow any aggrieved person to appeal against this decision¹⁷⁶

¹⁵⁴Kyrgyzstan.

¹⁵⁵E.g. Kenya, Zambia.

¹⁵⁶E.g. Philippines. The Water Code of the Philippines 1976 (n 57) art 12.

¹⁵⁷E.g. Georgia. State of Georgia government, 'Ga. Comp. R. & Regs. 391-3-6-.07 - Rule 391-3-6-.07 - Surface Water Withdrawals. Amended' (1978) <<http://rules.sos.ga.gov/GAC/391-3-6-.07>> art 13.

¹⁵⁸Georgia.

¹⁵⁹E.g. in Kenya: 'A permit shall specify ... the particular portion of any land, or the particular undertaking to which the permit is to be appurtenant, and ... shall ... pass with any demise, devise, alienation, transfer or other disposition whether by operation of law or otherwise.' Water Act 2016 (n 127) art 45(1)(b).

¹⁶⁰Algeria, Armenia, Botswana, Burundi, Eswatini, Georgia, Kenya, Kyrgyzstan, Malawi, Morocco, Tanzania, Uganda, Zambia, Zimbabwe.

¹⁶¹Loi N° 98-005 Portant Régime de l'Eau 1998 (n 90) art 85.

¹⁶²Chad, Djibouti, Eswatini, Niger, Senegal.

¹⁶³Uganda.

¹⁶⁴Tajikistan.

¹⁶⁵Djibouti, Niger and Senegal.

¹⁶⁶Azerbaijan, Burundi, Kenya, Kyrgyzstan, Namibia, Malawi, Zambia.

¹⁶⁷Cambodia, DRC, Ghana, Lesotho, Mauritania, Nepal, Philippines, Rwanda, Vietnam.

¹⁶⁸Water Act 1998 (n 46) art 38.

¹⁶⁹Water Resources Act 2013 (n 42) art 55; Water Code of the Philippines, Implementing Rules and Regulations 1979 art 5C.

¹⁷⁰Tanzania.

¹⁷¹Armenia, Nepal.

¹⁷²Loi N° L/94/005/CTRN Portant Code de l'Eau 1994 (Guinea) art 17.

¹⁷³Cameroon, Congo, Indonesia, Mongolia.

¹⁷⁴Botswana, Cambodia, Eswatini, Ghana, Kenya, Kyrgyzstan, Malawi, Philippines, Sierra Leone, South Africa, Tanzania, Uganda, Vietnam, Zambia.

¹⁷⁵Water Resources Management Act 2013 (n 86) art 120.

¹⁷⁶Armenia, Bhutan, Cambodia, Georgia, Kenya, Malawi, Uganda, Zambia, Zimbabwe.

while other countries specify the grounds on which a permit holder can appeal.¹⁷⁷

Six Anglophone African countries¹⁷⁸ and one Francophone African country,¹⁷⁹ as well as four Asian countries,¹⁸⁰ allow State governments to be sued. The right to sue enables the holder to sue the responsible authority in its corporate name.

4.4 | Compensation

The right of compensation includes financial compensation for losses suffered resulting from the determination or limitation of the water use permit, due to an illegal action including pollution, littering or depletion of the water body, or in case the water beneficially used is allocated to another person. Many Anglophone (13 out of 16) and Francophone (14 out of 19) African countries and Asian countries (10 out of 12) allow compensation claims. First, compensation can be claimed from the State where a water use permit cannot be used in full because of State interference, such as when a permit is suspended, amended or revoked ahead of schedule when this is in the 'public interest' to do so.¹⁸¹ Compensation can also be claimed for loss incurred as a result of the execution of water resources management,¹⁸² or in favour of a project of greater beneficial use.¹⁸³ Public interest could include when this is in the interest of public safety or the need for safe drinking water, to prevent or stop flooding or when there is a threat to public safety, or to preserve the aquatic environment from threats or when the environment is subject to critical hydraulic conditions that are incompatible with its preservation.¹⁸⁴ Second, in seven countries, the government can require a permit applicant for water being beneficially used by some else, to pay compensation to the permit holder.¹⁸⁵ And third, in 8 out of 16 Anglophone and 6 out of 19 Francophone African, and 7 out of 12 Asian countries, permit holders can claim compensation where water users cause damage to the holders of a water use permit or infringe in the water users' rights.

4.5 | Protection of interests

Another element is the right of organizations and individuals to have their legitimate interests protected by the State. In some Anglophone

African countries (4 out of 16) and Asian countries (9 out of 12), the water laws protect the interests of existing water users. Two countries explicitly do so: Vietnam allows water users to 'have their rights and legitimate interests protected by the State in the process of water resource exploitation' and the right to 'lodge complaints about and initiate lawsuits against acts of infringing upon their right to exploit and use water';¹⁸⁶ and in Georgia, water users have the right to 'appeal decisions of bodies and officials of the executive authority that infringe his/her/its rights to water use' and '[t]he rights of a water user shall be protected by law, and if infringed, the violated rights shall be restored'.¹⁸⁷

Other countries consider the impact of the proposed abstraction upon existing water users and/or other water users,¹⁸⁸ or state that water use authorizations are granted subject to the rights of third parties.¹⁸⁹ Three countries state this concretely. In Bhutan, the responsible authority must consult with downstream users of water prior to permit issuance;¹⁹⁰ in Cambodia, the responsible ministry must consult with other relevant agencies and local authorities concerned with the water use and waterworks construction proposed by the applicant¹⁹¹; and in Lao, applications for water use must be accompanied by a social impact assessment which needs to be approved by the government.¹⁹²

5 | CONCLUSION

In analysing how States in Asia and Africa with laws in English or French are addressing property rights in water, we conclude that there are a number of trends. First, most States have put water in the public domain and governments are the custodians of the nation's freshwater. Second, doing this implies expropriating existing water rights, but this is not easy and countries are struggling to address the issues of prior customary and riparian rights. This has led States to either recognize customary or existing legal uses in their national laws. This has caused a confused plural system where often different rules apply to the same jurisdiction. Third, having taken 'control' of the property rights in water, these States then use permits, concessions and contracts to allocate water to people and legal entities. In most countries, household use, or sometimes use up to a certain threshold above household use, is allowed without a permit, and is subject to payment if households are connected to formal water services. Beyond this, permits are allocated to water supply utilities, farmers and industries. In Francophone Africa and part of Asia, the water laws allow for privatizing water services, also through contracts or

¹⁷⁷Botswana, Eswatini, Ethiopia, Ghana, Kyrgyzstan, Namibia, Nepal, Philippines, Sierra Leone, South Africa, Tajikistan, Tanzania.

¹⁷⁸Ghana, Kenya, Malawi, Sierra Leone, Tanzania, Zambia.

¹⁷⁹Benin.

¹⁸⁰Georgia, Indonesia, Malaysia, Vietnam.

¹⁸¹Algeria, Armenia, Botswana, Burundi, Cambodia, Cameroon, Chad, Djibouti, Eswatini, Ethiopia, Ghana, Guinea, Kyrgyzstan, Malawi, Morocco, Mali, Nepal, Niger, Senegal, South Africa, Tanzania, Vietnam.

¹⁸²E.g. Indonesia.

¹⁸³E.g. Philippines.

¹⁸⁴CAR, Côte d'Ivoire and Togo.

¹⁸⁵Kenya, Philippines, South Africa, Tanzania, Uganda, Zambia, Zimbabwe.

¹⁸⁶Law No. 17/2012/QH13 on Water Resources 2012 (Vietnam) art 43.

¹⁸⁷Law of Georgia on Water 1997 art 39.

¹⁸⁸Armenia, Côte d'Ivoire, Kyrgyzstan, Malawi, Namibia, Sierra Leone, South Africa, Uganda, Zambia, Armenia.

¹⁸⁹Cameroon, CAR, Djibouti.

¹⁹⁰The Water Act of Bhutan 2011 art 48.

¹⁹¹Law on Water Resources Management of The Kingdom of Cambodia 2007 art 14.

¹⁹²Law on Water and Water Resource 1996 (n 56) art 18.

public private partnerships. With globalization, large companies are also able to gain long-term access to water through long-term permits, concessions or contracts. Fourth, permit allocation can include 13 different kinds of 'property' elements which can be clustered into five groups of property like rights. These property-like rights include the right the use water for a specified period, the right to alienate or to transfer the permit, the right of legal protection, the right to compensation and the right to have their interest protected by the State. It will be difficult for States to change these rights over time, as some countries allow permits for 75 years, which reduces the flexibility of the State to redistribute if necessary; some countries allow for compensation and litigation if permit conditions are changed, which also reduces State flexibility and may lead to policy 'freezing'. Of course, providing a certain level of security may be necessary to encourage long-term investment by large companies, but it might undermine State actions in a situation of hydrological uncertainty. Thus, even though States are ostensibly trying to take control of their water resources by putting the water in the public domain and (trying to) abolishing existing rights, the water allocation regime is becoming highly convoluted.

We conclude that while all the researched countries have avoided using any mention of private property in connection to water in their water laws, they often end up *de facto* privatizing water by allocating 'property-like' rights to actors through the granting of water use permits. Hence, any water use permit as a legal entitlement can be seen as an exception to State ownership.

ORCID

Hilmer J. Bosch  <https://orcid.org/0000-0001-8992-0329>

Joyeeta Gupta  <https://orcid.org/0000-0003-1424-2660>

Hebe Verrest  <https://orcid.org/0000-0003-2812-4155>

Hilmer Bosch is a PhD candidate at the Amsterdam Institute for Social Science Research of the University of Amsterdam. He holds an MSc Environmental Entrepreneurship at the University of Strathclyde and an MSc in Water Management and Governance from IHE Delft Institute for Water Education. He has an interest in the legal and policy dimension of development issues in the global South, specifically related to water. His current research focuses on the organization of water ownership in the global South.

Joyeeta Gupta is a full Professor of Environment and Development in the Global South at the Amsterdam Institute for Social Science Research of the University of Amsterdam and IHE Delft Institute for Water Education. She is co-chair of UNEP's Global Environment Outlook-6 (2016-2019), published by Cambridge University Press, which was presented to governments participating in the United Nations Environment Assembly in 2019. She has also been named as co-chair of the Earth Commission (2019-2021), set up by Future Earth and supported by the Global Challenges Foundation, together with Johan Rockström and Dahe Qin.

Hebe Verrest is an Associate Professor of International Development Studies at the Department of Geography, Planning and International Development Studies. She has a background in human geography, and a key interest in spatial dimensions of development issues, in particular those related to urbanization and cities. Leading in her work is a focus on exclusion and inequality. These themes come back in more specific topics that she works on, such as entrepreneurship, flooding, environmental governance, digitalization and smart city. Geographically, her expertise is in small and medium cities in the Caribbean, and increasingly on coastal cities in South Asia. The research was conducted at the Governance and Inclusive Development Programme Group, at the Department of Geography, Planning and International Development Studies of the Amsterdam Institute of Social Science Research, of the University of Amsterdam. The authors also acknowledge support from IHE Delft Institute for Water Education.

How to cite this article: Bosch HJ, Gupta J, Verrest H. A water property right inventory of 60 countries. *RECIEL*. 2021;30:263-274. <https://doi.org/10.1111/reel.12397>