A water property right inventory of 60 countries

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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? 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.

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3 L 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
5 S Hodgson, Exploring the Concept of Water Tenure (Food and Agriculture Organization of the United Nations (FAO) 2016).
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 groundwater and of South Africa to regain control over water from holders of ‘existing lawful uses’. 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.

We analyse 220 national water laws, constitutions and relevant policy documents of 20 Anglophone and 21 Francophone African countries, as well as 19 Asian countries (with water laws in English). 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.

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, while Asian growth may contribute to 60% of global growth by 2030 and 91% of global population growth will take place in these regions. This implies new demands on water.

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 protectorates and inherited or were influenced by English common law. Francophone African countries were either French colonies, protectorates or mandates, 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. The civil law tradition distinguished between public and private water, where public water use required administrative permission. Asian countries were under British, Dutch, or Spanish rule, or part of the Soviet Union or the Chinese empire. The civil law tradition applied to the former Soviet Union (before it nationalized water under Communism), the Philippines and Indonesia. 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. In Anglophone Africa, States take back control by abolishing private rights to

16 Ethiopia was never colonized.
19 Ibid; Hodgson (n 5).
20 Malaysia, Myanmar, Pakistan, Sri Lanka.
21 Indonesia.
22 Cambodia, Lao, Vietnam.
23 Philippines.
24 Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan.
25 Mongolia.
26 Hodgson (n 5).
27 Except Malaysia.
water;\textsuperscript{28} announcing State ownership;\textsuperscript{29} vesting water property in the State,\textsuperscript{30} president, government or nation;\textsuperscript{31} seeing water as a national resource;\textsuperscript{32} managing water in public trust\textsuperscript{33} and recognizing water as the people’s common property.\textsuperscript{34} Similarly, Francophone African countries see water resources as part of the public (hydraulic) domain,\textsuperscript{35} as the common heritage of the nation\textsuperscript{36} or public property.\textsuperscript{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,\textsuperscript{38} vested in the State, president, government, or nation\textsuperscript{39}, the common property of people\textsuperscript{40}, or ‘controlled by the State and used for the optimal welfare of the people’.\textsuperscript{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’.\textsuperscript{42} In Botswana, public water does not include lawfully appropriated water use or water for extracting minerals.\textsuperscript{43} In Ghana and Sierra Leone, State control excludes ‘any stagnant pan or swamp wholly contained within the boundaries of any private land’.\textsuperscript{44} In South Sudan, natural water resources are ‘commonly owned by all riparian people’.\textsuperscript{45} In Zimbabwe, a water use permit for mining purposes is issued by the mining commissioner of the mining district,\textsuperscript{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.\textsuperscript{47}

In Francophone Africa, exceptions include water collected in private works,\textsuperscript{48} water intended for domestic use,\textsuperscript{49} rainwater that falls on, and ponds created by, rainwater or overflows from watercourses on private land,\textsuperscript{50} sources emerging from private land\textsuperscript{51} 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.\textsuperscript{52} In Togo, these structures need ministerial authorization. In Morocco, historical rights that have been recognized are excluded from the public domain.\textsuperscript{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.\textsuperscript{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’.\textsuperscript{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’.\textsuperscript{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’.\textsuperscript{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 level\textsuperscript{58} and is a basis for claiming individual or collective property rights\textsuperscript{59} (even though many indigenous communities use the language of responsibilities rather than that of rights).

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\textsuperscript{26} Botswana, Eswatini, Zambia, Zimbabwe.
\textsuperscript{27} Eritrea, Lesotho, Namibia.
\textsuperscript{28} Nigeria and Uganda.
\textsuperscript{29} Ethiopia, Gambia, Ghana, Kenya, Liberia, Malawi, Sierra Leone, Tanzania, Zambia, Zimbabwe.
\textsuperscript{30} Eswatini.
\textsuperscript{31} Botswana, Ghana, Kenya, Lesotho, South Africa, Tanzania.
\textsuperscript{32} Ethiopia, South Sudan.
\textsuperscript{33} Algeria, Benin, Burkina Faso, CAR, DRC, Chad, Congo, Djibouti, Guinea, Mauritania, Morocco, Niger, Senegal, Togo.
\textsuperscript{34} Benin, Burkina Faso, Cameroon, Côte d’Ivoire.
\textsuperscript{35} Mali.
\textsuperscript{36} Armenia, Azerbaijan, Cambodia, Myanmar, Nepal, Philippines.
\textsuperscript{37} Bangladesh, Bhutan, Georgia, Kyrgyzstan, Malaysia, Mongolia, Tajikistan.
\textsuperscript{38} Lao, Vietnam.
\textsuperscript{39} Law No 7/2004 on Water Resources 2004 (Indonesia) art 6(1).
\textsuperscript{40} Water Resources Act 2013 (Malawi) art 5.
\textsuperscript{41} Water Act 1968 (Botswana) art 2.
\textsuperscript{42} The National Water Resources Management Agency Act 2017 (Sierra Leone) arts 1 and 3(1): Water Resources Commission Act 1996 (Ghana) arts 12 and 37.
\textsuperscript{44} Water Act 1998 (Zimbabwe) art 34(3).
\textsuperscript{45} Ibid art 5.
\textsuperscript{46} Benin, Burkina Faso.
\textsuperscript{47} Benin, Burkina Faso, Niger.
\textsuperscript{48} CAR, Niger.
\textsuperscript{49} CAR.
\textsuperscript{50} CAR, Niger, Togo.
\textsuperscript{51} Loi N° 36-15 Du 10 Aout 2016 Relative à l’eau’ 2016 (Morocco) art 2.
\textsuperscript{52} Water Code of the Azerbaijan Republic 1997 art 13(2).
\textsuperscript{53} Bangladesh Water Act 2013 art 3(3).
\textsuperscript{54} Law on Water and Water Resource 1996 (Lao) art 4.
\textsuperscript{55} The Water Code of the Philippines 1976 art 7.
\textsuperscript{57} RS 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. In African customary law, communities collectively owned the water resources, which was under the chief’s control. Some countries had customary law subject to Islamic influences 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’. In many Asian countries, water belonged to the local communities under different elements of Hindu or Islamic law.

2.3.1 Recognition of customary law in the constitutions

Post-independence constitutions in 18 out of 20 Anglophone African countries mention customary law, in all, 11 countries 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’. 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’. 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’. Six countries indirectly recognize customary law, by recognizing customary (appeal) courts, by requiring formal courts to also apply customary laws, by seeing ‘customs and traditions’ as a source of law, by acknowledging land ownership through customary land tenure systems and/or installing a House of Chiefs advising on customary matters.

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’. 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 modified. Burkina Faso and Niger both recognize traditional leadership as a depository of customs and traditions or customary authority. The constitutions of most Francophone African countries do not mention customary law.

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’. 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. The constitutions of three other countries 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’. Sierra Leone allows the continuation of a customary use as an existing lawful water use. Other countries refer indirectly to customary rights. For instance, Malawi and Namibia consider customary water rights and practices in issuing water use

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62 See Ramazzotti (n 60).
65 The constitutions of Eritrea and Tanzania do not make reference to customary law.
66 Botswana, Eswatini, Gambia, Ghana, Kenya, Lesotho, Malawi, Namibia, Sierra Leone, South Africa, Zimbabwe.
67 Swaziland’s Constitution of 2005 (Eswatini) art 252(2).
68 Namibia’s Constitution of 1990 with Amendments through 2014 art 66.
72 See Ramazzotti (n 60).
73 ‘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’. 74 Sierra Leone allows the continuation of a customary use as an existing lawful water use. 75 Other countries refer indirectly to customary rights. For instance, Malawi and Namibia consider customary water rights and practices in issuing water use
licences. In Eswatini, permits may not divert, store or use water from a 'sacred' water course. Zambian authorities recognize 'traditional practices as recognised in customary areas and which are beneficial to water resource management'. South Sudan supports allocation based on 'water resources availability and existing uses (including customary uses).

Seven Francophone Africa countries discuss customary law: for example, water exploitation in Chad via a declaration or authorization has to comply with customary law. In Mali, customary rights should be respected when appropriating water, and in Niger and Benin, the authorities should consider customary practices in water management. 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. Indonesia recognizes traditional community rights if they do not contradict national interests and legislative regulations and their existence is confirmed by local regulations. 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.

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. Anglophone (except Nigeria) and Francophone African countries with a water law, and seven Asian countries 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 period (1–2 years) or recording the right and issuing a permit with conditions and (ii) allowing continued use by regarding the existing use or right as issued under the new Act. 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. 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, the existing water rights, use, works or authorizations have to be brought into conformity with the law within 1–2 years. In four countries, existing water uses are regarded as a right issued under the new law and users have to declare this to the authority. Other countries 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. 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. Two States require a permit application, 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

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68. The Water Resources Act 2013 (n 42) art 41(1)(i); Water Resources Management Act 2013 (Namibia) art 45(2)(i).
71. South Sudan (n 45) 10.
75. The Water Regulation of Bhutan 2014 art 40.
77. Bangladesh Water Act 2013 (n 55) art 3(1) and (4).
African countries\textsuperscript{108} domestic water use is exempted; the only exception is Lesotho.\textsuperscript{109} In 11 out of 19 Francophone Africa countries,\textsuperscript{110} domestic use is generally, if not explicitly, exempted from permits.\textsuperscript{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.\textsuperscript{112} Four countries recognize that individuals may use water for basic needs.\textsuperscript{113} Fourteen out of 16 Asian countries with a water law in place exempt domestic water use from permit requirements.\textsuperscript{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;\textsuperscript{115} and in Sierra Leone.\textsuperscript{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.\textsuperscript{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 declaration\textsuperscript{118} and/or permit.\textsuperscript{119} A declaration requires individuals to inform the competent administration of the water works the person plans an authorization and declaration depends on the nature, location, importance or seriousness of the effects of these 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 system\textsuperscript{120} except Bangladesh (which allocates water based on rules),\textsuperscript{121} Lao (which has approvals, not permits)\textsuperscript{122} and Azerbaijan (which uses contracts).\textsuperscript{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.\textsuperscript{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.\textsuperscript{125} These include Uganda\textsuperscript{126} and Kenya.\textsuperscript{127} All Francophone countries (except Morocco and Gabon) may award contracts, lease and/or concession agreements regarding public service provision.\textsuperscript{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 countries\textsuperscript{129} 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.\textsuperscript{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.\textsuperscript{131}

\textsuperscript{108}Gambia, Liberia and South Sudan do not have a water law in place. Sudan’s water law is written in Arabic.

\textsuperscript{109}The Water Act 2008 (Lesotho) art 20(1).

\textsuperscript{110}Gabon does not have a water law in place. Equatorial Guinea’s water law is written in Spanish.

\textsuperscript{111}Burundi, Cameroon, Congo, Djibouti, DRC, Guinea, Mali, Mauritania, Niger, Senegal, Togo.

\textsuperscript{112}CAR, Côte d’Ivoire, Rwanda.

\textsuperscript{113}Algeria, Benin, Burkina Faso, Morocco.

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


\textsuperscript{118}Benin, Burkina Faso, CAR, Chad, Congo, Côte d’Ivoire, Djibouti, DRC, Mauritania, Niger, Senegal, Togo.

\textsuperscript{119}Francophone countries use the word ‘authorization’.


\textsuperscript{120}Azerbaijan, Bhutan, Cambodia, Georgia, Indonesia, Kyrgyzstan, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Tajikistan, Vietnam.


\textsuperscript{122}Law on Water and Water Resource 1996 (n 56) art 18.

\textsuperscript{123}Water Code of the Azerbaijan Republic 1997 (n 54) art 30.


\textsuperscript{125}Ghana, Kenya, Namibia, Nigeria, Uganda.

\textsuperscript{126}Water Act 1995 (n 117) art 89.

\textsuperscript{127}Water Act 2016 (Kenya) art 93(1).

\textsuperscript{128}Algeria, Benin, Burkina Faso, Burundi, Cameroon, CAR, Chad, Congo, Côte d’Ivoire, Djibouti, DRC, Guinea, Mali, Mauritania, Niger, Senegal, Togo.

\textsuperscript{129}Armenia, Bangladesh, Bhutan, Cambodia, Nepal, Philippines, Tajikistan.


\textsuperscript{131}Water Act 2016 (Kenya) art 93(1).
3.5.2 | Water use

Five Francophone African countries and four Asian countries\textsuperscript{132} 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 intermediate 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\textsuperscript{133} to 75\textsuperscript{139} years. In five countries, permit holders can use water for an unspecified period: an indefinite period\textsuperscript{140} permanently,\textsuperscript{141} in perpetuity,\textsuperscript{142} as long as water is beneficially used\textsuperscript{143} and sometimes no term is specified as in the case of a farm use permit.\textsuperscript{144} Some water laws have no maximum limit, stating that the permit will specify the licence period\textsuperscript{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 application\textsuperscript{146} subject to certain conditions. Some laws state that a renewal shall not be declined without a good reason.\textsuperscript{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.\textsuperscript{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.\textsuperscript{149} In a few countries, any permit condition can be amended.\textsuperscript{150} In other countries, the law specifies the conditions that cannot be amended\textsuperscript{151} or states that only the water volume can be modified.\textsuperscript{152} Such amendments follow a request or reaplication to the responsible authority to amend the permit.\textsuperscript{153} In most countries, the amendment applies permanently, in others the permit conditions

\begin{itemize}
\item \textsuperscript{132}Azerbaijan, DRC, Guinea, Kyrgyzstan, Lao, Mali, Mauritania, Mongolia, Morocco.
\item \textsuperscript{133}Cameroon, Eswatini, Lesotho, Namibia.
\item \textsuperscript{134}Eritrea, Mongolia, Morocco.
\item \textsuperscript{135}Kyrgyzstan, 50 years for an irrigation system.
\item \textsuperscript{136}Georgia, Vietnam.
\item \textsuperscript{137}Zambia, Zimbabwe.
\item \textsuperscript{138}Armenia, South Africa.
\item \textsuperscript{139}Cambodia, Djibouti.
\item \textsuperscript{140}Botswana.
\item \textsuperscript{141}Tajikistan allows for both permanent and temporary use (from 3 up to 25 years).
\item \textsuperscript{142}Bhutan.
\item \textsuperscript{143}Philippines.
\item \textsuperscript{144}Georgia.
\item \textsuperscript{145}Benin, Burundi, CAR, Chad, Côte d’Ivoire, Ethiopia, Kenya, Malawi, Malaysia, Mali, Nepal, Niger, Senegal, Sierra Leone, Tanzania, Togo, Uganda.
\item \textsuperscript{146}Cameroon, Chad, Djibouti, Eswatini, Georgia, Guinea, Malawi, Namibia, Zambia.
\item \textsuperscript{147}Eswatini, Namibia.
\item \textsuperscript{148}Armenia, Ethiopia, Zambia.
\item \textsuperscript{149}Armenia, Botswana, Chad, Côte d’Ivoire, Eritrea, Eswatini, Ethiopia, Georgia, Guinea, Kenya, Kyrgyzstan, Malawi, Philippines, Senegal, South Africa, Uganda, Vietnam, Zambia, Zimbabwe.
\item \textsuperscript{150}Botswana, Malawi, Kenya, Uganda, Zambia.
\item \textsuperscript{151}That is, increase in the volume of water; Philippines.
\item \textsuperscript{152}Ethiopia.
\item \textsuperscript{153}Armenia.
\end{itemize}
TABLE 1 Allocation of property-like rights through permits

<table>
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<th>Change conditions</th>
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are changed for a certain period of time. Amendments are subject to criteria, including that the modification of the permit does not impair the public interest, the rights of others including other permittees or impacts public health. Some States require a valid reason (e.g., changing conditions, greater water efficiency).

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. 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. 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 is a real right which remains attached to this exception and the suspension or cancelling of a licence. Some countries allow a holder to trade a water permit subject to approval or sell the water permit. 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’. Four countries forbid permit transfers.

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. 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. Some countries allow any aggrieved person to appeal against this decision.

154Kyrgyzstan.
155E.g. Kenya, Zambia.
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).
162Chad, Djibouti, Eswatini, Niger, Senegal.
163Uganda.
164Tajikistan.
165Djibouti, Niger and Senegal.
166Azerbaijan, Burundi, Kenya, Kyrkyystan, Namibia, Malawi, Zambia.
169Water Resources Act 2013 (n 42) art 55; Water Code of the Philippines, Implementing Rules and Regulations 1979 art 5C.
170Tanzania.
171Armenia, Nepal.
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 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 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 ‘the 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 applicant;191 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.
182E.g. Indonesia.
183E.g. Philippines.
184CAR, Côte d’Ivoire and Togo.
186Law No. 17/2012/QH13 on Water Resources 2012 (Vietnam) art 43.
188Armenia, Côte d’ivoire, Kyrgyzstan, Malawi, Namibia, Sierra Leone, South Africa, Uganda, Zambia, Armenia.
189Cameroon, CAR, Djibouti.
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.

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