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Article

Water Rights on Community Lands: LandMark's Findings from 100 Countries

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Abstract: This paper analyzes whether national laws acknowledge indigenous peoples and other rural communities in 100 countries as owners of waters that arise within their lands. Results derive from information collected by LandMark to score the legal status of community land tenure. Findings are positive; half of all countries recognize communities as lawful possessors of water on their lands. Three quarters permit communities to manage the distribution and use of water on their lands. While 71 percent of countries declare water to be a public resource, this belies the substantial existence of privately owned water. In 29 percent of countries, private water is an identified legal category, and in many other countries obtainable rights to water are sufficiently substantial to imply lawful possession. Communities are beneficiaries mainly where customary rights are accorded status as property rights, or where ownership of public lands and water are devolved to rural collectives. However, opposite trends of nationalization and regulation of water suggest that while legal recognition of community land ownership may rise in the future, this will not necessarily include waters on the land. Irrespective of tenure, rural communities in 72 of 77 countries (93.5 percent) are legally assured access to water for domestic purposes. This is consistent with the rising definition of safe drinking water as a human right, although access does not necessarily come free of cost.

Keywords: inland water; community water rights; community lands; public property; private property

1. Introduction

Do communities own waters within their traditional lands? This is one of 10 questions asked by LandMark to assess the legal status of community property in the present day. LandMark is an interactive platform collecting and displaying maps and other information on the whereabouts, attributes, and legal status of community lands [1–3]. These are rural domains mainly subject to customary law, or to other forms of community-based regulation, such as through elected bodies at the community level. The most pronounced example of the latter is the 1 million rural collectives recorded as owning 46 percent of land in China in 1996 [4]. Community lands vary widely in their composition but quite typically include village settlements and family farms alongside forests, rangelands or other resources that communities maintain as collective assets [5].

Globally, at least 2.5 billion rural dwellers hold lands through community-based systems [6]. Some 400 million of these people define themselves as indigenous peoples (IPs). Their lands, along with the lands of other rural communities who do not define themselves as IPs, comprise an estimated 6 billion hectares [6]. However, recognition of customary or other forms of ownership by rural communities is still quite limited, although increasing every year [5–7]. Uncertain traditional rights to land and resources increase the vulnerability of communities to involuntary losses. This study focuses only on

the level of national law recognition of communities as owners or lawful possessors of water on their lands. It does not examine what happens in practice.

Findings are positive; only 12 of 100 countries in the sample fail to recognize any rights of rural communities to water, although the situation in these 12 states may well be better in practice. Increasing legal support for water access as a life necessity supports trends toward acknowledging local possession, but as discussed below, is as easily counteracted by as visible trend towards nationalization of water.

2. Materials and Methods

By mid-2016, LandMark had assessed the tenure security of community land in 116 countries. LandMark has since begun to analyze findings for all 10 indicators, to fill gaps where legal evidence is found to be insufficient and to ensure that scoring of each indicator is consistently applied across countries. As a mobile resource existing in diverse conditions, yet essential to life, rights to water are difficult aspects of community tenure to assess. This led the Food and Agriculture Organization of the United Nations (FAO), for example, to exclude water from the Voluntary Guidelines of the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security [8]. Even ancient Roman law contained more than 1000 tested provisions on the nuances of its ownership, access, use, and governance of water. “They had worked out every problem, and we may safely say that they understood the subject as well as we do today . . . ” wrote Ware after translating water law from the *Corpus Juris Civilis* (547–560 AD) and ordering this into 57 subjects for fresh water alone [9]. Complexities continue to characterize modern water law. If anything, these complexities are revitalized in the present day, as received laws erratically absorb customary law [7,10,11], while increasing state regulation over water use [12].

2.1. Critique of Process

Shortfalls in original data collection by LandMark included uneven depth and quality in assessments, partly because of many different assessors being involved. Instructions to assessors to focus only on national or federal law limited results where legal authority over water is devolved to sub-national entities. Some assessors ignored the water question once they had determined that no legal provision recognized communities as landowners, a mistake where substantial rights to water may exist independently of land rights, examples of which are provided in this paper. Inconsistencies in scoring across regions and countries was evident, a problem that other interstate indexes also confront [13–16]. A structural problem also arose in that definition of ‘Other Communities’ as compared to IP erratically covered all communities including IP, or not. All these issues have been remedied for the water findings through detailed critique of findings, ascertaining new information to fill gaps, and altering scores where necessary. Reference to ‘Other Communities’ in this analysis includes cases where all communities including IP have been considered accordingly noted as ‘All Communities’. Modified guidance to assessors should lessen shortfalls in future assessments [17].

2.2. The Sample

The 100 cases reviewed here cover all regions of the world (Figure 1). At 83 percent of the sample, the African, Asian, and American continents are overrepresented, as globally these contribute only 63 percent of countries. Together the three continents host 3.1 billion of 3.4 billion rural people, or 92 percent of all rural dwellers. However, the bias toward these continents is more proportionate to their share of rural population and regions where community landholding is most vibrant. Note, for example, that 63 percent of countries covered are African and Asian states, and which contain 76 percent of all rural dwellers [18].

Developing rather than advanced economies dominate the sample (87 percent and 13 percent respectively). This roughly coincides with categorization of countries as either emerging-market and developing economies (80 percent), or advanced economies (20 percent) as defined by the IMF

(2016). Distinction of communities as Indigenous Peoples (IPs) or all communities including IPs is also slightly skewed, the former providing 19 percent of country cases, while present estimates place IPs as constituting 16 percent of rural dwellers holding lands on the basis of customary or other community-based regimes [6].

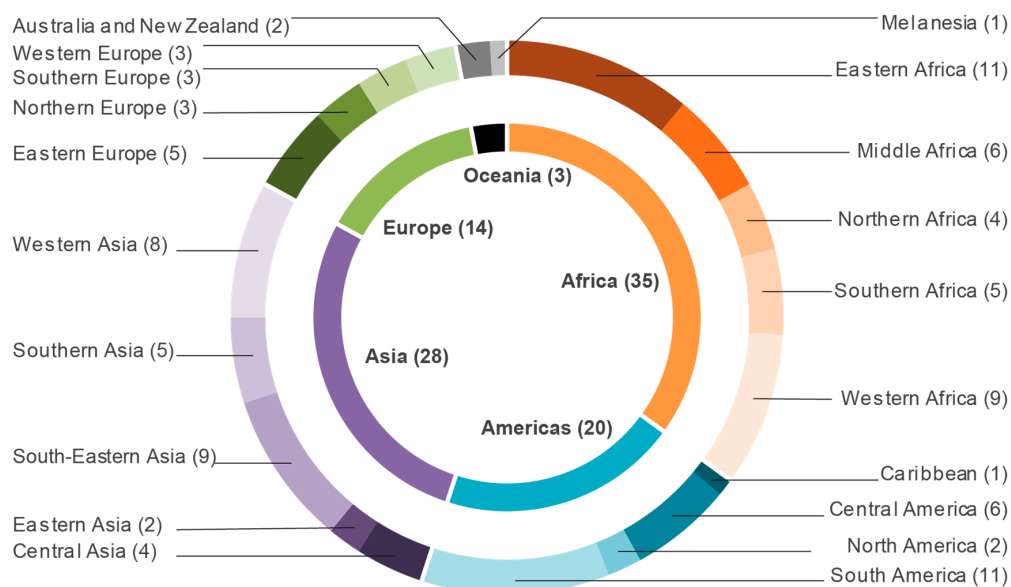


Figure 1. The sample by continents and regions.

2.3. Inland or Freshwater

While most inland water is freshwater, the two cannot be perfectly equated. As illustrated in the findings, some countries include salty estuaries, creeks, and mangroves in their definition of land that may be owned. There are also indigenous communities in the sample whose territories include such waters and which the law does not exclude in recognizing their territories as community property.

2.4. The Target Indicator

The indicator that forms the basis of this review asks: “Does the national law recognize that the land of indigenous people and communities includes rights to water sources on that land?” Best (legal) practice is defined as follows:

where the law explicitly recognizes communities and indigenous peoples as the owners of local waters where this has been traditional, such as affecting ponds, lakes and streams, and hand-dug wells within their territory. In this event, scoring the case as 1 should be considered [3].

Guidelines advise assessors to award a score of 1 for best practice (strong legal recognition), and a score of 2 where the law is positive but less so (legal recognition), or where the law grants communities unfettered and cost-free access to use waters on their lands, suggesting lawful possession and thus de facto ownership. A score of 3 is awarded where community rights to water exist but in lesser or ambivalent ways (mixed legal recognition). A score of 4 is given where community rights are constrained or absent (weak legal recognition).

The legal situation is not always clear-cut. In some countries water may be privately owned. In others, not. This does not necessarily mean that people may not secure strong rights to water in lands acknowledged as lawfully in their possession, if not in absolute ownership. Recognition of such rights occurs through issue of entitlements, through legal statements on the status of customary land rights in laws, or in provisions made specifically for communities defining themselves as IP. Rights to water may be included or not included in such land entitlements. In other cases, the key factor

taken into account in assessing the strength of legal recognition of water ownership by communities is determination of how far this equals or falls short of rights that individuals or corporate entities may, in comparison, obtain over water on their lands.

3. Findings

3.1. Legal Recognition of Community Water Rights Is Broadly Positive

Only 15 countries out of 100 are scored as strongly recognizing community possession of water amounting to the absolute ownership (15 percent); and 12 countries (12 percent) are scored as offering weak to no legal recognition of water as an asset which communities may lawfully own (Table 1). Seventy-three percent of cases have mixed results (evenly divided between scores of 2 and 3). Another way to look at these findings is that 51 percent of countries score largely positively (scores 1 and 2) while 49 percent score largely negatively (scores 3 and 4) on the matter of community water tenure. However, most countries that scored 3 nevertheless assure communities access to water for domestic purposes and also rights to manage distribution of local waters. These conditions must be assumed to positively influence community jurisdiction over local waters, even where the community's traditional possession of waters is not protected in a meaningful legal manner.

Table 1. Legal recognition of community water rights among the sample.

Score 1	Score 2	Score 3	Score 4
Strong Recognition	Legal Recognition	Mixed Legal Recognition	Weak Legal Recognition
Australia	Afghanistan	Algeria	Georgia
Austria	Armenia	Angola	Israel
Bolivia	Benin	Argentina	Jordan
Brazil	Burkina Faso	Belize	Kazakhstan
Costa Rica	Cambodia	Botswana	Libya
Gambia	Chile	Bulgaria	Macedonia
Germany	China	Cameroon	Oman
Guyana	Colombia	Canada	Singapore
New Zealand	Cuba	Chad	Sri Lanka
Nicaragua	Ethiopia	Côte d'Ivoire	Turkmenistan
Portugal	Finland	DRC	Uruguay
Romania	Ghana	East Timor	Yemen
South Sudan	Honduras	Ecuador	
Switzerland	Indonesia	Egypt	
Ukraine	Kenya	Eritrea	
	Kyrgyzstan	Gabon	
	Laos	India	
	Lesotho	Iraq	
	Liberia	Italy	
	Mauritania	Malawi	
	Mexico	Malaysia	
	Mongolia	Namibia	
	Mozambique	Nepal	
	Norway	Nigeria	
	Panama	Pakistan	
	Papua New Guinea	Poland	
	Paraguay	Russia	
	Peru	Rwanda	
	Philippines	Sierra Leone	
	Republic of Congo	South Africa	
	Swaziland	Sudan	
	Tajikistan	Sweden	
	Tanzania	Thailand	
	Uganda	Turkey	
	Vietnam	United States	
	Zambia	Venezuela	
		Zimbabwe	

3.1.1. Score 1: Strong Legal Recognition

The most positive provision for community water rights derives from cases where the law permits private landholders to own water on their properties, in conjunction with legal acknowledgment of communities as private owners. This is the case in Germany, Austria, Switzerland, Romania, Portugal, Ukraine, South Sudan and the Gambia. Given distinctive rules according to the source of water in most laws, a score of 1 is given even where recognition of ownership refers only to non-flowing waters on both private and community land. In Germany, for example, only springs and groundwater belong to landowners, including the right to freely dispose of these waters for non-commercial purposes. In the Gambia, all water is attached to the landholder, whomever that may be (including the state), in conditions where customary land tenure is a lawful form of property even without issue of formal entitlements to specific communities or families.

IPs feature prominently in this score set through legal provisions addressing their rights, as is the case in Bolivia, Costa Rica, Nicaragua, Guyana, Brazil, Australia and New Zealand. To illustrate, Nicaragua's law for Indigenous Peoples and Indigenous Communities of the Autonomous Regions defines their property as "constituted by the lands, waters, forests and other natural resources contained therein which have traditionally belonged to the community" (Article 2 of Law 455).

3.1.2. Score 2: Legal Recognition

Many of the 36 countries accorded this score are countries where the law declares water to be national or government property but where communities are legally acknowledged as lawful owners of rights to the land and waters within them, such as Armenia in the Caucasus, Vietnam and Laos in East Asia, Papua New Guinea in Oceania, Mexico and Peru in Latin America, and Tanzania and Mozambique in Africa. The status of customary tenure may be the key indicator; thus, in Colombia, judicial rulings have found that property rights recognized as belonging to communities include the right to water on their lands (Constitutional Court, Case T-380 of 1993, Case T-955 of 2003). Tanzania's Water Resources Management Act 2009 stipulates that, as customary land rights have the force of law in communities, a customary water right is equivalent to a statutorily issued water right. Nevertheless, the ultimate owner of water is the nation, so property constitutes recognition of rights *to* that resource, not ownership of the resource itself. This is similarly the case for land, with radical title owned by the President in trust for the national community, property defined as rights to that national property. Such conditions descend from common law, and remain quite prevalent in common law jurisdictions. The Queen of England, for example, owns the radical or root title to all land in England, freehold entitlements representing unfettered rights to her land and in perpetuity. To this extent, the ownership of land by the state, the nation in common, or a head of state can be symbolic only.

A similar effect is achieved through devolving authority over water to community-level entities, such as to collectives in China, to farming cooperatives in Cuba, and to self-governing community-level bodies in Kyrgyzstan, Mongolia, Mauritania, and Ethiopia. These are countries where customary tenure is either weakly acknowledged or formally abolished but where the devolutionary property regime affords rights to local communities.

IPs also fare well as securing legal recognition of their water rights in the laws of Cambodia, Paraguay, Honduras, the Philippines, Finland and Norway, although each of them faces constraints peculiar to the laws of those countries. For example, while Norway's national constitution pledges to create conditions to enable the Sami to preserve and develop their way of life, and ILO 169 has been ratified in their regard, their rights are limited to usufructs; this is less satisfactory than for rural Norwegians, who collectively own specific commons, including water, as attached to their farm holdings. IPs in the Philippines benefit from the Indigenous Peoples Rights Act 1997, which describes ancestral lands as including inland and coastal waters, but scored 2, rather than 1, given a failure to amend the Water Code after 20 years to give effect to this. A different shortfall afflicts Indonesia; while its 2004 Water Law recognizes traditional water rights, these must first be proved to exist and entered

into regional regulations, a legal procedural hurdle for communities. Nevertheless, this hurdle is adjudged in this study as less severe than impediments in countries listed below as awarded scores of 3.

3.1.3. Score 3: Mixed Legal Recognition

Thirty-seven countries scored 3 in respect of legal provision for community water rights. Constraints derive primarily from weak to poor legal treatment of customary tenure, especially where privately registered landowners, in contrast, enjoy rights to water on their lands. Sometimes the legal opportunity for registration of collective property from which water rights would descend exists in national law, but it is through procedures that are ambivalent (e.g., East Timor, Sierra Leone), limited in the lands such laws affect (e.g., Algeria, Egypt) and/or too onerous for communities to utilize (e.g., Iraq, Ivory Coast, Democratic Republic of Congo, South Africa). IPs in Belize and Argentina are disadvantaged by opaque court decisions, which is also the case in the United States, where federal and some state laws technically remain at odds in respect to water rights on Indian lands [19].

Botswana makes water appurtenant to property rights and acknowledges customary ownership—but only for house and farm plots. The law compounds this disadvantage by offering traditional communal grazing lands for commercial lease for private water and ranching developments, curtailing the rights of most communities.

Finally, a number of countries enter this score set of mixed support for community water rights, not on the basis of tenure, but where there is legal guarantee of water access for domestic and subsistence use to all citizens. This is the case in Bulgaria, Nepal, Cameroon, Chad, Gabon, Nigeria, Rwanda, Thailand, Turkey, India, Zimbabwe and Namibia. It is through this condition that communities directly and lawfully use water, whether their land rights are legally acknowledged as property rights or not.

3.1.4. Score 4: Weak Legal Recognition

Twelve countries fall in this category. A first factor is absent legal provision for communities to own, regulate, manage or use community lands or waters on those lands, despite evidence that customarily formed communities vibrantly exist in these states: Israel, Kazakhstan, Libya, Oman, Yemen, Jordan, Turkmenistan, Macedonia, Uruguay and Sri Lanka. Second, one or two laws deprive communities of rights they have traditionally enjoyed. This is so in modern Georgia as a result of re-centralization away from well-rooted community-based governance in the pre-Soviet and Soviet eras. Less surprising, all water access in highly urbanized Singapore is subject to fee-paying licenses, and with no exceptions made for the indigenous Orang Asli, a tiny population of 1300 people living in northern Singapore.

3.2. *Community Water Rights Are Stronger in Sub-Saharan Africa than Elsewhere*

The different sizes of the samples by region make it difficult to demonstrate statistically that communities do better in one region than in another. To illustrate, Oceania ranks highly, but with only three states sampled: Australia, New Zealand and Papua New Guinea. Results are more comparable between Asia (28 states) and sub-Saharan Africa (32 states); fewer than 40 percent of countries in Asia score positively (scores 1 and 2) compared to 50 percent in sub-Saharan Africa. Overall, sub-Saharan Africa does well on most counts, such as in strong provision for free access to water for domestic purposes and in permitting customary regulation of local waters, even where community ownership is not legally assured.

The least satisfactory results by region are in the Middle East and North Africa; all nine states rank poorly (scores 3 and 4). For example, Israel's Water Law, 1959, is emphatic that no private or communal ownership of water is permitted, including in Palestinian territory, while the water laws of Libya (1982), Oman (1988) and Jordan (1998) nationalized traditional tribal ownership of oases and wells without nationalizing water on the registered property of individuals, resulting in an uneven playing field. Nationalization of water throughout the county, irrespective of land rights is noticeable in newer water laws in sub-Saharan Africa (e.g., Zimbabwe, Malawi, Kenya). However this is counteracted in

those cases by legal support for customary tenure, especially in Kenya, including community-based jurisdiction of all resources within their domains.

Two-thirds of the 14 European states in the sample do well (scores 1 and 2). For example, communities who own group-inherited forests and pastures in Switzerland also own groundwater in these lands in accordance with the ancient civil code.

3.3. National Economic Status Is Not a Major Determinant of Community Water Rights Status

It may be assumed that the higher the dependence of the population upon land-based occupations (farming, including livestock-keeping, fishing, and forestry), the more likely it will be that national laws assure communities ownership of waters on their lands (score 1) or at least guarantee maximum use rights to these assets (score 2). While international agencies do not use a single measure to distinguish between agrarian economies and industrial or post-industrial economies, five indicative measures statistically tested this hypothesis.

The first measured country water scores against IMF definitions of countries as either advanced or emerging market and developing economies [20]. The second measured country water scores against the income group into which countries fall, as defined by the World Bank [21]. The third measured country water scores against the percentage of GDP that derives from agriculture, as either above or below 10 percent, using World Bank Development Indicators [22]. The fourth measured country water scores against the percentage of the population in agricultural occupations, using national statistics for 2014 from the CIA Factbook [23]. The fifth looked for a correlation between the score for recognition of community rights and the percentage of the country that is irrigated land [24–26].

However, no statistical influence on water scores was found for any of the above. Nor, it may be added, was correlation found between cost-free water access for domestic purposes and any of the aforementioned national economic factors.

Reasons for this lack of correlation may be methodological, with too few scores in some categories to compute. However, a lack of correlation may also be explained by the fact that some of the strongest legal support for communities is in advanced economies (e.g., Switzerland, Germany, Austria, Romania), and in advanced economies that specifically protect the water interests of IPs (e.g., Australia, New Zealand, Brazil). Conditions for community water rights are also positive in those agrarian economies where tenure reforms have improved the status of customary tenure, which is the case in some poor sub-Saharan Africa states (e.g., Tanzania, South Sudan, Uganda, Burkina Faso).

3.4. The Complexities of Water Both Open and Close Rights for Communities

Inland water exists today as a variously private, state, or ‘unownable’ resource that cannot be owned (at times even by the state), overlaid by contextual distinctions such as if the water is flowing or non-flowing, stored or not stored, piped or not piped, surface or underground, salty or fresh, overlaid again by changing rights depending upon its use. These produce different levels of recognized possession.

Modern paradigms add complexity. One promotes access to water as a human right, amending legal terms toward compulsory popular access if not possession or absolute ownership, including where water has been privatized. For example, the law reminds landowners in Germany that they may have “to tolerate the use of the water body by third parties” (Water Resources Act 2009). Another paradigm, embedded in many water laws from the 1990s promotes devolved management of water, including to community levels, heightening collective authority and de facto possession, if not formal ownership. In the meantime, rising legal recognition of customary tenure may also contradict legal proclamations that water cannot be owned, as do cases where laws exceptionally acknowledge that IPs own not only their lands but also waters within those lands. Contrarily, nationalization of water and the increased incorporation of water within state regulation also characterizes many water laws, limiting the evolution of community water as a subset of private water. These contradictory trends are reflected in the lack of statistical influence of the age of the water law reviewed over the score awarded

as to community water-rights security (water laws in force in this sample were evenly divided between enactment prior to and after 2000, 13 of which have been enacted since 2010).

To add to possible confusion, as touched upon earlier, the meaning of ownership is complex. Even where water is deemed unownable, rights to the resource may be sufficiently substantial to blur the distinction between owning water and owning rights *to* the water. In short, it may be concluded, that as in ancient Roman law, while water is predominantly a public resource, significant private property rights *to* water may be created in respect of certain categories of water, certain purposes, or for certain categories of persons. An innovative solution to contested state–community water rights is outlined below.

A category of tenure that is neither public nor private.

New Zealand’s national water law (1991) presumes water to be unownable but provides for private rights to water on registered properties, attached to the land, and transferred along with the land at sale, although subject to an immense array of legal regulation as to use. In 2017, the New Zealand Parliament endowed the Whanganui River with personality as a living thing. The river may now act as a person, represented by local and state actors appointed by the law. This means that if the river is abused or harmed, such as by pollution or undue takings for commercial enterprise, the abuser may face charges. It is even conceivable, writes the environmental theorist, Mihnea Tanasescu, “that the river might one day argue for its course to be changed as necessary for its survival (say, as an adaption to climate change)” [27]. This furthers “the right of nature” as established in Bolivia’s Constitution in 2008, and in Ecuadorian law, successfully tested in the courts in 2011 [28].

This strategy of taking water beyond a private or public commodity was arrived at after a long-running debate between the indigenous Maori population and the New Zealand Government as to the former’s ancestral rights and the latter’s insistence that water cannot be absolutely owned [29]. In the Maori worldview, people are integral to the mountains, rivers and seas. Although marine waters are not covered by this study, it is notable that protected customary marine titles may also be issued to Maori communities through entering into an agreement with the Crown as to the foreshore and seabed, as provided by the Marine and Coastal Area (Takutai Moana) Act 2011.

The ruling in 2017 set a precedent already being duplicated for other rivers within and beyond New Zealand; within a month of the ruling, a state court in India ruled that the Ganges and Yamuna Rivers have the same legal rights as human beings [30].

3.5. Most Water Is Public Property But Privately Owned Water Exists

The laws of 71 countries (71 percent) in our sample declare water to be either something that cannot be owned or national property (Figure 2). The latter is variously vested in the national community (e.g., Cote d’Ivoire, Egypt), the president as trustee for the nation (e.g., Tanzania, Ghana); in the state, constitutionally described as the populace together with government (e.g., Armenia, China); or most narrowly in government as the executive (e.g., Belize, Uganda). The founding principle is, therefore, that no legal person or community may own water in these states.

This is not so in 29 countries (29 percent) where a legal distinction between public and private water is explicitly drawn. Most cases are in Europe and Latin America. Only one-third are in advanced economies, suggesting this is not entirely a product of industrialized economies but also a product of legal tradition, in this case from Spanish civil law. The most straightforward condition allowing for private ownership of water is where this is attached to land, thus lawfully belonging to whoever owns the land. Owners may include the state itself, private landholders, and communities or collective entities where their rights are acknowledged as property interests. In theory, should the entire country’s area be privatized, all inland water is thereby privatized. This is nowhere the case. Most laws identify categories of water that must remain public property.

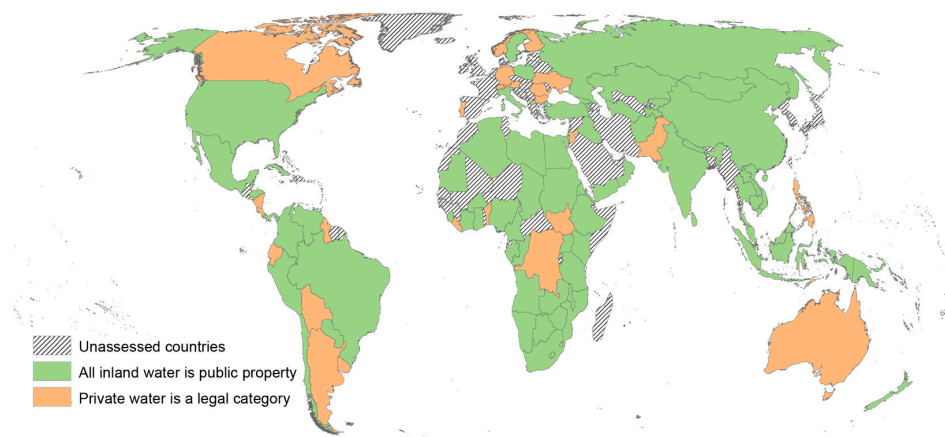


Figure 2. Legal provision for water as public property and private property.

3.6. Not All Water on Private Properties Is the Owner's Property

In some cases where community land ownership is provided for, this excludes water on the land (e.g., the case in Kenya and Ghana as compared to Tanzania and South Sudan). Sometimes community water ownership is limited to certain landscapes, such as to forests in Poland or to collectively titled wastelands (*baldios*) in Portugal, reflecting the fact that collective rural land ownership is also limited to these areas.

3.6.1. Flowing and Non-Flowing Water

The most common distinction across regions is between flowing and non-flowing water, only the latter belonging to the landowner. Thailand's Civil and Commercial Code stipulates that the owner of a piece of land is "... bound to take the water that flows on to it from higher land and may only retain water to such extent as is indispensable to his land." This is similarly stated in Switzerland's much older Civil Code. The newer Cambodian water law (2007) directs that no landholder shall "... hinder the natural flow of the water by constructing roads, large or small dykes, or other structures storing water, unless there is appropriation authorization." In Finland, the law specifies that landowners may arrange to share equally the water of a river passing through their properties, also implying that this water cannot be owned, although landowners do own waters originating on their properties (Water Act 2011). Argentina's Civil Code states: "Streams that are born and die within a particular property belong to the owner;" and "surface and groundwater not located on private property is under public ownership," and "the use and enjoyment of lakes that are not navigable belongs to the riparian owners" (Articles 2340, 2349 and 2350, respectively). These terms are seen in Bolivia and some other Latin American states with a similar Hispanic heritage; the Spanish *Partidas*, compiled in 1256 largely from the Roman Pandects, was applied in Mexico in 1505, spreading into other colonized territories [9].

3.6.2. Large and Small Waters

An alternate distinction drawn in laws as to water ownership is between small and large water bodies. In Romania, landowners may own minor rivers; this enables communities registered as owners to formally own lakes and rivers on their lands that are less than 5 km long, and with a hydrological basin of less than 10 sq km (Water Law 1996). In Jordan, public water refers to all water found in uncultivated lands and lands receiving less than 200 mm of rain, unless they are privately owned, a privilege not accorded to pastoral communities whose occupancy is only formally recognized in settled areas.

The distinction between public and private water is most precise in advanced economies where private property is pervasive and the details tested and refined over centuries (e.g., Bulgaria, Switzerland, Germany, Norway, Finland).

However, as recorded earlier, private water also appears in agrarian economies, if least often in sub-Saharan Africa and Asia. In Africa, only 5 of 35 countries formally distinguish between public and private water (Liberia, Botswana, Gambia, Benin, South Sudan). Benin's law is most restrictive, limiting this to privately created sources for domestic use (Water Law 2010). In contrast, the State Land Act 1957 in The Gambia expansively defines ownable land as including lagoons, creeks, rivers, and estuaries. By also recognizing customary rights as lawful property interests, communities are often owners of these water resources. South Sudan's Land Act 2009 stipulates that rivers, lakes, canals, *haffirs*, and wetlands are public property owned collectively by the nation but that pools, streams, swamps, and secondary rivers belong to communities on the basis of traditional ownership. Where customary tenure is conflicted in national laws (e.g., Democratic Republic of Congo, Sierra Leone, Liberia) the extent to which communities may own waters on their lands is similarly conflicted.

3.6.3. Non-Flowing Waters May Sometimes be Sold

LandMark's assessments do not specifically investigate whether private water may be sold, and this is not always indicated in national laws. Where encountered, this included cases where water may only be sold for domestic uses (e.g., as in Austria's Federal Water Act 1959). Another instance is where commercial use is permitted, including by acknowledged collective owners, but subject to license (e.g., Peru, Armenia, Cuba, Ethiopia). In the Philippines " . . . any person 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 same" (Water Code 1976).

3.7. Allocation of Water Rights Tantamount to Ownership Widely Exists

As this paper is concerned with water tenure, it is useful to reflect again on the meaning of ownership in its regard. The distinction between ultimate ownership of a natural resource and/or rights to use the resource is highly pertinent to water, as the relationship of land and water creates grey areas as to what constitutes ownership, even where water is defined as a public asset. This is more so than for subterranean minerals and hydrocarbons, the vast majority of which are also public or state property but where obtainable rights are much more precisely confined to acquiring ownership of the right to extract and dispose of extracted materials, as purchased under license and on payment of royalties to the state as the owner.

Nor does national or state ownership of water preclude the issue of substantial rights to the resource for subsistence, commercial or other purposes. On the contrary, the state (as variously described), with government always acting on its behalf, is invariably legally empowered to allocate rights to water. The form of allocation varies, from a general declaration that all citizens have rights to access and use water freely for domestic purposes, to a legal statement that all citizens and communities hold a lifetime usufruct to water (Eritrea), to more specific individual allocations of water rights that are granted or leased for varying terms (e.g., from 5 to 49 years in Kazakhstan).

There are also conditions where allocated rights, or rights recognized as existing, amount to de facto ownership, even where that law declares water to be an inalienable public resource. This is the case in 24 of the 71 countries (34 percent) in this sample where not solely water, but all land and natural resources cannot be owned. In the absence of any provision for land or water to be absolutely owned, private rights to these (public) assets take on strong attributes of possession legally defined and defended as property rights. Therefore, in cases where a private person, family, or community or body representing the community is granted a maximum right to land including water on the land, that entity may fairly be deemed to be the owner. Mexico is a good example. Its Constitution (updated in 2015) states that: " . . . land and water within the national territory is originally owned by the Nation, which has the right to transfer this ownership to particulars' (sic). Hence private property is a privilege created by the Nation" (Article 27).

This was also found to be the case for community-based collectives in China, Vietnam and Laos, countries where land and water (and forests) are owned by the people in common, but where certain

aggregates of the people—rural collectives—are vested with rights over land, water, and forests. The situation is similar in Armenia; water is state property, but all rights to water are distributed among the state and its agencies, private bodies and communities. Community lands cover one-third of the country’s area and are governed by elected community councils. No permit may be issued to use water of these lands without community council consent. Self-governing Pasture User Unions in Kyrgyzstan have (almost) comparable rights over water (Water Code 2005, Law on Pasture 2009).

3.8. The Status of Customary Land Tenure Is Key to Recognition of Water Rights

Another condition providing significant property rights over water is where customary rights are recognized as lawful property interests and where the customary law determining those rights treats water as well as land as resources able to be owned. Tanzania is again a good example. Its law does not permit any land or other natural resource to be absolutely alienated but, as its Water Resources Management Act 2009 observes: “Customary water rights held by any person, or community . . . shall be recognized and are in every respect of equal status and effect to a granted right . . . ” (s.52). Moreover, the law provides that water rights for domestic and subsistence purposes are attached to the land and that water is collectible, extractable, and usable by the landowner (s.11). The upshot is that the 25 million or so customary landowners who lawfully possess and govern community lands (about 13,000 villages) enjoy maximum property rights to water within their lands.

This is not the case in Papua New Guinea where customary tenure is similarly recognized, but where the Water Resources Act 1982 interprets customary rights to water as no more than a guaranteed use right. This is also the case in Kenya where community land ownership is amply provided for in new laws (2010, 2012, 2016) but to the exclusion of water, which remains a state asset, albeit one which communities, among others, may manage.

The importance of the legal status of customary tenure in shaping the legal rights of communities to water is the major determinant in 32 of the 51 countries (63 percent) ranked as scoring 1 and 2 for their handling of community water rights. This includes 10 country cases focusing only on IPs in those countries. The legal status of tenure is a strong contributing factor in another 11 countries earning these higher scores (21.5 percent). This is by virtue of expressed support in law for the traditions or customs of communities in matters of land and water rights, despite profound changes in political systems (e.g., Vietnam, Laos, Mauritania, Mongolia, Mexico), through historical continuity (e.g., Germany, Switzerland, Finland), or revival of customary norms (e.g., Portugal, Romania). Figure 3 shows the 43 cases where customary tenure has been most influential on positive water security of communities in these countries.

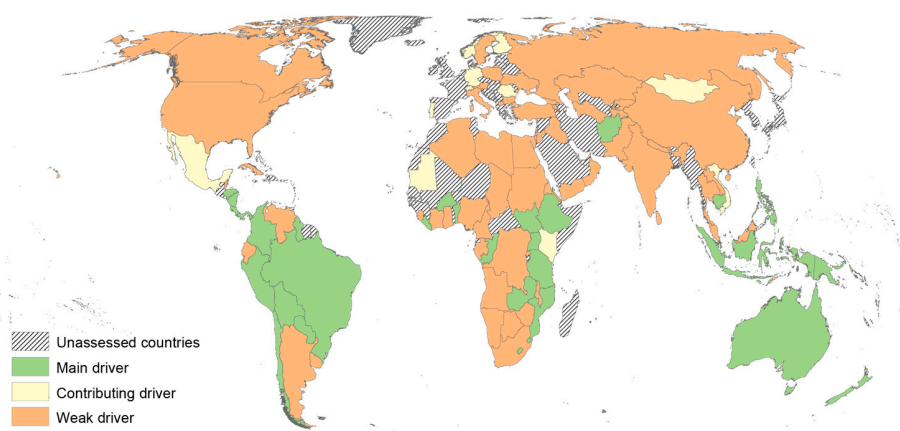


Figure 3. Legal recognition of customary tenure as a driver of recognition of community water rights.

3.9. IPs Are Attaining Significant Recognition of Traditional Water Rights

A further condition arises where the state declares water to be a public resource but makes exceptions for IPs, where their territorial rights are recognized, including water and other resources within these lands. Therefore, while the state owns water in Guyana, the State Land Act 1997 provides that this shall not “prejudice, alter, or affect any right or privilege legally possessed, exercised or enjoyed by any Amerindian in Guyana.” While root title to indigenous territories remains with the federal government in Brazil, IPs enjoy “permanent possession and exclusive rights to the natural resources of the soil, rivers and lakes” (Indian Statute 1973).

Possibly due to differences in sample scores, no statistical correlation could be found regarding the communal water security of IPs versus that of all rural communities in a country. While 53 percent of IP cases attain scores of 1 and 2 (strong legal recognition and legal recognition, respectively), 51 percent of cases examining scores for all communities are also scored 1 and 2 (Figure 4). This is not surprising given that, whether as an IP community or a non-IP community, the core factor in water recognition for all communities is legal treatment of customary rights, and which in many cases affect them equally.

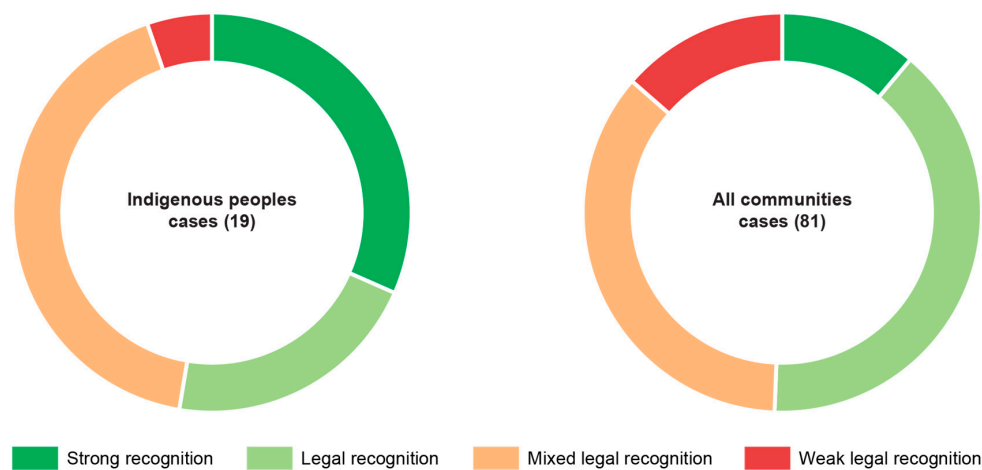


Figure 4. Recognition of indigenous peoples' water rights versus all communities.

Nevertheless, it may be argued that IPs, as historically discriminated against, start from a lower base than other communities, and their success in this sample as water owners accordingly deserves note. After all, acknowledgment of such discrimination has been the driver of international law on their behalf. ILO 169 (Indigenous and Tribal Peoples Convention, 1989) is a convention or treaty that only becomes binding when a country formally ratifies the treaty. As a declaration, UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples, 2007) has no legally binding status but should be taken into account by UN member states. Regional judicial rulings have also played their role, especially from the Inter-American Court of Human Rights, such as in Suriname (for both IP and other rural communities). The Caribbean Court of Justice has also been effective, such as coercing recognition of IP rights in Belize. Articles 13–15 of ILO 169 and Articles 25–28 of UNDRIP include waters and coastal seas as traditionally owned resources over which IP rights must be protected. Positive support for IP land and water rights has entered domestic law as the result of ratification of ILO 169 in many of the IP cases in this sample, most particularly in Argentina, Belize and Costa Rica. IPs in the Philippines also enjoy specific rights to hold lands and water collectively, not equally enjoyed by other rural communities.

3.10. Water As a Necessity for Life Positively Influences Community Rights

There are other routes through which communities attain, at least, use rights over waters on their lands. The right to water is widely entrenched in national constitutions and water laws. “All persons

have the right to water according to his needs for sustaining life and dignity” (Benin’s water law, 2010). “Domestic use of water is guaranteed” (Burkina Faso’s water code, 2001). “Water is shared by all people” (Libya’s water law, 1982). “Every citizen shall have the right of access to clean drinking water and sanitation” (Nepal’s water law, 1992). Angola’s water law (2002) binds the state to “ensure access and use to citizens and legal entities for rational needs and uses.” “All citizens are guaranteed sufficient waters to live and to enjoy the River Nile”, states Egypt’s constitution (2014). India’s law takes the right to water a step further; its Supreme Court ruled in 2002 that the right to life includes “the right to safe and sufficient water” [31].

The nature of water as a life necessity, as most clearly stipulated by the UN Committee on Economic, Social and Cultural Rights in 2002 and dramatically elaborated by the Human Rights Council in 2010 as a human right, assures communities of rights they may otherwise not attain [32]. They certainly attain this less often in the land sector, where constitutions and land laws routinely pledge the citizen the right to access land, while not necessarily achieving this end [33]. We conclude that the assurance of domestic water probably inhibits dispossession tendencies.

3.11. Most Laws Guarantee Free Domestic Water Use, Benefiting Communities

Most water laws distinguish between domestic and commercial use of water or, with similar effect, list uses that do and do not require permits. Laws are not always clear as to what is meant by ‘free’. This could mean that water is to be freely obtainable or that no permits and fees are required. Nonetheless, the statement or implication that access to domestic water is cost-free is implied in 72 of 77 (93.5 percent) laws reviewed on this aspect, and most firmly so in 50 cases (Figure 5).

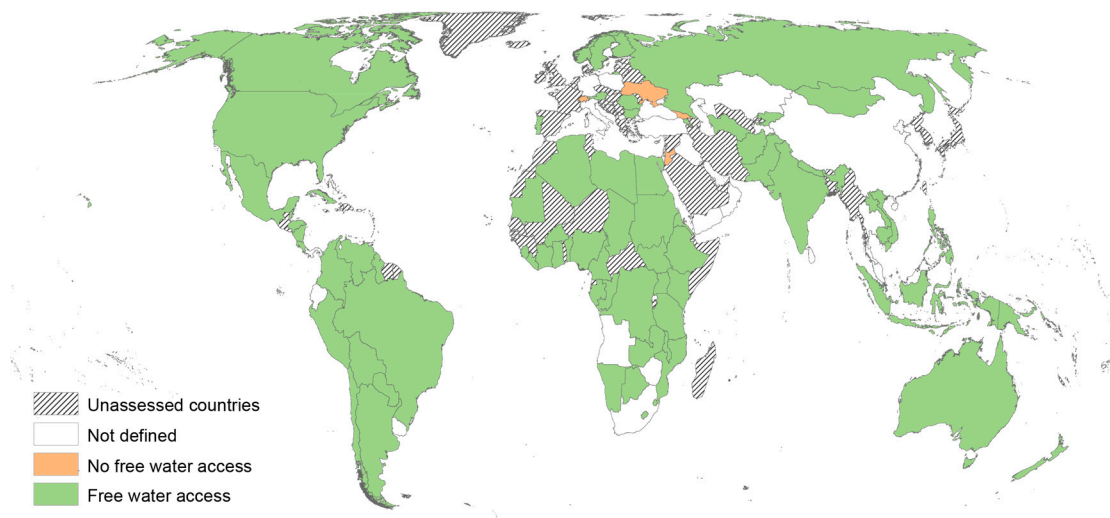


Figure 5. States whose laws guarantee free water for domestic purposes.

To illustrate, while foreigners and legal entities must pay for water in Mongolia, water used by individuals and communities for household needs, livestock, family gardens and extinguishing fires is exempt from fees (Water Law 1995). In Namibia, “an owner or occupier on communal land has the right to collect rainwater and free domestic uses include for drinking, cooking, washing, gardens, watering animals for reasonable own use and is free” (Water Resources Management Act 2013).

Still, it may be assumed that where domestic water is provided, through pipes or otherwise, rather than collected by citizens themselves, costs of distribution may be incurred. Afghanistan’s water law is one of few laws directly stating this: “Water use is free although service providers may charge fees” (Water of Law of Afghanistan 2009). Some other laws imply this by distinguishing between rainwater and other water, such as in Chad’s Water Code 1999, which stipulates that “collection and use of rainwater on property is free. Water from canals, wells, boreholes is subject to regulation.”

Many newer water laws since the 1990s provide for local water-user associations. These associations may or may not charge fees and do not necessarily include all needy members in a community [34]. The subject of paying for domestic water can be contentious, especially in poor agrarian economies, as illustrated in South Africa where the matter has recently reached the courts [35].

Regional differences emerge in legal provision for free access for domestic uses; this is highest in Africa (86 percent) and falls to 50 percent in Asia, and 57 percent in Europe. A cost-free right to community land waters is stated or implied in 16 laws focusing on IP rights in 19 countries (84 percent) and is also reflected in Latin America (83 percent) where most regional cases concern IPs. This reinforces the link between the status of customary land tenure and assurance of free water use for domestic purposes. However, as one reviewer of this paper reminded the authors, it should not be assumed that free water means equitable access; where water is in scarce supply, wealthier members of the community or outsiders with access may co-opt undue shares of the water, leaving poorer families with insufficient water.

As implied in examples above, the legal reach of domestic water use also varies. Domestic water always includes drinking water, regularly covers other household needs and, in agrarian economies, often covers water required to sustain subsistence cultivation and livestock-keeping. “Every person has the right of access to public water bodies and can use them free of charge for personal and domestic needs” (Russia’s Water Code 2008). Citizens are guaranteed water for “domestic uses, fire-fighting and garden irrigation” (Uganda Water Resources Act 1995). No permit is required for “domestic requirements, sanitation, watering of up to 30 head of cattle, or irrigation up to one quarter of a hectare” (Swaziland Water Act 2003). “Domestic use takes priority. Livestock watering is a second priority” (Rwanda Environmental Management Act 2005). Water used for artisanal mining is included among freely permitted uses in Ethiopia’s water law of 2000.

3.12. Community-Based Water Governance Is Widely Supported in Laws

Some form of community-based water management is lawful in 73 percent of this sample. This may be through provision for non-customary mechanisms, such as in Laos, where its Land Law 2003 grants village authorities rights to regulate and manage waters in their land areas. Rural cooperatives, as variously instituted in Cuba, Algeria, and Egypt, manage water for purposes of developing farms and for which lawful possession may also be obtained. In Algeria, this is through the issue of certificates of possession, convertible to ownership (Tenure Law 1990, Water Law 2005). Cuba’s Law on Ownership, No. 125, makes state-owned land interchangeable with farming cooperatives. In Egypt, each of 7000 farming cooperatives (with 5 million members) is the lawful holder and manager of concerned lands, including waters within or fed to them (Article 37, Water Law 1984). Pasture unions in Kyrgyzstan, Tajikistan, and Mongolia lawfully regulate water access on pastures allocated to them.

Permission to apply customary water-management norms is widespread. Altogether, 73 national laws (73 percent of this sample) permit communities to apply traditional or otherwise community-based management practices over water on their lands (Figure 6). This does not always mean the community is acknowledged as the owner or possessor of the water. For example, Afghanistan’s water law of 2009, which makes water an unownable resource, nevertheless provides that “Water resources may be used according to the provisions of this law with due consideration for the praiseworthy customs and traditions of the people.” In Cameroon, where customary tenure remains permissive occupancy on state property, water disputes may be resolved through customary means (Water Law 1998). Communities may also freely access and use water in accordance with customary norms in Gabon, despite the absence of provision for customary ownership (Law on State Property 1963). Communities in Cote d’Ivoire may “manage and use sacred waters in the interest of cohesion of the social group” (Water Code 1998) but where the land law of the same year weakly provides for collective tenure, and pledges to extinguish customary rights in the near future.

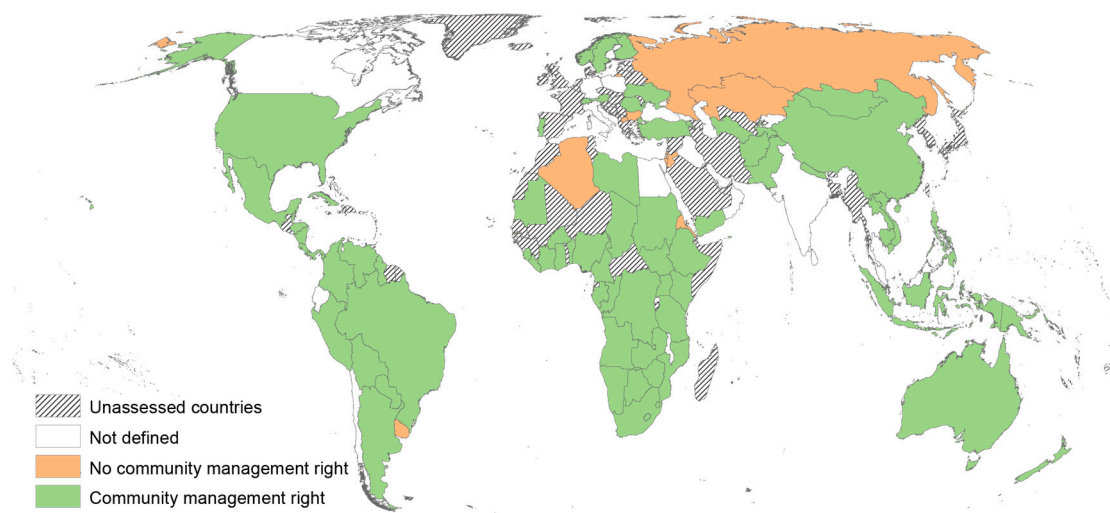


Figure 6. Legal recognition of community water management.

In contrast, village communities may use customary rules to regulate water use on lands acknowledged as customarily owned in Burkina Faso (Water Law 2001) and in Benin (Water Law 2010). Chiefs in Sierra Leone and Ghana may similarly regulate water access on customary property (Constitution of Ghana, 1993; Sierra Leone State Land Act 1960). In the 19 countries where the focus is on IPs, customary law is accepted as a basis upon which water within territories may be defined and governed. Therefore, water laws permit customary water rules to be applied.

Regional differences are noticeable. Twenty-eight of 31 sub-Saharan water laws allow for customary water management (90 percent), none of which refer only to IPs. Sixteen of 20 national laws reviewed in the Americas also allow customary water regulation, the sample mainly comprising IPs (14 cases).

The distinction between customary and community-based regulation of water within community lands may be blurred. This is clearest where elected community governments are empowered to manage water, such as in Vietnam and Laos, but by taking local traditions into account. Lesotho is another example where elected community councils may apply customary law (Laws of Lerotholi 1903) in distributing and managing local water (Water Resources Act 2008). This is also the case in Mexico, where both *ejidos* and *comunidades* may regulate water on their respective community lands. In Bolivia, IPs, intercultural communities of origin and peasant communities are equally empowered to govern water in accordance with traditional practices. Even where customary law has been formally abolished, the law states that the traditional practices of pastoral groups are to be taken into account, this being the case in Mauritania and Ethiopia.

4. Conclusions

Community water rights emerge as generally positive in this study. Communities in half the countries have legal support for ownership or possession of water on their lands (51 percent of countries). In some cases, this is in legal contexts where water cannot be owned but rights *to* water may be community-owned. Communities in even more countries are legally permitted to regulate domestic water distribution and use (73 percent), predominantly on the basis of traditional practices.

These rights are partly premised on guaranteed access for domestic purposes for all citizens, with a bias toward this being cost-free in regions where customary tenure is prominent. This biases positive findings to regions where customary tenure is widely practised, such as in Africa. The legal treatment of customary tenure also positively predisposes findings to Latin America, where many countries have adopted laws endorsing the proprietary rights of IPs. This is similarly the case in Oceania (Australia, New Zealand). At least 5 of the 14 European cases also suggest that it is the persistence of centuries-old

norms around collective landholding that legally enables communities to hold (or retrieve) certain lands in common and to enjoy the same rights afforded to private owners to waters within those lands.

In sum, it would be a mistake to declare community-based water rights in 2017 legally absent or weak based on the evidence from this sample. Indeed, the case may be made that national laws more strongly assure communities rights to water on their land than ownership of the land itself. Yet logic also suggests that citizen water rights will be most firmly entrenched where land rights are secured. The linkage is suggested in the significant positive correlation between LandMark's scores for its first indicator and this indicator specifically examining community-land water security (Spearman test $R = 0.6$, p -value = 0). The first indicator scores how far a country's land laws recognize the rights of communities to their lands as constituting a form of private property.

At the same time, the unique nature of water shows signs of pulling ownership governance in nationalizing directions while the management of water only is devolved to local levels. It is not inconceivable that, while legal recognition of community land ownership will continue to slowly rise with land law reforms, the exclusion of water on these community lands will also increase. It will be interesting to see where the balance has settled a decade hence. Will clear distinction between public and private water, as so strikingly present in Europe's water laws, become familiar elsewhere? How far will communal land and water rights be nested as a category of private water? Contrarily, will trends towards nationalization of water consolidate citizen and community rights as no more than usufructs when it comes to water, and even reverse their lawful possession where customary land and resource ownership has been acknowledged? For LandMark, an initiative designed to keep track of and make publicly available changes in community land security in all its parts, the need to maintain periodic analysis of the water tenure rights of communities is clear.

Additionally, methodological questions remain as to how to make scoring of country performance more consistent across assessors and regions. While there is no doubt about the utility of scoring as a means of grading country performance, this remains a work in progress. An early change now made by LandMark is to scrutinize scoring across regions immediately after these are submitted, and prior to posting on its site. Guidelines for assessors are also under review, and this should assist in more evenly provided information by assessors.

Supplementary Materials: The following are available online at www.mdpi.com/2073-445X/6/4/77/S1, A table providing country data is attached: L. Alden Wily & F. Dubertret, 2017, LandMark and Supplementary Information on Community Water Tenure and other Rights.

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