



UvA-DARE (Digital Academic Repository)

Evolving property rights in water and their impact on water allocation and reallocation

Bosch, H.J.

Publication date
2023

[Link to publication](#)

Citation for published version (APA):

Bosch, H. J. (2023). *Evolving property rights in water and their impact on water allocation and reallocation*. [Thesis, externally prepared, Universiteit van Amsterdam].

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Chapter 3

State-of-the Art: The changing nature of property rights in water

Sections 3.2 and 3.3 of this chapter are identical to the text in Bosch, H.J., & Gupta, J. (2022). The tension between state ownership and private quasi-property rights in water. *WIREs Water*, e1621. doi: <https://doi.org/10.1002/wat2.1621>, except that I exclude references to my own papers as ironically the follow-up papers were published before the literature review. Some of the arguments in this chapter have been published in: Gupta, J & Bosch, H.J. (2021). Changing 'ownership' in water law: Comparative experiences in the developing world. In J. Dellapenna & J. Gupta (Eds.), *Elgar Encyclopedia of Environmental Law: Water Law*, Cheltenham: Edward Elgar Publishing.

3.1 Introduction

The development of water law reflects the struggle to control water (Gupta & Dellapenna, 2009: 408), and especially to own water and to hold property rights in water, through which instruments and for how long (Dellapenna & Gupta, 2021). As water demand increases (UN-Water, 2021), and availability decreases (Boretti & Rosa, 2019) or varies with climate change (IPCC, 2022), the struggle to control water continues and intensifies requiring flexibility in the allocation and reallocation of water (Cosens & Gunderson, 2018). A key confusion that emerges is who owns water and who holds property rights in water. Against this background, this Chapter asks: How has the state of legal knowledge on private property rights in water evolved worldwide and how are these rights embedded in the existing legal constructions?

This chapter reviews the legal literature to: (i) understand the state of water ownership and property rights in water in the different legal regimes, (ii) capture how legal private (quasi-)property rights are embedded in the existing legal constructs (e.g. water use permits, tradable water permits, contracts, concessions), and (iii) identify the gaps in knowledge (see 1.3). In most countries legislation and case law determine whether a water right is defined as a property right (Saxer, 2010). I do not engage in this discussion, but instead explore the literature to assess what past and present ‘property’ rights systems imply for state ‘ownership’ and hence the ability of states to reallocate water.

I first discuss the current state of water ownership and water property rights in the major legal systems: the law of Indigenous peoples and customary law at national level (see 3.2.1), followed by how customary law is institutionalised in common law (see 3.2.2), civil law (see 3.2.3), and Islamic law (see 3.2.4). Subsequently, I elaborate on how the distribution of water through policy instruments (e.g. permits) and contracts create private (quasi-)property rights in water (see 3.3), before drawing conclusions (see 3.4). In combining knowledge of the past systems of water property rights in different systems of law, with the growing use of statutory water use entitlements, I show how the allocation of quasi-property rights in water are increasingly encroaching on state water ownership.

3.2 Water property rights in different systems of law

This section analyses the literature on the main legal systems – covering customary, Indigenous, common, civil, and Islamic law – to understand the current state of water ownership, and water ‘property’ rights that arise from historic water allocations and systems.

3.2.1 Customary Law, and the law of Indigenous peoples and local communities

Property rights to water can be traced back to ancient systems of customary law, some of which survive even today in modified form.²⁰ In many western countries these customary systems were slowly institutionalized and codified over time into civil and common law systems (see 3.2.2 and 3.2.3). Some customary systems influenced or were influenced by the rise of religions, this is discussed further in section 3.2.4.

Customary systems still exist today. Many Indigenous peoples and local communities have their own (legal) regimes and systems towards land and natural resources including water, which may or may not be recognized by the settler colonial governments²¹ or (postcolonial) nation-states.²² Customs differ: customary water law of Indigenous communities today often differs from the way in which customary law got slowly institutionalized in western systems of water ‘rights’, ‘property’, and ‘ownership’; such formal systems is at odds with the beliefs, relationships, and connections many communities and Indigenous peoples had and have with nature, land, and water (Curran, 2019; Johnston, 2018). In fact, many statutory water laws, property rights, and quasi-property rights were designed as colonial instruments to dispossess the ‘rights’ of Indigenous peoples and local communities, and continue to do so today (Banner, 2005; Berry & Jackson, 2018; Curley, 2019; Curran, 2019; Daigle, 2018; Olagunju et al., 2019; Phare, 2009; Taylor et al., 2019; van Koppen et al., 2014).

The laws of Indigenous peoples and local communities often do not recognize private water ownership, such as in most Sub-Saharan African (Ogendi & Ong’oa, 2009), Latin America (Del Popolo & Reboiras, 2014; Ramazzotti, 2008) and Asian communities (Kho & Agsaoay-Saño, 2006; Misiedjan & Gupta, 2014), but recognize communal or collective ‘ownership’. For example, in Ghana, water (including the seas) is regarded as

²⁰ Customary law is a ‘blanket description’ to denote different and multiple legal systems worldwide (Ndulo, 2011: 88) which evolved from the regularized practices and behaviour of people. In some areas, customary law got codified and/or institutionalized, for example, in the: Code of Hammurabi in the Babylonian empire; Manusmriti, Vedas and Arthashastra in India; Law of The Twelve Tables in ancient Rome; common law in England; civil law in continental Europe; Islam (Koran, Ottoman Majalla), Judaism (Torah), indigenous law, and more recently in international law (Thirlway, 2019). In other areas, customary law is not ‘formalised’, existing in parallel to national legislation and/or religious laws (also referred to as legal pluralism) (Tamanaha, 2018). Such plural legal systems can be found in Africa (Akuffo, 2009; Bentsi-Enchill, 1964; van Koppen et al., 2021), Asia and Latin America (Anaya & Williams, 2001; Aponte Miranda, 2008; Ortega, 2004), but also in Australia, Canada, the United States, and New Zealand (Brandes & Curran, 2017; Collins & Esterling, 2019; Nikolakis, 2011), where state law diverges from the law of the local people.

²¹ For example: the Laws of the Aboriginal in Australia; First Nations, Métis and Inuit in Canada; Maori in New Zealand; and Native Americans in the US (Hodgson, 2009).

²² The United Nations estimates that there are 476 million Indigenous peoples that live across 90 countries (Dhir et al., 2019). In many nation-states, sovereign statehood nor the right of self-determination is recognized (Cook & Sarkin, 2009; Engle, 2011; Hodgson, 2009; Johnson, 2020).

public property vested in stools,²³ communities and families, not subject to individual appropriation (Sarpong, n.d.). In Tanzania and Nigeria, all water is ‘owned’ by all members of a community/tribe (Ajai, 2012; Nkonya, 2006), and in Papua New Guinea, “customary water rights are possessed by a clan ... and [i]ndividual members of the clan ... merely exercise those rights from the clan” (Kalinoe, 1998: 41). In South Pacific Island countries, ‘property rights’ over rivers, lakes, and streams are claimed by the Indigenous peoples which arises from the relationship, tradition and customary practices regarding the resource (Kalinoe, 1998: 2).

Some Indigenous communities, for example, the Aboriginal and Torres Strait Islander people (Australia), American Indians and Alaska Natives (USA), Māori (New Zealand), and First Nations, Inuit and Métis (Canada), do not use the concept of ‘ownership’ in governing water. There is thus tension between these communities that claim the right to self-determination (Cosens, 2021), and the nations where they are located that have claimed state water ownership. Recent court cases have recognized Indigenous rights: for example: in 2017, the Maori ancestral Whanganui River was granted legal personality, including “the rights, duties, powers and liabilities of an entity with legal standing including the ability to sue those who harm it” (Collins & Esterling, 2019: 197), with the Maori as guardians (Cosens, 2021: 414); and in the US, a Court has recognized that the Cahuilla Indians’ use of groundwater “takes precedence over the state’s water allocation regime” (Lankford, 2018: 10).²⁴ The literature shows that there is a discrepancy between a nation-state’s statutory law on water, and the law of Indigenous peoples living on the land within those nation-states. However, in the past decades, Indigenous peoples are increasingly successful in demanding recognition of their water rights, forcing states to acknowledge their rights to water, affecting the institutionalized nation-state ownership claim of the water.

3.2.2 Common law

Customary law in England got institutionalised in common law,²⁵ and spread to its colonies. Traditional English common law did not allow for the ownership of, or right of

²³ Stools refer to an “immortal entity ... [representing] the spiritual and physical embodiment of the people” (Mahama & Baffour, 2009: 28).

²⁴ *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist.*, 849 F.3d 1262, 1268 (9th Cir. 2017)

²⁵ In common law, “any distribution of rights and privileges among persons with respect to things can be dignified with the ... label ‘property’” (Merrill & Smith, 2001: 357); ownership of a ‘thing’ (tangible or intangible) is seen as a bundle of legal rights held against others (Chang & Smith, 2012; Clarke & Kohler, 2005; Johnson, 2007; Penner, 1996; Zellmer & Harder, 2008). These rights (e.g. the right to own, possess, use, sell (Hohfeld, 1913; Honoré, 1961; Merrill, 1998; Penner, 1996)), are “distinct and separable” and can be clustered into smaller bundles (Waldron, 1985: 315) in different permutations (Akkermans, 2017). When all rights of a bundle are owned by a single actor, the actor has absolute ownership of the ‘thing’ (although in reality absolute ownership does not exist). Conversely, when one holds a subset of the rights, the ownership is not absolute. Whether something is considered property depends on national law and court rulings.

property in running water of natural flowing water channels (Caponera, 2007) – water was seen as a “fugitive resource: incapable of ownership until it is captured” (Johnston, 2018: 40). The waters were considered common to those who had a right of access to these waters; only riparian landowners were able to withdraw water. The ownership of land included the right to use water from adjacent water bodies (e.g. rivers or streams), which was considered an integral right to the land (Matthews Glenn, 2011; Odgers & Odgers, 1920; Puthucherril, 2009; Radosevich, 1976). This right existed by virtue of law (Barton, 2010; Saxer, 2010), and did not depend upon a specific act of the state, such as the grant of a water use entitlement (Puthucherril, 2009). This did not give ownership/property rights in the water (Caponera, 2007; Kwasniak, 2012; Odgers & Odgers, 1920), it did allow riparian landowners to use surface water as long as the water use was reasonable and it did not harm other riparian uses (Caponera, 2007; Odgers & Odgers, 1920). However, landowners were allowed to abstract groundwater under their land without regard to others, implying ‘property’ rights to the groundwater (Getzler, 2004). Such rights existed except when the groundwater flowed in a defined and known channel, where the groundwater related rights were considered the same as riparian rights to surface water (Caponera, 2007). Although many religions and Indigenous systems see water in a more holistic light (Poelina et al., 2019), historically, in western systems due to the lack of scientific understanding of the interconnectedness between surface and groundwater, both were governed separately in common and civil law countries (Winter et al., 1998).

While many countries have ‘unbundled’ land ownership from the right to access water, land ownership still gives holders access to water in many countries. For example, in India, landowners still hold property in groundwater (Aguilar, 2011; Koonan, 2010), where “percolating groundwater is considered part of the soil and belongs to the owner of the land” (Richardson, 2017: 63). This system has been in place since the 19th century, and is incorporated into Indian law through the Indian Easement Act (1892) (Aguilar, 2011; Cullet et al., 2017); granting owners an unrestricted right to extract water below the land, without regulatory oversight (Aguilar, 2011; Cullet et al., 2017). According to Cullet (2014: 56): “groundwater law [has] a strong property focus” which gives landowners an “overwhelming control over groundwater”. Furthermore, in Canada,²⁶ while groundwater use was historically governed under the common law ‘rule of capture’, today, water is

Thus, property is fluid and over time new property rights have evolved, for example intellectual property (Australian Law Reform Commission, 2015; Granstrand, 2009).

²⁶ The Canadian legal system is based on both common law and civil law; Quebec is based on the civil code while the other states use common law (Department of Justice (Canada), 2015: 4). Quebec, however, recognises both surface- and groundwater as *res communes* (common things), as formulated in Roman law. Therefore, water cannot be property (Cumyn, 2010). The ‘*res communes*’ approach to water is affirmed in Quebec’s 2009 Water Act.

owned by the Crown and groundwater rights are water use entitlements, not property rights. However, (Brandes & Curran, 2017: 51) argue that in practice common law groundwater rights “exhibit many of the characteristics of a property rights regime”, and that the public and politics treat these groundwater rights *de facto* as property rights. As such, this limits the ability of governments to govern groundwater use. For example, the government of British Columbia, which only recently started a general permit system for groundwater, is reluctant to limit the ‘quasi-property’ rights in water fearing compensation claims (Brandes & Curran, 2017: 51). In both countries, ‘water’ remains a provincial matter: in India, water legislation is developed and enacted by the individual States, with the Union Government having an advisory role and is not directly involved (Gupta, 2004). In Canada, as a decentralized federation, the “constitutional authority for water resources belongs primarily to the ten provinces” (Bradford et al., 2017: 272). Also in Australia, Brazil, and the United States, jurisdiction over water resources falls under the mandate of sub-national entities (Benjamin et al., 2005; McKay, 2005; Trelease, 1961). In South Africa,²⁷ although the 1998 National Water Act (NWA) abolished the riparian right system that was in place under the 1956 Water Act, in practice this water use is continued under the Existing Lawful Use (ELU) provision of the NWA, 1998 (Kidd, 2009, 2016). To date, the South African government struggles to get this water back (Kidd, 2016).

In several States of the United States, groundwater is seen as property (Dellapenna, 2012). For example, in Indiana, Maine, and Texas, groundwater is governed by the ‘absolute dominion’ rule in which landowners hold property rights to the groundwater below their land (Dellapenna, 2012; Kaiser, 1996; King et al., 2010; Owen, 2013; Schaffer, 2010). Regarding surface water, the riparian rights system persisted in several eastern States (Dellapenna, 1990) and were seen as property rights (Dellapenna, 1990). However, with water getting scarcer in these States, States moved away from traditional riparian rights towards ‘regulated riparianism’: a regulatory “permit system that is based on riparian, rather than appropriative principles”, (Dellapenna, 2011: 85). According to Dellapenna (2010: 25): “[a]ll who own land contiguous to a surface water body are co-owners of the right to use the water”.

In the more arid western States of the United States, the prior appropriation system was developed as a basis for obtaining water rights, as the riparian right system did not allow non landowners to access water (Dellapenna, 2004, 2011). This system unbundled land from water, and gave an actor a right to divert and beneficially use water (Saxer, 2010). The prior appropriation system specifies the location, period, volume, and priority of the water use right (Dellapenna, 2011), and is also referred to as ‘first in time,

²⁷ South Africa has a hybrid legal system, with elements of both common and civil law (Frolova et al., 2017).

first in right' (Tarlock, 2000: 885). This means that when a stream flow is low, a senior appropriator is allowed to divert its full volume of water until the stream is depleted, at the cost of the more junior appropriators. Although the system was initially designed explicitly not to function as property rights to prevent speculation, it still promoted new settlements in the American west (Schorr, 2005). Today, the rights in the in the western states are treated as "a species of private property under the law of appropriative rights" (Dellapenna, 2004: 552). According to Johnson (2007: 217), "Western water rights are assumed to be a complete commodification and privatization of water ... [and] appropriative rights are somewhat more akin to real property than are riparian rights". In nine States (i.e. California, Kansas, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Texas and Washington) a hybrid system exists (i.e. the 'California Doctrine') that combines elements from both the riparian and prior appropriation system (Kanazawa, 1998). Surface and groundwater were governed separately in the past, in many States this bifurcated system still exists today, in which groundwater and surface water are governed by a different set of legal rules (Larson, 2017; Sax, 2003; Thorson et al., 2005). For example, in Arizona the prior appropriation system governs surface water, while groundwater is governed by a "separate and equally complex set of rules and legal doctrines" (Larson, 2018: 201). Also in India surface- and groundwater are largely governed separately, in different laws (Cullet, 2014). This results in several problems; it is difficult, if at all possible, to draw a clear hydrological line between both, which in turn determines what rules apply to the water rights (Larson, 2017), complicating water governance.

3.2.3 Civil law

Customary law in continental Europe, with roots in Roman law, got institutionalised in civil law.²⁸ Ancient Roman water law distinguished between public (water belonging to a public body), private (exclusive and unlimited water use), and common water ownership (waters not owned by anybody) (Caponera, 1992; Dellapenna & Gupta, 2008). A re-examination of Roman law shows that rights of ownership were separated into different bundle-of-rights, which differed between different water bodies and instruments (Bannon, 2017; Quintavalla, 2020). Traditional civil law classified water into private waters and public waters (Bannon, 2017; Quintavalla, 2020). Public waters were subject

²⁸ In civil law, property is generally not seen as a bundle-of-rights (di Robilant, 2013) but "as an absolute right in a thing" (Dusollier, 2020: 145), where there is only one right of ownership and it is not considered a "matter of degree" (Akkermans, 2014: 78). Property rights are a relationship between a person and a tangible or intangible thing (Akkermans, 2014; Chang & Smith, 2012) and is distinct from rights against other persons which are personal/relative rights. While in common law any right can be a property right, civil law countries apply the 'numerus clausus' doctrine (Van Erp, 2003) where, by statute, there are limited property rights to choose from. These rights have restricted content and rules dictate how property rights are created, transferred, and end (Akkermans, 2017; Van Erp, 2003). While there is a core of property rights that exist in most of the different legal systems in the Civil law countries (e.g. the property right of ownership), the available property rights to choose from may differ across countries (Akkermans, 2017).

to a government authorisation, concession, or permit, while private waters could be used freely, subject to statutory limitations (Caponera, 2007). The use of private surface- and groundwater derived from land ownership (Caponera, 2007). The French Civil Code (1804) saw groundwater as the property of the landowner above (Hodgson, 2006). Over time, private waters became increasingly subject to state control, and the distinction between public and private water ownership has become obsolete (Schorr, 2017), although some countries still struggle to make this distinction obsolete. For example, in Spain, while the 1879 Water Act gave landowners private water rights to groundwater, which were considered private property (Ariño Ortiz & Sastre Beceiro, 2009; Casado-Perez, 2015), in 1985 the new water law put all continental waters in the public domain and encouraged landowners to give up their private water rights, but many did not do so (Irujo, 2003).

3.2.4 Religious law

Historically, customary law was also institutionalised in religious law, for example, in Hindu (Dharmaśāstra), Jewish (Torah), Buddhist (Vinaya Piṭaka) (Schonthal, 2021), Indigenous Chinese traditions,²⁹ and Islamic (Sharia) law.³⁰ Most religions, if not all, discuss water. For example, Hindu law allows only usufructuary rights to water (Cullet & Gupta, 2009), and Judaism allows for private ownership of well water and for state/municipal ownership of water (Laster et al., 2009). In ancient China, the idea that the natural cosmic order and the human social order are closely related was reflected in the approach to water (Caponera, 2007: 18). Human behaviour in harmony and unity with water. Islamic law does not recognize water ownership unless it is taken in full possession, which derives from an input of labour, e.g. water in a private dug well (Naff, 2009). Furthermore, Islamic law recognises two water rights, the right of thirst; and the right of irrigation (Caponera, 2007) and hence, Muslims should not take water in excess

²⁹ Ching (1993: 2, 9) argues that although “China never produced a Western-type religion, one can find in the Chinese tradition what is functionally equivalent to religion or religions in the West”, she refers to this instead as “Indigenous Chinese traditions.”

³⁰ Some argue that Islamic law emerges from the Judeo-Christian and the Greco-Roman traditions (Habachy, 1962); others argue that this is based on “flimsy” evidence and “questionable” arguments (Badr, 1978: 192). In Islamic law, Allah is the ultimate owner of “all that is in the heavens and on the earth” (Mariam & Salasal, 1998: 285) and the rights people hold are sacred gifts from God and can be temporarily enjoyed by, and in trust for, men and women (Bhala, 2011; Habachy, 1962; Sait & Lim, 2006). Muslim property law allows for the divisibility and separability of private property rights (Jamar, 1992; Sait & Lim, 2006). Property rights are a relationship between a person and a thing. Muslim law differentiates between property rights with real property interest (e.g. land), personal interest (i.e. tangible and intangible property), and intellectual property (patent, trademark, or copyright) (Bhala, 2011; Sait & Lim, 2006). The basic right is the right of full ownership which can be transferred through sale or gift (Debs, 2010), but can also be used by another without transfer of complete ownership (e.g. through lease, pledge, or loan) (Debs, 2010; Jamar, 1992). These property rights can be held as distinct property rights by different actors, and are subject to succession (law of inheritance) and can be left to designated heirs by will (Debs, 2010).

to their needs, and they are obliged to allow free access to any amounts of water beyond these needs. It is prohibited to sell, lease, or rent water, nor may water be taxed (Naff, 2009). Nevertheless, Al-Awar et al., (2010: 34) states that “Islam supports privatization of water supply as long as it leads to a fair and free market”; here people pay for the supply service and not the water itself.³¹ Religious law has been modified over time and space and only exists today in pure form in specific areas.

3.2.5 Inferences

In assessing the current state of water ownership and water property rights in the main legal system, the literature shows that despite contextual differences worldwide, countries sought to gain and increase control over water by abolishing customary law systems and unbundling land ownership from water use rights. However, some states grapple with gaining control, (i) some states have not been able to limit or revoke historical water use rights which *de facto* and *jure* continue to exist, including the water use rights based on land ownership; which in some cases continue to be re-enforced (e.g. India, US), (ii) in some countries, jurisdiction over water is parsed out constitutionally and water remains a State subject in which the role of the national government’s mandate remains limited. This encroaches on institutionalised state ownership and may impair the role of the state in reallocating water. And (iii) while largely ignored, countries are under pressure to acknowledge Indigenous rights to water and their understanding and approach to water rights; in recent decades, Indigenous peoples and communities have been partly successful in claiming back their water rights.

3.3 Water ‘property’ rights in statutory instruments

In the different systems of law, water ownership and property rights developed differently. In addition, certain ideologies increasingly influenced the treatment of water – under Communism water was and is owned by the state (Kotov, 2009; Szelényi & Mihályi, 2019); while neo-liberal capitalism is increasingly calling for the commodification and privatization of water (Sarwat & Mahmud, 2017; Zhang, 2021).

In states where water is put in the public domain, the core of water law is the granting of rights to use water (Barton, 2010). States grant actors water use rights through different instruments (e.g. water use permits, tradable water permits, contracts, and concessions). This section examines how private water ‘property’ rights are embedded in these existing legal constructions, and how these rights translate into practice.

³¹ The exception is the Maliki school which allows individuals “firm rights of ownership and with them, the right to refuse the use of water” to others (Naff, 2009: 43); water can be sold, but has to be provided to avoid a person’s death.

3.3.1 Water property rights through water use permits

Globally, states are allocating water use rights through water use permits (and/or consents, licenses, rights, concessions, or authorizations) (Barton, 2010; Hodgson, 2016). Generally, a water use permit: (i) is based on a law, (ii) has clearly defined conditions, (iii) is subject to registration, monitoring, and enforcement, (iv) is legally backed by the state, (v) may be transferred, subject to State approval, and (vi) can be granted without the applicant owning land (Hodgson, 2006: 1-3; Schorr, 2011). This allows states to remain the legal owner of the water, and have the power to regulate and control the access and priority of water use, influencing a country's "economic productivity, social and cultural wellbeing, and ecosystem quality" (Brandes & Curran, 2017: 50; Schorr, 2011).

In states where water has been brought in the public domain, the rights that are allocated through the granting of permits are not considered property rights (unless defined so by legislation and case law) (Hardberger, 2013; Saxer, 2010; Schorr, 2011). However, some scholars argue that the rights that are allocated through water use permits, are in fact akin to quasi-property rights (Hodgson, 2006; McKenzie, 2009; Snyder & Utley, 2009; Soltau, 1999). As (Hodgson, 2006: 47) states: "[t]he fact that [water rights] gain their existence from an administrative or regulatory procedure does not by itself preclude them from being property rights." For example, while in South Africa a licence is seen as an entitlement to use water, Glazewski & Du Toit (2013: 16-29) "suggests that [licences] are possible 'new property' rights ... subject to the limits imposed by the nation of the public trusteeship and the requirement of beneficial use". The two main arguments to support this claim are that the NWA allows for compensation in the event of expropriation of the water right, and that the right may enjoy constitutional protection (Glazewski & Du Toit, 2013).

In Georgia, large water users need to obtain a permit to withdraw water (Snyder & Utley, 2009). The law makes a distinction between permits for farmers and other water users. A permit given to a farmer grants the holder an unlimited use of water, which is irrevocable, fully transferable, and granted in perpetuity. As Snyder & Utley (2009: 191) state: "[t]he rights given to farmers ... closely resemble the general characteristics and attributes associated with private property". Compared to the traditional characteristics of property, permit holders have a "property right for the use, transfer, and exclusion of the water on [their] property" (Snyder & Utley, 2009: 185). Similarly, the Israeli water law states that water is public property and water is allocated through granting permits. However, Schorr (2011: 52, 67) argues that: "[t]he public property established by the Water Law is being replaced, step by step, with a regime of private rights that can be classified as 'new property,' if not full-blown private property", and "practice in the water sector indicates a quasi-private-property view of water". This is because: (1) the High Court has ruled that a water allocation may create a "reliance interest worthy of recognition"

meaning that in case of damage the actor could possibly be compensated, (2) water allocations are in practice renewed automatically, (3) rights are based on priority in time (senior over junior water rights), (4) the water laws allow for free transfers of extraction permits, (5) instead of the Water Authority, the Agriculture Ministry (representing the farmers) is responsible for water allocations, and (6) “Farmers’ reliance on previous allowances receives constant encouragement by the practice of “compensating” them for “cuts” to their allowances from previous years” (Schorr, 2011: 66-67). Also in Canada, water rights are allocated through permits, which are subject to specified terms and conditions that can change. In Ontario and eastward provinces, the riparian right system continues to exist as a ‘regulated riparian model’ in which water users need a permit (Benidickson, 2018; Kwasniak, 2012; Mascher & Curran, 2017). In the western provinces, Alberta, British Columbia, Manitoba, and Saskatchewan the riparian right system has been replaced by a prior allocation system (Percy, 1988). This system is based on the government allocation of water licences coupled with priority, in which the “older licences take precedence over more junior” (Mascher & Curran, 2017: 207). These licences are not considered to be property rights, however, *de facto* the licences show characteristics of property rights (Brandes & Curran, 2017). Not only do many licences have no expiry date, amending these licences comes with the concern of compensation claims (Brandes & Curran, 2017).

The scholarship on New Zealand shows that it put water in the public trust and allocates water through granting so called ‘water consents’ (a water use entitlement similar to permits). The New Zealand Resource Management Act (RMA) 1991, section 122(1), reads: “[a] resource consent is neither real nor personal property.” Hence, water permits do not constitute a property right in water (Grinlinton, 2011; Memon & Skelton, 2007). Nevertheless, these water consents are in practice seen as a property right. *De facto*, “water permits are regarded as a property right within the farming community ... and within the real estate industry” (Memon & Skelton, 2007: 258). Discussion on reviewing permits may lead to the risk that the permit holder claims financial compensation (Memon & Skelton, 2007). Grinlinton (2011: 293) argues that the consent regime in fact creates certain rights that have the “characteristics of both real and personal property”. Consents are transferable, have an economic value, can be used as security, and in certain circumstances, may vest in personal representatives upon death (Grinlinton, 2011: 296). These characteristics are normally assigned to property rights as defined by the state, the consents are “arguably, new forms of quasi-property rights” (Grinlinton, 2011: 291).

I see that although states have put water in the public domain and govern their water resources through some sort of nationwide water use permit system, they allocate several rights that resemble some form of quasi-property – creating new challenges regarding water reallocation.

3.3.2 Water property rights through purchase in water markets

Economists generally see markets based on private property regimes as one of the most efficient ways to manage and allocate resources within an economy (Dellapenna & Gupta, 2021). In some countries, this paradigm has also been applied to water which has resulted in the development of tradable water permits (Gupta & Dellapenna, 2021). Water markets promote effective (optimal allocation) and efficient water management (reallocation of water to high-valued uses), and it is said that they do not function to their full potential without the legal recognition of clearly defined property rights (Zellmer & Harder, 2008). Water markets, whether functioning or not, are in place in Alberta (Canada) (Block & Forrest, 2005; Hurlbert, 2018; Hurlbert & Diaz, 2013; Percy, 1996, 2005), Australia (Bjornlund & McKay, 2002; Pilz, 2010), Chile (Vergara & Rivera, 2018) Mexico (Hernandez, 2003), Spain (Casado-Perez, 2015), South Africa (van Koppen et al., 2021), and China (de Bonviller et al., 2020; Easter & Huang, 2014; Schiller, 2009; Zhang, 2021).

Although the Chilean Constitution and its Water Code (1981) put water in the public domain by legally defining water as a ‘national good for public use’ (Vergara & Rivera, 2018), in 1981 Chile enabled a (fully functioning) system of private tradeable water rights based on the principle of private property, and decoupled water from land (McNallen, 2005). Water rights are measured in water volumes and are considered private property in which the state’s role in governing the water resource is curtailed to a bare minimum. The rights are granted as a ‘concession in perpetuity’, and are owned as any other good capable of private appropriation (Vergara & Rivera, 2018: 83). They are governed by civil (private) not administrative law, and are protected by the 1980 Constitution (Vergara & Rivera, 2018). Disputes are settled by the courts or private arbitrators (Rivera et al., 2016). The rights can be inherited, gifted, leased, sold, mortgaged and traded, and can only be expropriated by the state subject to market value compensation (McNallen, 2005). Similar to Chile, while water in Australia is considered state property, the country developed a market for trading water licences in the Murray Darling Basin (Mascher & Curran, 2017; Pilz, 2010); the rights that actors hold are not defined by statute as actual private property rights (Rochford, 2011). The water licences for a specific volume of water or a share of a consumptive water pool is granted in perpetuity, but are subject to fluctuation which depends on the annual flow; these licenses do not interfere with the water use rights itself (Mascher & Curran, 2017: 204). McKenzie (2009) and Mascher & Curran (2017) examine whether water rights in New South Wales reflect the characteristics of property rights. McKenzie (2009: 463) looked at the exclusivity, duration, security including compensation, quality of title, and transferability and divisibility of the permits, and concludes that: “there is probably enough to suggest that the water rights under access licences do amount to rights of property”. Mascher & Curran (2017: 206) look at “the four

characteristics of property including exclusivity, security, duration and transferability”, and conclude that the licence “possess the mentioned features”, however, “the limitations ... may suggest they do not possess enough of these characteristics to be considered private property rights”. Hence, the water use licencing system can be seen as a market system that:

“draws on the strengths of markets and private property-like water rights to incentivize efficiency but positions those rights within a framework that allows for flexibility and adaptive management to deliver an efficient and sustainable water allocation system” (Mascher & Curran, 2017: 2020).

Also in Spain, all water resources are put in the public domain, and water is allocated through the administrative granting of permits. In 1999, Spain introduced water market mechanisms by the Water Law Amendment (Law 46/1999) which allowed for the trade in water permits between users (Casado-Perez, 2015). Permits are needed for both surface- and groundwater and are subject to specified conditions (incl. e.g. period up to 75 years, max volume of flow, and location). Casado-Perez (2015: 189) states that: “the bundle-of-rights in Spanish permits seems to be closer to an ownership scheme, given the long length of the permits, the fact that they can be traded, and the ease of renewability”.

Several States in the United States allow for the transfer of existing appropriations (Grant, 2005), for example, Colorado and California. Water rights in Colorado are firmly based on property law theories, which strongly limits the public trust doctrine. For example, granted water rights can be transferred without considering the public interest, as long as they do not harm other appropriators (Zellmer & Harder, 2008). In California all water is put in the public trust and “water rights are considered rights in real property” which can be transferred (Hicks, 2011: 114). The literature shows that putting water in the public domain does not preclude the development of water markets and the development of ‘property’ rights in water. Now that most countries in the world, including some communist countries in transition (e.g. China, Vietnam) (Zhang, 2021), have a water use permit system in place, a move to markets is not far away.

3.3.3 Water property rights through contract, lease, concession

Since the 1990s, with the growing dominance of neo-liberal capitalism and recognition of water as an economic good (ICWE (International Conference on Water and the Environment), 1992), there has been a tendency to encourage greater private control over water (Gupta & Dellapenna, 2009). Water is crucial for almost any economic activity and is increasingly seen as a lucrative investment opportunity.

The interest in investing in water gained momentum 1989, when the government of Prime Minister Margaret Thatcher set off the global movement of privatization

(“the sale of enterprises owned by public companies to private companies” (Black’s Law Dictionary, 2021) of water utilities by selling public utilities in Great Britain (Petrova, 2006). Specifically, in the Global South, privatization was strongly promoted by the international financial institutions (Moyo, 2011) by making it a prerequisite for loans, debt restructuring, or loan waivers (Petrova, 2006: 578). However, because of the resistance to full privatization, the private sector involvement in the public sector often continued under the heading of public-private partnerships (PPP), which was seen as an alternative solution (Dellapenna, 2008; Minow, 2003; Murthy, 2013). Over the years, a wide range of different PPP forms developed, in which the form determines the degree of private participation (Roehrich et al., 2014). Ultimately the assets are still public property (owned by the state) (Miranda, 2007), although during the period of the agreement, private companies are given the full responsibility to operate, maintain, and invest in the assets (Murthy, 2013). Hence, instead of selling state-owned enterprises to the private sector, states remain the *de jure* owner of the infrastructure. By concluding investor-state contracts, states grant private (inter)national companies the rights to “maintain, produce, or provide a good or service” for a period which can be up to 75 years (Miranda, 2007: 512). Whether through the granting of state rights, or the water infrastructure and services being ‘privatized’, it boils down to *de facto* water ‘privatization’ and control over the water resources, as control from the public sector is transferred to the private sector (Gupta & Bosch, 2021). These rights are protected by the property provisions of national, state or provincial constitutions (Solanes, 2010: 19).

Moreover, while developing countries welcome foreign investment, foreign investors want their investments secured (Solanes, 2010). In order to protect and create an investment climate that is favourable to foreign direct investment, most countries have signed International Investment Agreements – the majority of these being BITs (2298) and Treaties with Investment Provisions (324)) (Chaisse & Polo, 2015; Yackee, 2010). The United Nations Conference on Trade and Development defines a BIT as an: “agreement between two countries regarding promotion and protection of investments made by investors from respective countries in each other’s territory” (UNCTAD, 2021: 1). The legal framework that is created through International Investment Agreements: (i) ensures that foreign investors can access the markets of host countries, (ii) protects investments including against expropriation without compensation, and (iii) allows for investor-state arbitration (Chaisse & Polo, 2015). A state’s public water is affected by the ‘privatisation’ of water supply services, and through the signing of investor-state contracts, both protected by International Investment Agreements. Foreign investors enjoy significant protection by International Investment Agreements and arbitration clauses (UNCTAD, 2004), and arbitration cases are often ruled in favour of the investor. There are multiple examples where host states have been found liable for breaching a BIT against a foreign company

in which compensation had to be paid. For example, in *Azurix Corp. v. Argentina* (2006), *Vivendi Universal v. Argentine* (2010), *Mpregilo v. Argentine Republic* (2011), and *SA UR International v. Argentine Republic* (2014), in which Argentina had to pay US\$ 165 million, US\$ 105 million, US\$ 21 million, and US\$ 39 million in compensation respectively because of breaching the relevant BIT agreement (Chaisse & Polo, 2015). Thus, even though water is in the public trust, states lose control over that part of the water that falls under these investment agreements that are protected by expropriation subject to compensation.

Water rights can be created (indirectly) on the bases of contracts (e.g. supply contract, investment contract, service contract, and mineral, petroleum and land contracts) between an actor (national or international) and a state (Cotula, 2011; Hodgson, 2016; Scott & Coustalin, 1995). Saxer (2010: 79) argues that the: “rights to the use of water can ... be transferred by the state via permit and subsequent state delivery contracts to end users.” Contracts falling under national or international law subsequently define the terms, risk, cost, and benefit distribution of the investment project (Cotula, 2011). States can be held responsible for the economic damage in case of breaching the contract, which can result in the requirement to pay compensation (Gray & Lee, 2018). Water is increasingly becoming part of land leases or purchase contracts between investors and governments (Cotula, 2012), as some of the motivation behind the global land rush is to control the water (Lee, 2015; Robbie & van der Sijde, 2020).

3.3.4 Inferences

Based on the analysis of legal literature on how private ‘property’ rights are embedded in the current water allocation instruments, I see that: with putting water in the public domain, countries have developed and implemented a water allocation system including instruments (e.g. water use permits, tradable water permits, contracts, concessions) that allocate clearly defined rights, including e.g. the right to use water for a specified period, the right to priority in time, the right to alienate or transfer the entitlement, the right to dispute resolution and litigation, and the right to compensation. These rights, allocated through the granting of water use entitlements, may share the characteristics of a property rights regime, and can imply private quasi-property (‘new property’, ‘property-like’) rights in water and may in fact encroach on state water ownership affecting water allocations and water reallocation. States are grappling with the development of rights in water that are not in line with the fugitive and public nature of water especially in the context of the need to accommodate changing economic, social, and hydrological changes.

3.4 Inferences for water property rights

This chapter has assessed the state of legal literature on ‘property’ rights in water, which helped identify the gaps in knowledge (see 1.3) as well as formulating the research, and sub-research questions. Two major interferences can be drawn.

First, the literature shows that there are property rights in water. There is a diversity in the current state of water ‘ownership’ and water ‘property’ rights around the world, as a result of legal systems (e.g. civil, common, religion), and Indigenous and customary systems in place. In fact, a pluralistic legal system exists at national level, which is the result of (i) the historical water use rights that continue to exist *de facto* and *de jure*, (ii) jurisdiction over water being parsed out constitutionally to States in some federal countries, and (iii) increasingly Indigenous peoples are successfully demanding recognition of and reclaiming their water rights.

Second, there are quasi-property rights in water. Relatively new water allocation instruments have been developed including ‘modern’ water use permits, tradable water permits, contracts, leases, and concessions. The literature shows that these entitlements encompass clearly defined bundle-of-rights which differs between waterbodies and instruments. Despite states assuming that they own the water, the northern scholarship reveals that the strength of such property rights result in *de facto* ‘property’ rights in water: the granted bundle-of-rights through a statutory water allocation system in fact resemble property rights in more fixed resources. Such allocation has, according to the literature, increasingly implied a quasi-property right in water – especially when these allocations are for long periods of time and are subject to compensation when taken away. This has further encroached into the state’s ownership of water. Thus, the dual forces of trying to regain control over water from existing water rights holders and from new water rights holders creates confusion on who actually ‘owns’ and controls water and is able to govern it.

This chapter has provided a glimpse of the current state of ‘property’ rights in water, and result in identifying a gap in knowledge that there is still relatively little research done on how private water ‘property’ rights are embedded in the contemporary policy instruments (e.g. permits and contracts) across Africa and Asia (see 1.3.1). This in turn results in the second gap in that there is limited understanding on how these quasi-property rights in water affects the ability of states to allocate and reallocate water (see 1.3.2). A good understanding about the way in which these rights come about is a critical first step towards water allocation and reallocation, as states may have to manage water resources from month to month in order to ensure that they meet the different needs of different uses and users (Marston & Cai, 2016).