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

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Chapter 9

Conclusion and lessons learned

9.1 Introduction

As a result of increasing water demand and reduced water availability, there is a growing tension between two opposites: water as a public good versus water as a private good. On the one hand, the vital and strategic importance of water to life and society should encourage states to treat water in the public interest, allowing governments, as the only legitimate authority to promote the public interest, to control and allocate water for the benefit of its people and nature. On the other hand, the water governance reforms as part of the broader capitalist transformation under globalization encourages more private control over water by pushing for establishing property rights in water to achieve greater efficiency in water use and allocation (Gupta & Dellapenna, 2009; Roth et al., 2018: 43; Shleifer, 1994). The growing globalization and dominance of neo-liberal capitalism has resulted in the most influential language and logic in water governance being strongly infused by neoliberalism (Roth et al., 2018: 43). In order to be able to manage water in a future-proof manner, it is critical to first understand whether there are (quasi-)property rights in water, how such property rights are created, for how long, and who holds such property rights.

Hence, this thesis set out to understand first, how and who holds 'property' rights in water: more specifically state water ownership versus historical property rights and new quasi-property rights in water. The literature review has shown that putting water in the public domain does not exclude the development of quasi-property rights in water per se, but that water allocations can resemble property rights in water. Based on the literature review, two gaps in knowledge have been identified. The first gap in knowledge is that there is limited scholarship on a country-by-country analysis of how (quasi-)property rights are allocated in water in the Global South, and how past and present instruments create new (quasi-)property rights in water. The second gap in knowledge is that there is limited understanding how these 'property' rights in water affect water allocation and reallocation. Each country has a certain volume of water available (based on a water budget), with the responsibility of states to allocate this water to the benefit of its people. In the allocation of water, most decision-makers focus on the optimal allocation of water, often to maximize profit and economic benefits. However, most countries in the Global South inherited a situation in which some, if not most of the water was already allocated, and states cannot simply allocate water without considering the existing property rights and quasi-property rights in water. Property rights in water may also affect the ability of states to reallocate water as a response to climate variability and change, and changing socio-economic conditions. The interaction between the existing water allocation policy instruments, the development of 'property' rights in water, and how this affects water allocation and reallocation is poorly understood, especially in the Global South. Hence, this thesis addresses the overarching question:

> *How are property rights in blue water (surface- and groundwater) organised in Africa and Asia and what water allocation and reallocation problems, as part of the broader concept of water governance, does it create now and in the future?*

This chapter first answers the research question, and discusses (i) the lessons learnt from the assessment of how private water 'property' rights are embedded the in existing policy instruments, and how they affects water reallocation, including through: water use licences, investor-state contracts, and by considering both case studies (see 9.2.1); (ii) the water reallocation policies that are in place, and how these relate to the creation of quasi-property rights in water and the ability of states to effectively reallocate water (see 9.2.2); and (iii) how the existing water allocation and reallocation system affects inclusiveness, largely leaning on examples from South Africa (see 9.2.3). Section 9.3 then discusses the policy recommendations on designing permits and contracts. Lastly, this chapter discusses the contribution to theory (see 9.4).

9.2 Answering the research question

This thesis aimed to understand whether the changing nature and content of property rights in water as part of the ongoing water governance reforms support or undermine the efforts of states to allocate and reallocate water. In order to provide a strong empirical foundation that may serve as the basis for analysis in the future, the research is largely focused on analysing the primary data of laws and policies, permits, and contracts. In answering the overarching research question, I have conducted (i) a state-of-the-art literature review on property rights in water (see Chapter 3), examined (ii) the water legislation of 60 countries in Africa and Asia (see Chapter 4), of which 47 allocated water through granting permits (see Chapter 5), and analysed (iii) 80 investor-state land, mineral, and petroleum contracts concluded in Africa and Asia (see Chapter 6). The results of the inventory are complemented by the results of the (iv) two case studies on India (see Chapter 7) and South Africa (see Chapter 8).

This research shows that through history customary water rights have been developed and via colonization riparian and property rights to blue surface and ground-water have been allocated to landowners in many parts of the world. Increasingly, given the vital and strategic importance of water, states have tried to take control over water and then reallocate the water through permits and contracts. The process of taking control over water has often got stuck as this is not possible in democracies without compensation for expropriation. And the new process of allocating water through permits and contracts have created quasi-property rights in water. The struggle of states to change some historical existing rights, and both issue quasi-property rights and to withdraw or change

these rights, affect the ability of states to govern water in the public interest through for example the allocation and reallocation of water.

9.2.1 Property rights and their impact on water allocation and reallocation

This section discusses the quasi-property rights in water in more detail, and their effects on water allocation and reallocation. The content analysis on water use permits and investor-state contracts allowed me to identify key 'property' elements, that I categorized in different categories of quasi-property rights in water. These elements have been tested in the South Africa case study. For India, permits are relatively less developed, so I was not able to test these out.

In India, water allocation is still largely based on common and statutory law which allocates water to landowners. Of the 28 States, 10 States have taken the first steps towards the allocation of water through a system of water use permits. Of these 10 States, two States require all water use to be subject to State permission, the other eight States have a provision in place on the responsible authority having the mandate to distribute water entitlements. The new State issued permits have the appearance of providing quasi-property rights by allocating different property elements to the permit holders. Although today only one Authority is functional (Cullet, 2021), it does show a trend that the Indian States have embarked on a process of governing water through allocating water use entitlements. In South Africa, the common law system was abolished with the commencement of the NWA (1998), and the national government, acting through the Minister, is the public trustee of the nation's water resources, although the existing lawful uses of landowners has been very difficult to abolish in practice. However, this research has shown that *de facto* South Africa privatizes its freshwater resources by allocating quasi-property rights in water through Water Use Licences and mineral contracts.

When comparing India and South Africa, although governed differently (federal vs unitary), they face similar challenges. Both countries face challenges related to the current unequal water use and allocation, while in South Africa the allocated water is racially skewed, in India the unequal water use is a landownership versus non-landownership problem. One of the fears of both countries is that taking away the water could jeopardize food security. In South Africa, by addressing water inequality in a highly formalised, administratively demanding and 'equal' process has so far has been largely unsuccessful and the desired result of redressing inequality has yet to be achieved. India, on the other hand, has yet to abolish the riparian right system. In doing so, it should draw on the lessons learned from South Africa, following a similar path to South Africa will most likely result in similar results. The granting of water use licences as part of the Water Allocation Reform programme, South Africa's key programme for redressing inequities in water, actually benefits the privileged individuals (majority of Historically Advantaged

Individuals) and big corporations, exacerbating inequality. With India moving towards governing water through permits, it should learn from South Africa and not make the same mistake of perpetuating and exacerbating inequality (see 9.3 on policy recommendations).

Through the analysis of water use permits (see Chapter 5), I was able to identify 13 key property 'elements' that I clustered into five issues indicating quasi-property rights including:

(i) The temporal dimension: (i) the period for which the permit is valid; (ii) the possibility to renew permits; and (iii) the possibility to intermediately change permit conditions.

(ii) Dispute resolution: the possibility (i) to object and (ii) appeal against a state's decision; or (iii) to settle disputes when permit holders' interests are violated, and (iv) the possibility to sue the state.

(iii) Compensation: (i) compensation by the state if a permit is withdrawn; (ii) whether a permit applicant has to compensate the permit holder that beneficially used the water from whom the water is reallocated; and (iii) the possibility to be compensated for any (financial) loss suffered in case of damage.

(iv) The protection of interests: whether organizations or individuals' interest are protected by the state.

(v) Alienation: (i) the possibility to transfer the permit; and (ii) whether the permit is granted appurtenant to land or industrial undertaking.

The analysis of 80 investor-state contracts (see Chapter 6), allowed me to identify 13 key property 'elements' that I clustered into six issues indicating quasi-property rights, including:

(i) The right to use and operate, including the right to: (i) operate an economic activity; (ii) use water in the operation, through a water use permit, right or authorization; and (iii) use the land on which the operation takes place.

(ii) The temporal dimension: (i) the period for which the contracts are valid, and (ii) the possibility to extend this period.

(iii) Dispute settlement and litigation: (i) the amicable settlement within a relatively short period; (ii) the settlement of purely technical matters by an expert; and (iii) arbitration to settle the dispute under international arbitration rules.

(iv) Compensation: in case of (i) expropriation; and (ii) indirect expropriation.

(v) Stability: (i) the continuing support of the host state regarding the right to operate; and (ii) protection against changing laws and policies.

(vi) Alienation: the possibility to transfer rights.

9.2.1.1 The right to use and operate

While the sole purpose of a water use permit is to allocate the right to use water, the main purpose of a contract is allocating the right to operate, to which the right to use water is subordinate to. In investor-state contracts, I have therefore examined both the right to operate and the right to use.

The first element is the right to use water, which is granted to actors in various ways: (i) as part of a water use permit, allowing the permit holder to abstract a specified volume of water. (ii) Actors can also hold a water use right based on a historical water entitlement or right, permitted and continued under the current water law. In South Africa, the historical water use is continued under the ELU entitlements, and in India based on common law and the Easement Act (where land ownership includes a right to use water), and (iii), as a water right included in investor-state contracts between states and foreign investors, as a right to use water, a water right subject to state authorization, as a right to use of water service provision, or as a right to develop water infrastructure.

In the allocation of water through permits, these permits can be granted appurtenant to an industrial undertaking or to a specified plot of land. In investor-state contracts, the right to use water is either directly or indirectly linked to the right to operate, which enables the foreign investor to perform a specified economic activity (e.g. mining, extracting, and farming). When the right to use water is taken away, this can be seen as infringing on the right to operate.

9.2.1.2 Temporal element

Generally, property rights can be permanent or temporary. The longer the period for which temporary property rights are granted, the more it resembles real property.

Both permits and contracts can be granted for long periods, which can be extended for an additional period. The temporal element for historical entitlements and rights are not specified in years, but these remain valid until converted into a permit or when abolished. Converting these into a permit or abolishing these historical rights is not easy in democratic countries and may require some kind of compensation. South Africa has so far been unable to convert the Existing Lawful Use entitlements into licences, with rightsholders arguing in court against such what they see as expropriation. India has not yet, it appears, embarked on this process.

In relation to the granted water use permits, the longer the period, the more security it gives to the permit holders and investors to be able to recoup a return on investment and make a profit. In South Africa, licences are granted for up to 40 years and holders can apply for the renewal. The analysis on investor-state contracts shows that contracts across Asia and Africa are granted up to 40 years for mineral extraction, and for 99 years for land.

Permits and investor-state contracts are granted and concluded for significant long periods, far exceeding the period within the effects of climate change become (even more) apparent. The temporal element can seriously limit the possibility of states to adaptively reallocate water if needed. If there is enough water this does not cause problems. Only when water becomes scarce and basins close, do problems arise, making the reallocation of water inevitable.

9.2.1.3 Dispute settlement and litigation

The right to dispute resolution empowers permit holders and investors to protect their rights against state infringement. Dispute resolution refers to recourse to courts or arbitration by parties seeking protection of their rights. If permit holders or investors can go to court because their rights have been violated, this resembles a property right. The 'strength' of quasi-property rights in water is determined by the protection and security permit holders and investors enjoy – what options do permit holders and investors have at hand to protect their water use right in case the state wants to take back the water.

This research has shown that permit holders can resort to legal action which includes the rights to object, appeal, and sue. In the case of investor-state contracts, the parties can resort to arbitration. Not only does litigation results in a high administrative and financial burden for the government, it also affect a state's ability to reallocate water, and can also prolong the implementation of policies for years.

As shown in South Africa, by using the judicial system, licensees and holders of an ELU have significant leverage to protect their rights against state interference and frustrate policy implementation and water reallocation. The licence conditions are currently not being reviewed because there is no system in place, and this means that the holders can use water for the full period, without having the fear of losing their entitlement. Moreover, if a decision of the DWS negatively affects the licence holder, an appeal can be lodged against the Water Tribunal up to the Supreme Court.

Investor-state contracts are protected by arbitration rules and Bilateral Investment Treaties. Dispute settlement that involves international arbitration, reduces the national court's mandate to a supervisory role. Increasingly, companies are aware of the importance of water security to their business (Biswas & Tortajada, 2022). Investors demand water

use security to protect their investment and are not afraid to protect their business interests. With billions of foreign direct investments into Africa (83 million in 2021), the state's control over the freshwater resources is possibly at stake, which may will have huge implications for the reallocation of water.

9.2.1.4 Compensation

The right to compensation is a key element of quasi-property rights in water. If licensees or investors can demand damages for state infringement of their rights, the rights in the permit or contract resemble a property right. This provides permit holders and contractual parties financial security against changes made by the state.

Permit holders can claim compensation if the state withdraws the permit which results in damage or financial loss, and in some instances, when a permit applicant has to compensate the permit holder that beneficially used the water from whom the water is reallocated. Regarding investor-state contracts, when a state takes back the water, this would infringe on the right to operate, which can be seen as indirect expropriation, leading to litigation and compensation claims. States may be reluctant to take back, and reallocate water, when the rights of permit holders and investors are compromised, as this could lead to compensation claims. Compensation can be expensive and can potentially put a huge burden on the financial situation of states. Especially in case of investor-state contracts, states may be reluctant to resolve matters through arbitration because of: (i) the high costs of arbitration, (ii) possible payment of compensation, (iii) reputation damage, and (iv) loss of foreign direct investments because of the tarnished reputation of the state. Not only is compensation determined by the arbitrators outside the national courts, subject to specified arbitration rules, compensation can be higher than expected.

9.2.1.5 Stability and the protection of interest

Both permit holders and investors can enjoy a certain level of state protection of their interests. If the permit or contract related interests are protected by the state, the right resembles a property right. The right to state protection obliges the state to protect and respect the permit holder's rights. It contributes to the 'strength' of quasi-property rights in water by increasing the protection and security permit holders enjoy.

Licensees and existing water users can have their legitimate interests protected by the state. Similarly, investors rights are protected by guaranteeing a certain level stability, including through the continuing support of the host state regarding the right to operate; and by protecting investors against a change of legislation that would adversely affect their (economic) interest. The case study of South Africa has shown that this has created a climate which protects both investors and permit holders from possibly losing their entitlement. South Africa specifically largely depends on its mining industry, often

referred to as its 'economic backbone'. The importance of the sector is reflected in the relationship between the Department of Water and Sanitation and the Department of Mineral Resources. The National Water Act (1998) clearly states that for any commercial water use (other than a GA (see 8.2.4.3)) an actor requires a Water Use Licence, and the Mineral and Petroleum Resources Development Act (2002) also states a licence is required for mining operations. However, this research has shown that the importance of the mineral industry and the lack of power of the Department of Water and Sanitation results in a situation where the application for a licence is merely a formality. Even when the granting of the licence is denounced and challenged in Court, the Minister of Water and Sanitation can use her discretion to nullify the suspension of the water abstraction while the appeal is pending, thus allowing the water use for the mining operations to continue in the meantime.

Legislation and contracts provide licensees and investors with a certain level of protection, which can limit the state's ability to change or amend their legislation and hinder its pursuit of sustainable development. Regarding investor-state contracts, when the economic equilibrium of the investment is affected because of raising environmental and social standards, or securing water for nature, compensation can be claimed. In both South Africa and India, the ability to reallocate the water is strongly impaired, resulting in largely maintaining the status quo of water distribution. In South Africa water remains largely in the hands of the Historically Advantaged Individuals, and in India in the hands of the landowners, based on the common law system.

9.2.1.6 Alienation

I identified the right to alienate as an element of quasi-property rights in water. If a water right can be sold, it resembles a property right.

Both licensees and investors can be granted the right to alienate. Holders of a permit can alienate their entitlement (i.e. the right to lease, trade, sell, transfer, temporarily transfer, pass on to a named licensee as a successor-in-title at death, and the transfer, partition, lease or sale of land or industrial undertaking to which a right has been appurtenant to), although in many instances this is subject to state approval. Most investor-state contracts also include a provision on the right to alienate (i.e., sell, assign, transfer, convey or otherwise dispose of all or any part of the rights, interests, and obligations under the agreement), subject to approval of the state party.

In South Africa, the NWA allows for the transfer of water use entitlements, subject to state approval. Shaped by policy, this has resulted in the *de facto* creation of a water market. Over the past 20 years, holders of an ELU and licence were able to 'trade' their water use entitlement which involved the payment of millions or Rand. Not only is water not returned to the public domain, ignoring the 'use-it or lose-it' principle, it also

excludes a large part of the population, as they cannot afford to buy these rights. In India, two States explicitly have provisions in place on the establishment of a water trading system: the authority shall "fix the criteria for trading of water entitlements" and the entitlements "are deemed to be usufructuary rights which may be transferred …."

With investors and licensees holding the right to alienate, water is not returned to the public domain for the period for which they are allocated. The only way to get the water back is to break up the contract or permit. Thus, water that is included in contracts and permits, are *de facto* no longer part of the public domain. This impairs the reallocation of water, as the water is not available for reallocation.

9.2.2 Water reallocation policies

This thesis has shown that in relation to the specific governance task of allocating and reallocating water, many countries emphasise the former as opposed to the latter. This leads to issuing water use permits, including providing rights and security to the permit holders, without fully understanding the implications of allocating these rights, while too little emphasis is paid on having policy in place that allows for the reallocation of water. Although there is an option to reallocate water, this does not always work with respect to historical existing water uses. Moreover, the water legislation of 60 countries shows that states can: (i) revoke, (ii) modify, (iii) limit, and (iv) suspend water use permits. The grounds for undertaking such steps are more reactive than proactive, focussing mainly on the repercussions regarding the violation of the law and permit conditions, and less on the ability to reallocate water when needed, including meeting increased demand, accommodating new water users and addressing climate variability and change. For example, there are only six countries that have proactive policies in place that allow for the reallocation of water, which can be applied without the payment of compensation. Of these, two countries allow for the reapplication of permits to e.g. achieve the sustainable allocation of water and equity in water allocations, without the payment of compensation. Two states allow for the periodical review of permits, e.g. allowing states to free up water if the volume of water is insufficient to satisfy all authorized water uses, or to accommodate demand as a result of changes in socioeconomic circumstances, and two states allow for the review of permits if there is insufficient water to satisfy all authorized water use. Not having (proper) allocation policies in place, or having policies in place that are difficult, if not impossible to implement, contribute to the development of quasi-property rights.

Above all, the actual implementation of these policy options is key. In South Africa, the main instrument to reallocate the granted permits, the periodical review, is not in place and is not happening, possibly because of administrative capability. And the main policy to reallocate the ELUs, Compulsory Licensing, is in fact not being implemented because decisions are continuously challenged in court. India faces similar challenges

with respect to common law water right system, which none of the 28 States have been able to abolish. This means that the link between land rights and water rights has not been abolished. Moreover, the post-independence groundwater and irrigation laws avoids addressing the underlying riparian rights and groundwater rights, and instead perpetuates water rights linked to land through a registration process.

9.2.3 Property rights and quasi-property rights affect inclusive development

I now look at the water property and quasi-property rights regime through the lens of inclusive development. If the purpose of the state is to maximise economic revenue from the use of water, the state will probably make different choices. It will probably encourage the commodification and privatisation of water and enable markets to function that lead water to be used for the production of commodities that provide the highest return on investment in the short to medium term. However, this may lock-in the state into a situation in which it is unable to be flexible and deal with current and future challenges such as meeting the minimum needs of people to water and redressing past inequities in water allocation. I would argue instead that in the long-term, declining surface water supplies will affect ecosystems and downstream areas; declining groundwater levels may lead to land subsidence and saltwater intrusion, besides concentrating pollutants and leaving less water for future generations. This means we need an alternative vision which focuses, e.g. on inclusive development. Inclusive development counterbalances the economic ascendancy by focussing more on social, ecological and relational inclusiveness, and see what this implies for development.

At the beginning of this century, about 1.4 billion people lived in areas affected by the closure of basins (de Fraiture et al., 2007; Falkenmark & Molden, 2008). It is estimated that by 2050, people that suffer from extreme water shortages will increase to 4 billion (Kattel, 2019; Mekonnen & Hoekstra, 2016). Property and quasi-property rights in water may affect social inclusiveness, because in situations where basins are closed there is no water left to allocate for nature or even new users of water. This becomes even more problematic if pollution levels increase and if climate variability and change affect water flows. Moreover, the state may not be able to reallocate water from commercial parties to basic human needs without compensating those parties which may be unaffordable for the state.

The South Africa case study shows that the DWS faces challenges in the real-location of water to the Historically Disadvantaged Individuals (HDIs) and may experience problems in securing enough water for the Basic Human Need Reserve, since holders of both licences and ELU hold strong quasi-property rights in water. This has resulted in little water being reallocated to the HDIs, perpetuating the unequal water distribution that exists since colonisation and apartheid. Still, over 3 million people (7% of South

Africa's total population) have no access to basic water supply (DWS, 2019: 2). The increasing pressure on water availability disproportionately affects the marginalized, exacerbating inequality.

Ecological inclusiveness includes ensuring enough water is left in the system to conserve biodiversity and ensure ecosystem services provided by nature (Pouw & Gupta, 2017). Vice versa, nature including, for example, forests, grasslands, mountains, wetlands, are crucial for water security, flow, and quality (UNDP, 2018). Property and quasi-property rights in water affect ecological inclusiveness because the ability of states to reallocate water from commercial parties to nature is impaired, since holders of an historical water entitlement or licence may hold strong quasi-property rights in water.

For example, South Africa faces a huge challenge in securing water for nature. The Ecological Reserve aims to allocate and leave enough water for nature on which people depend (see 8.2.4.1). Because the Ecological Reserve has not been determined in many areas, sufficient water for nature is not guaranteed. This disproportionately affects the people that rely on nature the most; the poor and marginalized. This is worsened by reduced water quality: the granting of mining rights and licences to (inter)national mining companies put additional pressure on the availability of good quality water, not only because they abstract water, but also because they are infamous for heavily polluting water. This is not only a problem in South Africa, but across Africa (Fayiga et al., 2018; Takam Tiamgne et al., 2022). It is the poor rural communities who often do not benefit from the mining activities, and instead suffer the most from the negative impact of mining (Ba & Jacquet, 2022),[499] which is for example shown in the EMZES mega project in Limpopo, South Africa (Munnik, 2020b). In the situation in India, there is no specific reserve for nature. The Ganga Action Plan (1986) aims to improve the quality of water in the Ganges, but that is only one river. Fresh water is heavily depleted and polluted. All this has negative impacts on nature.

Relational inclusiveness in respect to access and allocation of water is reflected in who owns water and who holds property rights in water (Gupta et al., 2013). This research has shown that guaranteeing and ensuring certainty and security of the water allocation rights to (inter)national investors is in stark contrast to the access rights. Through permits and investor-state contracts, actors hold strong quasi-property rights in water, while the majority of people who use water for domestic purposes are merely exempted from the need to acquire a permit, and are not granted the same strong rights to defend their water use, other than the human right to water – referred to by van Koppen (2007) as having a "second-class status". Moreover, although the state *de jure* owns the water, it

[499] Interview, #17, 2021.

de facto privatises water which in turn affects the ability of the state to reallocate the water in the public interest, in accordance with the priority of use.

I conclude that states do not fully comprehend the implications of the rights they allocate as the custodian of the water resources through permits and contracts, and the allocation policies they have in place on the creation of quasi-property rights in water, and how this affects water reallocation and inclusiveness. The current approach to water allocation and reallocation creates a paradox: if the goal of water governance is to govern a state's freshwater resources for the benefit of its people, subsequent allocation of water through granting permits and contracts – which results in the *de facto* creation of property rights and privatization of water – undermine water reallocation and social, ecological, and relational inclusiveness, affecting the poorest and furthest behind the most.

9.3 Policy recommendations: Designing permits and contracts

Developing countries in Asia and Africa are not only struggling with the legacy of water property rights regimes created in the colonial era, which some of them are trying to dismantle, they are also creating a new quasi-property rights regime.

In thinking about recommendations on how permits and investor-state contracts should be (re)designed, the focus lies on how the quasi-property rights nature can be minimised without affecting the ability of permit holders/contracting parties to plan their activities while ensuring that the state has the ability and flexibility to allocate and reallocate water. Clearly water users need to be sure of the security of supply to ensure that their production or other processes are not damaged. On the other hand, if this security of supply is too strict this reduces the ability of the state to allocate water.

Moreover, with increasing evidence of the need to reserve water to ensure the full functioning of nature, and with groundwater levels falling too low leading to a range of other problems such as saltwater intrusion, the risk of the land above sinking, as well as the risks to future generations of not being able to access such groundwater, states will need to cut down on water extraction. This will mean that they have to revisit how water has been allocated thus far and what are the modalities for reallocation.

Below I first discuss the recommendations for designing permits and investor-state contracts. Followed by putting these recommendations into perspective by discussing the downsides.

Based on this research, I make five recommendations (see Table 9.1). First, while the period for granting a permit may need to be in line with the kind of activity that is envisaged, I think there are some arguments for setting a maximum period of 5 years, subject to some exceptions such as for a drinking water and sanitation systems. I chose

5 years, because the administrative burden of doing this in a shorter period may be too high for both the state and the investor needs some security. This increases the ability of states to redistribute water in case of need because: (i) water is automatically returned to the public domain at the end of 5 years. This does not depend on and is independent of transfer or rights, litigation, and compensation claims. (ii) It allows states to reallocate the water every 5 years as they see fit, in order to address socio-economic changes and climate change. (iii) It significantly reduces the strength of the temporal element of the quasi-property right, thereby weakens the grounds (e.g. years of income lost) on which compensation can be claimed when the state decides to take the water back, by capping the period on which compensation can be claimed.

Second, the renewal period for a license may not exceed 5 years, should not be automatic and should have the possibility of new conditions for the reasons mentioned above.

Third, there are many arguments in favour of ensuring that the permits are not transferable except in the case of death to a successor in title. Not permitting the transfer of permits: (i) allows water to return to the public domain when the holder no longer wants to use it – following the 'use-it or lose-it' principle as developed in the South African water policy (DWA, 2013a). (ii) Instead of the market deciding who to transfer the water to, the responsibility to reallocate water rests with the state. (iii) It puts a stop on the *de facto* marketization and commodification of water, including the *de facto* payment for water, as land with a water right appurtenant to it is more valuable than land without a water use permit attached to it. It gives states back control to decide what water is used for, instead of the continuation of water use by changing hands, without the power to intervene.

Fourth, no compensation should be payable by the state in case a water permit is withdrawn if it is in the public interest, and subject to strictly measurable conditions, following the rule of law. However, where the water is withdrawn for other reasons, the permit holder should be able to claim compensation.

Fifth, a functional independent judicial system is of vital importance to democracy; thus, permit holders should be able to test the legality of government actions. However, states should be conscious of the implications of certain provisions. The system should not become an instrument of actors to block the execution of policy, as seen in South Africa.

All of the above recommendations are based on the idea that the state is the only legitimate actor to act in the public interest, that it will carry out its tasks in accordance with the rule of law and due process, and that it has the resources to manage its water system through an intensive administrative system. This will increase the burden on the

Table 9.1 Recommendations for minimising the quasi-property rights nature of water use permits

Quasi-property right	Element	Recommendation	Pros	Cons
Temporal	Period	A water use permit should be valid for a maximum 5 years.	Water is automatically returned to the public domain at the end of 5 years, and does not depend on and is independent of transfer or rights, litigation, and compensation claims. Reduces the strength of the temporal element of the quasi-property right, thereby weakens the grounds (e.g. years of income lost) on which compensation can be claimed. Not permitting the transfer of permits allows water to return to the public domain when the holder no longer wants to use it – following the 'use-it or lose-it' principle. It also puts a stop on the *de facto* marketization and commodification of water. This gives states back control to decide what water is used for, instead of the continuation of water use by changing hands, without the power to intervene.	Setting the maximum period for licenses to 5 years, which is not automatically renewed, puts a huge administrative burden on responsible authorities. Prohibiting the complete transfer of water entitlements, as this may have unwanted consequences. I argue no compensation should be payable by a state in case a water permit is withdrawn if it is in the public interest. However, very few countries have specified and operationalized the concept of "public interest" and the "priority of use".
	Renew conditions	A water use permit should be renewed for a maximum 5 years.		
Alienation	Alienation	Permits should not be transferable, only in case of death to a successor in title. Water returns to the public domain, and it is up to the state to decide to whom and under what conditions water is allocated.		
	Permit appurtenant to	Permits should not be transferable with the sale of the undertaking to which the permits are appurtenant to. Water is returned to the public domain, and it is up to the state to decide to whom and under what conditions water is allocated.		
Compensation	Compensation by state	No compensation payable by the state if a water permit is withdrawn in the public interest, and subject to strictly measurable conditions, following the rule of law. Where the water is withdrawn for other reasons, the permit holder should be able to claim compensation.		

Quasi-property right	Element	Recommendation	Pros	Cons
	Compensation by applicant	Forbidden. The state allocates water, free of charge.		
	Compensation damage/ dispute	No compensation payable by the state if a water permit is withdrawn in the public interest, and subject to strictly measurable conditions, following the rule of law. Not compensating for water.		
Dispute resolution	Appeal	States should be conscious that the judicial system should not be an instrument of actors to delay the implementation of policy.		
State protection of interests	State protection of interests	Protection of interests should be aligned with the governance of water in the public interest, and the priority of use.		

Source: Author

water administration and if not adequately staffed can lead to unnecessary delays in the permit system causing losses to the permit requesters and the country. Moreover, it may also increase the opportunities for corruption and create problems. So, these recommendations have to be taken in the light of the context of the country implementing them and in the context of the kinds of projects and the security they may need. A short permit period may also limit the interests of investors of large projects, and this may need to also be taken into consideration.

These recommendations are also based on the idea that it is possible to change the existing property rights and quasi-property rights in water, which this thesis has demonstrated is difficult to do. However, any future allocation of property rights may need to be based on a better understanding of the risks and gains in allocation (quasi-) property rights to water.

In making recommendations on water rights in relation regarding contracts, the single most important recommendation I can make is that water rights should not be included in contracts. Contracts should refer to the water legislation regarding acquiring permission to use and or pollute water. Contracts should clearly state that the granting of a right to operate does not imply a right to use water, and no claims can be made to use water. Water use should be subject to the issuing of a water use permit by the responsible authority, subject to the specified conditions. The contract should specify the water use right is subject to the priority of use, e.g. the highest allocation priority is water for domestic purposes and nature. States should clearly have a provision in place in the contract on the circumstances under which water supply can be reduced, that a water use permit can be temporarily or permanently cancelled if this is in the public interest, and that if carried out according to the rule of law and conditions established in the law this does not give grounds for compensation.

There are downsides of the proposed recommendations. Generally, having a heavily regulated licensing system places the complete onus on the state. First, setting the maximum period for licenses to 5 years, which is not automatically renewed, places a huge administrative burden on responsible authorities (who may already face severe capacity constraints), as they have to process tens of thousands of licenses every 5 years. An alternative would be that permits are automatically renewed for another 5 years, unless the department intervenes. For example, Table 8.6 on the volume of water registered by number of registered users in South Africa, shows that only 1651 registered water users (2.47% of total 66,835 users) are allocated 68% of the volume of water. Departments could therefore focus on the bigger water users or focus specific catchments.

Second, instead of prohibiting the complete transfer of water entitlements, as this may have unwanted consequences, States could allow for the transfer of water use

entitlements, subject to both approval and the skimming of 10% – 15% of the transferred water entitlement. This allows for the continuation of the economic activity, a push for more efficient water use, while also freeing up water.

Third, while I argue no compensation should be payable by a state in case a water permit is withdrawn if it is in the public interest, very few countries have specified and operationalized the concept of "public interest" and the "priority of use". Although South Africa for example specified the priority of use,[500] they have not done so in the detail that is required.

Many of the above recommendations spring from an examination of the text of the laws and investor-state contracts. They are not based on a detailed analysis of the day-to-day challenges faced by the administrators and permit holders or contracting parties. Although I tried to put the recommendations into perspective, by describing the downsides, this should be subject of future research in order to further refine and improve these recommendations.

It is expected that the Global Commission on the Economics of Water will put the issue of quasi-property rights in water on the global water agenda at the United Nations 2023 Water Conference.

9.4 Theoretical contribution

This thesis has made four theoretical contributions. First, this research adds to the conceptual development of quasi-property rights in water by 'operationalising' the concept, i.e. converting the abstract concept into measurable observations. As shown in the literature review (see Chapter 3), apart from a few anecdotal cases mostly from the Global North, there is little systematic research that has operationalized the concept of quasi-property rights in practice (see gap 1). By having examined water use permits and investor-state contracts in great detail, I was able to identify and demonstrate the key elements of quasi-property rights in water (see Chapter 5 and 6). Moreover, these elements have been tested in the South Africa case study. For India, which has 28 sets of water policies/laws for the different states and where permits are relatively less developed, I was not able to test these out.

Second, this research has shown how quasi-property rights are embedded in permits and investor-state contracts in 60 countries in the Global South. Although this research has not been verified on the ground, what is clear is that these developing countries are

[500] I.e. water (1) for the Reserve (see 8.2.4.1), (2) meeting international water requirements, (3) for eradication poverty, improving livelihoods of the poor and the marginalized, and water use that contributes racial and gender equity, (4) that is of strategic importance to the national economy, and (5) general economic purposes (DWA, 2013: 47).

struggling to design a proper system of water allocation, given historical (colonial) rights and the challenges to expropriation. The existing distribution of water rights has been further exacerbated in many countries through the allocation of too many water permits/contracts and through inadequate and reactive options for reallocating water.

Third, this research has shown how water existing property rights, and the allocation and reallocation of property rights affects one key task of water governance namely managing the sharing of the available quantity of water between different uses, users and nature (see gap 2). I looked at water allocation and reallocation through the lens of inclusive development, which focuses on social, ecological, and relational inclusiveness and ultimately calls for redefining development. This research has shown how difficult it has been for South Africa to undo the historical rights to water (i.e. Existing Lawful Uses) because this implies expropriation of existing rights which cannot easily be undertaken within a democratic country. Similarly, in India, changing existing land-based groundwater rights which was institutionalized in the Easement Act (1882) cannot be easily changed and the law continues to be valid to date. This inevitably means that landowners benefit vis a vis landless people and currently this is not easy to change within countries that respect the rule of law. The analysis of permits and contracts also shows how states are trying to balance the need of farmers/companies to have water security in their production process, and the need of the state to be able to adaptively redistribute water in times of water shortage. However, in the process they have created property-like rights which are more difficult to change to allow for adaptive reallocation of water.

Fourth, this research has shown that merely putting water in the "public domain" does not address existing property rights or preclude the *de facto* creation of private water property rights. This research has contributed to the science of water property rights in the light of water reallocation, moreover, it also highlights a field that remains largely underexposed and requires much more research, especially in-depth case studies and field research in the Global South.

Finally, in much of the water governance world, there is often talk about what needs to happen, without adequately understanding what is already happening, and why and how developing country governments are struggling to address one of the basic issues – allocation and reallocation of water. This thesis with its focus on allocation basic has helped to make some of the challenges in water allocation more transparent.