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LAND AND WATER:
THE RIGHTS DIVERGENCE

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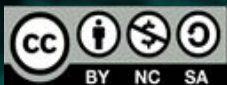
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LAND AND
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PREFACE

Land and water: the rights divergence

Ensuring secure access to both land and water is key to increased agricultural production and to the eradication of rural poverty. In the main legal traditions, water rights have historically been thought of as a component of land tenure rights. However, this land-based approach is no longer workable. Many countries have legislated to establish permit-based water rights as part of reforms to implement integrated water resources management (IWRM), which is now the dominant paradigm for the water sector.

The result of this is a significant divergence between land and water in terms of language, conceptual approaches and basic understanding, reflected in the fact that water was omitted from the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (VGGT). This poses particular challenges as regards irrigation, "land and water grabbing", groundwater and customary law.

The examination of the concept of water tenure by the Food and Agriculture Organization of the United Nations (FAO) may start the process of providing a common, tenure-based language for practitioners. Climate change will only make addressing the consequences of this divergence more urgent.

PRÉFACE

Terre et eau: les divergences en matière de droit

La garantie d'un accès sécurisé à la terre et à l'eau est essentielle à l'augmentation de la production agricole et à l'éradication de la pauvreté rurale. Dans les principales traditions juridiques, les droits sur l'eau ont historiquement été considérés comme une composante des droits fonciers. Toutefois, cette approche fondée sur la terre n'est plus viable. De nombreux pays ont légiféré pour établir des droits à l'eau basés sur des permis dans le cadre de réformes visant à mettre en œuvre la gestion intégrée des ressources en eau (GIRE), qui est désormais le paradigme dominant pour le secteur de l'eau.

Il en résulte une divergence importante entre la terre et l'eau en termes de langage, d'approches conceptuelles et de compréhension de base, comme en témoigne le fait que l'eau a été omise des *Directives volontaires pour une gouvernance responsable des régimes fonciers applicables aux terres, aux pêches et aux forêts dans le contexte de la sécurité alimentaire nationale*. Cela pose des problèmes spécifiques en ce qui concerne l'irrigation, «l'accaparement des terres et de l'eau», les eaux souterraines et le droit coutumier.

L'examen du concept de régime foncier de l'eau par l'Organisation des Nations Unies pour l'alimentation et l'agriculture (FAO) pourrait amorcer le processus visant à fournir aux

PREFACIO

Tierra y agua: la divergencia de derechos

Garantizar el acceso seguro tanto a la tierra como al agua es clave para aumentar la producción agrícola y erradicar la pobreza rural. En las principales tradiciones jurídicas, los derechos de agua se han considerado históricamente un componente de los derechos de tenencia de la tierra. Sin embargo, este enfoque basado en la tierra ya no es viable. Muchos países cuentan con legislación que establece los derechos de agua basados en permisos como parte de las reformas para aplicar la gestión integrada de recursos hídricos, que es ahora el paradigma dominante para el sector del agua.

El resultado es una importante divergencia entre la tierra y el agua en términos de lenguaje, enfoques conceptuales y comprensión básica, que se refleja en el hecho de que el agua no está incluida en las *Directrices voluntarias sobre la gobernanza responsable de la tenencia de la tierra, la pesca y los bosques en el contexto de la seguridad alimentaria nacional*. Esto plantea retos específicos en lo que respecta al riego, el "acaparamiento de la tierra y el agua", las aguas subterráneas y el derecho consuetudinario.

En el examen del concepto de tenencia del agua realizado por la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO) se podría iniciar el proceso de proporcionar a los profesionales un lenguaje común basado en la tenencia. El cambio



praticiens un langage commun fondé sur le régime foncier. Le changement climatique ne fera que rendre plus urgent la nécessité de trouver des solutions aux conséquences de cette divergence.

climático solo hará que las consecuencias de esta divergencia se aborden de manera más urgente.

Colombia
Collective work on fields of yam vegetable



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1. INTRODUCTION

Ensuring secure access to both land and water is key to increased agricultural production and to the eradication of rural poverty. The linkage between poverty and lack of access to land and water is clear, with the poorest having the least access to land and water and consequently finding themselves “locked in a poverty trap of small farms with poor-quality soils and high vulnerability to land degradation and climatic uncertainty” (FAO, 2011). With global population growth projections of two to three billion people over the next 40 years, coupled with changing diets, irrigation will be crucial to meeting the projected 70 percent increase in food demand by 2050 (UN-Water, 2012).

Land and water, as resources, are of vital importance to the economy, to society, to the state, to people and indeed to life itself. Land and water are also linked at a fundamental level: most productive uses of land require the availability of water, from one source or another, which increasingly is making the availability of water rather than land the main constraint to agricultural growth (Hodgson, 2004) and a key driver of land values (USDA, 2017). Moreover, activities undertaken on land can have a direct impact on water resources, in terms both of quantity and quality.

Given the clear interlinkages between land and water it might seem reasonable to assume a high degree of coordination between the allocation of rights to land and water resources and the content or substance of such rights. Historically speaking this was, in a sense, the case. In many jurisdictions, formal water rights were a subsidiary component of land tenure rights, with a right to use water resources often being dependant on the existence of a land tenure right. Customary tenure regimes also tend to address land, water and other natural resources holistically, within a normative framework of local or communal law.

Now, however, the reality is that the legal and policy mechanisms for the governance of land and of water rights are increasingly divergent. In part, this divergence results from the inadequacies of the traditional land-water

rights linkage in the face of the increased pressure on water resources as a result of both population growth and climate change. Approximately two billion people already live in areas of “water scarcity”, and by 2050 global water demand is expected to increase by 55 percent (UNESCO, 2014).

The result, though, is that land and water, or more specifically land tenure and water rights, are the subject of separate disciplines, analysed and written about by different experts in separate books and journals, using different vocabularies, terms and concepts – and addressed in separate policies and legislation. So what could the response to this be? The resources themselves are quite different – one fixed and immobile, the other fluid and fugitive – so in a sense it is quite natural for them to be addressed in different ways. As we will see, there are rational reasons why this divergence has taken place.

A further issue relates to the specific nature of water rights. Unlike the emerging human right to water, a right which everyone holds simply by virtue of its meaning for humanity, water rights tend to be of primary concern to rural populations. For the 54 percent of the world's population who live in urban areas (UN, 2014), who buy rather than grow their food and whose water arrives through a tap or pump (WHO-UNICEF, 2017), water rights may at first sight seem a rather abstract issue, save for the fact that: (a) irrigation is essential to meet growing food demand in urban areas; and (b) more and more cities struggle to find the water resources necessary to meet increased water demand, to the extent that one in four cities worldwide already experiences water insecurity (World Bank, 2016). In short, land tenure and water rights really are of relevance to everyone.

Building on, and updating, an earlier FAO study (Hodgson, 2004; Bojic, Espinosa Flor, Hodgson, Kiersch and Vallee, 2021; FAO, 2016), the aim of this paper is to trace how water rights have diverted from land tenure rights, to identify the implications of this divergence and to seek to identify possible



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new approaches and areas for intervention so as to promote dialogue and policy coherence. It is set out in five parts, beginning with this introduction. Part two sets out the historical linkage between land tenure rights and water rights, while the process of divergence is described in part three. Some practical implications of the land tenure/water rights divergence are considered in part four, part five draws preliminary conclusions and briefly describes a potentially promising new approach that may seek, if not to stem the divergence, then at least to provide the basis for a common land-water vocabulary.

2. THE HISTORICAL LINKAGE BETWEEN LAND TENURE RIGHTS AND WATER RIGHTS

Since ancient times, societies have conferred enforceable rights to use, access, own or otherwise hold land and water resources. Such rights generally serve the same basic purposes: they permit the orderly allocation of valuable resources while at the same time conferring upon the holder the security needed to invest in the resource or activities entailing its use. In many parts of the world, particularly in rural areas, land and water rights are still determined by long-standing rules of customary or local law. However, in terms of formal law, both formal land tenure rights and water rights are, for historical reasons, overwhelmingly influenced by European conceptions of land and water, as reflected through the two European legal traditions: the civil law tradition and the common law tradition (Hodgson, 2004).

Both of these European legal traditions were in turn heavily influenced by Roman law. Roman law generally denied the possibility of private ownership of water resources, while at the same time recognizing the need to regulate the right to use those resources in order to provide order and prevent over-exploitation (Getches, 2007). To this end, Roman law distinguished the more important, perennial streams and rivers from the less important, with the former being considered 'public' and the latter 'private' (Teclaff, 1985).



This distinction was maintained by the French Civil Code – the Code Napoleon – promulgated in 1804 after the French Revolution. Public waters were those considered to be “navigable” or “floatable” and belonged to the public or national domain. Their use required a permit or authorization issued by the state. Private waters, located on or along privately owned land, could be utilized freely subject to certain limitations of a statutory nature such as servitudes, rights of way etc. The right to use such private waters, both surface and underground, derived from land ownership. Similarly, the Spanish Water Act of 1886 considered all surface waters that spring on a privately owned parcel, as well as rainfall on that land, as private property, but only for its use on that land parcel (FAO, 1999).

While the common law tradition also rejected the notion of private ownership of flowing water, a number of different doctrines arose, the most important of which is the “riparian doctrine” (Scott and Coustalin, 1995). Under the riparian doctrine, which applies to “riparian land” or land along the banks of rivers and streams, water rights are an integral part of the right of ownership of the land in question. They allow the riparian land owner to make “ordinary” use of the water flowing in the watercourse, such as use for domestic purposes or the watering of livestock, without regard to the effect this might have on downstream proprietors (Howarth, 1992). Moreover, such a land owner has the right to use the water for any other reasonable “extraordinary” purpose connected with the riparian parcel provided that this does not interfere with the rights of other proprietors, upstream or downstream. The question of whether a particular “extraordinary use” is reasonable is a question of fact, which must be determined by reference to all the circumstances.

As regards the rules relating to the abstraction and use of groundwater, civil law jurisdictions generally treated groundwater as the private water of the landowner, whereas under the common law tradition, the doctrine of “capture” provides that there is no property in groundwater until the point at which it is withdrawn. Consequently, landowners are basically entitled to pump as much as they need irrespective of the possible impact on other users.

In a number of jurisdictions, such rules still apply in whole or in part, particularly as regards groundwater. For example, the doctrine of capture still effectively applies in India, Pakistan and a number of jurisdictions in the United States of America (USA), such as Texas. Other vestiges of this linkage are found in civil code provisions that refer to water, such as with regard to rights of aqueduct and land drainage.

3. THE DIVERGENCE

Among the main advantages of determining rights to abstract and use water resources on the basis of land tenure rights were that: (i) such rules are easy to state; and (ii) they require no additional administrative procedure. However, they shared a number of serious disadvantages.

First of all, there was the issue of quantification – how much water use constituted a “reasonable use” in the common law riparian tradition? Similar problems arose with competing claims over the use of private waters in civil law jurisdictions, which gradually saw more and more restrictions being placed on the exercise of such water rights. Moreover, much of the development of the riparian doctrine took place in the damp and water-rich climates of England (the United Kingdom of Great Britain and Northern Ireland) and New England (the United States of America), and indeed much of the case law (jurisprudence) on riparian rights relate to disputes over the situation and operation of water mills rather than water abstraction. Such principles were transferred with difficulty to more arid climates.

By as early as the mid-nineteenth century the riparian doctrine had limited practical applicability to arid climates, which led to the development of other common law doctrines, such as the “prior appropriation” doctrine in the American West, under which water rights arose on the basis of the date of appropriation for beneficial use (see FAO, 2006). Even in England, by the end of the nineteenth century, the limitations of the riparian doctrine meant that water rights for new water investments (such as reservoirs and

water treatment plants/supply networks) were typically established on the basis of specific legislation in the form of individual acts of parliament. In short, while the rule-based approach of regulating access to a fluid resource on the basis of rights over a fixed resource may have been appropriate in an earlier era of water abundance, it is now clearly recognized to be obsolete.

3.1 The introduction of permit-based water rights

With increased pressure on water resources, by the end of the nineteenth century a number of jurisdictions began to adopt specific water legislation to introduce "modern" permit-based water rights that largely sever the land tenure link. This is a process that continues to this day, as countries develop or update their water legislation. The first step in adopting new water legislation is usually to "nationalize" water resources by placing water in public or state ownership, control or trusteeship. This has the effect of removing the validity of private water rights. The "nationalization" process is coupled with the introduction of permit-based water rights that are issued by a government body referred to in this paper as the "water administration".

Such water rights are formally separate to land tenure rights and create a legal right to abstract or impound and use a specified quantity of water. Thus, subject to the de minimis provisions described in more detail below, a modern water right is necessary to abstract water from a surface or groundwater source, using a fixed structure or a pump, or to impound water behind a dam or weir, whether or not this is prior to abstraction.

Due to the physical nature of water as a resource it is usually also necessary to regulate a number of other activities as a type of "water use" because of their potential impacts on water resources in terms of the flow, quantity and/or quality of water, including gravel extraction and the discharge of wastewater. Modern water rights are typically issued for a fairly long term, from 10-15 years up to 25 years (or sometimes even longer) in the case of

large investments such as hydropower dams. The legal rights they create are use rights, while also being a type of property or quasi-property right. Water legislation typically provides that new rights may not be issued if this would harm existing rights, and while permits can usually be temporarily suspended or modified in times of drought, they may only be permanently modified or cancelled on the basis of compensation or the provision of water from another source.

In the diagram contained in Figure 1, below, applications for permits to construct a new dam at point A, a new irrigation scheme at point B, or a new water treatment plant at point C should only be granted by the water administration if they do not adversely affect water uses undertaken on the basis of existing water use permits.

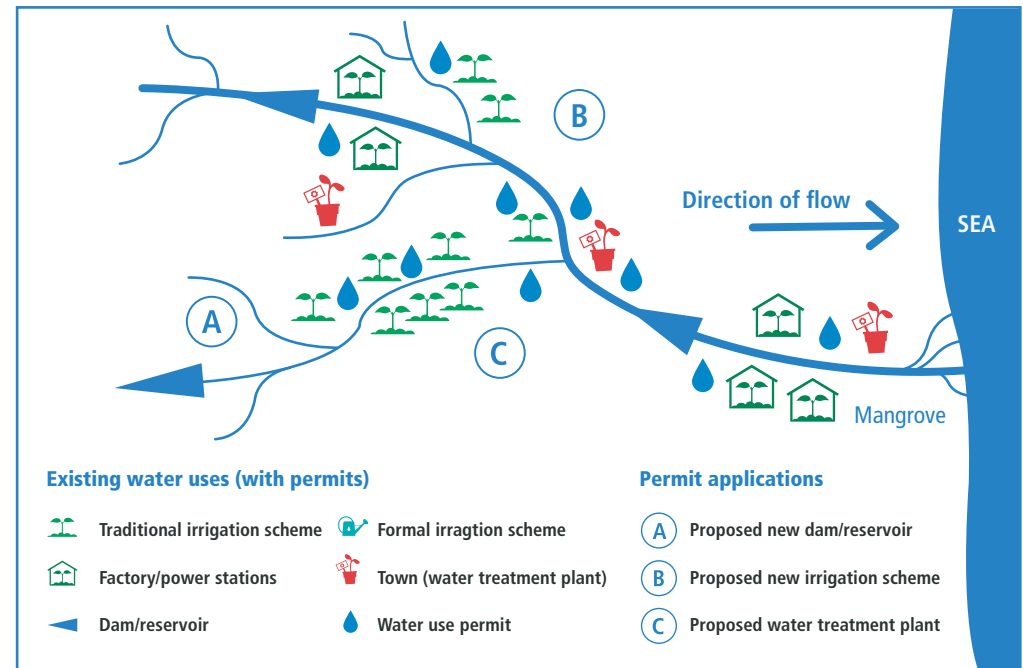


Figure 1 – Schematic of permitting considerations under a modern water rights regime



3.2 Integrated water resources management (IWRM)

The development of water legislation typically forms part of a much broader package of water sector reforms that seek to introduce "integrated water resources management" (IWRM). IWRM has become the dominant paradigm for water resources management and has, perhaps inadvertently, further promoted the divergence between land tenure and water rights.

A commonly used definition is that:

"IWRM is a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (Global Water Partnership, 2000)."

Notwithstanding the use of the word "integrated" and the reference to "land and related resources" in this definition, the reality is that, partly due to the nature of water as a resource, IWRM has resulted in a rather technical approach to water resources management that relies heavily on monitoring, data management, modelling and planning.

Moreover, because water resources do not respect administrative boundaries, IWRM calls for water management at the river basin scale, resulting in the creation of completely new river basin and subbasin institutions, together with new stakeholder participation mechanisms at basin and subbasin levels (such as "river basin councils"). So, what does a water rights regime undertaken on the basis of IWRM involve in practice? The starting point is the collection and management of data, as water resources management is not really possible without data. This in turn implies the installation and operation of data monitoring stations on rivers and streams and the constant updating and management of the data so received. Given that modern, permit-based water rights typically confer a legal right to a share of the flow, monitoring is also directly pertinent to the

substance of such rights (leaving aside the need to leave sufficient water in river and streams to satisfy fundamental human and ecological needs). Next comes data analysis, and by implication storage and management. The data is used by the water administration to establish different scenarios for river basin development and use – scenarios that must also consider land use and climate change impacts – and then to model the various outcomes using specialized modelling software.

On the basis of the modelling outputs and consultation with relevant stakeholders (including civil society), a draft river basin management plan is prepared and discussed within various ad hoc or permanent stakeholder platforms, such as the river basin council.

Next, on the basis of comments received, the draft river basin management plan is finalized and then forms the basis for making decisions about future uses of water resources within the basin and the allocation of water rights. River basin management plans are typically subject to periodic review in 5 -10 year cycles.

Applications for permit-based modern water rights are evaluated on the basis of the river basin management plans and the priorities identified for the use of water in the relevant basin, and then either issued or declined. Details of each permit, which are usually subject to conditions with regard to the volume of water that can be used and to minimize third party and environmental impacts, are usually recorded in a formal permit register that is open to public inspection.

Permits are subject to periodic inspection by duly authorized officers from the water administration and if breaches of permit conditions are discovered these may be subject to administrative or criminal penalties and even the cancellation of the permit. Permits are typically also subject to temporary modification or restriction in times of low flow or drought.

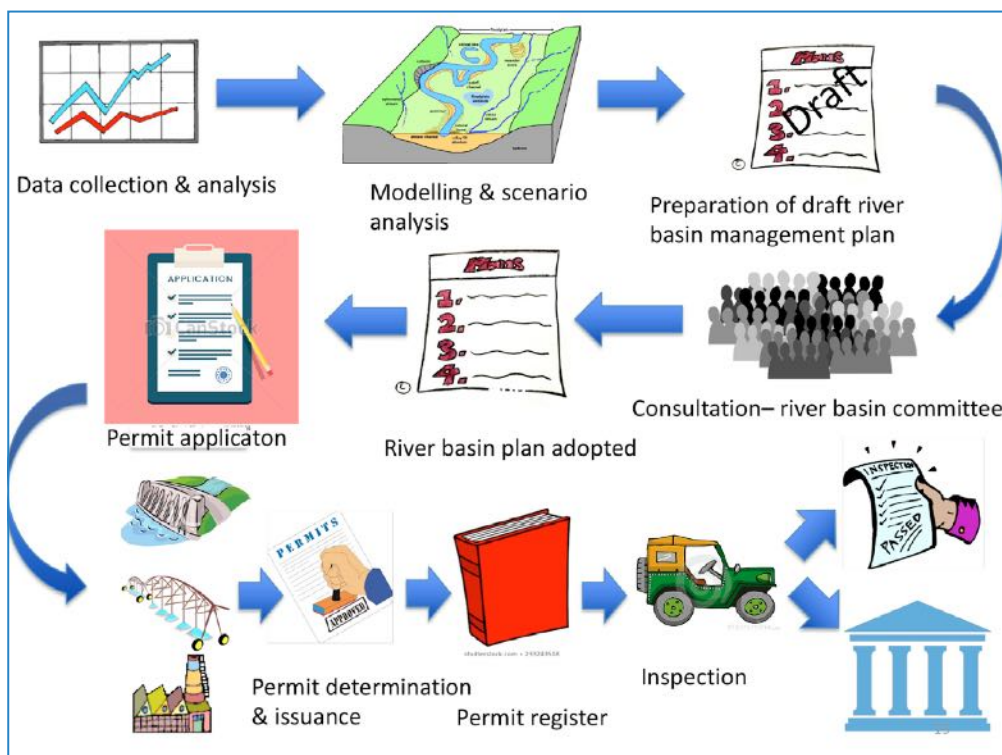


Figure 2 – River basin management planning and permitting procedure

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If this corresponds roughly to the "ideal" for IWRM implementation and the issuance of modern permit-based water rights, one issue that is clear from the outset is that IWRM can be a complex and costly process. Even data collection and management can be expensive: measuring posts in remote

rural areas are often vandalized or stolen. For example, in the United Kingdom of Great Britain and Northern Ireland, the cost of water resources data collection, storage and management England and Wales is around USD 78 million per annum. Moreover, although the river basin is the logical basis for water resources management, river basins can be very large and, as mentioned above, almost invariably cross administrative boundaries. They very often cross international boundaries too, further adding to cost and complexity (and a whole other dimension of water resources management that is beyond the scope of this paper).

Because of the implementation challenge, in many countries modern water rights regimes exist largely on paper. For example, Kyrgyzstan's 2002 Water Code was developed to give effect to IWRM but remains largely unimplemented, including with regard to its provisions on water use permits. Even South Africa, with its relative economic strength and technical expertise, has struggled to fully implement its state-of-the-art National Water Act and in particular the provisions on modern permit-based water rights (Kidd, 2016).

So, what is the solution? How can IWRM and the implementation of modern permit-based water rights be funded? Budget funding is one option of course, but in many countries budgets have many claims upon them. Another option is to link the issuance of permits to a duty to pay a water resources use fee to cover essential water resources management costs – a practical application of the "user pays" principle. On the other hand, though, some have criticized this kind of approach as unfair and a further "tax" or burden on small farmers (Pegasy/IWMI, 2017).

Social equity issues may also arise with regard to river basin stakeholder platforms in which poorer, water-dependent sectors of society may struggle to make their voices heard against the rich and powerful. And finally, there can be concerns that the costs and challenges of bringing water users into a modern water-rights regime means that it is often the rich who benefit, with poorer users being inadvertently disenfranchised (Ravnborg, 2016).



In short, the implementation of modern, permit-based water rights poses a significant challenge particularly, but not exclusively, for developing countries. Over recent years some have begun to question the concept of IWRM and in particular its implementation, which has been criticized for being formulaic, prescriptive and top down. There is also a concern that IWRM has become an end in itself rather than a means of achieving important goals, such as equitable access to water, poverty alleviation, food security, economic growth, and ecological conservation (Mollinga, 2008, Batchelor and Butterworth, 2014).

A full discussion of the merits or otherwise of IWRM, and the permitting regimes that are a key element of IWRM, is beyond the scope of this paper. Nevertheless, despite how costly IWRM is to implement, it is firmly on the global agenda: Sustainable Development Goal 6.5 calls for the implementation of IWRM at all levels by 2030.

As noted in the introduction, the divergence between land tenure and water rights has resulted in a disconnect at various levels, despite their fundamental linkages. And this disconnect shows few signs of being resolved. Indeed, as the scale and sheer complexity of the challenges faced by the land and water sectors becomes clear, there seems to be a risk that this separation will only get worse. Already we risk losing the very basis of a shared understanding – a shared vocabulary: "our rights are different to your rights", "our institutions are different to your institutions" and so on. A clear example of this divergence is the fact that water was eventually omitted from the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (the 'VGGT') (FAO, 2012), adopted on 11 May 2012 at the 38th Special Session of the Committee on World Food Security; when the process of developing the VGGT began, it had been envisaged that water and 'water tenure', would also be included.

In the end, a number of reasons were cited as to why water was excluded from the VGGT (see FAO, 2012a, FAO, 2016). However, arguably one practical

reason was the lack of shared vocabulary, which became clear in the very early stages of the drafting process. For example, the zero draft referred to "surveying", a perfectly standard concept for land tenure, but one that has much less relevance for water, which uses quite different terms for data collection and measurement. The transboundary issues for land tenure, such as the rights of nomads to move across borders with their herds, are completely different to the transboundary challenges faced by the water sector in terms of international rivers. And whereas the benefits of the role of land markets may now be widely accepted in the land tenure sector, in the water sector the issue of "transferable tradable water rights" remains challenging and controversial (see Bauer, 2004). In short, the land tenure people and the water people were talking different languages. And this, ultimately, is the main risk. That people working with and thinking about land tenure rights make assumptions about water rights based on their own experiences that are simply not correct – and vice versa, of course.

4. PRACTICAL IMPLICATIONS OF THE DIVERGENCE

Given the fundamental interrelationship between land and water, the lack of a common conceptual approach, language or understanding at the very least risks mistakes being made in policy formulation and project implementation. But beyond these high-level risks, there are a number of more practical challenges that arise.

4.1 Irrigation

With increased pressure on water resources, by the end of the nineteenth Agriculture is by far the largest water use sector, accounting for 70 percent of global water withdrawals, of which most is for irrigation. Irrigation is seen as essential to fulfilling additional demand for food. Even as long ago as 1998, irrigated land made up approximately one-fifth of the total arable area in developing countries but produced two-fifths of all crops and close to three-fifths of cereal production (FAO, 2003).



Although some farms/farmers have direct access to water resources (from groundwater or because they hold land adjacent to a river or stream), most irrigators rely on water supplied through large publicly-funded irrigation schemes. Unlike the urban water supply sector, there is a rather limited role for the private sector in the construction and operation of such schemes (mainly on account of the low retail value of irrigation water and the fact that the number of potential customers is fixed by reference to the infrastructure, meaning that it is costly to grow the notional "market").

Such schemes are typically operated by a state irrigation agency, particularly in developing and transition countries. For a range of reasons, including the need to reduce costs and the poor performance of such agencies as service providers, many developing countries have since the 1980s, promoted the establishment of self-governing, self-funding water user organizations (WUOs) under the banners of "participatory irrigation management" (PIM) and "irrigation management transfer" (IMT) that take responsibility for operation and maintenance of irrigation schemes in whole or in part. Each WUO is typically responsible for the management and operation of the scheme, and the operation of irrigation infrastructure within its own unique "service area".

In a large irrigation scheme the state irrigation agency is typically responsible for operating and maintaining the main infrastructure, such as the dam and turnout structures and the main canals (the left bank and right bank main canals shown in the diagram in Figure 3 below) and enters into bulk water supply contracts to provide water to each WUO. Water is delivered to a delivery point (indicated in Figure 3 by the red cross) against payment of a fee in accordance with an agreed delivery schedule. This kind of "contractual water right" is a right to service as well as to a volume of water – the service of delivering that water.

The water right of an individual farmer to water is held in common with the other WUO members, through the rights of the WUO (to receive water at the delivery point). The individual right or allocation of water of each farmer is implemented when the water reaches her/his plot (the orange

cross on the plot). Such "commonhold" rights are in turn dependent on: (a) the effective operation of the WUO; and (b) the correct implementation of the bulk water supply contract between the irrigation agency and the WUO.

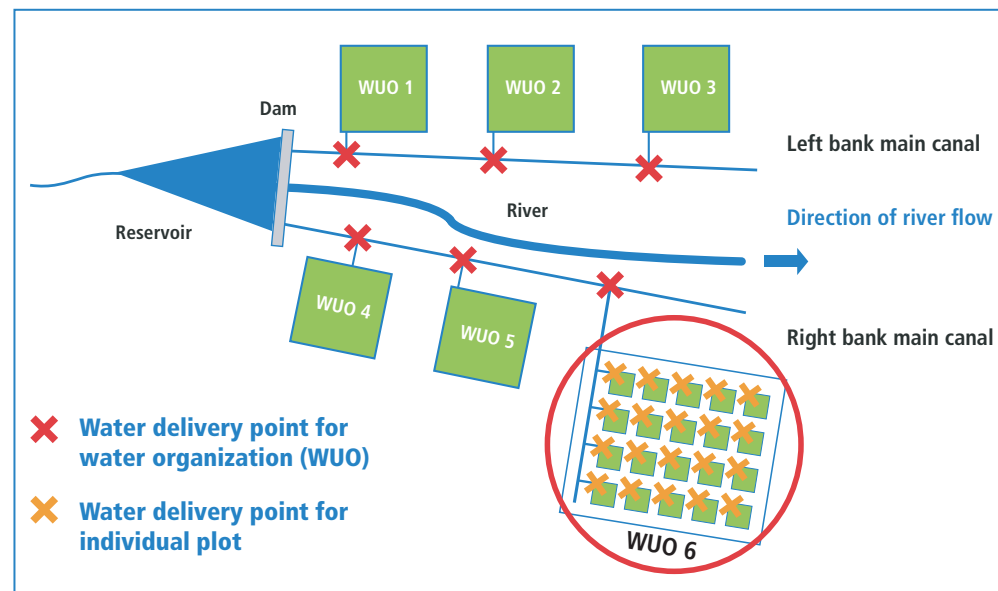


Figure 3 – Schematic of an irrigation scheme with six water user organizations

The WUO concept is, in fact, very old. Examples can be found of long-established WUOs in a number of countries (such as Nepal and Indonesia) that continue to function successfully on the basis of customary law. WUOs established on the basis of formal law a hundred years ago or more (in some cases many hundreds of years ago) operate effectively in parts of Europe and the Americas (FAO, 2003). Key to the success of a WUO is the fact that every land holder within the service area must pay their share of the WUO's operation and maintenance costs and must comply with its internal rules for water management. If land holders refuse to pay then a WUO can rapidly become insolvent.



This is why in Europe and North America participation in a WUO, described explicitly or implicitly in terms of membership, is compulsory (and after all, land owners will not benefit if they choose not to irrigate, as irrigable land is more valuable). A key point to note in this regard is that "membership" is not personal to the landholder, but rather pertains to the land. This is why French WUO legislation states very clearly that the "rights and duties that derive from the establishment of a WUO are permanently linked to the land plots located within the Service Area of that WUO and are transferred with those plots until such time as the WUO is dissolved or the Service Area of the WUO is reduced" (*Ordonnance no 2004-632 du 1er juillet 2004 relative aux associations syndicales de propriétaires*).

This raises a key point. Irrigation and WUOs are just as much concerned with land as with water. Although the purpose of irrigation is to ensure an appropriate level of soil moisture – in other words a land issue – it is very often treated as purely a "water issue", with limited relevance to land tenure.

Arguably, one of the reasons that WUOs in developing and transition countries have not always succeeded very well is that they have often been established as farmers' or peoples' organizations like cooperatives, social groups and other non-government organizations, rather than by reference to the land itself (see for example Uphoff, 1993 and a vast body of social science literature on WUOs). There are of course a number of reasons why WUOs are not always successful (Suhardiman, 2013). However, whenever WUOs do not work effectively the net result is the same: farmers end up with weak water rights and their land lacks water.

Too often, though, irrigation is treated solely as a water issue of little concern to the land tenure aspects of a policy or a project. A clear example is the land and agrarian reforms undertaken in many of the transition countries of Eastern Europe and the former Soviet Union, which saw a curious lack of attention paid to the legal status and future use of irrigation infrastructure (FAO, 2009).

Land tenure questions are fundamental to the successful management of public irrigation schemes. Farmers with weak or inadequate land tenure rights may also be reluctant to invest time and effort in making WUOs work effectively. Moreover, WUOs themselves need to have secure legal rights in order to take responsibility for the irrigation infrastructure that they operate and maintain. At the same time, in cases where farmers receive land plots with secure land titles, too little attention is paid to their rights to water. Put another way, a common language is needed around land and water rights for irrigation.

4.2 Agribusinesses and land concessions

Recent years have seen significant investor interest in the agriculture/agribusiness sector in a number of countries, particularly in Africa, on the basis of long-term concession agreements or contracts for the use of state land. As abundant water and fertile land are exactly what private investors need, these agreements often also confer rights over water (Cotula, 2011). Under such an arrangement an investor, typically a foreign investor, enters into an investment contract with a host government, or a ministry or agency of the host government, to use an area of land and other natural resources for commercial activities. This type of approach is also used for industrial investments, which may specify the volume of water that may be impounded or used.

In practice, in countries that do not have an effective modern formal water rights regime in place, this may in practice be the only means a host government has of attracting investments in activities that require substantial volumes of water. However, the dangers of this approach are clear, particularly in terms of negative third party and environmental impacts concerning water resources. Such agreements are typically negotiated by ministries responsible for investment promotion or agriculture, and it is not always clear that the relevant water administration, let alone civil society, is properly consulted.





Moreover, as is well known, one of the most serious implications of such types of agreement involving foreign investors is that they are typically classed as investment contracts, under which any disputes are to be referred to international arbitration and eventually enforcement under the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards or equivalent mechanisms (Cotula, 2010). Of course, governments are keen to promote investment in agriculture and other sectors and of course there is growing demand for food and other agricultural products. Nevertheless, just like "land grabbing", "water grabbing" has become a real issue. One of the reasons this can happen is a lack of coordination over land tenure and water rights (Rulli, Saviori and D'Odorico, 2013; Mehta, Veldwisch and Franco, 2012; Franco, Mehta and Veldwisch, 2013).

4.3 Groundwater

The land and water rights divergence poses a particular challenge in relation to groundwater. From the perspective of an individual landowner, the ability to sink and operate a borehole to abstract groundwater for domestic or industrial use or irrigation can certainly be convenient. Consequently, there is an ongoing global groundwater boom, coupled with a debate about how to solve the growing problem of groundwater over-exploitation (see for example Molle, López-Gunn and van Steenberg, 2018, and a vast and growing literature on the topic).

The key challenge is how to regulate groundwater use and development so as to prevent the unsustainable depletion of aquifers. A key point to note is that, with the exception of so-called "fossil" groundwater, groundwater is part of the hydraulic cycle, and therefore directly linked to surface water resources. There is arguably as much variation in the characteristics of aquifers as there is with surface water resources. While all have the characteristics of storage and flow, they vary widely in their hydraulic properties (permeability and storability) and reservoir volume (effective thickness and geological extension (Salman, 1999)).

At the same time, the very nature of groundwater, hidden beneath the earth's surface, has implications for data collection and a proper understanding of aquifers in all their variety through modelling and other techniques. As a general rule, in most countries the availability of data on groundwater quantity and quality is poor, certainly compared with surface water data. As a result, groundwater data coverage tends to be "patchy" and of highly variable quality (Hodgson, 2003). The traditional approaches of the main legal traditions (private water and the doctrine of capture) are clearly unworkable in an era when electric vacuum pumps and deep tube wells have resulted in falling water tables and increased pressure on aquifers around the world through a literal race to the bottom.

Given that groundwater is directly linked to surface water, logic suggests that the abstraction and use of groundwater should be brought within the same regulatory regime as modern permit-based water rights and this is indeed typically provided for in modern water laws. In practice, though, experience suggests that permit-based approaches are even more challenging to implement for groundwater uses than surface water uses, not least due to the dispersed nature of wells and boreholes in the landscape and the basic enforcement challenge (Molle & Closas, 2017). What seems to be a more promising path is some form of co-management approach, linked back to defined land areas (as pioneered in Spain and parts of the United States of America), in the form of what are effectively groundwater WUOs that adopt and enforce rules relating to groundwater abstraction, including with regard to the quantities of groundwater that may be used.

4.4 Customary law

In many parts of the world, customary or local law remains the dominant paradigm for the determination and application of land tenure and water rights. While customary land tenure is recognized by formal law in many jurisdictions, particularly in Africa, customary water rights receive formal



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recognition in relatively fewer cases (in treaties, constitutional provisions or even in water legislation) and even when they do, it can in practice be difficult to reconcile conflicts between quite separate normative regimes (Burchi, 2005). Very often, modern water legislation does not recognize customary water rights, instead seeking to effectively nationalize all water resources, as noted above, prior to placing them under a modern water rights regime. This does not mean that all uses previously undertaken on the basis of customary water rights become illegal: many may be allowed on the basis that they constitute *de minimis* or small-scale commercial uses.

The reality, though, is often more complex. Very often, customary water law applies because formal water law has not been applied in a particular area. In Africa, for instance, in areas where customary land tenure applies, customary law will in practice also apply to water, particularly as regards issues of allocation and use.

But this raises important questions as to what happens when customary land tenure rights are brought within formal law through titling and registration systems. And what happens to the rights of pastoralist communities when land around water sources that was previously subject to a range of customary land tenure rules is brought within formal land law? How can access to water sources be secured? How can formal law take into consideration customary laws, institutions and management agreements?

And even if pastoralists can rely on the *de minimis* exemptions from the need to hold a modern permit-based water right to water their herds, this 'right' is a right not to follow an administrative procedure – it is not a right to a share in the resource. At a more basic level, what is the logic of recognizing customary law only in part – that is, as regards land but not water – when the two resources are so intimately linked? This represents a divergence not just between laws, but between the formal recognition of normative systems.



5. CONCLUSIONS AND OPPORTUNITIES FOR NEW APPROACHES

Although land tenure rights and water rights are fundamentally interlinked, the divergence between them has taken place for entirely logical reasons – as a result both of a better understanding of the nature of water resources and increased pressure on those resources. This has crystallized into the emergence of IWRM as the dominant paradigm for water resources management and the allocation of water resources on the basis of modern water rights. While the implementation of IWRM remains a significant challenge for many countries, a further overall risk arises from the lack of shared vocabulary, conceptual approach and understanding between the land and water sectors.

So, if these are some of the challenges, what are the opportunities for new approaches to rebuilding the linkages between land tenure and water rights? One promising approach currently being investigated by FAO is the concept of “water tenure” (FAO, 2016, FAO, 2020). This process grew out of the development of the VGGT, and indeed one possible further reason why water was not included in the VGGT is precisely because the term “water tenure” seemed novel: in the water sector people have tended to talk about “water rights” but not “water tenure”.

An advantage of water tenure is that it recognizes the existence of a broad range of different types of “water rights” created under formal law, as well as customary law (FAO, 2016). Many of these have already been mentioned in this paper, including traditional formal water rights, modern permit-based water rights, implied or statutory rights of state agencies, water delivery rights, commonhold rights as well as rights created on the basis of customary law.

Other types of water tenure include informal uses of water resources, in the sense of uses that are tolerated over a long period of time, in a manner somewhat analogous to so-called “squatters’ rights”, as well as those that are simply downright illegal, a major problem around the world.

Talking about water in terms of “tenure” may open the possibility of an improved land and water dialogue that recognizes commonalities as well as the divergence that has taken place to date. At the very least, it starts the process of developing a common vocabulary, which can lead to a better mutual understanding of the complexity of each sector. At the same time, the impacts of climate change, coupled with the need to feed the world’s fast-growing population, may force a reappraisal of land tenure and water rights linkages. Eventually, the need to use water more effectively, to “make every drop count”, may trigger a more harmonized approach to the use of these two most fundamental and interlinked resources – land and water.



Niger
A tree stands alone in the arid land

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