Background Paper on Water Tenure and Climate Resilience

For the Food and Agricultural Organization (FAO) Workshop on Water Tenure, 28-29 June (Berlin)

Prepared by

Sabine Blumstein and Karolina Heck (adelphi)

June 2022

Key Messages

1. **A key challenge in addressing climate change is to find the right balance between secure water tenure rights, that depend on clearly defined rules and regulations, and leaving enough flexibility to adequately respond to changing climatic conditions.**

2. **Sound water accounting is necessary to ensure security of water rights in conditions of scarcity and to implement flexible water allocation mechanisms. The recognition of all water users can help to close water data lacks and thereby improve climate resilience.**

3. **The recognition of secure water tenure rights can have positive effects on water use efficiency, as it may provide incentives in investments in new and more efficient water infrastructures.**

4. **The acknowledgement of different forms of water rights can contribute to conflict resolution. Water tenure assessments provide a framework for understanding all relationships between water users which in turn can help to prevent or resolve potential conflicts.**

Water Tenure and Climate Resilience

Water tenure arrangements under changing climate conditions

Climate change has severe implications for water availability in many parts of the world. The challenges are enormous. Climate models predict decreases in renewable water resources in some regions (mid-latitude and dry subtropical regions) and increases in others (mainly high latitudes and humid mid-latitude regions). Even where increases are projected, there may be short-term shortages due to changing streamflow caused by greater variability in rainfall (FAO, 2021). Many countries may, for example, need to build more reservoirs for water storage and flood protection. Other water users will need to increase water abstraction for irrigation to accommodate food production under higher temperatures. All these adaptive measures will, however, inevitably impact existing water tenure arrangements of other users. In these contexts, understanding diverse water tenure rights can help to increase resilience and mitigate water resources conflicts.

One key challenge in addressing climate change is to **find the right balance between secure water tenure rights**, that depend on clearly defined rules and regulations, **and leaving enough flexibility to adequately respond to changing climatic conditions**. On the one side it is necessary to ensure that water tenure rights are based on clearly defined rules of how much water can be accessed and at which times to provide individual actors with enough planning security to make long-term decisions and, amongst others, provide enough investments in water resources infrastructure. At the same time, however, climate change is likely to require significant degrees of flexibility in tenure arrangements to react to changing conditions of water availability (in terms of timing and overall resource availability).

Ensuring climate resilience will hence require a greater emphasis on flexible water tenure mechanisms such as, for example, **water allocation and accessing rights based on percentage shares instead of fixed volumes**, as they leave more room to mitigate water resources variations (Dinar et al 2010). Percentage allocation of water rights can also help to reduce the degree to which actors voice grievances towards other actors using the same water source, especially in systems with high water variabilities. Thereby, flexible water allocation mechanisms can also contribute to avoid disputes and conflict between different user groups.

However, implementing such percentage-based water allocation mechanism (as well as other instruments) will require a sound and up to date knowledge of water resources availability. In this regard, it is important to underline the necessity of **sound water accounting to provide reliable information on water resources**. Without an understanding of how much water is available at a given time, implementation of flexible water allocation mechanisms is difficult.

Effects of water tenure on water use efficiency

Climate change adaptation will also require a more efficient use of water resources. However, water use efficiencies are limited in many countries around the world, including those most affected by climate change. In these contexts, the recognition of secure water tenure rights, can have **positive effects on water use efficiency**, also thanks **to investments in new and**

more efficient water infrastructures. The improved water security that comes with the acknowledgement of various types of water tenure, can motivate more investments in efficient water infrastructures.

A case study from the KwaZulu-Natal region in South Africa shows the positive relation of secure water rights and irrigation efficiency on agricultural land. In this case study, local water rights are ensured through a scheme committee that shows similarities to water user association (WUA) principles. Scheme committees can make decisions without governmental approval, provide technical or infrastructure support, collect water fees and are directly responsible for the administration of land and water resources. For many years, the South African Government has pushed for the registration of WUAs and scheme committees in smallholder irrigation schemes to better monitor water use, in particular in times of droughts, and to improve water use efficiency (Cele and Wale, 2018). Secure and transferable property rights have shown to be essential for a higher level of investments from farmers' side but also to improve their credit rating. **Water rights that are secured through the well-functioning of the scheme committees lead to better productivity in using irrigation water** (ibid.). The existence and legal recognition of steering committees is therefore of central importance for rural agricultural water management, as the committees provide the administrative structure, financial support to farmers and provide them with water rights. This **enhanced security status of water tenure can lead to more investments and better water use efficiency.**

Water Tenure and its impact on local water conflicts

Water tenure arrangements may not only define who can access water resources but also how much can be extracted, for how long and for what purpose. They may also indicate the process of water right allocation and which uses should be considered as priority, particularly in times of scarcity. Formal and informal rules as well as interactions between users form an intricate "web of interest" (Meinzen-Dick and Mwangi, 2008) and may make the identification of adequate and secure tenure arrangements a complex task**.** Competing user claims over water resources can be a sign for insecure water tenure rights and increase vulnerability, hunger and poverty. Consequently, a **clear distribution of water rights can contribute to conflict resolution** (Hodgson, 2016). Water tenure regimes **provide an understanding of the relationship between water users which then enables a better understanding of the cause and resolving of potential conflicts** (FAO, 2020).

A **case study from the Yanze sub-basin in Rwanda shows the potential of recognizing different forms of water tenure arrangements for conflict resolution**. A great part of the Yanze River is used for water supply of the city of Kigali. The river also serves as an important water source for agricultural activities in the region. In Rwanda, legally defined water tenure rights do not include traditional or customary water rights. Land law clearly excludes the right to water solely based on land ownership. Hence, landowners like farmers have no natural right to extract water on their property. Only water users who intend to use water for irrigation and whose land is larger than one hectare can apply for a water permit. However, in practice, many water users do not have a permit, even when water is used collectively, for example along a shared irrigation canal. Many water users are not aware of the requirement to apply for a permit, or lack the capacity to form a WUA which is required in this case. This reality inhibits conflict potential between those actors with formal rights to extract water and those that do not have the rights. In this context, the Kigali water supply company entered into voluntary contracts with upstream farmers to regulate when and how much water they can use without compromising water supply to urban areas in downstream areas. While not required by law to

do so, the company saw this as an adequate mechanism to accommodate upstream needs while at the same time ensuring water supply downstream – and to avoid conflicts along the line.

This **example outlines the importance to acknowledge different forms of water tenure arrangements in order to provide secure and fair water access and prevent conflicts** (FAO KnoWat Rwanda, 2022). Through the KnoWat project, capacities of upstream farmers in the Yanze catchment have been built to form a WUA and legalize their right to use water resources.

Water tenure and the availability of data to increase climate resilience

In times of climate change and in the course of finding innovative and sustainable adaptation strategies to increase climate resilience of communities, the relevance of water stock and supply data is crucial. Secure water tenure arrangements can facilitate registration processes to capture all water uses, from domestic and livelihood uses to commercial irrigation purposes. The **legal recognition of all water users can help to close the available data lacks** and thereby, improve climate resilience of local communities and beyond.

In Tanzania, the lack of recognition of local water rights in formal law and the resulting unclear water allocation standards on the ground are a cause of water conflicts and the lack of effective management strategies for agricultural water resources (Mutabazi, 2015). With the formal recognition of local laws, smallholders' water practices and water balances could be monitored more precisely. Different **types of water tenure** (especially local water arrangements) should therefore be added to the water data to **present a more realistic image of common water use** and water availability (Veldwisch et al., 2013).

What is water tenure?

Water tenure can be defined as "**the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources**" (Hodgson, 2016; FAO, 2020). The advantage of this relatively new concept is that it considers all types of water uses, including those that are not formally recognized by law. **At the center of most water tenure systems is a core group, or bundle of rights** that constitute the fundamental elements of peoples' relationship with their water resources and with each other in relation to freshwater resources. For example, tenure holders can have rights to access, impound, use, and manage water, as well as "procedural" rights to have access to information and participate in decisions pertaining to their water resources. The rights that are held by any one individual or group can vary, resulting in different "bundles of rights" that are created and protected by legislative and customary frameworks which may or may not be aligned. The ways in which various rights within the bundle are assigned, who the rightsholders are and how the rights are implemented and enforced shapes both the quality and security of water tenure regimes. While the bundle-of-rights approach to tenure was initially developed to apply to terrestrial resources, it can be tailored to apply in the freshwater context.

Water tenure offers a nuanced framework for recognizing the diverse kinds of formal water tenure relationships as well as those derived from customary and local practices. Another key benefit of thinking in terms of water tenure is that it focuses on water users. **The relationship between water users and the way they access and use the water is the main focus of water tenure.** Because water tenure concentrates on users as opposed to laws and policies that are imposed from the top, a water tenure approach is by nature bottom-up (Hodgson, 2016).

One can broadly distinguish between two types of tenure, legally defined water tenure and customary tenure. **Water tenure defined by formal law** often include permit-based rights for using surface and groundwater resources. They constitute property rights (or quasi-property rights) which enable the rights-holder to exclude other third parties from using these resources. Formal arrangements on water rights are signed, for example, between individuals and Water User Organizations (WUOs). In these cases, rural farmers receive their water from irrigation agencies but handled through WUOs (Hodgson, 2016). In many countries some small-scale domestic activities, so

called "*de minimis* uses" allow the abstraction of small quantities of water for livestock or drinking water. They are listed under formal law arrangements but do not require a regulatory license.

Customary and religious water tenure rights on the other side include the rights to abstract and use water based on customary practices or religious teaching. In many places, customary or local law remains the dominant legal paradigm for water tenure. These customary water tenure arrangements vary significantly in form and scope. Often, they emphasize the rights of groups and communities rather than individuals (which is common for formal water tenure) and are frequently part of complex frameworks that regulate access to other natural resources. In cases where formal law does not acknowledge or protect these customary tenure rights, they do not provide formal security to water users, making them vulnerable for possible risks of sanctions and sudden prohibition of use (Hodgson, 2016).

References

Cele, L. and Wale, E. 2018. The role of land- and water-use rights in smallholders' productive.use of irrigation water in KwaZulu-Natal, South Africa. In: African Journal of Agricultural and Resource Economics. 13. 345-356. The role of land- and water-use rights in smallholders' productive use of irrigation water in KwaZulu-Natal, South Africa (umn.edu)

Dinar, S.; Green, O.O.; McNally, A., Blankespoor, B. and Kurukulasuriya, P. 2010. Climate Change and State Grievances: The Resiliency of International River Treaties to Increased Water Variability. In: Insights 3(22). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1928190

FAO. 2020. Unpacking water tenure for improved food security and sustainable development. Land and Water Discussion Papers. Rome. https://doi.org/10.4060/cb1230en

FAO. 2021.The State of the World's Land and Water Resources for Food and Agriculture - Systems at breaking points. Synthesis report 2021. Rome. https://www.fao.org/documents/card/en/c/cb7654en

FAO. 2022. Water Tenure in Rwanda. Unpublished.

Hodgson, S. 2016. Exploring the concept of water tenure. Food and Agriculture Organization (FAO), Rome. Exploring the concept of water tenure (fao.org)

Meinzen-Dick, R. and Mwangi, E. 2008. Cutting the web of interests: Pitfalls of formalizing property rights. In: Land Use Policy. 26. 36–43. j.landusepol.2007.06.00320160516-12353-16vrf50-libre.pdf (d1wqtxts1xzle7.cloudfront.net)

Mutabazi, K.D. 2015. Addressing learning and complexity: Policy and institutional framework: Implications in support of effective and efficient use of water resources. In: Nicol, A., Langan, S., Victor, M. and Gonsalves, J. (eds), Water-smart agriculture in East Africa. Colombo, Sri Lanka: IWMI and CGIAR research program on WLE; Kampala, Uganda. 313-321. wsa 324 RM fa.indd (cgiar.org)

Veldwisch, G.J., Beekman, W. and Bolding, A. 2013. Smallholder irrigators, water rights and investments in agriculture: Three cases from rural Mozambique. In: Water Alternatives. 6. 125-141. file (water-alternatives.org)