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Executive summary

A better understanding of governance and tenure of water can help increase the effectiveness and impact of programmes working in support of reducing conflicts over water and to increasing climate change resilience. Based on recent literature and lessons learned regarding land, forest and fisheries governance and tenure, and building on recent methodologies to analyze the access and use of water this paper provides an analysis of the concept of water tenure along with a methodology for its assessment in a specific area or region. Water tenure is a relatively recent term and can summarize various approaches and methodologies. This paper proposes a new multisectoral and multilevel approach that builds on lessons learned and proposes a more comprehensive and holistic approach concerning water resources. The article introduces methodological approaches for water governance and tenure assessment, and then focuses on a methodology that can bring together a multilevel analysis and indicate how water tenure can be addressed at regional, national and local level, and inform policy or program elaboration and implementation processes. Based on a broad definition of water tenure as "the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources", the methodology suggests new opportunities for securing local water rights when building on solid and field-based knowledge. Understanding water governance and how water tenure regimes are legally defined, implemented, and protected in practice is fundamental to sustainable and equitable water management, particularly for vulnerable populations, and are important determinants of climate resilience.

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Introduction

Water scarcity, soil and land degradation, like food insecurity and poverty, each present complex challenges, characterized by high levels of uncertainty, different perspectives and multiple interlinkages. The interdependencies among water, land, food and energy are intensifying as demand for resources increases with growth in both population and incomes, changing consumption patterns, and low management efficiencies in both supply and demand in different sectors. Furthermore, climate change, conflict and migration trends exacerbate the pressure on all natural resources and makes millions of people more vulnerable to food insecurity. With around 1.2 billion people currently living in areas of water scarcity and 3.2 billion in areas with high level of water constraints (FAO, 2020a), the issue of how people can securely access and use water resources has never been more critical.

Indeed, the interlinked crises of food and water insecurity, land degradation and persistent ecosystem decline stand as persistent barriers to the realization of the Sustainable Development Goals (SDGs). These challenges cannot be effectively confronted without appropriate governance arrangements that allow to address the complex interdependencies and trade-offs across natural resources and across economic sectors. Moreover, climate change poses critical governance challenges that have an impact across these sectors. Considering the impacts of climate change and continued population growth, demand for water and water resources is projected to increase.

Many issues in governance of management and use of water (as well as other natural resources) resources are directly linked to water tenure rights. Yet, despite growing awareness of the urgent need to address water scarcity challenges, information is often lacking about how people access and use water resources or transfer water in practice, especially in rural and remote areas. A sustainable and reliable management and use of water particularly in countries where overall demand is outstripping supply, is as much about water governance, power relations and resolving conflicts of water tenure as it is

about “understanding and monitoring what is going on between the rain clouds and the water users” (FAO, 2016). Although legal and policy frameworks for water resources management exist in most countries, the extent to which these frameworks are implemented and enforced in practice is often strongly influenced by the way they take into consideration local practices -often based on custom, religion, or family traditions. There is little evidence on how well these frameworks are adapted to the local realities or the extent to which they facilitate equitable access to water. Indeed, it is today widely recognized that social and political factors play a critical role in shaping water related policies and laws, and in determining the ways in which these policies and laws are implemented or not for the benefit of all. Recent comparative analysis has demonstrated considerable shortcomings in the legal recognition of communities’ water tenure rights, especially those of women, indigenous peoples and vulnerable groups (RRI & ELI, 2020).

This article argues that a better understanding of water governance and water tenure is necessary to lead a major transformation in the present development paradigms, which could accelerate progress towards sustainable and inclusive land and water management and use. The recognition of the concept of “water tenure” will help to bring light to the above-mentioned issues and identify, recognize and ultimately protect all legitimate water rights.

Section 1 identifies some lessons learned on the endorsement and application of the concept of “tenure” of land, forest and fisheries during the process of negotiating the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (hereafter: VGGT). The VGGT were instrumental for the conceptualizing of the “bundle of rights” related to land, forest and fisheries bringing attention to the fact that legitimate rights (not necessarily legally recognized) can secure access to other social and economic resources, and can be a prerequisite for sustainable and responsible natural resources governance.

Section 2 introduces the concept of water tenure as it developed at the international level, and proposes an operational definition of water tenure, which builds on the land, forest and fisheries tenure definition. Finally, section 3 briefly introduces the methodological guide for water governance assessment and then focuses on the methodology to assess water tenure in practice, considering the different aspects of water tenure from the mainly legal frameworks, the users and uses, the institutions and the practices and perceptions from the ground. Both methodologies take into consideration that water is a special natural resource. It flows through rivers and lakes, and is reused many times on its way from source to sea. Water flows across borders, and even in aquifers underground. Water availability is not constant; it depends on the climate and other factors such as the form of the landscape, vegetation and the texture of the soil.

1 Building on lessons from land, forest and fisheries tenure

Today the concept of land, forest and fisheries “tenure” is well-known. Its recognition and conceptualization have allowed bringing numerous studies in the field of social sciences, legal anthropology, philosophy and others into the international debate. Three

main aspects of the concept of tenure are relevant to contextualize the importance and the benefits it could bring to dealing with water resources.

1. *Bundle of rights*. Applying the concept of "tenure" with regard to land, forest and fisheries allowed the contextualization and recognition of the debates around the bundle of rights. Following other authors, Schlager and Ostrom propose an analysis of the rights regulating access to renewable natural resources based on a definition of property rights not as a single right (civil property right) but according to different types of rights (or segments of rights), which result from and are defined during social interaction. The authors define rights in terms of bundles of rights, based on the distinction of five main rights (access, withdrawal, management, exclusion, alienation), which are not always all held at once by the same right holder, and which imply access to other rights (Schlager and Ostrom, 1992; Ostrom, 2000). This approach has shown important results for identifying and recognizing the security of tenure of indigenous peoples and local communities.

2. *Recognition of both formal and customary rights*. The endorsement and the analysis in terms of tenure have also driven numerous studies that built the wide acceptance among practitioners and researchers that not only "legally" recognized rights can be drivers of sustainable development and climate goals. First, some "customary tenure" arrangements have shown to be more flexible and can allow the emergence of multiple tenure arrangements that secure access to land to a wider range of individuals, for example by allowing bequests, loans, rentals, sharecropping. (Feder and Noronha, 1987; Bruce, 1988; Basset and Crummey, 1993; Migot-Adholla and Bruce, 1994; Platteau,1996; Lavigne Delville & al. 2001; Chauveau, J. P., & Jacob, J. P & al. 2006). Secondly, many studies criticize the assumptions that have driven many titling programmes around the globe that established equivalencies between customary rights and insecurity on the one hand, and between titling and land tenure security on the other. Some authors define land tenure security as the perception by the owner of a plot of land of his or her right to exploit it as he or she sees fit, to enjoy its fruits and to engage in temporary or permanent transactions without any interference (Migot-Adholla and Bruce, 1994). Others distinguish three dimensions of land tenure security (i.e., the bundle of rights, the temporal dimension and the length of time the rights are held) that should guarantee the right holder a return on the investments made (an essential element in relation to long-term investments) together with the assurance of non-contestation of these rights or their duration (Place & al.1994). Other authors restrict the notion of security of tenure to the sole assurance of the non-contestation of rights, regardless of considerations about the range of rights and their possible duration (Simpson, 1976; Sjaastad and Bromley, 1997; *Edouard & al. 2017)*. Therefore, the debates on land tenure systems have allowed for the acceptance of the idea that customary laws can also provide security of land, forest and

fisheries rights (Stanfield 1990; Platteau, 1996; Deininger and Feder, 2001; World Bank, 2003).

3. *Participation and self-governance*. Debates on the governance of tenure systems have also allowed to look at the participation, self-governance, and devolution to local control as good indicators of sustainable management of land, forests and fisheries particularly, community-based natural resource management (Ostrom 1990, Baland and Plateau 1994, Meinzen-Dick & al. 2001). In addition, research on forestry tenure (Ribot 2003) has shown that decentralization in forestry and other areas of natural resources co-management in developing countries points out that many co-arrangements are based on local requirements to be approved by public authorities. It would be more efficient to allow local authorities more autonomy from the policy frameworks. These arguments have also strengthened the position within the political economy of land and forest governance and had tangible positive results, including the advancement of the recognition of Indigenous Peoples' and local communities' tenure rights, and in benefit of the environment (Posey and Dutfield 1996; Ceddia and Corriveau-Bourque 2015; Salamanca, 2013; Edouard, 2010).

In the international area, the development, the acceptance and the implementation of principles and tools to guide policy and legal reforms, notably the VGGT, have also proven the importance of building policy consensus on what constitutes responsible governance of tenure. The VGGT are an unprecedented international agreement on land tenure governance, clearly articulating access to land, fisheries and forests to ensure food security. The VGGT were formally endorsed by the Committee on World Food Security at its 28th session on 11 March 2012. Since then, their implementation has been promoted by a large number of international entities, such as the United Nations General Assembly, the Rio +20 Declaration, the G20, the G8, the UNCCD, the Parliamentary Assembly of the Francophonie, and ministers from over 80 countries at the 5th Summit of Ministers of Agriculture in Berlin.

A core concern of the Voluntary Guidelines is the notion of "*legitimate tenure rights*". This recognizes that land, forest or fisheries tenure derive from different normative systems, including customary, traditional, indigenous, and informal systems, and that they do not necessarily require to be formally written or recognized to enjoy legitimacy. The same concern holds true for water tenure. In many parts of the world, water tenure arrangements that do not derive from formal law are equally or more important than those that do derive from formal law in terms of the *de facto* allocation of water resources, and in enabling people, individually or in groups, to sustain their livelihood, satisfy economic needs and protect water resources. Due to the nature of water resources, the importance of knowing informal tenure arrangements can also inform about the availability and use of water resources, and the necessary means to address water scarcity and climate change. This particularly applies to groundwater resources and to the quality of water since water is frequently reused. Also, water tenure regimes need to consider not only the fact that water availability is not constant and that it can change significantly over time, but also how water

is distributed and what uses are prioritized in times of scarcity. Fisheries as a natural resource with mobility, share some of the related characteristics of water such as flows across boundaries or irregular temporal and geographical availability, but still received consensus for its inclusion in the VGGT.

2 International debates around "water tenure"

One of the first definitions of "land tenure" in an FAO publication explicitly referred to water and by implication included water tenure as part of land tenure. The definition was: "*Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. (For convenience, "land" is used here to include other natural resources such as water and trees*)" (FAO, 2002). This mirrors the fact that water rights (as well as forestry rights) are often linked to land use and land ownership.

When the process of developing the VGGT began, it was envisaged that water and water tenure would be included. This was clearly spelled out in Land Tenure Working Paper No. 10 *Towards voluntary guidelines on responsible governance of tenure of land and other natural resources discussion paper* (2009), prepared as a background paper for discussions on future voluntary guidelines on responsible governance of tenure of land and other natural resources. Indeed, historically speaking, there has always been a strong linkage between land tenure and water tenure and rights. Under both of the main legal traditions, water rights generally derived from land tenure rights. However, modern water legislation has seen a diversion between land tenure rights and water rights (FAO, 2016) with water rights becoming substantially separated from land tenure rights. Moreover, with only a few exceptions (Bruns, 2003; Huggins, 2002; Sangkapitux and Neef, 2000), the concept of water tenure was not well known in the literature.

These issues were discussed at an expert group meeting on the *Voluntary Guidelines on Governance of Tenure of Land and other Natural Resources* held at FAO headquarters, in Rome, on 24 November 2008. Notwithstanding the fact that water rights are no longer subsidiary to land tenure rights in most jurisdictions, it was strongly argued particularly, by Latin American representatives of civil society and indigenous communities that water is so intimately linked to land that water, and therefore water tenure, should certainly remain within the VGGT. Consequently, the development of the VGGT advanced on the assumption that water tenure would be included and that the high-level principles of the VGGT would be further developed in the form of specific technical guidelines on water tenure. To this end, preliminary steps were taken to form the preparation of a discussion paper on water tenure followed by the preparation of a first draft set of technical guidelines on water tenure.

The discussion paper, entitled "*Issues paper: towards technical guidelines on water tenure*" traced the divergence between land tenure rights and water rights, explored the possible scope of water tenure and outlined the scope of the technical guidelines. The draft technical guidelines were discussed at a review meeting held at FAO headquarters to which selected water law experts were invited and subsequently the final draft version of the

technical guidelines was presented at a special session of the XIV World Water Congress of the International Water Resources Association (IWRA) held in Porto de Galinhas, Brazil, on 25-29 September 2011. The special session was organized by the International Water Law Association (AIDA), which has consultative status with FAO.

However, during the final negotiations of the VGGT, it was decided not to include water tenure. One reason for this decision was that the notion of water tenure itself was not widely known and therefore there was no consensus about its meaning. Consequently, water was excluded from the scope of the VGGT, which were endorsed by the Committee on Food Security in relation to land, forest and fisheries.

However, in January 2013, the concept and meaning of water tenure came back to the agenda. It was the subject of discussion at an expert consultation on "*Water governance and the role of tenure and rights in coping with agricultural water scarcity*" held at FAO headquarters. A background paper on rights and water tenure was prepared for the consultation. Following the consultation, the decision was taken that the concept of water tenure merited further investigation through the preparation of a series of case studies to seek to provide answers to a number of basic questions about its meaning, its existence, and the potential use of the concept in the development of future tenure-related policy and practice. The countries selected for the case studies were India, South Africa and Spain. In December 2013, a presentation on water tenure was made at the FAO Near East and North Africa in the "Land & Water Days Conference" held in Amman in December 2013. A subsequent 'thematic coffee' brainstorming session saw a lively discussion of water tenure based on the application by participants of a "*water health tenure check*" in their own countries.

In 2014, the concept of water tenure was discussed in an influential article entitled *Property rights and sustainable irrigation: A developing country perspective* (Meinzen-Dick, R., 2014), which cited the background paper prepared for the 2013 consultation. In parallel, the notion and importance of "water tenure" was making its way through a series of important meetings. In September 2014, the 24th session of the Committee on Agriculture of FAO discussed the subject of water governance for agriculture and food security, and encouraged FAO and member states to pursue efforts towards better integration of its governance dimension in their work towards sustainable agriculture and food security.

In September 2015, the 42nd Session of the CFS approved a set of recommendations in relation to water for food security and nutrition. Issues of governance, rights and tenure were prominent in these recommendations. Of particular prominence was the promotion and implementation of international human rights obligations, closely linking access to water with food security and nutrition. It was recommended that, in line with the VGGT, particular attention be paid to marginalized and vulnerable groups, their use of natural resources, their needs and their tenure rights.

Based on the three case studies, FAO published *Exploring the concept of water tenure* as Land and Water Discussion Paper No. 10 (FAO, 2016). A key finding of the paper was that water tenure is in fact much more complex than foreseen at the time of the draft technical guidelines, and potentially more useful as a concept. The paper also proposed the following definition of water tenure: "the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources". Clearly based on the FAO land tenure definition referred to above, it refers to water *resources* in particular, rather than water in general, in order to avoid confusion with the human right to water.

On 11-12 December 2019, an Expert Consultation Roundtable on Water Tenure followed by a workshop on methodologies for Water Auditing (water governance analysis) and Water Tenure, jointly organized by FAO and the Environmental Law Institute (ELI) and Rights and Resources International (RRI) was held at FAO headquarters in Rome. During the roundtable, the preliminary water tenure typology contained in Discussion Paper No. 10 was presented and there was a broad consensus in favor of the working definition proposed in Discussion Paper no. 10. ELI/RRI also presented their work on analyzing the bundle of rights that make up community based water tenure. As a result, a Policy Brief (FAO, 2020) endorsed the "water tenure" definition, in line with the VGGT. The 2020 Policy Brief also validated the bundle right approach, aligned with the rights that have been broadly accepted as relevant to land and forest tenure, and used in recent comparative assessment of community-based water tenure, and its recognition in legal frameworks, with a specific focus on Indigenous People and women water uses (RRI and ELI, 2020).The Workshop on Water Auditing and Water Tenure Assessment Methodologies discussed the methodological framework for assessing water governance (water auditing) and the one specific for water tenure assessment (see below, under Section 3).

The roundtable resulted in the FAO publication in 2020 *Unpacking water tenure for improved food security and sustainable development* as FAO Land and Water Discussion Paper No. 15 and the publication by RRI/ELI in August 2020 of their own substantial report: *Whose Water? A Comparative Analysis of National Laws and Regulations Recognizing Indigenous Peoples', Afro-descendants', and Local Communities' Water Tenure*.

FAO's flagship publication *The State of Food and Agriculture 2020. Overcoming water challenges in agriculture* (SOFA) also contains numerous references to water tenure. The report puts water accounting and auditing (WA&A) at the center of any programme to overcome water constraints. It underlines that WA&A are best designed and implemented as mutually supportive processes. By connecting people and their relationship with water resources to the broader water balance, the report highlights the potential of water tenure in addressing water constraints and complementing auditing and accounting (FAO, 2020. *The State of Food and Agriculture 2020. Overcoming water challenges in agriculture*. Rome.).

Nevertheless, even though there are clearly more and more references to water tenure in the literature[6] and its use in the field and research (Trottier, 2015;Trottier et al, 2020; RRI and ELI, 2020), there is a need to create a common understanding of this concept and the potential of its use.

To contribute to the broader debate on water tenre, and with the aim of designing more effective actions in support of tackling water constraints, FAO is piloting the water auditing/governance and tenure assessment approaches in several countries in the Near East region and beyond.

The WEPS project on implementing the 2030 Agenda for water efficiency/productivity and water sustainability in eight NENA countries[7] works on providing necessary data and information for the sustainable water management that balances environmental, economic and social sustainability and improves rural livelihoods, especially of people dependent on water resources. It is piloting a methodology for the assessment of water governance (water auditing), combined with water accounting, to support policy makers in working towards sustainable and equitable water management and use.

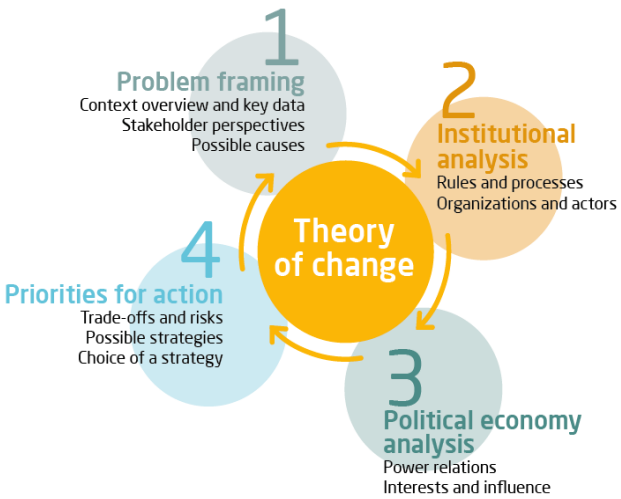
The *Methodological guide on water governance assessment* (FAO, forthcoming) suggests focusing strategically on a specific water-related problem that must be addressed to improve water management and use. Focusing on a key problem helps to avoid engaging in generic discussions about systemic, country-level challenges of water scarcity that are harder to grasp and address. Water governance assessment provides the information needed to guide the design and evaluation of technical solutions that can be effectively implemented in a given political, economic and social context. It also helps to identify key stakeholders, including those often voiceless, who must be consulted and engaged in the process, as well as the vital substantive issues and interests that need to be addressed in the decision-making process to ensure outcomes that are both workable and legitimate. Finally, it also provides political and social parameters for institutional adaptation and development (see Box 1).

Box 1. Methodological Guide on water governance assessment

The Guide is based on the premise that water accounting and water governance analysis (water auditing) are mutually supportive and should be carried out in parallel. Water accounting can help identify possible technical solutions (e.g. more use of treated wastewater, reduction of water allocation to agriculture, promotion of alternative crops, etc.), and water governance analysis can smoothly connect such technical solutions with institutional, social, political and legal changes required. Furthermore, governance analysis can add information on "fairness" to shortage, imbalance, and disparity in water-related parameters by identifying who or what are preventing the solution of the problems, and who is impacted most.

[6] Please refer to FAO, 2009 for more details.

[7] Algeria, Egypt, Iran, Jordan, Lebanon, Morocco, Tunisia and Palestine



The analysis starts with examination of various perspectives on the priority problem(s) to be solved in a given country or territory. This includes a rapid overview of the country and sector context, stakeholders mapping, a technical analysis, and sharing of perspectives by key stakeholders. Coming to a common conception of the problem is fundamental but challenging step in formulating an effective strategy for change.

The second part of the analysis examines the institutional setting, mapping the problem statements to institutions. It attempts to identify the main drivers/sources of identified problem(s) and their possible solutions in the existing rules, structures and processes.

The third part focuses on key actors, and looks to political economy factors (i.e. power relations, interests and influence of the concerned actors and organizations) that may need to be taken into account in formulating a programme of institutional change and building the coalition that will foster its implementation. Building on the findings of parts 1 to 3, the final part of the analysis identifies strategic actions for transformative change. In this step, stakeholders recognize trade-offs and risks of different courses of action, and seek to build consensus on the impact of actions on different actors. The key outputs of this final phase are an agreed theory of change and recommended course of action.

The four parts of governance analysis are strongly interlinked. The entire process is experimental and iterative. This reflects social learning in which different findings of analysis are continuously revisited and generate more knowledge and new questions through each cycle.

The framework relies on multi-stakeholder engagement allowing to co-create knowledge with key stakeholders while helping to build trust and create a coalition for transformative action.

Methodological guide on water auditing/governance assessment, FAO, forthcoming.

A problem-centric approach serves as a concrete “entry point” for analysis as it anchors the analysis in a clearly defined, real-life, high-impact problem that the country may

be struggling with for a certain time. Such a concrete water-related problem may often relate to water tenure issues.

The project "Knowing water better: towards fairer and more sustainable access to natural resources" (KnoWat) is working to strengthen water governance processes in Rwanda, Senegal and Sri Lanka through building capacity in water accounting, governance and tenure assessment. The KnoWat project is piloting a methodology for the assessment of water tenure, described in Section 3.

3 Water tenure assessment methodology

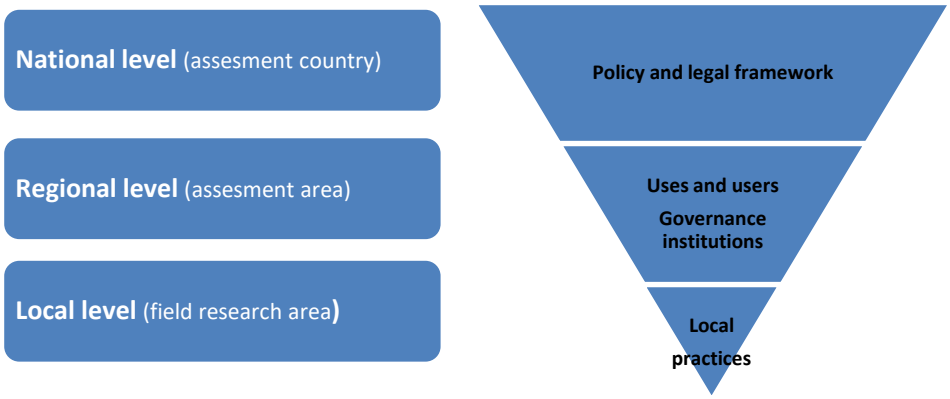
The concept of water tenure needs to be further explored in order to meet the demands of all the water users and provide them with tenure security. This can only be achieved through a comprehensive and integrated perspective, which duly articulates a top-down or state-centered view of water rights with a bottom-up human rights based and gender sensitive approach and by compiling both levels of information inspired by the working definition of water tenure as "the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources" (Hodgson, 2016). This definition allows to analyze how individual and groups have defined rules that determine how much and when the water can be extracted from a waterbody, or who can extract this water, for which purpose it can be used and under which conditions water should be returned to the environment. This also allows to acknowledge that in many societies, water or waterbodies also have special cultural or religious values and some consider lakes and streams holy places.

All of these relationships - rights, rules, duties, and practices - can be described as water tenure. The arrangements around water that determine how people, communities and organizations can access and use water resources (water in streams, rivers, lakes and other surface water bodies as well as underground water in aquifers), can be defined as water tenure arrangements. They can be 'formal', written in water laws, regulations and policies. They can also be 'informal', customary unwritten, communicated by word of mouth and passed on from generation to generation. Water tenure is invariably unique to a given country or territory. Existing water tenure institutions are rooted in value systems and grounded in religious, social, political and cultural history of a country or territory (as for land, forestry or fisheries). The nature of water tenure arrangements needs to be analyzed as there are no absolute rights. This is particularly true as regards tenure arrangements that involve rights held in common. In such arrangements, the basic right to use water is accompanied with a bundle of rights or interconnected entitlements, such as the right to participate in decision making, the right to be consulted, the right to manage and develop water or to share or transfer water use between users as well as rights relating to the management of conflicts. Moreover, water rights, both formal and informal, are typically accompanied by obligations, such as the obligation to measure the volume

of water used and/or to treat wastewater prior to discharge back into a watercourse or to the participation in the construction of the infrastructure.

The tenure assessment methodology builds on an examination of policy and legal frameworks, and how they are applied; an analysis of key stakeholders, their positions, interests and relationships, as well as the actual practices on the ground, information that can all contribute to a more complete knowledge base for water resources management and use. Moreover, an improved understanding of the relationships between different water users, especially between the more powerful and the less powerful in socio-economic terms, is key to informing sensible decisions on water demand and supply. The conceptual framework of the methodology is inspired by the VGGT.

The proposed methodology guides an analysis from the set of national laws and regulations governing all situations in which water is regulated, combining a more focalized analyses of the uses and users of water at a more localized area and finally complementing the analysis with localized information at community level.



The methodology takes into a consideration a multidisciplinary and multisectoral approach that will feed the assessment in different stages. The assessment focuses on four main areas: (i) legal assessment, (ii) water uses and water users assessment, (iii) governance of water tenure, and (iv) field research.

i) Legal assessment

The legal assessment will obtain as complete a picture as possible of the water tenure arrangements established or recognized through formal law. The legal analysis -on the basis of a desk review- will enable a preliminary identification of the formal water tenure arrangements at national level and a brief outline of each arrangements' features. This will also help a first analysis on the extent to which formal law recognizes the existing customary or religious tenure relationships.

It is important not to limit the research to the simple recording of what the law provides for in terms of different types of formal water tenure arrangements but to also

include an assessment of the extent to which the legal framework provides means to the law to be actually implemented and enforced. For example, water laws addressing aspects of water tenure usually need subordinate legislation (in the form of orders, decrees, decisions, implementing regulations, etc. to be adopted by the government or the relevant minister) before they can actually be implemented. There can often be delays before such subordinate legislation is adopted. However, even when it is in place there can be further implementation delays and in many jurisdictions existing water uses can often slip through the net. It will be important to understand to what extent formal water tenure arrangements are actually implemented within the assessment area. For example, it would be useful to estimate the extent to which permits have actually been issued for all water uses that require it. Even when a water tenure system is in place and permits/licenses are issued and declarations are made, effective enforcement is also required in terms of periodic inspections and the undertaking of enforcement measures. These elements should be assessed in terms of the number of inspectors, inspections, enforcement measures, fines levied, etc. as they will feed into the analysis of the governance of water tenure and should also be coordinated with the governance research.

ii) Water use and water user assessment

This assessment will identify the main water uses and users in the assessment area on the basis of a desk review of existing reports, data, etc. It may be useful during this preliminary stage to contact relevant ministries/agencies.

The output of this activity will be a preliminary identification of the main water uses in the assessment area, undertaken by the water accounting expert in collaboration with the water governance expert. The rationale for the breakdown of these different use types is set out in support material developed in the guide.

In addition, a preliminary assessment of the types of water tenure arrangements within the assessment area that are not established on the basis of formal law should be undertaken in accordance with a typology.

iii) Assessment of the governance of water tenure

The aim of the assessment of the governance of water tenure is to identify at regional level, in the assessment area, who -individual or institution- has the power and the instruments to dictate the access and/or use of water to an individual or a group. The starting point is to identify relevant national policies and strategies relating to the water resources sector as well as other relevant policies including those concerned with water supply and sanitation, agriculture, land, forests, water resources assessment and planning, as well as national socio-economic development policies and strategies. This initial research will require experts with a background in water governance and water accounting.

As part of the governance assessment, a preliminary stakeholder analysis should be undertaken, including analysis of power relations, and identification of relevant actors in

the assessment area. Apart from the water administration and specific river basin bodies, such as river basin committees or councils, this will likely include government ministries/agencies responsible for agriculture, forestry, fisheries, and water supply as well as service providers such as irrigation agencies, water utilities, water user associations, etc. It will also be appropriate to identify civil society actors including relevant nongovernment organizations, traditional authorities as well as local government bodies from the assessment area. The private sector too, for industry, commercial agriculture, power generation, water supply needs to be part of the analysis: private sector users also have an interest in the effective governance of water tenure. Indeed, a basic objective of the stakeholder assessment should be to identify who to invite to the scoping meeting. The preliminary analysis is intended to provide clarity on the roles and responsibilities of implementers or agencies that enforce water tenure related legislation.

It will also be appropriate to identify what hydrological information, for both surface and groundwater, is available for the assessment area, as well as relevant river basin plans, master plans or strategies. If not available, a rapid water accounting exercise could be performed based on data available with different actors. This would require involving somebody knowledgeable in water accounting. The research on the governance of water tenure should be undertaken on the basis of desk research, field visits and interviews with the water administration and other relevant agencies. However, it raises cross-cutting issues and should be undertaken in close coordination with the legal research and field research.

The focus of this activity is primarily on formal water governance arrangements, in terms of how they impact water tenure arrangements that derive from formal law as well as those that do not. In practice however, the research may reveal that informal governance arrangements may be more important, particularly at the local level. The information gathered will provide an understanding of the dimensions of legal and policy implementation, encompassing processes and procedures affecting water governance and water resources management activities that are particularly important to water tenure security. This includes the implementation of formal water tenure arrangements, the recording of water tenure arrangements, measurement of water resources, planning, participation in decision making, gender/socially disadvantaged water users, water quality, inspection and enforcement, readjustment, environment, climate change, floods/droughts, recognition by the formal governance structure of legitimate water tenure arrangements not created on the basis of formal law, coherence of tenure arrangements, and to what extent are the arrangements for the governance of water tenure coherent with the human rights to food and water.

iv) Field research

The field research will be an opportunity to identify at local level all water uses, user categories and water tenure arrangements, as well as associated challenges, overlaps, disputes and other factors that may reduce security of tenure from the perspective of water

users. The objective will be to compare the results to the previous legal, water use and water users and governance research done at national and regional level with the observation of practices in the ground. The field research will assess the level of acceptance, interpretation, and implementation of formal water tenure frameworks by different users. It will be important to identify and understand what water tenure arrangements different groups and individuals have adopted over time and why, who benefits and who loses, by what factors water access may be shaped in the future, and if there are socio-economic trade-offs where laws and policies are not implemented. Potential threats and issues to water tenure security will be identified (which may be related to legal frameworks, governance, administration, development projects such as river diversion, deforestations, investments, incentives and subsidies).

The first step is the identification of local actors, including traditional authorities, informal customary institutions, and those who use water and water resources based on water tenure arrangements that are not created by formal law, which is often the case regarding small-scale farmers and subsistence fishers. The research also identifies the water users, the source of water they use and their interaction with government authorities. A preliminary field research serves also to gain a first understanding of the relation between land and water tenure and its impact on food security in the assessment area. Based on the preliminary field research, key problems and challenges with regard to water tenure arrangements in the assessment area including actual or potential conflicts and the potential research area/ areas will be identified.

The field research should be undertaken based on interviews and meetings with people through field visits (individuals and organizations) who use water resources and water related ecosystem services in the research area. It is fundamental to understand water tenure problems and arrangements in practice. The water governance expert and field researcher/s will conduct meetings in the assessment area with key actors: local government, community leaders, as well as civil society organizations, NGOs, water and sanitation committees, water user associations (formal and informal) and traditional authorities to brief them on the objectives of the water tenure assessment and to seek their guidance and input.

Mapping exercises can be used to illustrate how water tenure arrangements operate and how they may be in conflict with other uses/tenure arrangements, including activities that may take place upstream from the assessment area. Participatory GPS mapping can also be used to identify all water sources (such as wells, water points) within the research area.

This can reveal essential information on water access and needs at local level when water tenure is operationalized and institutionalized in a state or country. It is a key input to water allocation planning and decision-making. The field work itself should be undertaken in a minimum of two rounds with a preliminary round of meetings/interviews that should lead to the preparation of a preliminary report.

Validation

The analysis is based on research findings and will include a separate report for each type of water, a mapping exercise of water uses in the assessment area against the types of tenure arrangement found there, and an analysis of the arrangements for the formal governance of water tenure in the assessment area based on the research, the relative security of different water tenure arrangements, the relationship between different types of water use. The analysis will allowed us to identify current or predicted overlapping claims or conflicts between different water uses in the assessment area and the essential social relationships with respect to distribution of water.

The findings of the water tenure assessment will be presented in a series of validation workshops and will include all stakeholders involved in the assessment at local, regional and national level. The objective of these meetings is to get feedback about the main findings of the assessment and allow comments and feed the discussion among different actors. This will allow to revise the reports and make necessary changes. The final validation workshop should be at national and assessment area level and involve all participants.

Finally, based on the main findings and building on the results of the validation workshops, a concise report will be prepared setting out the main findings of each of the analyses. In addition, GIS based tools could be used to create graphics that locate water tenure and use at field research level. The results from the geo-spatial analysis could be visualized in maps included in the report. Given the sensitivity of water tenure, being introduced as a new topic, and potentially subject to misinterpretation, it is crucial to provide a sound report adapted to the country context and terminology related to water tenure when disseminating results. In parallel to the main report findings, the assessment team will also prepare a short note to recommend improvements to the water tenure assessment methodology and recommendations for future implementation.

Conclusion

Sustainable and inclusive management and use of water resources are influenced by many different factors. These include the characteristics of water-related formal and informal rules in place, the characteristics of the water users, communities and relevant government actors as well as political and policy choices in other sectors (e.g. food, land, energy, trade, industry, tourism). To fully grasp the interconnections and relationships between these factors, one requires a proper understanding of water governance, i.e., how particular situations are anchored in national or local institutional set-up and relations. One major challenge is identifying who wins and who loses from the current situation and from potential change; and what may be the best pathways to achieve change given the existing constraints. Each country has its own unique set of issues, actors, constraints and

opportunities that involves a tailor-made combination of policies and interventions in order to achieve optimal results. In many countries however, water tenure arrangements strongly influence the sustainability and inclusiveness of water management and use, and thus also the equity of access to water.

Water governance assessment/auditing and water tenure assessment can provide key elements for design of policies and strategies that are both technically valid and politically feasible, and allow to attain sustainable development goals "leaving no one behind". A water tenure assessment should be undertaken as part of a more comprehensive analysis of water governance.

FAO and its partners have developed two innovative methodologies on water governance/auditing and water tenure assessment to equip policy makers and other stakeholders with crucial instruments allowing to obtain data to inform policy decisions and legislative reforms, support advocacy at all levels, and track national progress towards development and climate goals. Applying water governance and tenure assessments provides an opportunity to explore the concept of water tenure in practice, in different contexts and at different scales, and what it means to people who depend daily on their ability to access and use water resources for their household, livelihood and income needs.

The findings from piloting of the two methodologies in more than 10 countries in the NENA region, Africa and Asia will contribute to an ongoing debate around water governance and water tenure, and relationships with land, forests and fisheries tenure. It will also provide useful lessons on how to strengthen communities', smallholders', and women's water tenure rights; and increase climate resilience.

There is a need for such knowledge accumulation to fill gaps in empirical evidence on contextual contingencies based on which technical solutions can or cannot work in practice or based on which one can determine what works and what does not, how and why, when and for whom. This learning can facilitate building innovative governance mechanisms and societal capacities for managing key trade-offs, advancing cross-sectoral coordination and collective action.

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