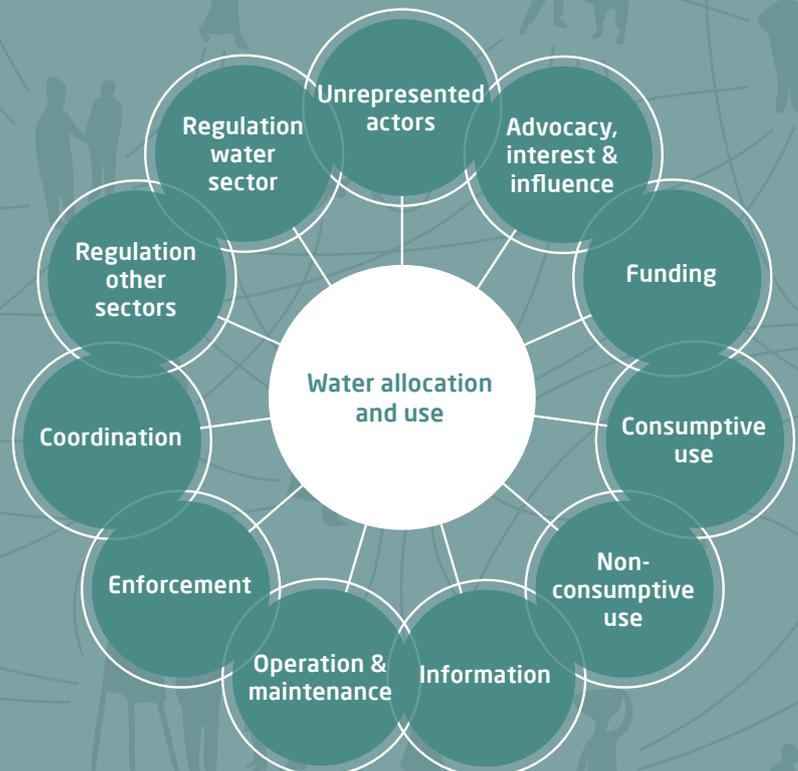




Food and Agriculture  
Organization of the  
United Nations

GOVERNANCE AND POLICY SUPPORT  
METHODOLOGICAL FRAMEWORK

# Water auditing/ water governance analysis





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METHODOLOGICAL FRAMEWORK**

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**Food and Agriculture Organization of the United Nations  
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## Foreword

Satisfying the changing food habits and increased demand for food intensifies pressure on the world's water, land and soil resources. Transforming agrifood systems bears great promise to alleviate these pressures and provides multiple opportunities to contribute to global goals. Indeed, the 2030 Agenda for Sustainable Development calls for a “transformational’ change in agriculture as well as in managing strategic resources, such as water, land and energy.

The Near East and North Africa (NENA) region already experiences a chronic shortage of water and will face a severe intensification of water scarcity in the coming decades. Water scarcity is due to a number of factors, such as demographic growth and the related increase in food demands, urbanization, energy demand and overall socioeconomic development. Furthermore, the NENA region is experiencing more frequent and extreme weather episodes (particularly droughts) as a consequence of climate change.

Transformational change requires that concerned stakeholders and national policymakers think differently, and apply multisectoral and integrated approaches. The countries in the NENA region need to strategically plan their water resources management and allocation, review their water, food security and energy policies, formulate effective investment plans, modernize governance and institutions and account for transboundary surface and groundwater. It is necessary to adapt practices in order for countries to: i) set sustainable limits to water consumption and ii) make the best use of every single drop of water, including the use of non-conventional water sources.

Despite efforts to promote cross-sectoral coordination and integrated approaches to water resources management, experience shows that working across resources, sectors and actors requires a profound shift in the internal workings of governments, as well as their coordination and cooperation with other actors. Water resources management requires dealing with different, often conflicting objectives and interests, and identifying and addressing trade-offs and power dynamics between sectors and actors. This suggests the need for innovative governance mechanisms and societal capacities for building on synergies, addressing trade-offs and managing processes that are deeply transformative and involve the reallocation of limited water and land resources.

With this in mind, the FAO Sourcebook on Water Accounting and Auditing recommends carrying out water accounting together with ‘water auditing,’ defined as a:

- process that places the findings, outputs and recommendations of water accounting into a broader framework comprising governance, institutions, public and private expenditure, legislation, services delivery and the wider political economy of specified domains (Batchelor *et al.*, 2016, p. 7).

In other words, the process unifies biophysical and technical analysis (water accounting) with societal and governance analysis (water auditing).

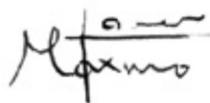
The combination of technical and governance analyses has the potential to help decision-makers identify the most appropriate ways to achieve water efficiency, productivity and sustainability, while at the same time increasing the capacity of agricultural productivity to end hunger, food insecurity and malnutrition.

While providing a useful explanation of different approaches to water auditing/governance analysis, the FAO sourcebook does not offer practical guidance to undertake this exercise.

That is the objective of this methodological framework.

This document uses the term ‘water governance analysis,’ rather than ‘water auditing’ because this term better captures the process described in the sourcebook. It invites readers to rethink how to conceptualise and promote institutional change for sustainable and inclusive water management, allocation and use.

This methodological framework reflects an effort to promote a more systematic use of governance analysis to support inclusive and sustainable water management and use. It builds on the FAO-relevant approach to governance presented in the *Framework Paper: Focus on governance for more effective policy and technical support* (Bojić, Clark, and Urban, 2022). This document translates the Framework Paper into practical mechanisms, processes and actions for policy and processes reform and interventions. It is a living document: we welcome new knowledge, experience and examples and intend that further iterations will provide valuable guidance for action.



Máximo Torero Cullen  
Chief Economist



Maria Helena Semedo  
Deputy Director-General



Abdulhakim Elwaer  
Assistant Director-General  
Regional Representative for  
the Near East and North Africa

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The methodology includes inputs from users from the Near East and North Africa (NENA) region received during two webinars organized in spring 2020, as well as from stakeholders in four countries (Jordan, Lebanon, Tunisia and Palestine) where it is currently piloted. The framework will be reviewed and updated in the near future.

The methodological framework was developed to support the water accounting and auditing component of the regional project “Implementing the 2030 Agenda for water efficiency/productivity and water sustainability in countries in Near East and North Africa (NENA),”<sup>1</sup> funded by the Swedish International Development Cooperation Agency (SIDA). It is addressed to policy practitioners, planners and other actors working towards sustainable and equitable water management, allocation and use.

<sup>1</sup> WEPS-NENA project: <http://www.fao.org/in-action/water-efficiency-nena/overview/en/>



## Abbreviations

FAO	Food and Agriculture Organization of the United Nations
IWRM	integrated water resources management
MAG	multistakeholder advisory group
UWA	Urban water authority
RBA	River basin agency
WUA	Water user association



# Introduction

## Why water governance analysis?

In many regions of the world, ensuring sustainable and reliable delivery of water while protecting environmental flows (Dyson, Bergkamp and Scanlon, 2008)<sup>2</sup> has become increasingly complex and problematic (Batchelor *et al.*, 2016. See Box 1 below). Among vital factors for achieving this objective are the availability and easy access to information and data on the status and evolution of water resources, as well as their uses and users, whether at local, national or transboundary level.

### BOX 1. INCREASED SCARCITY OF WATER RESOURCES

Over the past century, the growing demand for food, feed and fibre has largely been met by expanding the use of water, soils and land. Today, the interdependence of water, land, food, industry and energy, among others, is intensifying as the 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. Climate change exacerbates the pressure on water resources and makes millions of people more vulnerable to water insecurity.

The increased demand comes with a greater scarcity of resources, strong interconnectedness between actors and sectors, and growing inequalities in access and use, especially for small-scale producers, women and indigenous peoples.

The new reality is one of a shared dependency on limited resources in the context of changing global dynamics around food, climate, energy and finance. Geopolitical factors further contribute to the complexity.

Ensuring the sustainability of water resources thus presents a significant governance challenge: the maximization of economy, equity and environmental sustainability are competing goals that involve important trade-offs as well as opportunities.

*Water accounting* provides information on trends in water supply and demand in both space and time; the underlying causes of imbalances in water supply and demand by different water uses and users; the sustainability of the current level of consumptive water use; and the efficiency or productivity of different water uses or users. Water accounting is thus increasingly considered as critical for evidence-based policymaking related to water resources.

In practice however, information including biophysical and technical data do not necessarily translate into related policy choices and their successful implementation on the ground.

<sup>2</sup> An environmental flow is the water provided by a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated.

Over the past two decades, many have ascribed the growing challenges in water resources to a “*crisis of governance*” (OECD, 2011 p.17). This is confirmed by the comprehension of the physical and technical limitations on the approaches to water resources management, as well as the importance of institutional and political factors in shaping water-related policies and determining the ways in which these policies are implemented. In other words, the sustainable and reliable management and use of water, particularly in countries where overall demand outstrips 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” (Batchelor *et al.*, 2016, p. xi).

The implementation of water-related policies and strategies and the behaviour of different actors in relation to water resources are influenced by many different factors. These include the water-related rules in place, the characteristics of water users, communities and relevant government actors as well as political and policy choices in other sectors (e.g. food, land, energy, trade, industry and tourism). To fully grasp the links between these factors requires a good understanding of national and local circumstances. A major challenge is to determine who wins and who loses under current and changing conditions and the best pathway to change given existing constraints. Every country has a unique set of issues, actors, constraints and opportunities, which necessitate a tailor-made combination of policies and interventions to achieve optimal results. Adaptation is often also needed at the local and intermediate levels.

This methodological framework starts from 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. using more treated wastewater, reducing water allocation to agriculture, promoting alternative crops, etc.), while water governance analysis can smoothly connect such technical solutions with the institutional, social, political and legal changes required. Furthermore, governance analysis can add information on ‘fairness’ to shortage and disparity in access to and use of water, by identifying who or what factors are behind problems and who is impacted the most. Simply put, combining water accounting and water governance analyses can provide the basis for realistic, effective and equitable water management while achieving social, economic and environmental objectives.

A wide range of tools is available for governance analysis (see Annex 2); some provide general guidance and some are tailored to specific purposes. In most cases it will be necessary to combine elements from a number of tools. The choice of which tools to use will depend on the needs and priorities of the target country. There is no single correct approach. Analytical tools used by development practitioners, including the stakeholder analysis, stakeholders’ rights, responsibilities, returns and relationships (the so-called 4Rs framework), situation analysis, institutional analysis, water tenure assessment, political, economic and social context analysis and power analysis, can all play a valuable role in water governance analysis.

## Objectives of the methodological framework

This document is a companion to *Water accounting and auditing: a sourcebook* (Batchelor, Hoogeveen, Faure, & Peiser, 2016). It is a practical tool to support policy practitioners, planners and others involved in water management, allocation and use.

The framework builds on a number of existing methodologies and tools for governance, institutional and political economy analysis. In particular, the FAO four phase framework for governance analysis, provided in *Focus on governance for more effective policy and technical support. Framework paper*.<sup>3</sup> The full list is included in the bibliography.

This document:

- 1) introduces the conceptual framework for water governance analysis and the methodological approach to undertake the analysis; and
- 2) provides practical guidance to undertake an in-depth water governance analysis at country and subnational levels, and to develop technically valid and politically feasible strategies for change. It proposes questions that can guide the analysis team during the four phases.

Annex 1 illustrates the four-phase water governance analysis through a country example. Although purely based on a desk analysis (but related to a real country case), the example illustrates the kind of issues that the analysis should examine on the ground.

Annex 2 suggests a number of practical tools that can be used during each phase of the analysis.

Considering the specificities of each country context (local, intermediate, national and transboundary) and the problem-oriented approach, the tools and questions should be adapted to the circumstances and the problem being studied on a case-by-case basis.

<sup>3</sup> Bojić, D., Clark, M. and Urban, K. 2022. *Focus on governance for more effective policy and technical support. Governance and policy support framework paper*. Rome, FAO.



# I Key concepts

## 1. Governance and water: a conceptual framework for analysis

The word 'governance' is very widely used in the policy debates (Hufty, 2011). Yet it is used in different ways by different users, depending on their respective interests and objectives (Bojić, Clark, and Urban, 2022).

Despite diverse views, it is possible to distinguish two main perspectives of thinking on governance. One perspective is normative, aimed at improving government effectiveness and capacities (which can be loosely associated with a 'good governance' agenda). The other perspective is more pragmatic and analytical, going beyond the institutions themselves and looking at the social context in which they operate. This approach emphasizes the fact that underlying social and political economy dynamics and power relations influence both institutions and development outcomes.

According to the normative or good governance perspective, the prospects for sustainable development are principally associated with the establishment of a specific set of institutional arrangements that create the conditions for economic growth in a country. These arrangements typically include well-defined and enforced property rights; rule of law; open and competitive markets; transparency; competitive systems of political representation that ensure fairness and accountability; participation by stakeholders; and an effective state monopoly on the use of force. For adherents to this view, sustained economic development can occur only when private actors are free to organize and contract without any threat of expropriation or loss of freedom, when property is both private and secure from predation by private or public actors, and when the rules of the political game are transparent and sufficiently stable to allow long-term commitments or contracts among different organizations. Naturally, this reasoning assumes that the potential for and the pace of economic development are a direct function of the speed at which the basic institutions of good governance can be put in place. The underlying, often tacit, assumption is that good governance will enable a self-sustaining virtual cycle of mutually supportive economic and political development.

Water specialists usually use the term 'governance' in this sense (a great number of publications in fact refer to 'good water governance') to recommend or help design particular institutional, organizational and financial arrangements for making water decisions and regulating water use (Zwarteveen *et al.*, 2017). Some examples of its application include efforts to promote water privatization, water markets and rights, efficiency and cost-effectiveness (Bakker, 2010), and the core prescriptions for water management transfer to water user associations (WUAs) or for integrated water resources management (IWRM).

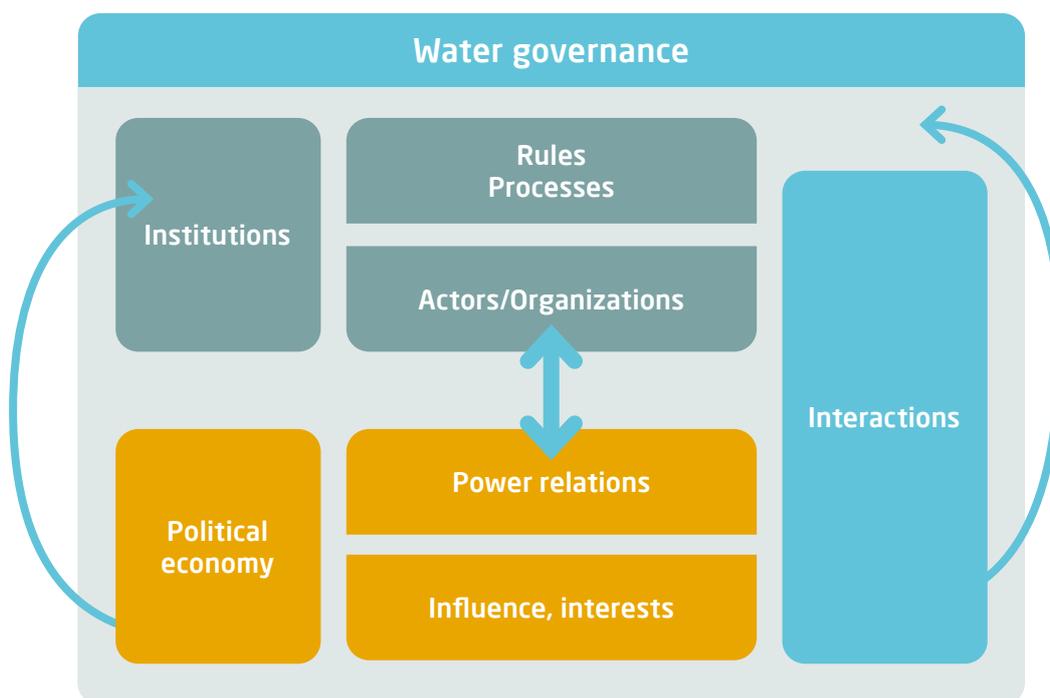
However, the export or expansion of governance models from places where they succeeded to places where there is a need has often failed or produced negative outcomes (Meinzen-Dick, 2007). The pressure to adopt 'best practices' has caused many countries to mimic certain policies and solutions in line with ideal technical standards, but which are disconnected from local political and organizational realities.

The analytical, political economy-oriented perspective does not presuppose a specific governance model, but looks at how things actually work. It sees the process of development as deeply rooted in established social, cultural and political relationships at national and local levels, facilitating or hindering – but always affecting country institutions. This perspective is founded in the identification and analysis of social institutions, i.e. formal and informal rules and organizations. It then observes the social and political context in which they operate, in an attempt to explain how these institutions came about. It also takes into account the relative power and capabilities of the different actors (public and private) who influence how the institutions work. The political settlement can be observed, for example, in the structure of land and water tenure, or in the policy framework of the state (e.g. preference for water concessions in agribusiness rather than for small-scale irrigation).

FAO's current work on governance follows the political-economy oriented perspective and defines governance as embracing: the formal and informal rules, organizations and processes through which public and private actors articulate their interests; frame and prioritize issues; and make, implement, monitor and enforce decisions (FAO, 2013).

As this definition indicates, governance includes a wide range of considerations around how decisions are mediated and influenced by institutional structures. It points to the relevance of processes – negotiations, contestations and compromises as well as power relationships between different actors. It invites us to look at the economic and political interests that lie behind the institutional arrangements and to consider interactions between institutions and actors, and power relationships and influence (see Figure 1).

Figure 1. Governance conceptual framework



Source: Authors' own elaboration.

Applied to the water domain, this perspective views water management and use as deeply rooted in historical,<sup>4</sup> geographical, political, economic and sociocultural contexts at national and local levels. A country's political structures determine the priorities and orientation of water allocations and management as well as access to and use of relevant data and information on water resources and uses. Water access and tenure are often linked to political dynamics between different groups and their relative power, interests and influence, which are continuously evolving.

Governance is a dynamic process. Water users or interest groups (e.g. industries, farmers, fishing communities, tourist resort operators or environmental actors) may call for water reform when they are unsatisfied with a particular situation. These groups will have different positions, perspectives and needs. Some may oppose water reform if they believe that the change will undermine their interests, while others may lobby for reform if they perceive the opposite to be the case. There may be conflicts within one group of users e.g. farmers in downstream areas may lobby against or take action to stop engineering upstream if it has the potential to reduce their access to water.

<sup>4</sup> For example, the history of investment in water-related infrastructure in a particular area often provides insights into why things are the way they are.

Some actors and interest groups have more access to relevant policymakers and information than others because they are better organized, better connected, more powerful, etc. and this allows them to influence the governance process and to extract economic gains. The ensuing benefits or 'rents' are of extended duration in most cases and may not be based on any productive or investment-related activity (Huppert, 2013). Lobbying for government subsidies is a typical example of rent-seeking behaviour. Various groups can form fluid alliances that coalesce or disintegrate as incentives change.

Engaging in water governance analysis, backed by and closely related to water accounting, helps to understand the underlying factors behind key challenges in water management and use, and identify key opportunities and risks in addressing them.

## 2. A methodological approach to analysis

This document proposes an analytical and empirical methodology for water governance analysis on the basis of the political economy-oriented approach to governance. The objective is to understand *what the reality is and why it is so* rather than to assess the performance of water governance in a particular country against predefined indicators or criteria. To do so, the analysis will look at physical, social and institutional factors associated with water resources in a country/river basin.

This framework recommends focusing on a specific key problem or policy challenge. However, it is important to keep in mind that the problem often lies in the eye of the beholder. Reaching consensus among different actors about the existence of a given problem will thus be critical. This problem-focused approach is generally an efficient way of working because it concentrates resources where they are most needed. It is also more likely to engage stakeholders, as they are actively contributing to the identification and characterization of the problem, as well as developing potential solutions.

The analysis unfolds in four flexible phases, which can be adapted to specific contexts (see Figure 2). The first phase examines the various perspectives on the priority problem(s). This involves a rapid overview of the country and its sectoral context, stakeholder mapping, technical analysis, as well as the perspectives of key stakeholders. The second phase involves an in-depth analysis of the institutional setting related to the problem. It attempts to identify the main drivers or sources of the identified problem(s) and their possible solutions, given the existing rules, structures and processes. The third phase focuses on key actors and examines the political economy factors behind the main problem drivers (i.e. socioeconomic issues, gender and power relations, interests and influence of the concerned actors and organizations, etc.), which will need to be taken into account in formulating the strategy for change and the coalition for implementation. Building on the findings of the second and third phases, the fourth phase identifies strategies for change that are both technically valid and politically feasible. In this phase, the stakeholders recognize trade-offs and risks of different courses of action and seek to build consensus. The key outputs of this final phase are an agreed theory of change and a recommended course of action.

**METHODOLOGICAL NOTE.** While divided here for the purpose of clarity, the four phases of analysis are closely interlinked. Their exact application will be shaped by the problem(s) being addressed, country context, actors and processes. The guidance provided in this document should be interpreted flexibly and adapted according to the specific country/local contexts and national priorities in the water domain.

Importantly, during the analysis, it is advisable to ensure a constant dialogue with the team involved in water accounting.

Figure 2. The four phases of governance analysis



Source: Bojić, D., Clark, M. and Urban, K. 2022. *Focus on governance for more effective policy and technical support. Governance and policy support framework paper*. Rome, FAO. <https://doi.org/10.4060/cc0240en>.

Like water accounting, water governance analysis should be implemented as an iterative process in which the different steps of the analysis are continuously revisited and generate more questions and answers throughout each phase. Starting with a relatively rapid analysis that is refined and deepened throughout the process will increase engagement of stakeholders and (therefore) confidence in outputs.

### 3. Methods for data collection and analysis

Water governance analysis relies mostly on social sciences (sociology, political science, anthropology, history, law, etc.). It builds on and relates to ‘hard’ science (water accounting, georeferencing, spatial analysis, monitoring, etc.). As with any research, rigour and objectivity are important (see for example WHO, 2017, and Bhattacharjee, 2012).<sup>5</sup> One of the key principles guaranteeing the objectivity and quality of the analytical results is the triangulation of data by drawing on as many sources of information as possible (e.g. observations, desk-based reviews, field-based investigations, questionnaires, surveys, interviews, etc.).

To cover its bases, the analysis will usually combine a desktop review with a field-based investigation.

A desktop review maps the key characteristics of the water-related issues in the country, the institutions involved in water governance, relevant processes, interactions between actors and rules and some hypotheses on water governance challenges. The material to be examined can be divided into three categories:

- 1) primary data sources such as official documents: constitution, laws, national development plans and strategies, policies and policy instruments, budgets, guidelines, statistical data (e.g. census, surveys);
- 2) grey literature: mostly unpublished reports from different sources, including the private sector, academy, donors, non-governmental organizations (NGOs) and civil society;
- 3) secondary material: academic research, publications by development partners, public opinion surveys and media reporting etc.

The field-based investigation aims to provide more detail by observing, interacting with and understanding the people most involved in the process being studied. It consists of three different operations: preparing the investigation, collecting data and analyzing said data. This investigation may challenge the knowledge acquired throughout the desk review, yet it will also offer great insights into how rules and processes are actually being implemented and what the effects are on water users.

Data can be collected through a wide variety of methods. Taking into consideration time and costs, however, it is highly recommended to make use of semi-open questions. Using the generic questions suggested in this framework as a starting point, the team should prepare a number of context-specific questions in advance, while allowing some space for unexpected follow-up questions and ideas. The techniques for collecting the answers (e.g. recording, notes, etc.) should be decided and prepared in advance. Open-ended questions are more useful for interviews or focus group discussions than questions that invite a simple ‘yes’ or ‘no’ response. Questions beginning with “how,” “please describe,” or “tell me about” often elicit a much more comprehensive and detailed response. It is best to avoid questions that come with an implied answer, such as “Don’t you think the recent reforms on subsidies for drip irrigation or on water permits will really change things on the ground for water use?”. Whereas, “Tell me about the subsidies for drip irrigation or water permit functioning” or something similar may be a better option.

<sup>5</sup> See for example WHO, 2017, and Bhattacharjee, 2012.

**METHODOLOGICAL NOTE.** Talking to people can be rewarding and offer much insight. But it should be remembered that these conversations are often filtered through the respondents' memories, interests and perceptions. The best way to minimize this bias is by using triangulation to acquire information on a specific question from three different, independent sources, for example, by drawing on unstructured interviews and observation, questionnaires and secondary data. Special attention must be given to social and cultural dimensions such as language, socioeconomic level and gender.

*Source:* Chambers, R. 1997. *Whose reality counts: putting the first last*. London, Intermediate Technology Publications. Cambridge, UK, Cambridge University Press.

Other relevant information will be acquired by holding workshops with key national and local actors.

## 4. Geographical scope of the analysis

A water governance analysis can take place at different levels (e.g. local, national, regional) and geographical locations. In some cases, the location can be determined by the ongoing programmes to which the water governance analysis may add value (see Box 2).

The geographical scope can also be decided directly by the main actors. For example, there may be a need to assess the water governance situation at the national level or at a subnational level (biophysical or administrative boundary). In some cases it may be useful to use both biophysical and administrative boundaries (e.g. when it is necessary to track the expenditure on watershed development programmes). It is also important to identify the spatial and temporal boundaries of the domains of interest.

### BOX 2. GEOGRAPHICAL SCOPE OF ANALYSIS

The water governance analysis can be used to assist countries in adopting a national policy/strategy on water. This can occur, for example, when a country lacks water policy and regulation despite a clear need for them. In such a case, a national-level analysis can help to identify a specific policy window for intervention, as well as the main orientation a policy or law could take.

The analysis can also be undertaken at the subnational level, for example in a region, basin or aquifer that is known for particularly severe groundwater depletion, to identify key governance issues that may explain why the problem exists and to indicate possible strategies to address it.

**METHODOLOGICAL NOTE.** Regardless of the geographical scope of the governance analysis, it will need to consider other governance levels (river basin, local, national and possibly also international if the work relates to transboundary water) and their interactions since what happens at one scale or level can affect what happens at other scales or levels.

## 5. Critical importance of the process and the skills of the analysis team

The analysis team should include individuals with expert knowledge of the country and a good understanding of governance and institutional analysis methods. Local key informants are essential advisors throughout the process, as they can help to interpret the analysis results and stakeholder perspectives. This is especially useful in environments where the political economy context is highly informal or where there are few primary data sources.

The outcome of the analysis will depend on the skills and capacities of the team members, the quality of the process, and the full engagement of the right actors and resource persons.

## 6. The analysis process in brief

### Phase 1. Problem framing

Rapid desk review

Preliminary consultations with key informants

First workshop

- Water accounting
- Economic, physical, environmental and social context
- Political, administrative and institutional setting
- Key actor mapping
- Hypothesis of the key problem and its contributing factors
- Agreement on the key problem and its characterization
- Preliminary problem analysis

### Phases 2 and 3. Institutional and political economy analyses

In-depth desk study

Observations, interviews, focus group discussions

- Relevant formal and informal rules in water and related sectors (e.g. land, agriculture, environment, energy) and processes for regulation, planning, allocation, operation and maintenance, budget, cross-sectoral coordination
- Actors and organizations, and their relationships
- Ideas, interests and power relations, conflicts, tensions and influence

### Phase 4. Developing priorities for action and building a coalition for change

Report writing and formulation of priority actions

Second workshop

- Realistic theory of change
- Possible scenarios
- Priority interventions and entry points



## II The four phases of water governance analysis

Before you begin, consider the following key principles:

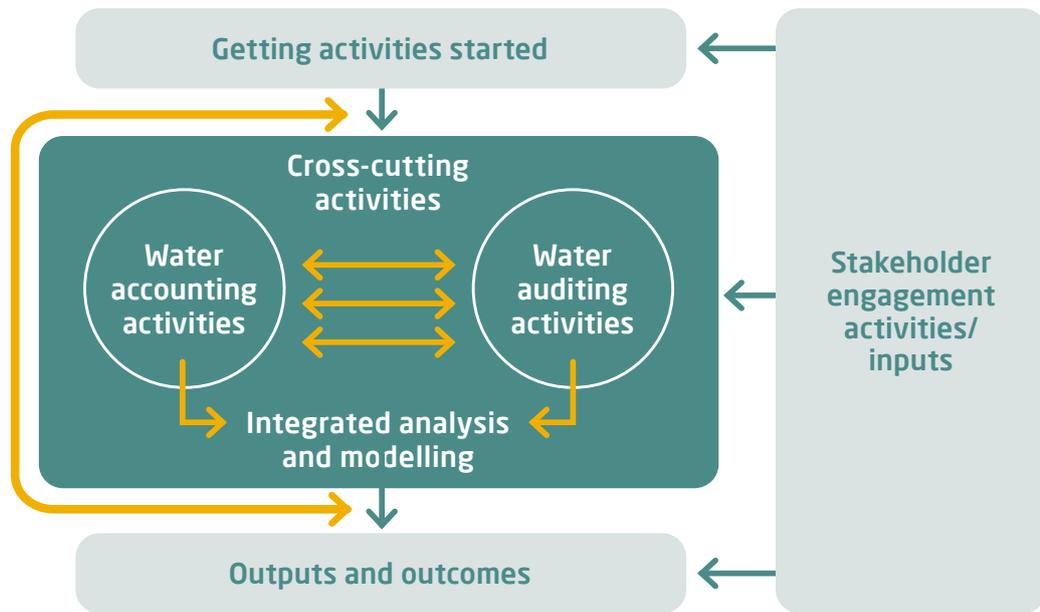
1) Ensure iterative linkages with water accounting

Although water accounting and water governance assessments can be, and often are, carried out independently of each other, they should ideally be designed and implemented as mutually supportive and complementary processes (see Figure 3). This will facilitate the identification of the causes of water-related problems and provide opportunities to develop solutions that will be accepted as legitimate by concerned actors and have a higher chance of gaining support and prompting change.

It is thus critical that the two processes engage with the same core group of key actors while also allowing for broader stakeholder engagement on specific questions. Both processes will address the same challenges albeit from different perspectives, thus it is critical that the assessment teams exchange information on a continuous basis and work together on a number of key tasks (e.g. stakeholder analysis, power distribution analysis, scenario building, theory of change) as well as on final reports and recommendations.

It is also important that there be mutual respect among the water accounting and governance assessment teams and a shared willingness to adopt an interdisciplinary approach. Facilitation may be required to help the teams to learn, understand and respect each other's methods, perspectives and fundamental principles, concepts and jargon.

Figure 3. Water accounting and water governance analysis



Source: Batchelor, C., Hoogeveen, J., Faures, J.M. & Peiser, L. 2016. *Water accounting and auditing - a sourcebook*. FAO Water Reports 43. Rome, FAO.

2) Do not focus on the water sector alone

Interactions between water, society, the economy and the environment typically involve a large number of actors, issues and opinions. The stakes are usually high. Solutions to problems relating to management, availability, productivity and access to water will often lie outside of the water domain (e.g. in agriculture, industry, energy and the environment). Therefore, studying these interconnected sectors will be crucial to understand and address key water challenges.

3) Look for methods and tools to deal with complexity and political sensitivity

Water governance analysis requires a good understanding of historical, sociological and ideological gaps/schisms in a country. Additionally, it's important to understand how these factors have affected water and other resources. In-depth analysis can eventually uncover core subjects and latent conflicts. It must be taken into account that some stakeholders may choose to withhold or distort information in an attempt to establish control or a sense of power, which would thwart the analytical results.

There's a certain level of complexity and political sensitivity that goes hand in hand with governance analysis. One way of dealing with this is by inviting trusted outside sources to participate in discussions and to supply their objective views and input. The use of triangulation will help to create a comprehensive picture of the issues at hand. To ensure the optimal usage of this method, interviewers should try to establish an atmosphere of openness and good faith in focus groups and interviews, ensuring that people feel safe in expressing their opinions.

## 4) Ensure stakeholder engagement from the outset

In most cases, national stakeholders are the target users or beneficiaries of the analysis. Actively engaging them from the outset is crucial to ensuring that the analysis and its findings are accurate and realistic, and that users feel ownership and appreciation of the results. Deciding whom to involve is a sensitive issue: the involvement of influential actors (e.g. big companies, powerful farmers) and the government is important, but it can influence the dynamic of the analysis and skew its results. Actors outside the water sector are critical (e.g. fisheries, land, energy), as are different categories of users in the agricultural sector (e.g. small- and large-scale farmers, men and women and indigenous peoples when relevant).

Participation will serve different purposes (e.g. to gather the views of different actors separately or jointly; to understand stakeholder concerns, including through the use of gender lenses; to collect and analyse data; to foster a sense of ownership and responsibility). Although it's desirable to engage as many groups as possible, this may trigger a number of challenges, which should be weighed against the efficiency and effectiveness of the process.

It may be useful to establish a small, informal multistakeholder advisory group (MAG) composed of national and local actors who would be involved in the analysis and provide feedback. The MAG will follow the water accounting and water auditing processes and play a role in facilitating communication and collaboration. The MAG could be asked to provide, review and verify data and information, assist with fact-finding, and facilitate the team's access to information and networks.

## 5) Strike a balance between level of detail and usefulness of information

It is critical to determine the level of depth or detail in collecting data and information. The analysis should produce the information necessary for key decisions. The MAG can help to define the scope of information that would be useful in this context, while preventing the collection of superfluous details. The risk, to be avoided, is to produce an analysis full of descriptions with no clear priorities and no clear sense of how different elements work together.

## 6) Adapt the questions suggested in the framework to the given situation

The questions suggested in this document may not all apply to every circumstance. The questions will need to be adapted to the different country contexts. Respondents need to recognize themselves and their situation in the questions, which is why it is important to tailor them to individual contexts. Furthermore, the aim of an interview is to gain a solid grasp of the respondent's perspective. Hence, the team members' own observations and thoughts should be avoided at all costs.

## 7) Be positive and forward looking

While the analysis aims to identify the causes and governance dimensions of the perceived problem, its ultimate objective is to find concrete solutions. The findings under phases 2 and 3 should provide sufficient information to allow the team to develop a theory of change (Rogers, 2014; Valters, 2014) with realistic and well-informed assumptions. Of course, a healthy skepticism is needed, as well as a willingness to challenge assumptions that are lacking in evidence.

## Phase 1. Framing the problem

**METHODOLOGICAL NOTE.** Phase 1 relies heavily on interactions with key stakeholders: key resource persons, focus group discussions, and observations and information gathered during a first workshop. Secondary information gathered through literature reviews of existing censuses and surveys, analysis and evaluations and rapid water accounting findings, such as data and information around water resources, infrastructure, demand and access (RIDA) will be useful for informing initial hypotheses about the key problems. Annex 2 suggests a list of possible tools to use during phase 1.

Identifying and framing the key problem(s) is fundamental. Water problems are complex. They have multiple possible causes and thus multiple potential solutions, which can vary according to local context (Rittel and Webber, 1973; Moors, 2017). The relationship concerning people and water are defined by inter-dependencies between different groups of people, and between people, technology, natural resources and society. Arrangements for accessing and managing water are likely to be variable, dynamic, and closely related to aspects such as access to land and the exercise of political power. No single group or perspective can address all different features of the water system simultaneously. This is why solving water problems requires attention to beliefs, attitudes and related problems.

Framing the problem can sort out our perceptions and focus the team's efforts on priority issues. Rather than focusing on broad challenges (e.g. water scarcity), governance analysis should aim at identifying a specific, delimited water problem that can actually be solved under the current circumstances. The water accounting exercise should provide sufficient information to generate a first hypothesis on priority problems.

The objective of phase 1 is to agree, in collaboration with the key stakeholders, on what the main problem is and come to a common understanding of its nature. The exercise may reveal a number of problems, some of which may be originating outside of the water sector.

Considering the above, the whole exercise of governance analysis can be seen as an argumentative process in the course of which a full image of the problem and of its possible solution(s) emerges gradually among the participants.

When carrying out the analysis, the team should keep in mind that reaching an agreement on the key problem is a political process (e.g. the *status quo* in water allocation or water tenure may be a problem for small-scale farmers but can serve the interests of big ones), and thus how it is framed is critical.

The team should start by looking at the country context (1.1.), then map the actors related to water resources (1.2.), identify and frame the problem (1.3.) and determine its main contributing factors (1.4.).

## 1.1. Understand the country context

Country context includes the environment and the political, economic, social, technological and demographic elements that affect water management and use in a particular country or a territory. Context analysis helps the team understand the dynamics and actors in water management in a given setting. Important contextual information may be derived from the water accounting exercise and should be discussed with the water accounting team.

**METHODOLOGICAL NOTE.** The objective of this exercise is to get an overall picture of the water domain to facilitate the process of framing the key water problem and its main drivers. It is important not to make it an exhaustive, descriptive study of the country context.

The questions in Table 1 provide guidance for understanding a country context.

Table 1. Guiding questions for country context

Context dimensions	Questions and issues
Political system and administrative set-up	<ul style="list-style-type: none"> <li>• Is the country a federal state? Is it centralized or decentralized? What is the division of responsibilities with regard to water resources?</li> <li>• Is there a legitimate political authority and basic administrative capacity?</li> <li>• Are institutions rules-based or informal, operating mainly on the basis of personal connections?</li> <li>• Are there major policy changes ongoing or planned, including regional or global initiatives, that could affect the distribution of power and resources (e.g. through privatization, devolution, liberalization, planned reforms or investments)?</li> </ul>
Priority economic sectors and livelihoods	<ul style="list-style-type: none"> <li>• What are the priority economic sectors in a country? What are the key economic statistics on poverty, food security?</li> <li>• Which, if any, large sectors of the economy operate informally?</li> <li>• What are the chief characteristics of services and infrastructure?</li> </ul>
Natural resources and infrastructure endowment and demands and access (RIDA analysis), information from water accounting	<ul style="list-style-type: none"> <li>• What is the country's natural resources endowment? What is the availability of water stocks and flows in time and space?</li> <li>• What is the balance between water supply, demand and access? What are the underlying causes of imbalances in supply and demand?</li> <li>• What are the main trends in water use over time and space?</li> <li>• What are the efficiency and productivity levels of different water uses and users?</li> <li>• What is the quality of water services?</li> <li>• To what extent are monitoring and evaluation systems functional and effective?</li> </ul>

Context dimensions	Questions and issues
Social structures and culture	<ul style="list-style-type: none"> <li>• Look at the demography, social cohesion and social capital, ethnicity.</li> <li>• What could potential conflicts, regional differences in terms of water and development look like?</li> <li>• What is the cultural context, marginalized groups, gender issue(s)?</li> </ul>
History and basic institutional set-up	<ul style="list-style-type: none"> <li>• What is the history of the country, keeping the focus on agricultural development, and water management and use?</li> <li>• What is the national development framework, water policy and legal framework, water tenure and land tenure dynamics?</li> <li>• Identify the informal institutions.</li> </ul>

## 1.2. Map the main actors

This exercise enables the governance team to identify the various stakeholders and actors involved in water governance and to determine who should be invited to a first workshop. It should be done together with the water accounting team and in consultation with a few key resource persons who are knowledgeable about water governance in the country.

The country context overview should reveal some of the key actors. The team should assess their relevant involvement and interest in water management, and access to water-related information (including water uses).

Actors will have a variety of roles and functions (see Table 2), which might include individuals or organizations, such as ministries and other government agencies; water user associations; producers’ organizations; agricultural export companies; small- and large scale farms; small and medium enterprises (SMEs); women’s groups and political parties. They might be mid-level officials, regulators, managers, users, funders, change champions, change opponents, influencers etc. (for an example of actors’ map see Figure 4). None of these categories is homogenous. Within the governments, there are actors with different levels of knowledge, skills and capacities. The same is true for private sector, farmers, communities and civil society.

It is important to look at all water uses, including both consumptive and non-consumptive uses.

Table 2. Categories of actors

Guiding questions	
What areas of concern are operated by key actors?	<ul style="list-style-type: none"> <li>• Legal and policy frameworks (water domain)</li> <li>• Legal and policy frameworks (other relevant sectors)</li> <li>• Operation and maintenance</li> <li>• Coordination</li> <li>• Enforcement</li> <li>• Information</li> <li>• Advocacy, interest and influence</li> <li>• Funding</li> <li>• Water uses</li> </ul>

Figure 4. Example of preliminary actor mapping



Source: Authors' own elaboration.

A preliminary mapping of the actors will help the team to:

- start talking to the right people;
- know what the actors are interested in;
- find out where key information can be found.

**METHODOLOGICAL NOTE.** In line with the iterative nature of the water governance analysis, the actor mapping will be progressively updated, enriched and informed as the analysis and understanding of the situation advances. The mapping should be developed jointly with the water accounting team.

### 1.3. Identification of the core problem

Problem identification often boils down to pinpointing an issue that the country has struggled with for some time and that policy and programmatic initiatives have not managed to solve.

In most cases, water-related challenges are a result of other sectors being too lucrative. For example, new farming systems are profitable and, as a result, farmers increase production and consumptive water use. This can lead to water overdraft and reduce water availability for all (see Box 3).

#### **BOX 3. FRAMING WATER OVERCONSUMPTION IN ATLANTA, GEORGIA, USA**

In 2017, Atlanta faced severe drought from September to December. This was not exceptional: droughts of equivalent severity occur about once every ten years in the area. However, the city's population had grown by 25 percent over the previous decade and there had been a significant increase in water-intensive agriculture and a growing water demand from other sectors. In combination with climate change, this led to an increase in water scarcity.

When trying to frame a problem it helps to think about what we can control and what we cannot. Droughts are an expression of natural conditions. While it is difficult to predict when a drought will begin or end, it is possible to know, based on years of meteorological records, how often droughts of a given severity can be expected to occur. Water scarcity, on the other hand, occurs when people use more water than is physically available. This distinction matters: droughts often cause water shortages, whereas the social and economic disruptions that follow from drought are a result of how water is managed, not of the drought itself. This is because drought can be anticipated and prepared for.

*Source: Brelsford, C. 2018. Water management is a wicked problem, but not an unsolvable one. How can we begin to think about the tangled web of water supply and demand? [online]. Santa Fe, USA, Arizona State University.*

Different actors may have divergent perspectives on the gravity of a water problem. While a lack of enforcement of relevant legislation (e.g. water permits and limits to water abstraction for irrigation) may be seen as a serious problem for an urban centre that suffers from regular water shortages, irrigating farmers may view it as a solution to their livelihood problems. Water shortages can impact different categories of farmers in different ways: wealthy large-scale farmers can usually extract the water they need even under conditions of water scarcity, leaving small-scale farmers without access to water. From the perspective of a competent water agency, investing significant financial and staff resources in water measurement, inspection and enforcement may not be attractive given the high cost and the danger of imperiling relationships with water users and rural constituencies. Bringing these different perspectives into agreement is a delicate yet crucial process.

Creating a shared understanding of the key problem and a shared commitment to the solution, does not necessarily mean that there will be complete agreement about the nature of the problem. However, the actors should understand each other's positions well enough to be able to consider the different interpretations of the problem, and to solve it together through means of negotiation.

On the basis of the context overview and the preliminary consultations with the informants, the analysis team should draw up a list of possible key problems. This list should then be discussed and prioritized during the first workshop. Table 3 proposes some questions that can guide the discussion and facilitate problem identification.

**Table 3. Suggested questions to guide the discussion around problem identification**

Guiding questions
<ul style="list-style-type: none"> <li>• <b>What is the core problem to be addressed?</b></li> <li>• <b>If there are a number of related problems or issues, can they be clearly defined and distinguished?</b></li> <li>• <b>Where is the problem mostly manifested?</b></li> <li>• <b>Why is it a problem? What is its greatest impact? What are the development outcomes at stake?</b></li> <li>• <b>Is this a real problem or the symptom of a problem?</b></li> <li>• <b>For whom is it a problem? Who benefits from the current situation and why? Who is involved?</b></li> <li>• <b>If this is an enduring problem, what was wrong with the previous solution(s)?</b></li> </ul>

In some cases, several problems can emerge, calling for a prioritization exercise. Prioritizing problems can be difficult when many actors, each of whom has a different priority, are competing for the same resources. Possible criteria for priority-setting could include:

- urgency of resolving the issue;
- magnitude of environmental, economic and social impacts;
- number of people affected by the problem;
- equity;
- existence of political will to address the problem;
- regional/community priorities (environment, quality of life, economic development);
- cost of addressing the problem;
- timing and return on investment.

Ultimately, the best option will most often be to prioritize the problem that can actually be solved under the current circumstances.

Once the key problem is agreed upon, it should be framed in terms of its relationship to various actors and sectors (see Box 4).

This will help to establish whether or not the problem has a governance dimension.

#### BOX 4. FRAMING WATER PROBLEMS FROM A GOVERNANCE PERSPECTIVE

A major challenge in solving complex problems is to frame them adequately. If the fundamental problem is water shortage, emphasizing the biophysical dimension may imply a preferred solution: finding additional water supplies through e.g. water transfer or water treatment. However, this will probably not address the root of the problem, such as the inequitable allocation of limited water for different uses. It is therefore necessary to frame the problem in terms of its societal and governance dimensions as well. The same key problem can be framed as water over-exploitation, unequal access to water or unequal water allocation. Framing a problem more broadly will suggest more possible causes and solutions.

Similarly, if the problem is the lack of sectoral coordination between water, agriculture and energy, an obvious solution is to establish a mechanism to improve coordination. But this risks overlooking underlying issues contributing to the problem, such as the trade-offs and conflicts between different sectoral objectives (e.g. water-agriculture-energy).

**METHODOLOGICAL NOTE.** Framing problems takes effort, attention and the capacity to look at water issues from a range of different perspectives of the various actors involved. There are several practical tools that can help stakeholders to understand the different dimensions of a given problem (see Annex 2).

#### 1.4. What are the main drivers of the problem?

In almost all cases, there will be beliefs, accepted wisdom and, possibly, a sanctioned discourse that points to certain drivers of a given water problem, which may or may not be supported by evidence.

Preliminary outputs from rapid water accounting and the country context overview will allow the governance team to identify possible drivers of the identified water problem. The first workshop will serve to establish consensus on the most relevant drivers.

Discussions during the workshop may bring up additional ideas about the possible causes of the problem and, in particular, their governance dimensions; these will be analysed in depth in phases 2 and 3. Participants should attempt to disentangle symptoms from causes and be encouraged to reflect upon the different aspects of the problem.

There is a caveat, however. Considering their nature, water problems will rarely allow for a *causal* analysis to take place: no single factor is sufficient to create a subsequent effect and different factors often interact in unexpected ways. Focusing on a specific water problem should enable the team to identify patterns and recognize correlations between certain factors and the root of the problem. The governance team should determine the problem's historical origins, possible drivers and reasons why change has not yet occurred. In keeping with the iterative nature of the analysis, problem analysis will progressively be enriched and better informed as the understanding of the situation advances.

Table 4 suggests some guiding questions that can help the governance team think through possible causal pathways to a given problem.

Table 4. Suggested questions to guide problem analysis

Guiding questions
<ul style="list-style-type: none"> <li>• How did we get into this situation?</li> <li>• Why does the problem persist? Why is change not happening?</li> <li>• What are the main causes of the problem (e.g. policy and legal frameworks; allocation patterns; planning; capabilities; social norms, etc.)?</li> <li>• If there are several potential causes, which one is the most critical and should be prioritized?</li> <li>• What are the main drivers or factors that have contributed to the problem?</li> </ul>

Once the stakeholders have agreed upon the key problem (e.g. conflict has been identified between competing uses of water or inequity in access to water) and its main drivers and contributing factors have been mapped, phase 2 will help the team gain a more precise view of the institutional environment in which the problem is embedded. This analysis can take place alongside the advanced water accounting that follows the first cycle of rapid water accounting to frame the problem.

## Phase 2. Institutional analysis

**METHODOLOGICAL NOTE.** Based on the findings from phase 1, the team will examine existing studies, institutional analyses and other information produced by well-respected sources. Interviews and focus group discussions will be held with key government and non-governmental stakeholders at different levels. These will include participants in the first workshop as well as others identified during the workshop or through discussions with key informants.

The objective of phase 2 is to test the hypotheses made during the workshop, and to confirm and improve the framing of the problem, refine and complete its analysis, and identify key institutional bottlenecks that explain why it persists.

Institutions define what individuals and organizations can and cannot do in a given situation. For example, water tenure is an institution composed of: i) rules that say who is entitled to access and use water, when and under which conditions; and ii) organizations in charge of ensuring the enforcement of these rules (see Box 6).

Institutions have three interrelated functions:

- as drivers/causes of the problem;
- as remedy or enablers of solutions; and
- as the basis for synergies or trade-offs between environmental, economic and social objectives.

Institutions change over time through various processes at subnational and national levels.

The governance analysis team should start phase 2 activities by identifying the main institutions that shape decisions related to the identified water problem (2.1.) and then assess institutional interactions and operations (2.2.). The extent to which existing rules are implemented (or not) will be a good indicator of necessary institutional change.

**METHODOLOGICAL NOTE.** The objective of this phase is to understand the institutional arrangements related to the identified problem. Do not provide a detailed description or analysis of the overall institutional set up related to water in the country.

## 2.1. Map the main institutions pertinent for the decisions related to the problem at hand

First of all, it is important to reflect on what we mean by an ‘institution.’

In its most popular usage, the term is synonymous with organization (e.g. government bodies, river basin agencies, water user or farmer associations). This narrow interpretation can be compared to an attempt to build and maintain physical structures without due attention to operational rules, maintenance specifications and regulations (Bandaragoda, 2000). It neglects the highly important aspect of laws, policies and procedures that are a natural and vital extension to the effective performance of organizations.

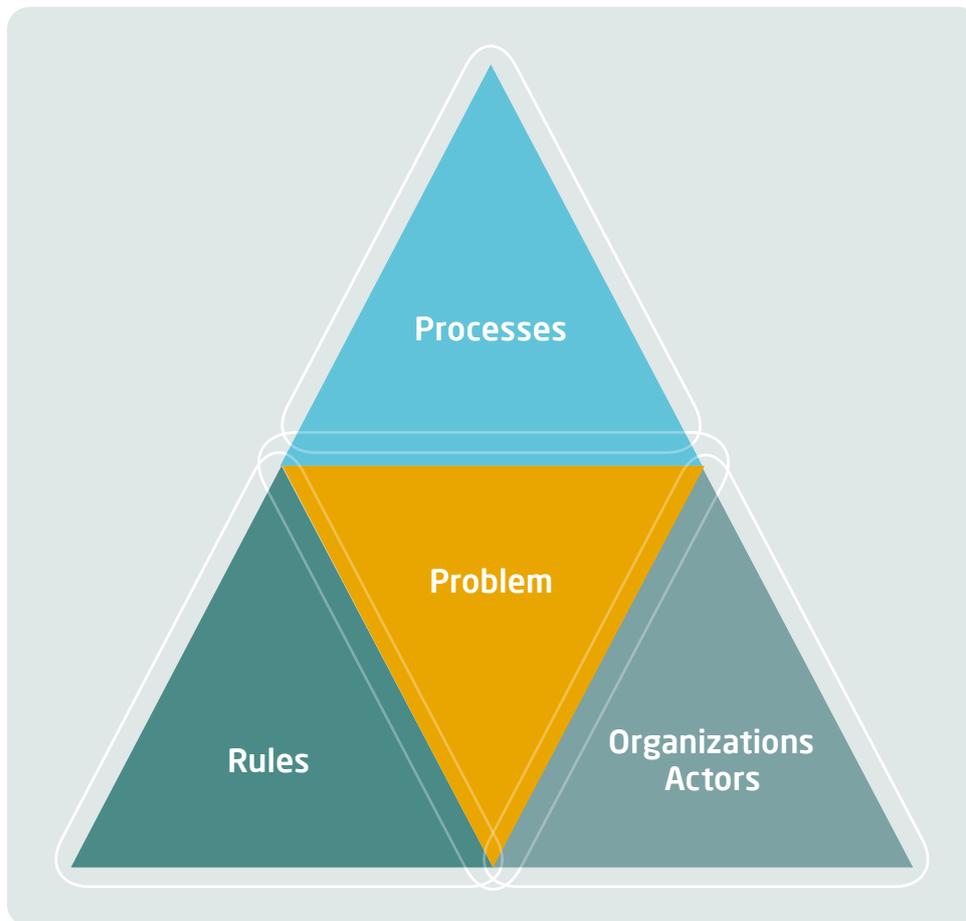
On the other hand, some view institutions as *only* related to the rules, policies, laws, strategies and plans that structure social interactions and shape human action. These rules determine whether and how people use and manage natural resources. They define resource allocations, create incentives, disseminate information and impose constraints that influence the behaviour of organizations and actors.

For the purpose of the governance analysis, institutions include all legal, policy, socio-economic and cultural rules, actors and organizations (e.g. national state and subnational level offices and agents, water users, communities and the private sector) that affect water resources management and use.

In practice, the way that water resources are managed and used and, above all, the equity and effectiveness of water governance depends on both rules and organizations. To be effective, organizations need adequate resources, capacities, strategies and coordination. Their effectiveness also depends on the ways in which they interact with the rules. These interactions happen through various processes (planning, budgeting, coordination, enforcement etc.).

When mapping the institutions related to the identified problem, the governance analysis team should therefore look at rules, organizations and processes (see Figure 5), both formal and informal (see Box 5).

Figure 5. Mapping the institutions in which a problem is embedded



Source: Authors' own elaboration.

Institutional analyses often focus heavily on formal policies, laws and strategies related to water, agriculture, energy, etc., neglecting the informal systems of rules, norms and traditions that can shape the way people and organizations behave. Institutional mapping should thus include both formal and informal rules related to groundwater and/or surface water management; water allocation across different sectors or irrigation schemes; patterns of investment in the maintenance of water infrastructure (with implications for conflicts in river basins); cost-recovery with implications for equity in distribution of costs and benefits of water use; and formal and informal water tenure arrangements (e.g. formal water rights, agency control, informal or customary land and water tenure arrangements, traditional irrigation practices or social behaviour norms related to water usage). Relevant sectoral policies and laws, as well as related informal norms should also be taken into account.

Particular attention should be paid to the relationship between relevant formal and informal rules, which can be complementary, competing or accommodating/neutral (Helmke and Levitsky, 2004).

### BOX 5. FORMAL AND INFORMAL RULES

Distinguishing formal from informal rules is tricky. According to most authors, the main differences relate to their origin, enforcement and form. Formal rules are generally written down and codified, established and enforced by the state, while informal rules are established by society, are self-enforcing and generally unwritten. However, the demarcation between formal and informal rules is ambiguous. For example, formal rules can be applied and interpreted in different ways by administrative units (or individual officials) so that they effectively become informal rules.

Also, informal and formal rules should not be associated with 'traditional' and 'modern' rules. So-called traditional rules can be written down or codified by law, while modern rules can have the status of informal rules. One interesting example is the British constitution, which is actually a set of domestic laws (some going back to the Magna Carta and the Act of Settlement of 1702) including formal electoral laws and informal conventions, such as collective cabinet responsibility.

*Source: Leftwich, A. & Sen, K. 2010. Beyond institutions: institutions and organizations in the politics and economics of poverty reduction - thematic synthesis of research evidence. DFID-funded Research Programme Consortium on Improving Institutions for Pro-Poor Growth (IPPG). Manchester. Jutting, J., Drechsler D., Bartsch, S. & de Soysa, I., eds. 2007. Informal institutions: how social norms help or hinder development. Paris, Organisation for Economic Co-operation and Development (OECD).*

Because water is so fundamental, a wide variety of organizations and actors are involved in its management. This creates challenges with regards to its complementarity and coherence. During phase 1, the team will have identified the key actors concerned with the problem at hand. These include governmental and non-governmental, formal and informal institutions at all levels of governance.

For example, irrigation services generally involve interactions between service providers, water users, government authorities, policymakers and regulators. In many cases, agribusiness companies or large-scale agricultural firms are powerful social actors with sufficient resources and authority to influence the agendas of policymakers. Individuals with authority and influence in relevant organizations should also be identified (e.g. ministers, high-ranking bureaucrats, influential water users, traditional chiefs). It may also be useful in some cases to identify external actors, including other governments (e.g. from neighbouring countries for cross-border water management), development partners (e.g. international finance institutions financing irrigation schemes, or international agencies providing technical assistance on water policy) and foreign investors (e.g. private businesses involved in public-private partnership projects in irrigation, foreign agribusinesses).

In many cases, the characteristics of existing rules and organizations contribute to the overuse of natural resources. For example, the relevant laws, procedures, contracts and/or common practices that govern the relationships between actors involved in the management of an irrigation scheme (e.g. financial incentive systems, contract arrangements between WUAs and construction firms and users of concessions) will determine how water allocation and infrastructure maintenance actually function in practice. Such rules should create sufficient coordination and motivation to make the irrigation service effective and equitable for all users.

The institutional mapping should allow the governance team to determine:

- the specific rules or incentives (in water or other domains) that may encourage behaviour that creates the identified problem (e.g. incentives for irrigated agriculture or for producing water-intensive crops; cheap energy indirectly leading to over-abstraction of groundwater, etc.);
- the main organizations and actors involved in an identified problem and/or in the implementation of relevant rules, their areas of responsibility and spheres of influence, possible gaps and overlaps;
- the main bottlenecks leading to/contributing to the problem;
- the possible norms or institutional changes that can enable a solution to the problem.

Table 5 provides examples of questions that can be used in the institutional mapping exercise.

**Table 5. Suggested questions to guide institutional mapping**

Guiding questions	
<p>Types of rules (formal and informal) that might frame the identified problem:</p> <ul style="list-style-type: none"> <li>• relevant water management functions;</li> <li>• service delivery;</li> <li>• tariffs, charges, standards;</li> <li>• land and water tenure;</li> <li>• relevant policies and laws in other sectors (e.g. agriculture, fisheries, energy, industry, tourism).</li> </ul>	<ul style="list-style-type: none"> <li>• How are water planning, allocation, service delivery and conflict management regulated? (Focus will differ depending on the identified problem). Look at relevant governance levels: national, subnational, river basin etc.</li> <li>• How does a decentralization process affect water management and use?</li> <li>• What is the situation with regard to land and water tenure? (e.g. public/private/collective property, regulatory licences, permits, investment contracts, customary tenure, traditional irrigation practices, 'illegal' water tenure).</li> <li>• How did the institutions involved in the identified problem come about? How were they introduced, by whom and why? How have they evolved over the years?</li> <li>• Are there incentives in place to motivate consumers to use water more sustainably and effectively?</li> <li>• What provisions/instruments might be encouraging water over-consumption?</li> <li>• Are relevant rules (including on water tenure) at local, territorial and national levels, sufficiently aligned and mutually-supportive? If not, where are the inconsistencies, overlaps and potential conflicts?</li> <li>• Are there specific rules (in the water sector or other domains) that seem to encourage behaviour that leads to the identified problem?</li> <li>• What seems to be the key institutional bottleneck(s) provoking the problem?</li> <li>• Where are there possible opportunities for solving the problem? Would changing norms or institutions make it easier to solve the problem?</li> </ul>

## 2.2. Critically assess institutional interactions and operations

**METHODOLOGICAL NOTE.** This is a critical step in the analysis. While the governance analysis team may draw on existing institutional analyses to understand how institutions actually work in the country, it will also be necessary to collect information through interviews and focus group discussions with governmental and non-governmental stakeholders (including water users), key informants and resource persons.

Once the institutional mapping has been completed, the team can move on to examining the operational management of the said institutions. The aim is to identify potential malfunctions that affect water management and use, that in turn give rise to the identified problem.

Experience indicates that institutional bottlenecks are often at the root of poor outcomes in water management and use. Inadequate legal frameworks, unenforced rules, insecure or inequitable water tenure, unclear mandates and limited capacities of water authorities, insufficient budgets, or collective action failures at the local level, among others, can block the sustainable allocation and management of water resources and delivery of water services. Furthermore, the behaviour of users with regards to water (and other natural resources) is motivated and influenced by incentives and constraints imposed by national institutions, such as rules regarding water and relevant resources (e.g. land, agriculture, industry, energy, tourism), the relationships between these rules and their implementation and enforcement mechanisms (see Box 6).

### BOX 6. GAPS IN THE INSTITUTIONAL SET UP FOR WATER DELIVERY AND MAINTENANCE PROVISION IN IRRIGATION

In a country with low water availability but where the agricultural sector accounts for some 70 percent of total water use, the critical question is how to sustainably use water and increase irrigation efficiencies. A highly sensitive issue is the distribution of water between the main pumping station, which pumps water from a river for municipal and industrial uses in the capital city, and the operations and maintenance (O&M) directorates, which supply water to different irrigation areas along the river. This is especially the case if there are no institutional mechanisms that clearly define the roles and responsibilities of different actors and their relationships to each other. Clear legal mechanisms are necessary to ensure the efficient and equitable allocation of water for urban and industrial use, as well as for irrigation. Governance mechanisms are needed for information exchange, as well as for water delivery and the operations and maintenance of the secondary system. In the absence of such mechanisms, water demands and supply schedules for irrigation are determined on an *ad hoc* basis through informal consultations between the main pump and the central water directorate in charge of allocation decisions. This approach cuts the O&M directorates out of the loop and leads to unpredictable irrigation water delivery, which may cause farmers to take excessive amounts of water when they can to ensure their 'fair share' (including by damaging the farm turnout structures). This lack of clarity nurtures feelings of demotivation and competition between the main pump and the irrigation pumps, and mistrust between farmers and government authorities.

*Source: Based on a real case study.*

For example, water users may cheat on their water shares or avoid the installation of water meters. The maintenance of water delivery infrastructure may be delayed or may be provided on the basis of preference, where providers reap extra benefits from farmers who can pay extra money for speedy maintenance (Huppert and Urban, 1999). The lack of enforcement of legal regimes for groundwater abstraction may be a strong reason why wealthy water users maximize short-term utility.

Compliance and the enforcement of rules are based on arrangements that are specific to each society, sometimes to each community. These arrangements may fall to the state administration, the justice department or the police in the case of formal rules and to the elders, village or community chiefs, or other traditional mechanisms in the case of customary rules.

There is greater incentive to comply with an enforced rule than to comply with a rule that is selectively enforced or not enforced at all. Additionally, a good understanding of the rules and the severity of the sanction by all relevant actors are important factors in determining whether a rule is respected and affects behaviour.

Other, less evident, social and political factors also play a role in the implementation of rules and their effectiveness in practice. One such factor relates to the historical origin of institutions. The history of water institutions often corresponds to the history of water resources and economic development within a country. The characteristics of a water basin's infrastructure (size and scale, technology, etc.) tend to determine the type and character of institutions that are established for water resources management. Physical systems of the river basin find themselves reflected in the institutional arrangements, which, in turn, often lack in efficiency for extended periods of time. Understanding why particular historic paths were not taken is equally important as understanding the actual trajectory of history. It may be that a given path, which leads to inefficient outcomes, persists after all because of the high cost of drastic change.

Two issues may require particular attention in the analysis: 1) water tenure; and 2) interdependence and coherence between water policies and the policies and legal frameworks of other relevant sectors.

Water and land institutions are rooted in value systems and grounded in the religious, social, political and cultural history of a country and a territory. In many countries, formal and informal land and water institutions often co-exist and influence each other. This can create a major source of conflict with regard to water tenure and management since the two systems are rarely applied in a coordinated or coherent manner (see Box 7).

## BOX 7. WATER TENURE

Water tenure is an emerging concept that is based on the recognition of the close interrelationship between land and water tenure rights. The working definition of water tenure is “the relationship, whether formally or customarily defined, between people (as individuals or groups) with respect to water resources.” (Hodgson, 2016). The definition is adapted from the realm of land tenure, and more broadly, the idea that ‘tenure’ can be applied to different natural resources such as fisheries or forests. Tenure can be formal or informal, individual or collective.

Water tenure determines how people gain access to and make use of water resources. It can derive from: i) formal law, often described in terms of ‘water rights’ and typically created on the basis of land tenure rights, permits, licenses, small scale so-called ‘free uses,’ concessions, contracts, membership in a water users’ association and legal powers conferred on public bodies; and ii) customary law or practice, which includes religious rules and a range of different informal arrangements, some of which may be recognized by formal law and others that exist due to challenges with regard to the implementation or enforcement of formal law or gaps in the legal framework. Water tenure has important implications for water use in terms of purpose and quantity. Tenure systems are often very complex and vary considerably, including within the same country, according to local terrain, the geography (upstream or downstream), social position/group, culture, environment and livelihoods.

There are also significant differences between water tenure arrangements in terms of how they are established and the degree of security, legal or otherwise, that they confer. Insecure water tenure creates vulnerability, conflict and environmental degradation while constraining economic growth. People without secure water tenure may be less likely to invest or to reap the benefits of any investment they make.

All water tenure relationships are potentially relevant for inclusive and sustainable water allocation and distribution. None can safely be ignored. For example, informal or illegal water uses may have a significant negative impact on users that rely on formal water tenure. However, many of the customary or informal arrangements used to access water may not be known by decision-makers. A key question when looking at water tenure is how to take this complex reality for integrated water resource management into account in order to protect the most vulnerable water users.

Ultimately, water tenure, like any other type of tenure arrangement, is a social construct. Water tenure can shed light on the power relationships in water governance, both in terms of water allocation and the vested interests of different stakeholders when it comes to decision-making. Finally, water tenure also plays a vital role in giving effect to the human right to water (HRW).

Considering the multidimensional nature of water, policy coherence between water and other relevant sectors is crucial to water governance. Policy coherence generally aims to plan, budget and coordinate processes. However, while policies, laws, strategies and plans can promote coherence on paper, their implementation may cause conflicts between sectors, undermining positive outcomes. For example, agricultural programmes that promote water efficiency and/or productivity can improve the profitability of cropping systems, but can also increase consumptive water use, aggravating water scarcity. Investing in hydropower can promote economic growth but at the same time reduce the water available for small-scale irrigation, potentially leading to migration and increased poverty.

The team should also pay attention to interactions between organizations and actors, the dynamics of cooperation and coordination, and competition and conflict, which might contribute to the identified problem. For example, providing irrigation

water and the related maintenance involves interactions between actors at different levels of governance. In many countries, the higher levels of governance define the objectives and the internal services to be provided by the lower levels. They also allocate the financial means and monitor progress. The lower levels are generally supposed to provide the services requested (or delegate them to others) and report back. This multilevel hierarchical system depends heavily on a functional system of responsibility and accountability. Each actor needs to have a clear understanding of the task or service they must perform, performance expectations and accountability. If these elements are unclear or open to interpretation, the system is at risk of collapsing (see Table 6).

Table 6. Examples of incentive deficiencies for irrigation maintenance

Stakeholder	Incentive Deficiencies
Senior irrigation officials	<ul style="list-style-type: none"> <li>• Low political benefits, high opportunity costs</li> <li>• Low, delayed visibility of benefits of maintenance</li> <li>• Low budget priority</li> <li>• Rehabilitation projects create political support</li> </ul>
Irrigation agency management	<ul style="list-style-type: none"> <li>• Budget allocation unrelated to fee collection rates</li> <li>• Total control over O&amp;M funds requires less accountability to users than cost-sharing arrangements</li> <li>• Accountability to internal hierarchy, not water users</li> </ul>
Operational staff of irrigation agencies	<ul style="list-style-type: none"> <li>• Maintenance lacks professional appeal</li> <li>• Deterioration rewarded by rehabilitation projects</li> <li>• Accountability to internal hierarchy, not water users</li> </ul>
Water users	<ul style="list-style-type: none"> <li>• Irrigation infrastructure seen as government property and responsibility of government to maintain</li> <li>• No relationship between payment of water fees and quantity or quality of maintenance</li> <li>• No clear water rights</li> <li>• Not involved in priority setting for maintenance works</li> </ul>
Foreign donors	<ul style="list-style-type: none"> <li>• Difficulty monitoring user of resources for maintenance</li> <li>• Difficulty monitoring benefits of effective maintenance</li> <li>• Pressures to perpetuate financing of capital intensive projects, such as rehabilitation, modernization and expansion</li> </ul>

Source: Huppert, W., Svendsen, M. & Vermillion, D.L. 2001. *Governing maintenance provision in irrigation: a guide to institutionally viable maintenance strategies*. Eschborn, Federal Republic of Germany, GTZ.

Interviews and focus group discussions should pay close attention to:

- resources, capabilities and incentives of key actors to invest in water resources, to cooperate, to comply or not comply with the rules or to modify them and whether these are factors contributing to the problem;
- relationships between formal and informal water tenure, including the interactions between key actors and rules;
- the dynamics of cooperation, coordination, coherence, rivalry and conflict that may explain a given problem.

Table 7 provides some guiding questions that can be adapted for the purpose of interviews and focus group discussions.

Table 7. Suggested questions to guide the assessment of institutional interactions and operations

Guiding questions	
Implementation processes	<ul style="list-style-type: none"> <li>• Are the rules respected and enforced?</li> <li>• Are the rules perceived as appropriate and fair? What are the key issues felt by the concerned actors with regards to the fairness/appropriateness of the rules?</li> <li>• What organizational structures, values or cultures influence the implementation of the rules?</li> <li>• Are there actors or groups that challenge the rules (in particular, water tenure rules)? Who are they? Which rules? Why?</li> <li>• What drives the lack of implementation?</li> <li>• Which transaction costs are to be expected to ensure implementation or to modify the rules?</li> </ul>
Resources, skills and capacities	<ul style="list-style-type: none"> <li>• Is there sufficient capacity to implement the water regime in terms of budget, personnel and skills (knowledge, technical and managerial capacities and experience) at different levels?</li> <li>• Which sources of funding are used to meet the capital and recurrent costs of given infrastructural system components?</li> <li>• Do the relevant local and territorial authorities have adequate autonomy, staff and budget to carry out their functions?</li> <li>• What are their priorities and motivations?</li> <li>• Are there opportunities for change? Where?</li> </ul>
Relationships and processes in relation to: <ul style="list-style-type: none"> <li>• Communication</li> <li>• Decision-making</li> <li>• Planning and budget</li> <li>• Coordination and coherence</li> <li>• Opportunities for solving the problem</li> </ul>	<ul style="list-style-type: none"> <li>• What are the established paths of communication flow (available documentation)? Are they efficient?</li> <li>• Are there informal communication channels that trigger action and follow up in the water sector and between water and other sectors?</li> <li>• What are the existing instruments and mechanisms for coordination and policy coherence, e.g. budgetary procedures, coordinated planning, others? Are they effective? if not, why not?</li> <li>• Are there incentives for collaboration within or across units and agencies?</li> <li>• Is there any previous experience in working with the agricultural or other sectors? Are those sectors open to new ideas?</li> <li>• Is there a regular analysis of the distributional impacts on water management of decisions taken in other sectors (e.g. agriculture and energy subsidies, spatial development, tourism)?</li> <li>• What are the key interactions and trade-offs between water and other relevant sectors (e.g. water-food-agriculture-climate change-energy)? For example, are there (indirect) incentives for short-term utility maximisation of resource use from other sectoral regimes?</li> </ul>

The process of analysing institutions and actors is likely to bring some weaknesses in institutional performance to light. These weaknesses can occur at different governance levels (national, subnational or both). The analysis should also indicate the trade-offs between economic (increasing agricultural productivity), environmental (ensuring conservation of water and land resources, and resilience to climate change) and social (ensuring inclusiveness and people's livelihoods) objectives and possible opportunities for institutional reform.

## Phase 3. Political economy analysis

Phase 2 enables the governance analysis team to better understand the identified problem, possibly reframe it, and to identify its institutional dimensions. Phase 3 examines institutional issues more closely to determine the political economy drivers behind them (see Box 8).

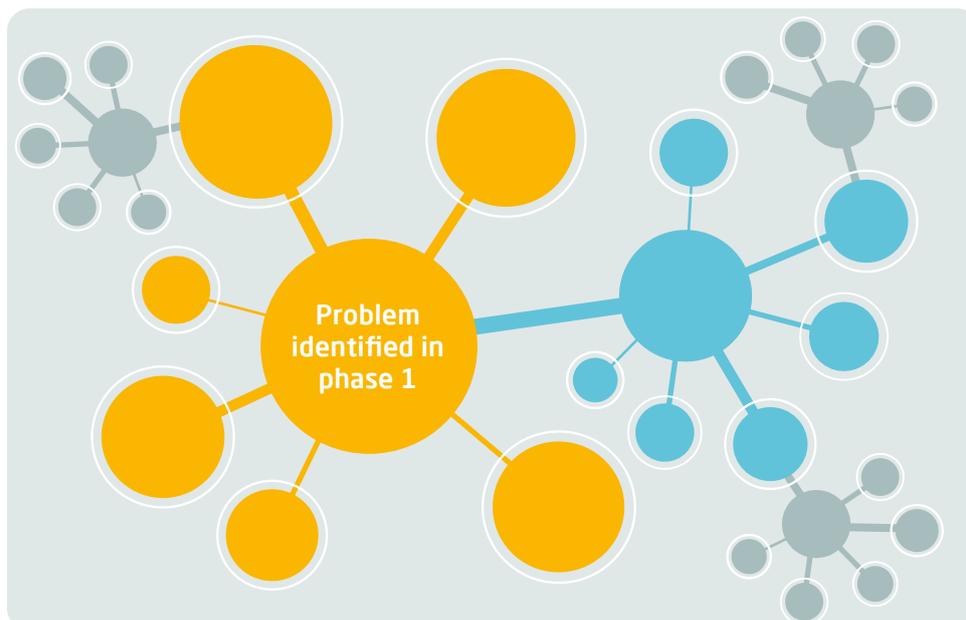
### BOX 8. POLITICAL ECONOMY

The study of political economy has a strong theoretical foundation, drawing upon economics, political science, law, history, sociology and philosophy. It studies the management and governance of public assets and resources by the state, and reflects upon the intertwining of economics and politics. In broad terms, political economy is concerned with the interactions of political and economic processes in a society: the political underpinnings of economic development, including the impacts of individual self-interests and preferences on economic decisions and the role of the state in supporting growth and redistributing its dividends, as well as the effects of economic life on politics, including the redistribution of political power and resources that economic policies and economic development induce.

Today, there is a substantial amount of literature on the political economy of development, including the political economy of water. An increasing number of political economy analysis approaches have also emerged, most of which are supported by donors and international development agencies.

Since their interests, behaviours and power relations form important drivers in the development and achievement of policy outcomes, the focus on actors must be central in political economy analysis. The objective is to identify the actors who influence the formulation and implementation of those rules and processes which really matter in a given political settlement and thus need to be involved in a social coalition for change. Such actors will be associated with the water domain as well as other related sectors.

Figure 6. Highlighting the actors affected by the problem in question, their interests, beliefs and power relations



Source: Authors' own elaboration.

Maintaining or adapting a given institutional setting for water management and usage is usually the core objective for water users and other relevant actors. Based on their interests, beliefs and power, different actors influence the formulation and implementation of the relevant rules and processes, accepting them, changing them or inventing new ones.

### BOX 9. POWER

Power takes multiple forms. From the consensual perspective, power can be seen as the capacity of persons or groups to get things done effectively. The conflictual perspective sees power as the capacity of one actor to influence the way others act. There are many different types of power, including political, delegated, ascribed, financial, charismatic, religious, social, traditional, and power conferred by knowledge and information or coercion.

Power is unequally distributed among individuals and organizations. There may be some groups, organizations or individuals that have more power to influence decisions or their implementation. However, the scope of power across individuals and groups differs considerably. Those that are powerful in one respect may be weak in another. For example, although resources are a potential source of power, the manner in which they are used depends on the skills and motivations of their possessors, as well as the opportunity costs of certain actions.

Organizations or actors can derive power from different sources: from the prestige that an organization or actor enjoys; from its economic capital (i.e. the revenue, assets or the capacity to mobilize financial resources); from the social network it can mobilize or its knowledge and information.

There are different manifestations of power relevant to water governance and water problems. An example of this is the difficulty with which certain actors (e.g. small-scale farmers, women and indigenous peoples) manage to influence decision-making processes on access to resources and services.

*Source: Parsons, T. 1963. On the concept of political power. Proceedings of the American Philosophical Society, 107(3): 232-262. Oxfam. 2013. How politics and economics intersect. A simple guide to conducting political economy and context analysis. World Bank. 2017. World Development Report. Governance and the law. Washington, DC.*

The institutional analysis carried out in phase 2 will allow the team to refine the stakeholder mapping and to focus its attention on the actors who will be crucial to the resolution of the identified problem.

Focusing on the power relations between key actors will help the team to understand how some individuals or groups influence the actions or decisions of others, how such influence is secured and maintained, and what enables or prevents actors from cooperating with one another. Gender is among the most important power relationships, so it will be important to keep in mind the gender dimensions of the distribution of formal and informal power in a given setting.

Table 8 suggests a number of questions to guide the team during the political economy analysis.

Table 8. Suggested questions to guide political economy analysis

Guiding questions	
Key actors' interests, ideas and beliefs	<ul style="list-style-type: none"> <li>• Who benefits the most from the current rules and situation? How?</li> <li>• What would be the distributive implications of change?</li> <li>• Is the identified water problem on the agenda of the local authorities? If not, what issues currently preoccupy them most?</li> <li>• Can the behaviours contributing to the problem be explained by short-term circumstances or are they caused by the more general rules of the game (e.g. decisions about setting tariffs, fiscal allocation or other legal issues; promotion of particular interests)?</li> <li>• What are the interests and motivations of the key actors? What is at stake for them?</li> <li>• What are their beliefs, values and preferences? Do the current rules reflect preferences and interests of a particular group of actors?</li> </ul>
Power relations and influence	<ul style="list-style-type: none"> <li>• Do particular individuals or groups influence relevant local policies and decisions or mobilize interest groups?</li> <li>• What is the status and power of key actors (social prestige, assets, capacity to mobilize networks and resources, knowledge and information they can draw on, etc.)?</li> <li>• How has their status and influence evolved over time?</li> <li>• Are there actors that challenge the legal framework? Why and in which way?</li> <li>• What are the formal and informal coalitions or alliances that exist between different actors?</li> </ul>
Ideas, possible solutions	<ul style="list-style-type: none"> <li>• What are the main drivers of change?</li> <li>• Who has the power and influence to shape ideas?</li> <li>• Why has the problem not been solved?/What are the main obstacles in trying to solve the problem? Have any previous attempts been undertaken? Which ones?</li> <li>• What changes are desired by the key actors? What needs to change for the problem to be solved?</li> <li>• What kind of interventions could lead to change? Are they technically and politically feasible?</li> <li>• Are there any obvious entry points or windows of opportunity? Where are they?</li> </ul>

Power relationships and stakeholder influence on problem solving can be represented by using a number of tools, such as power ranking, stakeholder power analysis or interest and influence matrices, as suggested in Annex 2.

The political economy analysis should identify:

- Interests, power and influence of key actors in relation to the identified problem.
- Possible ways to address the problem.
- Actors who influence the main drivers of the problem and those who can contribute to promoting change and, ultimately, solving the problem.

Actors can be classified (Prats, 2001) as:

- ‘Strategic’: any individual, organization or group with sufficient interest, influence and resources to support or hinder change.
- ‘Relevant’: actors that are part of the institutional fabric and have the resources to be considered strategic, but do not use these resources or are dominated by others in the process, and
- ‘Secondary’: those who are affected by the problem but do not have sufficient resources and power to change the rules of the game.

These classifications will be very helpful for the last phase in the analysis: developing priorities for action and change.

## Phase 4. Developing priorities for action and building a coalition for action

**METHODOLOGICAL NOTE.** Phase 4 will require multiple open discussions and reflections to identify the most appropriate interventions for change. These discussions should first take place internally, within the analysis team (possibly involving a few selected national actors), and then open up to include all relevant actors in a second stakeholders’ workshop. If the situation allows it, it would be beneficial to build scenarios on the basis of the acquired data and analytics – in order to evaluate potential trade-offs related to various policy options and strategies for change.

This workshop will allow the team to validate its findings, revisit and agree on priorities, and identify champions and coalitions to engage and support. Possible options for solving the identified problem should eventually involve conversations among all key actors responsible for water management and use.

The objective of phase 4 is to consider how key actors – both from the water domain and outside it – can be engaged to address the identified water problem, which would contribute to improved usage and management of water resources and, ultimately, to the country’s sustainable development. This phase is crucial, as it enables the teams to plan and develop realistic programmes and projects.

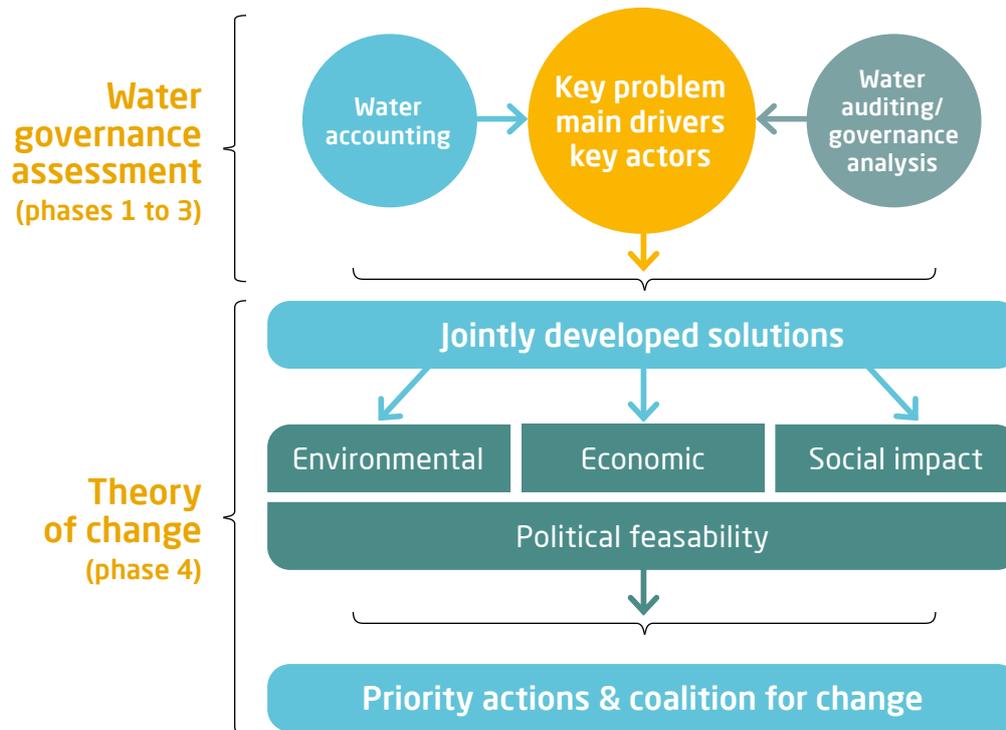
The technical and governance dimensions of the analysis come together again in phase 4. Possible technical solutions for addressing a given problem should be reconsidered in the light of the findings of the institutional and political economy analyses undertaken in phases 2 and 3. This should facilitate their feasibility, and help build the necessary coalition to make change happen.

The risk of phase 4 lies in the recommendation of theories of change that are disconnected from the social reality and political dynamics on the ground identified through phases 2 and 3.

A realistic theory of change articulates what kind of measures are needed to address the problem identified in phase 1 based on:

- their environmental, economic and social implications and
- their feasibility considering governance dynamics identified in phases 2 and 3 (see Figure 7).

Figure 7. Developing realistic options for change



Source: Authors' own elaboration.

#### 4.1. Build a realistic theory of change

The measures that can bring about change and solve water problems come in many different forms; determining what to do will depend on the problem itself and the governance bottlenecks identified during the analysis.

To ensure a strong link between the analysis undertaken in phases 2 and 3 and the theory of change, the team should start with the problem analysis undertaken during phase 1, which has been enriched and completed with findings from phases 2 and 3. The main problem statement could be rephrased as the main objective (e.g. 'unequal access to irrigation water' becomes 'more equitable access to irrigation water' while 'competing claims for water' becomes 'equity in water allocation'). The identified governance challenges can be reshaped as the preconditions needed to solve the problem or, at least, to contribute to its resolution (e.g. 'information asymmetry and lack of awareness' becomes 'improved information flow and heightened awareness' or 'legal insecurity of land and water tenure' becomes 'strengthened customary tenure rights'). In doing this, it may be possible to reveal additional preconditions to solving the problem.

As there's little possibility of successfully implementing changes in all of the dimensions which were identified throughout the analysis, it will most likely be necessary to establish priorities for what needs to change: roles or mandates? Certain formal or informal norms? Incentives from other sectors (e.g. subsidies)? Skills and capacities? Attitudes and behaviour? Relationships between actors? Other?

Once the necessary changes have been prioritized, it will be necessary to determine effective and sustainable actions and interventions that can bring about change. To do so, the team might consider developing scenarios and models.

## 4.2. Develop scenarios and assess their sustainability implications

The range of actions (e.g. subsidies or taxes, agricultural policies), resource allocations (e.g. how much water to use for irrigation) and production decisions (e.g. what type of crop rotation to implement) undertaken by different stakeholders (farmers, policy makers, consumers) involve trade-offs for the economy, the environment and people.

Scenarios help to illustrate how the future will be shaped by a particular course of action. Considering that interventions to address complex water problems will often involve both technical and governance measures, narratives describing future scenarios as storylines or diagrams should be combined with quantitative scenarios using data retrieved from water accounting. These scenarios should help the team understand the relative merits and impacts of different actions, strategies and policies.

On the basis of data and findings from the governance analysis, the team will develop a number of possible scenarios to map: i) the sustainability of different interventions (in all of their dimensions: economic, environmental and social sustainability); and ii) their political feasibility.

Sustainability implications (economic, environmental and social) include the estimation of trade-offs among different policy objectives. Increasing consumer preferences for organic food, for example, can affect food production and processing and create positive environmental and social impacts. Modifying cropping patterns can generate higher environmental and social benefits than compensating farmer groups for reduced water allocation.

The team should be particularly attentive to the social implications of change and pursue a human-rights based approach when considering possible interventions (see Box 10). This will require understanding who will be most affected by the proposed actions and the potential social costs of any intervention. What might be the distributional effects of water efficiency savings for different groups (e.g. small-scale farmers, women producers, pastoralists)? What might be the risks of increased poverty, migration flows, or possible capture by certain groups? For example, prioritizing water use for hydropower may promote a country's industrial development, while prioritizing water for small-scale irrigation could help to reduce poverty and migration from rural areas.

Particular attention should be given to the most vulnerable groups and actors (e.g. small-scale farmers, especially women and youth or indigenous people where applicable).

### BOX 10. HUMAN RIGHTS-BASED APPROACH TO WATER MANAGEMENT AND USE

The many competing - and sometimes conflicting - demands for water give rise to questions of equity and justice, such as what would be considered a 'fair' or 'equitable' allocation of water for competing uses and users. The human rights approach offers an important entry point to answering such questions by offering a framework that sets minimum standards for governance and defines the rights and obligations of different categories of stakeholders.

The right to water is a human right. Its most prominent legal basis is Article 11 of the International Covenant on Economic, Social and Cultural Rights, which enshrines the right of everyone to an adequate standard of living. Adopted by the United Nations General Assembly in 1966, the compliance of state parties with the Covenant is monitored by the Committee on Economic, Social and Cultural Rights, which adopts 'General Comments' constituting authoritative interpretations of the Covenant. In 2002, the Committee adopted General Comment 15 on the right to water whereby it specified that all people are entitled to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. General Comment 15 also stated that water is necessary to realize the right to adequate food. In the case of competing uses, priority in allocation must be given to water for personal and domestic use as well as for the prevention of starvation and disease. Today, it is accepted that the right to water also includes the right to irrigation water.

The human rights-based approach (HRBA) requires that respect for human rights and freedom are integrated into various policies, laws, programmes and activities. It requires governments to refrain from any practice or activity that would limit access to water (e.g. excessive abstraction of water by the state); to adopt the necessary measures to control and restrain third parties' activities, such as through pollution control measures or similar; and take measures to facilitate the enjoyment of people's right to water by, for example, protecting water resources and developing methods to improve water efficiency or minimize its waste.

The HRBA also requires governments to ensure the procedural aspects of human rights principles, especially participation, accountability, non-discrimination and transparency in decision-making related to water resources management.

*Source: Morgera, E., Webster, E., Hamley, G., Sindico, F., Robbie, J., Switzer, S., Berger, T., Silva Sánchez, P.P., Lennan, M., Martin-Nagle, R., Tsioumani, E., Moynihan, R. & Zydek, A. 2020. *The right to water for food and agriculture*. Rome, FAO.*

The social aspects of change are particularly important in contexts where the techno-scientific approach to water is predominant. In some countries, the agribusiness industry often emphasizes efficiency and rational use in productive practices (Damonte, 2019). In areas affected by water scarcity, the efficiency discourse risks trivializing the problem, defining scarcity not as the decrease in water availability due to overexploitation by agribusiness, but rather as the consequence of inefficient irrigation practices by small-scale farmers.

Regarding political feasibility, the spectrum of change can stay within the identified set of governance challenges and selecting priorities for action within that context. At the other end of the spectrum are opportunities to act upon the identified governance challenges with the aim of modifying the relative influence of different organizations and actors and hence expand change options.

In both cases, the power analysis undertaken in phase 3 will help identify the actors who will support and promote change – as champions and coalition(s) – and those who might resist or block change. The possibilities for reforms will be broader wherever the institutional setting is more conducive to change or strategic actors have been identified that can contribute to opening the space for change (Fritz, Levy and Ort (eds), 2014).

Table 9 suggests some guiding questions for developing realistic priorities for action.

The questions should help to identify:

- entry points for problem-solving and priority interventions contributing to solving the problem;
- political feasibility of their implementation on the ground, how likely the change is to occur and the processes and interventions;
- the main trade-offs between competing objectives and their economic, environmental and social implications of priority interventions;
- the actors that need to be engaged in the implementation process.

**Table 9. Suggested questions to guide the development of realistic priorities for action**

Guiding questions	
Entry points and priority interventions	<ul style="list-style-type: none"> <li>• Based on the findings from phases 2 and 3 discussions with key stakeholders, what are the most feasible entry points for solving the key problem identified in phase 1?</li> <li>• How do they relate to the current political agenda and priorities of local and national decision-makers?</li> <li>• Are there processes of change already ongoing where a small intervention could have a wider impact and help create momentum for broad change?</li> </ul>
How can change occur?	<ul style="list-style-type: none"> <li>• What is the intervention that would most leverage change?</li> <li>• What short, medium and long-term processes are needed to achieve change?</li> <li>• What resources are needed and are they available?</li> <li>• If resources are limited, what are the pros and cons of various options?</li> </ul>
Trade-offs	<ul style="list-style-type: none"> <li>• What are the risks involved and how can they be mitigated?</li> <li>• What are possible trade-offs and implications of change - environmental, economic, social?</li> <li>• What groups will the trade-offs affect most (small-scale producers, men, women, indigenous peoples, other)? How can this be mitigated?</li> <li>• How can the synergies be maximized?</li> </ul>
Who needs to be involved?	<ul style="list-style-type: none"> <li>• What incentives are there to promote change?</li> <li>• How strong are the possible 'champions'? What roles might they play?</li> <li>• Who are potential antagonists of change? Why?</li> <li>• What influence do they have on the potential for implementation?</li> </ul>

### 4.3. Recommend priority interventions and action plan

The analysis makes a real contribution to water governance by providing an honest analysis on the probability of particular actions to bring about change. However, the follow-up could be especially difficult when national partners have a particular interest in a certain type of intervention (e.g. hard infrastructure, desalinization).

The key goals of water governance analysis are the identification of the most appropriate and realistic entry points and interventions to solve key water problems. These should be mentioned explicitly in the final report of the analysis. The report should also indicate where FAO (and other external partners) could be useful to support a given course of action.



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## Annex 1. Illustrative case study: competing claims to water<sup>6</sup>

In many countries agriculture continues to play a significant role despite the emergence and development of industries, such as tourism and other services, due to the number of poor people it employs and strong links it has with other sectors. However, various constraints prohibit optimal production in the agricultural sector. The main constraints to productivity include poor transport infrastructure, a lack of appropriate institutional frameworks, unfavourable market conditions, and an overreliance on rain-fed agriculture.

This case study takes a country A, where irrigation is seen as a way to increase crop productivity, develop the agricultural sector and improve people's livelihoods. Country A has abundant water resources, but, so far its irrigation potential has been insufficiently exploited. The issue is the variability of water during the seasons and between different parts of the country. About one third of the country, mainly rural areas in the eastern part of the country, receives less than 800 mm of rainfall per year and is classified as arid.

In country A, like in many countries, water governance involves a mix of formal and informal institutions. The informal institutions evolve through constant interactions between different actors, which take place in response to prevailing situations and circumstances. Normally, informal institutions predominate at the community level, although they often coexist with formal institutions at the basin level. The two do not commonly coordinate their actions. However, this coordination is key as the integrated water resources management (IWRM) approach recognized in the Water Law, confirms the parallel multi-level water governance architecture: national, basin, catchment, sub-catchment and users level (through water user associations – WUAs). The institutional structure for water management includes the Ministry of Water and the National Water Council at the top of the system and local water authorities at the bottom. Water Law also regulates water tenure. It requires all unrecorded rights to be registered and gives water tenure authority to river basin agencies, which are also in charge of issuing permits for access to and use of water resources.

<sup>6</sup> This illustrative case study is based on typical water governance issues present in many countries around the world.

There are serious water problems with regards to the semi-arid areas in the country where rivers, provide water for irrigation as well as for urban and industrial use in the nearby city. Irrigation areas follow historical trends with some innovations. Irrigation traditionally took the form of furrows constructed and maintained by the farmers. When the use of furrows was considered to be obsolete by local governments, farmers switched to plastic gravity-fed hosepipes and sprinklers which tapped into the rivers and streams. Hosepipes are widely used as they are inexpensive, require little maintenance and contribute to increased water efficiency.

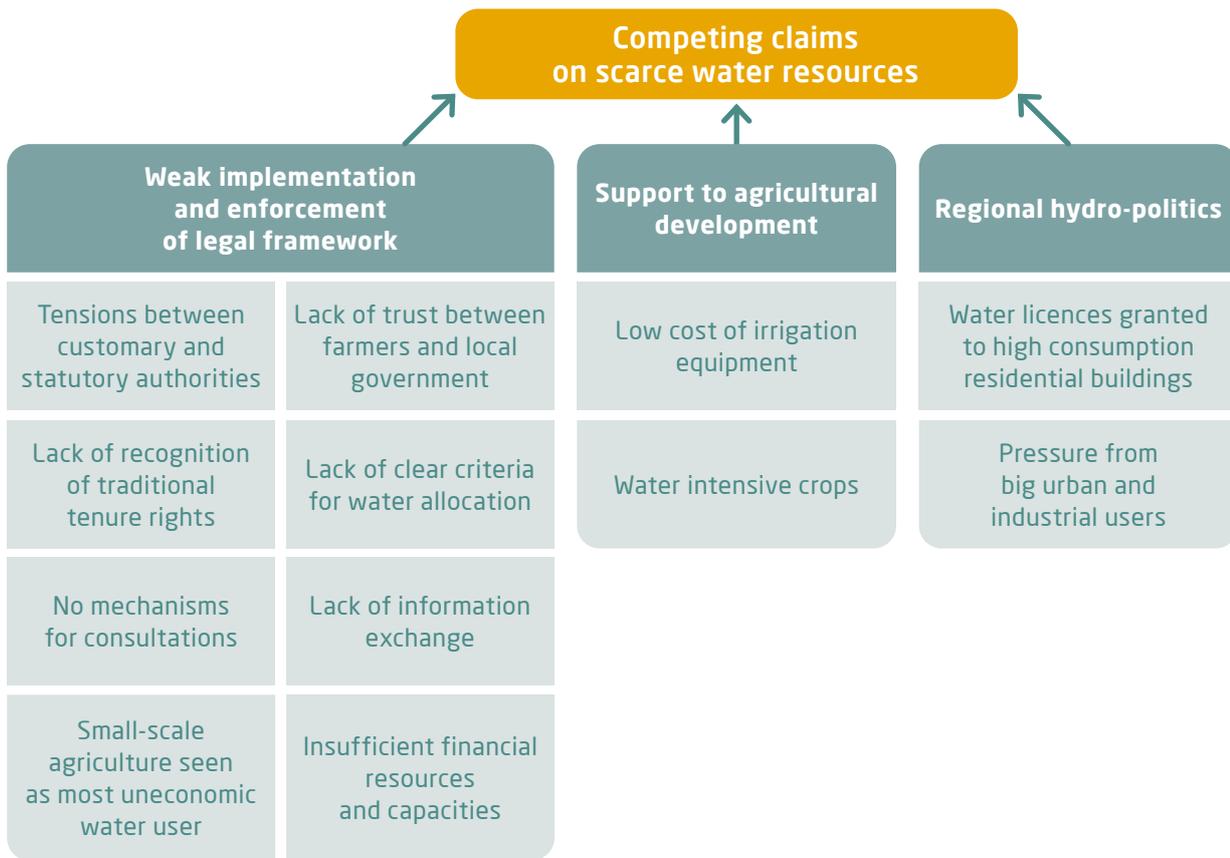
As a result of cool temperatures and access to irrigation water, the production of high value horticultural crops increased. Over the years, various organizations – national and international – promoted improved soil and water conservation practices that would conserve the soil while facilitating options to improve agricultural productivity. In time, the government promoted the production of high value crops. Tomatoes, herbs, strawberries, oranges, lemons and other crops are grown and sold locally. These practices allow farmers to improve their livelihoods and contribute to the alleviation of rural poverty. The critical challenge remains how irrigation can be efficiently and sustainably managed and used.

In recent years, some local governments have started to restrict the use of irrigation in order to decrease agriculture in some areas claiming that the farmers' traditional irrigation practices were environmentally destructive. Small-scale agriculture has been considered responsible for regular water shortages and for taking water resources from industrial and domestic users in the larger cities. The situation becomes more difficult as urban areas expand and the number of water users grows. In addition, the large-scale construction of dwellings and amusement parks in remote areas also put significant pressure on water resources.

The key state institutions involved in water management are the local municipalities, the RBA and the UWA. Over the past decade, there has been a trend in increasing populations and conversly a decrease in natural and water resources. Consequently, this typically leads to conflicts between small-scale farmers. Ultimately, tensions persist and it remains difficult to ensure sufficient water resources for agriculture, industrial and urban water uses.

The main problem appears to be regular water shortages for downstream users and, from a governance perspective, a conflict between competing claims on water for irrigation and for industrial and urban use (see figure A1.1).

Figure A1.1 Tentative problem analysis



Source: Authors' own elaboration.

The institutional setting related to the competing claims for water is complex. It combines elements of a state-centred approach, which gives the authority to issue water rights to the river basin agencies and a participatory approach, which promotes the establishment of water users' associations for local water management. The Water Law recognizes 'customary rights' to water but requires that these rights be formalized by the competent RBA in line with integrated water resources management (IWRM) principles. The RBA has the overall responsibility for water management, for the formal registration of water users and for issuing water permits.

In country A irrigation is largely considered as a way to attract private investment. Small-scale agriculture is considered the largest, most uneconomic water user. Despite the participation principle, smallholders are mostly excluded from the governance layer of basin institutions and their decision-making about water resource planning and water allocation is non-existent. Furthermore, at the community level, formal institutions have a limited presence.

Irrigation practices by small-scale farmers are determined by their access to land and adequate capital to purchase hosepipes and sprinklers for tapping into water sources. The allocation of land is managed and regulated by the local governments in line with the Land Law: land is under leasehold and must be used productively or else it can be reclaimed for reallocation. At the same time, a customary system regulated by local chiefs is dominant at the community level. There are informal arrangements for accessing water that are embedded in the sociocultural life of farmers and shaped through kinship and neighbouring relations: individual farmers purchase hosepipes but use them cooperatively with families and neighbours. While there are no specific rules for determining water availability, within the cooperative arrangements of neighbours, it is customary that if water levels to the hosepipes have dropped, the farmers agree among themselves how to share the available water. Government interference with these relationships has been actively resisted and farmers remain unregistered and devoid of water permits.

The institutional setup in country A combines elements of state-centred, top-down and participatory approaches. The setup is difficult to implement, which leads to persisting problems and causes tensions between the local governments, customary authorities and farmers.

The RBA often claims that water permits cannot be issued for multiple intake hosepipes and these are therefore deemed illegal. In practice, the RBA's main activity is selling water to UWA, which sells it on to domestic and commercial customers in the municipality.

With increasing rural development and growing pressures from urban users in nearby cities, a narrative of environmental protection has been used to promote the need to reduce agriculture in the rural areas, which has led to an attempt to evict farmers from their lands under pressure from the vocal urban population in nearby cities who suffers from regular water shortages. At times, payment for ecosystem services projects were seen as a way for urban business interests to pay for upstream conservation of water sources. A number of international non-governmental organizations promoted this idea, but in practice, the projects are not easy to implement due to limited engagement by the concerned private sector actors.

Theoretically, the RBA is in charge of balancing the needs of competing water users, since it is in charge of water management and issuing water permits, which should include a calculation of the water to be used under a given permit. However, the RBA lacks sufficient staff capacity to either monitor water allocations or issue water permits and, at any rate, farmers are not applying for water permits.

In addition, with regard to water allocation, the Water Law gives precedence to domestic water use, then environmental use and only then for agriculture. At the same time, it does not provide clear criteria for balancing competing water uses at different hydrological positions, leaving it to the discretion of implementing authorities.

This situation is also the consequence of the tensions between the customary and socially-embedded agricultural production and irrigation systems, and the formal regulatory structures of the state, as well as the difficulties that various actors face in considering the area as a dynamic system in which different interests and positions coexist. The legal framework does not provide clear criteria or governance mechanisms for water allocation and delivery. These deficiencies have serious consequences for the incentives of the involved parties. The main actors, which include the Ministry of Agriculture, Ministry of Water, RBA, UWA, customary authorities and farmers, have few incentives to strive for efficient water use, collaboration and dialogue. On the contrary, the institutional weaknesses and lack of implementation and enforcement of the Water Law allow major actors to pursue their individual goals to the detriment of effective, inclusive and reliable water use. These institutional challenges are based in country A's political economy.

Firstly, the government has a historical tendency to prefer larger, top-down irrigation schemes and to consider traditional irrigation systems as inefficient and illegal. This has made it difficult for basin authorities to consider the catchment as a dynamic system and to take into account all water users, their different circumstances and hydrological positions.

Secondly, there are contradictory views as to who should manage irrigation water in rural areas: the RBA claims that its main mandate is to sell water to different users and that UWA should be managing the water rights. UWA claims that it is only responsible for ensuring sufficient water for domestic and commercial users in the municipality.

While water legislation actually allows individual permits to be issued, there is no incentive for the RBA to do so since the cost of issuing permits to multiple small farmers would exceed the revenue they generate. Narratives around water scarcity, environmental damage by agricultural practices and climate change are used by different interest groups (e.g. the local authorities, industrial and urban users) to suit their purposes and their understanding of resource use and to justify the removal of those people seen to be responsible for the water problems: the farmers.

In the meantime, the farmers resist formalizing water rights because they fear having to pay for water. Irrigation practices, which are embedded in longstanding social relationships, ensure fairness and the sharing of available water. Farmers also claim to care for the environment, and they are working with several NGOs on environmentally-sustainable farming practices, terracing and water/soil conservation techniques.

Thirdly, the Water Law tends to favour urban residents, which leads to domestic water supply taking precedence over water for agriculture. However, there are no institutional mechanisms or clear criteria to resolve competing demands for water. Although the current shortage of water is largely considered due to agricultural and irrigation practices of small-scale farmers, this theory does not take into account the large-scale construction of new dwellings in the area or the pressure on water resources from industrial and urban water users. The lack of trust between farmers and the local government makes the situation more difficult. In addition, while legislation provides for the establishment of WUAs to represent farmers and to play a role in conflict management, there are practically no WUAs in the concerned areas and farmers have little interest in creating them.

Finally, there has been a proposal to move the farmers away from the related areas, with regards to regional hydro-politics. Farmers are vulnerable as they rely on the same water that is also provided to nearby cities (as a priority). The government seems to be pressured by big industries and urban development interest groups to increase and ensure a regular water supply. The environmental narrative and the vision of agricultural transformation based on a transition from smallholder farming to commercial investment and production is promoted as a way to advance development in the region.

In conclusion, the weak coordination between formal and informal institutions in the area and the lack of trust between farmers and basin authorities, combined with weak capacities and resources inside the RBA and UWA, pressure from urban and industrial water users and hydro-regional politics and deficiencies in the legal framework, all contribute to persisting tensions between water users and competing claims on water.

The relationships between key actors and problem analysis are presented in Table A1.1. The information provided here is incomplete as sufficient data from the field are lacking. Several actors are missing from the figures, starting with agricultural and industry-related institutions.

Table A.1.1 Relationships between key stakeholders

Analysis phase	RBA	UWA	Municipal government	Village authorities	Farmers	Development partners	Urban users	Private industry users
RBA	RBA Weak capacities Lack of staff and resources	Sells/buys water Unclear roles Rivalry	Pressure for water for domestic and industrial use	Lack of trust Tensions Lack of collaboration	No water pumping permits Pressure to reduce irrigation	Sustainable agricultural practices Soil, land and water conservatrion	Pressure to ensure sufficient water	Pressure to ensure sufficient water
UWA		Weak capacities Lack of staff and resources	Pressure to ensure sufficient water for domestic and industrial use	Lack of trust Overlaps Tensions				

Analysis phase	RBA	UWA	Municipal government	Village authorities	Farmers	Development partners	Urban users	Private industry users
Municipal government		Pressure to ensure sufficient water for the municipality		Weak relationship	Pressures for relocation		Pressure to ensure sufficient water	Pressure to ensure sufficient water
Village authorities	Lack of trust Tensions Lack of collaboration		Lack of coordination and collaboration		Reliance on traditional systems	Sustainable agricultural practices Soil, land and water conservation		
Farmers	Lack of trust Resistance to register water rights Lack of collective action					Sustainable agricultural practices Soil, land and water conservation	Competing claims on water	Competing claims on water

## Concluding observations

This case study is based on a literature review and on FAO's experience. While it is not possible to suggest specific improvements as it is just an illustrative example with no sufficient information, in a context where multiple actors operate across different governance levels, problem-solving requires in-depth dialogue and negotiation between key stakeholders from the water sector as well as other relevant sectors. Complex water-related problems may only be solved through a shared understanding of the key problem and collective action of key actors. Appropriate measures for building trust between actors, particularly farmers and local government authorities, are critical, as is an open discussion on the most appropriate criteria for water allocation to different users and the design and use of a water permit system that respects the customary uses of small-scale farmers.



## Annex 2. Suggested tools to support the analysis

Analysis phase	Tool	Source
ALL PHASES	Multiple tools and methods for analysis	Brouwer and Brouwers, 2017. FAO, 2012b. GWOPA and IHE Delft, 2020. Holland, 2007. Moriarty <i>et al.</i> , 2007.
PHASE 1	Context analysis	FAO, 2019b.
	Institutional and political economy context scanning	FAO, 2012b.
	Context, evidence, links framework for analysis Force field analysis	Star and Hovland, 2004.
	Stakeholder mapping	FAO, 2012b.
	Stakeholder analysis Multiple perspectives Six thinking hats	Brouwer and Brouwers, 2017.
	Prioritization and ranking	Moriarty <i>et al.</i> , 2007. Star and Hovland, 2004. Hearn <i>et al.</i> , 2014.
	Problem tree analysis	Dillon, Online. ODI, 2009.
	Five whys	Serrat, 2017.
PHASE 2	Institutional analysis	Bandaragoda, 2000. IFAD, 2009. Ingram <i>et al.</i> , 1984. Holland, 2007. Moriarty <i>et al.</i> , 2007.
	Water supply service analysis Rapid Asset Appraisal Analysis of Rights and Authority Systems Institutional Arrangements for Irrigation Financing Actor specific "incentive profiles"	Huppert, Svendsen and Vermillion, 2001.

Analysis phase	Tool	Source
PHASE 3	Political economy analysis toolkit	Water Aid Oxfam, 2014
	Stakeholders interests and power matrix	FAO Capacity Development website. Practical Tools. Stakeholders' Mapping <a href="http://www.fao.org/capacity-development/resources/practical-tools/capacity-assessment/stakeholder-mapping-tool/en/">http://www.fao.org/capacity-development/resources/practical-tools/capacity-assessment/stakeholder-mapping-tool/en/</a>
	Interest/influence matrix Forms of power	FAO, 2012b. Brouwer and Brouwers, 2017.
PHASE 4	Developing action for change Scenarios	Hearn <i>et al.</i> , 2014. Eight steps for Scenario Building <a href="https://wdfw.wa.gov/species-habitats/habitat-recovery/puget-sound">https://wdfw.wa.gov/species-habitats/habitat-recovery/puget-sound</a>
	Cost-benefit analysis	FAO , 2005. FAO, UNDP. 2018.







## GOVERNANCE AND POLICY SUPPORT - METHODOLOGICAL FRAMEWORK

### **Water auditing/water governance analysis**

More than 3 billion people worldwide live in agricultural areas with high levels of water shortages or water scarcity. Water is a central piece of agriculture and agrifood systems and it is showing significant shortages, scarcity and downgrading of its quality. There are only a few years to reach the SDGs and we urgently need to achieve sustainable and productive agricultural systems. This will require that we think beyond the usual techniques and find a systematic response to a water system, which is at a breaking point.

The new reality is one of shared dependency on limited resources in the context of changing global dynamics around food, climate, energy, and finance. The greater scarcity of resources comes with strong interconnectedness between actors and sectors, and growing inequalities in access and use. The more vulnerable are especially small-scale producers, women, and Indigenous Peoples. In the worst case, increased competition can also lead to conflicts at all levels - from local to international - and among different groups.

Over the past two decades, many have ascribed the growing challenges in water resources to a "crisis of governance", making water governance for food and agriculture one of the most pressing priorities of our times. Technical solutions to mitigate water scarcity are unlikely to succeed without the comprehension of the importance of institutional and political factors in shaping water-related policies and determining the ways in which these policies are implemented.

The combination of technical and governance analyses has the potential to help decision-makers identify the most appropriate ways to achieve water efficiency, productivity, and sustainability, while at the same time increasing the capacity of agricultural productivity to end hunger, food insecurity and malnutrition.

This paper provides practical guidance to undertake an in-depth water governance analysis at country and subnational levels and to develop technically valid and politically feasible strategies for change.

With its emphasis on continual learning and adaptation, water governance analyses will help policy practitioners work in a more informed and politically sensitive way towards more sustainable, efficient, and equitable water use, guaranteeing social and economic sustainability for all users.

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