



## **KnoWat:** Knowing water better

Towards a more equitable and sustainable access to natural resources to achieve food security

# Assessing water tenure for food security, equity and climate adaptation

Rwanda is a land-locked country of 26 338 km<sup>2</sup>, which borders Uganda, the United Republic of Tanzania, Burundi, and the Democratic Republic of the Congo. It is divided into four provinces and the capital city of Kigali, with 30 districts and a total population of nearly 13 million.

A temperate tropical climate and two main rainy seasons (February–May; September–December) determine the planting and harvesting cycles. Rainfall varies geographically, with the eastern and southeastern parts of the country receiving less precipitation (700–1 100 mm annually) than the west and northwest (1 300–1 600 mm annually).

The country is rich in water, and agriculture is the backbone of the country's economy, employing around 70 percent of the population. Known as the 'land of a thousand hills', Rwanda is characterized by a dense system of lakes, rivers, marshlands, groundwater and soil water, which are frequently replenished by abundant rainfall.

Climate variability challenges the country, ranging from changes in rainfall patterns to more extreme weather events. In addition, there is increasing pressure on natural resources (such as water and land) due to population growth, intensification of agriculture, rapid urbanization and industrialization; this has led to competition between water users and a reduction in water quality.

These challenges need to be addressed by Rwanda's water governance institutions to ensure an equitable, sustainable and climate-proof system of water allocation.



## Getting to know water tenure

Water tenure can be defined as “the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources” (Hodgson, 2016). Water tenure determines how people obtain rights to water resources, including the right to access, impound, use and manage water, gain access to information and participate in decisions on water resources management.

To ensure equitable distribution to all legitimate rights holders and to protect natural ecosystems, it is important that existing water tenure arrangements are coherent and all legitimate tenure rights are recognized by national legislation. Water tenure arrangements can be very complex and vary considerably, including within the same country, influenced by local and social practices, traditions and status, geography, environment and livelihood practices. Different water tenure arrangements may coexist and/or overlap in the same region and water tenure holders may belong to more than one water tenure arrangement.

[1] Hodgson, S. 2016. Exploring the Concept of Water Tenure. FAO Land and Water Discussion Paper 10.

## The assessment methodology

The KnoWat project developed a water tenure assessment methodology to identify and analyse the diversity of water tenure arrangements that may exist within a catchment or community. The methodology includes desk research and field data collection as well as capacity building and consultations with decision-makers, national stakeholders and local people that depend on water for their livelihoods.

The assessment is carried out by a multidisciplinary team, which includes legal and sociological experts. It allows the identification and the analysis of water tenure arrangements deriving from different sources, including formal, customary, traditional and indigenous systems. Formal law, often described in terms of ‘water rights,’ includes permits, licenses, small-scale so-called ‘free uses,’ concessions, contracts, membership in water users’ associations and legal powers conferred on public bodies. Local communities and indigenous peoples that exercise self-governance over natural resources may apply their own rules to the allocation, management, use and protection of water resources. Communities often share resources based on social, cultural or religious norms, some of which may be recognized in formal law.

The assessment methodology follows a six-step approach to categorize water tenure arrangements and determine their perceived security. It also permits the analysis of governance institutions and the identification of potential conflicts and their resolution through the application and revision of legal frameworks and local practices. The methodology allows comparisons between countries and between different regions in the same country while highlighting the specificities of each study area. The analysis provided by the assessment assists policymakers to define and safeguard the rights of all tenure holders and to determine how to safeguard water resources for users, while ensuring food security, livelihoods and the integrity of natural ecosystems.



## Assessment methodology



## Water tenure assessment in Rwanda

Although Rwanda is endowed with abundant surface water, population growth, climate change and poverty are driving changes that are likely to both increase water scarcity and contribute to deteriorating water quality in the coming twenty to thirty years. The water tenure assessment was carried out in the Muvumba catchment area in Nyagatare District and the Yanze sub-catchment area in Rulindo District. It identifies and compares the various water tenure arrangements that exist in Rwanda and highlights the challenges that may hinder the effectiveness of those arrangements. It also provides recommendations on how to achieve a more responsible and equitable governance of water tenure.

**Key recommendations for the governance of water tenure in Rwanda** include:

- Taking into consideration the mandate of the newly created National Consultative Committee on Water (NCCW), create (or embed within the NCCW) a technical, inter-agency working group. The group should focus on key areas of legislative reform under the current water law, with reference to the findings of this water tenure assessment.
- Finalize the preparation of ministerial orders on water use permits and water use fees to create a comprehensive regulatory package that can be rapidly implemented once any necessary revisions to the law are enacted. If legislative reform should prove to be untenable, key issues highlighted in the report could be included in a ministerial order as an alternative.

- Assess capacities and needs, including human and technical resource requirements, to enable the rapid, systematic and comprehensive implementation of the permitting regime as well as possible funding sources and a detailed implementation plan.
- Establish a water fee structure (such as a block tariff system) that charges water users according to use levels to increase the financial capacity of the water service institutions. Fee schedules and permit durations should also be aligned with adaptive management goals adopted by the government to enable water institutions to respond to changes in use, availability of water, water quality and so on. The duration of permits should be sufficiently long to ensure tenure security, but not too long preclude necessary adjustments to respond to changed hydrological conditions and climate change impacts.

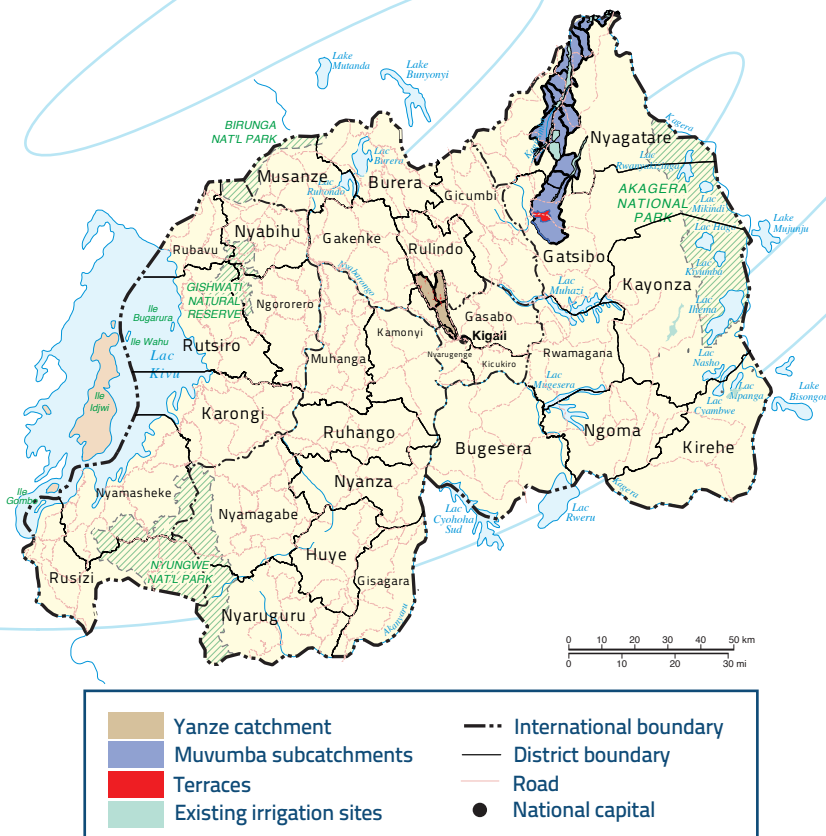


### Further information

Use the QR code to learn more about the activities in the country.

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## Assessment areas



Source: United Nations Geospatial. 2020. Map geodata [shapefiles]. New York, USA, United Nations, modified by the author. Catchment data from Rwanda Water Resources Board (RWB).

# KnoWat: Knowing water better

## Towards fairer and more sustainable access to natural resources for greater food security

Rwanda, Senegal and Sri Lanka (2019–2022)

All around the world, countries are struggling to adapt their agricultural and food systems to conditions of climate change and to extreme weather events such as long periods of drought or heavy rains. Water scarcity is expected to increase as is competition for water resources among users. Smallholder farmers are particularly vulnerable to changes in water access and availability: a sudden lack of water due to drought can mean lost income and food, threatening their lives and those of their families. For these reasons, major efforts are needed to address the links between water scarcity, food security and livelihoods in our changing climate.

The KnoWat project takes an integrated approach to water resources management that includes water accounting, water productivity, water governance and water tenure assessments. **Water accounting** is the systematic study of current status and future trends in water supply and demand in a given spatial domain. **Water productivity in agriculture** signifies the ratio between yield and the water consumed by a crop. To support water accounting and productivity assessments, the KnoWat project built the capacities of key partners to apply FAO's Water Productivity Open-access Portal (WaPOR). This tool assesses water consumption in agriculture and the water productivity of agricultural production using remote sensing.

**Water governance assessment** looks at the broad framework of institutions, finance and the political economy. To better understand water governance processes, the project developed and tested a **new methodology to assess water tenure**, the formal and informal arrangements used to access water. The assessment of water tenure aims to understand the different relationships between people and water resources.

Enriching our knowledge around water through accounting, productivity, governance and tenure assessments helps policy and decision-makers to plan and implement **better policies**, with the ultimate goal of ensuring equitable water allocation for **better livelihoods, food security and healthy ecosystems**, even under conditions of growing water scarcity.



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