GLOBAL WATER PARTNERSHIP SOUTHEAST ASIA

Water Tenure Governance in Southeast Asia Regional Policy Paper

June 2026

FOREWORD

In our modern world, where competition for resources is increasingly seen as inevitable, water governance is often discussed through the lens of infrastructure, technology, and supply security. Yet water is more than a resource to be managed.

As a vital essence of life, it raises a more fundamental question: how can access to water be secured in ways that are equitable, legitimate, and sustainable for all who depend on it?

This policy paper explores that question through the lens of water tenure. Drawing on insights from seven Southeast Asian countries, it examines the formal, customary, and informal arrangements that shape how people access, use, and manage water. The findings reveal both the diversity of water tenure practices across the region and the common challenges they face, including recognition, coordination, and tenure security.

The report also points to pathways for strengthening water governance in response to climate change, growing water scarcity, and increasing competition among users. In doing so, it reminds us that effective water governance is not only about managing water resources, but also about understanding and safeguarding people's relationships with water.

Prepared under the FAO ScaleWat Project, this publication contributes to the Regional Dialogue on Water Tenure for Asia and the Pacific. It offers practical insights for policymakers, practitioners, and stakeholders working to advance more inclusive, resilient, and responsible water governance.

FOREWORD

I extend my sincere appreciation to FAO, our Country Water Partnerships, national experts, government representatives, community stakeholders, and all partners whose knowledge, commitment, and collaboration made this work possible. We are grateful for their contributions and trust presented in this report.

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About FAO

The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger. FAO further supports countries in strengthening water governance to address growing challenges such as climate change, water scarcity, and food insecurity. A key part of this work is advancing the concept of water tenure, understanding who has rights to use water, under what conditions, and how those rights are governed.

About GWP-SEA

GWP is a global action network of 3,000+ organizations in 183 countries. As its oldest regional branch, GWPSEA coordinates 8 Country Water Partnerships (CWPs). Representing a diverse multi-stakeholder network, from government and development banks to NGOs, the Jakarta-based secretariat serves as the regional hub for advancing integrated water management.

About this publication

Developed under the FAO ScaleWat Project (GCP/GLO/1169/GER) in collaboration with GWP SEA, this product supports FAO's Global Dialogue on Water Tenure to promote inclusive governance, food security, and water access rights across Asia-Pacific.

ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
ASPA-WRM	ASEAN Long Term Strategic Plan for Water Resources Management
AWGWRM	ASEAN Working Group on Water Resources Management
BBWS	Balai Besar Wilayah Sungai (River Basin Organization in Indonesia)
COAG	Committee on Agriculture (FAO)
FAO	Food and Agriculture Organization of the United Nations
FWUC	Farmer Water User Community (Cambodia)
GEDSI	Gender, Equality, Diversity and Social Inclusion
GFFA	Global Forum for Food and Agriculture
GIS	Geographic Information System
GWP SEA	Global Water Partnership Southeast Asia
ICARRD	International Conference on Agrarian Reform and Rural Development
ICID	International Commission on Irrigation and Drainage
IWRM	Integrated Water Resources Management
MRC	Mekong River Commission
NARBO	Network of Asian River Basin Organisations
NWRB	National Water Resources Board (The Philippines)
P3A	Perkumpulan Petani Pemakai Air (Water User Farmers Associations in Indonesia)
PUPR	Pekerjaan Umum dan Perumahan Rakyat (Public Works and Housing Department in Indonesia)
QCA	Qualitative Comparative Analysis
RBPMB	River Basin Planning Management Board (Viet Nam)
RTRW	Rencana Tata Ruang Wilayah (Regional Spatial Plan in Indonesia)
ScaleWat	Scaling up capacities for responsible governance of water tenure in support of food security, climate resilience and social inclusion (Project)
SDG	Sustainable Development Goal
TPOP	Tugas Pembantuan Operasi dan Pemeliharaan (Operation and Maintenance Assistance Taskforce in Indonesia)

GLOSSARY

- Agency Control: A water tenure arrangement where the allocation, distribution, and management of water resources are directly controlled and operated by a public or government entity.
- Assumed Water Rights: A category of water tenure where users operate under the belief or localized consensus that they possess a right to water, despite lacking formal statutory permits or clear customary titles.
- Bobokan: A localized, farmer-led adaptive irrigation practice in Indonesia involving channel tapping to divert water to agricultural fields.
- Bundle of Power: The diverse factors, structural influences, or socio-economic sources of power that determine a stakeholder's actual capacity to access and control water resources on the ground, separate from legal rights.
- Bundle of Rights: The collection of legally or customarily recognized rights held by an individual or community, such as the right to access, abstract, use, or manage water resources.
- Commonhold Water Tenure: A tenure arrangement where a defined group or community collectively shares, manages, and uses a water supply system or resource.
- Customary Water Tenure: Water access and management arrangements that derive legitimacy from long-standing traditional practices, customary laws, or indigenous institutions rather than state-issued formal law.
- De Minimis Rights: Small-scale, subsistence-oriented water use rights (such as domestic consumption or backyard farming) that are typically exempted from formal permitting procedures and fees under statutory law.
- Environmental Flow: The specific quantity, quality, and timing of water flows required to sustain freshwater and estuarine ecosystems, particularly in ecologically sensitive areas.
- Impossible Water Tenure: A situation where a community group or individuals cannot legally hold or secure water tenure because they lack the legal personality or status required by the formal state framework.
- Informal Water Tenure: Water extraction or usage practices that operate outside the boundaries of formal law and lack traditional customary recognition, often arising as a response to infrastructure deficiencies.

GLOSSARY

- Integrated Water Resources Management (IWRM): A coordinated process that promotes the holistic development and management of water, land, and related resources to maximize economic and social welfare equitably without compromising ecosystem sustainability.
- Pipanisasi: A localized term used in Indonesia to describe informal or adaptive farmer-led piping initiatives implemented to secure water directly from sources.
- Proto-Riparian Governance: A historical or foundational legal concept (such as found in regional historical documents like Al-Tarikh Salasilah Negeri Kedah) where water functions as a common legal resource tied to geography and land adjacency.
- Raksabumi: A traditional communal water master or village institution in Indonesia responsible for the operation, maintenance, and distribution of water within tertiary irrigation systems.
- Sedekah Bumi: A traditional cultural or agricultural thanksgiving ceremony practiced by farming communities in Indonesia, which often influences the communal scheduling and timing of irrigation.
- Unrecognised Water Tenure: Water use arrangements that exist in practice but are completely excluded from or ignored by the core national water allocation and legal frameworks.
- Water Accounting: The systematic study and reporting of the status, distribution, and utilization of water resources within a specific geographic or administrative boundary to support evidence-based allocation decisions.
- Water Tenure: The relationship, whether legally or customarily defined, between individuals or groups of people with respect to water resources, encompassing the various formal and informal arrangements of access and use.

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EXECUTIVE SUMMARY

Water tenure describes the variety of arrangements under which people access and use water resources. Many of these arrangements derive from formal law, while others derive from customary law or informal practices. This policy brief contains a light touch review and synthesis of seven water tenure assessments undertaken in Southeast Asia, where the water tenure concept and assessment methodology is used as a lens to better understand the recognition, legitimisation and security of water tenure to strengthen existing water resources governance framework

Seven country assessment reports from the Kingdom of Cambodia (completed July 2025); Republic of Indonesia (completed January 2026); Lao People's Democratic Republic (completed May 2026); Malaysia (completed May 2026); Republic of the Philippines (completed May 2026); Kingdom of Thailand (completed February 2026); and Socialist Republic of Vietnam (completed February 2022) were reviewed using a modified qualitative comparative analysis and document analysis method, as the reports vary in depth, scope and scale. This policy brief also includes a brief write up on ASEAN and water governance, to help link the water tenure concept and assessment methodology with initiatives undertaken by ASEAN.

Several points for consideration were noted, which include clarifying the term 'water tenure', looking beyond water rights, and focusing on understanding relationships. The assessment reports reviewed looked at water tenure from a water rights perspective, looking at the legal coverage of diverse water rights based on water use, users, customs and practices, in addition to equity. Tenure arrangements in relation to water use typologies are mapped out to provide a snapshot of what type of arrangement are more prevalent and secure.

Key considerations, challenges and options or recommendations from the reports are analysed and commonalities synthesised to better understand the common challenges or gaps relating to recognition and legitimisation of water tenure arrangements i.e. access and use, particularly arrangements not derived from formal law. Given the differences in depth and scope of the seven reports, the rudimentary synthesis of the commonalities was matched to the proposed 12 elements of responsible water tenure governance (as explained in Part 4 of this Policy Brief). The key messages from the seven reports show that the water tenure assessment method helps not only to strengthen water demand management and allocation, but it also helps expand the ambit for tenure arrangement and help ensure security in the event of dispute or conflict.

EXECUTIVE SUMMARY

The seven reports showed that the assessment does help map complex water use and user realities, identify gaps and overlaps, determine tenure security, and identify competing interests. It helped identify and determine measures to address gaps, overlaps and mismatch in existing water governance framework, which in turn serves as a basis towards ensuring tenure security. This helps determine measures for sustainable water use; minimise risks from conflicts or disputes or insecurity; boost climate resilience; and most importantly safeguard water security

INTRODUCTION

1.1 Background

Water tenure describes the variety of arrangements under which people access and use water resources. Many forms of water arrangements derive from formal law (based on licences, permits, concessions etc.), while others derive from customary law or informal practices. A working definition for water tenure according to the Food and Agriculture Organisation is stated in Box 1.

BOX. 1.
Water tenure is the relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources. (FAO, 2016)

The policy brief has been prepared as part of an ongoing initiative by the Food and Agriculture Organization of the United Nations (FAO) through the project Scaling up capacities for responsible governance of water tenure in support of food security, climate resilience and social inclusion (ScaleWat) funded by the Federal Government of Germany through the Federal Ministry of Agriculture, Food and Regional Identity. The purpose of the ScaleWat project is to strengthen water governance to address growing challenges such as climate change, water scarcity and food insecurity. A key part of this work is advancing the concept of water tenure, i.e. understanding who has rights to use water, under what conditions and how those rights are governed. It focuses on raising awareness of different tenure systems, supporting policy and legal reforms, and emphasizing the use of water accounting to ensure informed and trusted allocation decisions. Actions will take place at multiple levels:

- Global: Advance the Global Dialogue on Water Tenure, raise awareness among key stakeholders, and develop guidance on the concept and its implementation.
- Regional: Support multistakeholder dialogues on water tenure and its governance.
- National: In pilot countries, review water tenure systems and build capacity among governments and civil society on water resource assessment and tenure concepts.
- Local: Conduct water tenure assessments and water accounting to improve transparency, strengthen national capacities, and inform country-level governance discussions.

The Global Water Partnership Southeast Asia (GWP SEA) anchors the regional networks and partners, particularly the Country Water Partnerships from the seven countries that are the subject of this policy brief. GWP SEA has been mandated to prepare this regional policy brief. Seven water tenure related assessments undertaken by the Kingdom of Cambodia, the Republic of Indonesia, Lao People's Democratic Republic, Malaysia, the Republic of the Philippines, the Kingdom of Thailand and the Socialist Republic of Viet Nam are the focus of this light touch review. All seven countries are members of the Association of Southeast Asian Nations (ASEAN); Indonesia and Philippines are archipelagic countries,

with Indonesia sharing a border in the Borneo island, i.e. Kalimantan with Brunei Darussalam and Malaysia. Four of the five countries; Cambodia, Lao PDR, Thailand and Viet Nam all share the Mekong River, and Malaysia shares Sungai Golok/ Maenam Kolok River with Thailand. A brief write up on ASEAN and water governance is included, to help link the water tenure concept and assessment methodology with initiatives undertaken by ASEAN, particularly the ASEAN Working Group on Water Resources Management (AWGWRM) through the ASEAN Integrated Water Resources Management (IWRM) Country Strategy Guidelines.

The seven reports are divided into two types, a water tenure assessment to identify water tenure arrangements and water uses and users in a determined water tenure assessment study area, with specific geographic scale (river basin, sub-river basin or irrigation area) using a desk top review of legal and institutional arrangements and field research. The second type, focused on a preliminary water tenure assessment focusing on desk top legal analysis on national water tenure arrangement.

This policy brief provides a light touch review and synthesis of the seven country reports and draws out the main points for consideration and options related to the use of the water tenure concept and assessment methodology as a lens to better understand the recognition, legitimisation and security of water tenure to strengthen existing water resources governance framework. The findings from the country reports will be analysed to glean commonalities that can not only be used by ASEAN member states, but also by ASEAN to further enhance cooperation and facilitate exchange of information, expertise, technology and know-how, in addition to training and capacity building needs together with FAO and GWP SEA.

1.2 Objectives of the Synthesis

The main objective of this policy paper, which has been prepared as a desktop review, is to provide a light-touch technical analysis and brief synthesis that brings together the findings and recommendations from two sets/categories of reports as listed below:

- Full water tenure assessments supported by the ScaleWat project and the FAO Asia-Pacific Water Scarcity Programme :
  - Water Tenure Assessment in the Staung River Basin, Cambodia
  - Water Tenure Assessment in the Cimanuk River Basin, Indonesia
  - Water Tenure Assessment in the Prasae Sub-Basin, Thailand
  - Water Tenure Assessment in the Nui Coc Irrigation System, Viet Nam

- Reports of a preliminary review of national water tenure arrangements focusing on legal analysis, supported by the ScaleWat project:
  - Preliminary Water Tenure Assessment Report: Lao PDR (May 2026)
  - Preliminary Water Tenure Assessment Report: Malaysia (May 2026)
  - Preliminary Water Tenure Assessment Report: Philippines (May 2026)

The main difference between the full water tenure assessments and the preliminary assessments is that the full assessments contains an analysis of uses and users, based on field research, the governance analysis and assessment of the relative security of the different types of water tenure arrangement that were identified in accordance with the water tenure assessment methodology developed by FAO (Hodgson et al., 2024). The rudimentary synthesis is intended to provide insight on existing water tenure arrangements, to help identify points for considerations, options and priority areas with respect to embedding the water tenure assessment concept and method on a wider scale within existing water governance framework, that can be used as a reference point for ASEAN countries.

1.3 Scope and Limitation

This policy paper is limited to a desktop/technical review and does not provide an in-depth analysis or evaluation or commentary of the reports , and is limited to the seven reports listed in 1.2 above. There is considerable variation in the scope of the reports and the extent to which they followed the water tenure assessment methodology. In some cases, the water use and arrangement typologies were adapted to suit the local conditions, adopting different terms from the list of typologies in the water tenure assessment methodology (see Annex 1), which made determining commonalities based on water tenure arrangements rather challenging.

Instead of comparing each country, this policy paper focused on determining commonalities in points of consideration, challenges and options or recommendations that were made, divided into three main categories; policy, legal and institutional framework; ‘change drivers’ and future prospects, that is intended to match the proposed 12 responsible governance for water tenure. Table 1 below lists the six steps to the water tenure assessment process, modified from the Water Tenure Assessment document (Hodgson et al., 2024), which is used to help provide a background to the scale and depth of the seven reports reviewed, as shown in Table 2.

Table 1. Water tenure six-step assessment process and simplified and modified from Water Tenure Assessment document (Hodgson et al., 2024)

Step		Notes
1	**Preparation**	The assessment team is identified, assembled, and trained; the assessment area is identified; contact is made with key stakeholders, and the water tenure assessment is planned.
2	**Preliminary activities**	Preliminary legal analysis at national level is undertaken; water tenure arrangements that derive from formal law are identified.
3	**Scoping**	Preliminary field research is undertaken; the selection of field research area(s) finalized, and the water tenure assessment plan is presented to key stakeholders at a scoping meeting to guide the conduct of the water tenure assessment.
4	**Field Research**	Identify and assess water tenure arrangements that do not derive from formal law such as such customs, religious practices, informal arrangements; evaluate how formal water tenure arrangements function in practice and to assess the relationship between different types of arrangement, involving field research area, including interviews on the governance of water tenure with key stakeholders such as water users, the water administration and other public actors.
5	**Analysis**	Research findings are assembled and evaluated, and activities undertaken analysed based on six separate tasks, including mapping of water uses to tenure arrangements, assessing the governance of water tenure, and analysing the relative security of water tenure arrangements.
6	**Reporting and Validation**	A draft water tenure assessment report and summary is prepared, circulated among stakeholders for validation, discussed in a series of validation meetings and finalized based on the feedback received.

Table 2. Brief description of each report, to indicate the different scale, scope, method and the six-step approach to water tenure assessment

Country	Project title and year completed	Scope	Method	Water Tenure Assessment Steps					
				1	2	3	4	5	6
Cambodia	Water Tenure Assessment in Staung River BAsin, completed in July 2025	National legal and institutional analysis Case study of Staung River Basin Location: Staung District	• Legal and policy framework analysis • Field assessment and research • Stakeholder consultation workshops • Focus Group discussions • Semi-structured interviews • GIS mapping • Analysis and synthesis	x	X	X	X	X	X

Country	Project title and year completed	Scope	Method	Water Tenure Assessment Steps					
				1	2	3	4	5	6
Indonesia	Water Tenure Assessment: Cimanuk River Basin Indonesia, completed in January 2026	National legal and institutional analysis Case study of Cimanuk River Basin Location: West Jave Province and Central Jawa Province Focus: operational area of the Cimanuk-Cisanggarung River Basin Organisation	• Legal and policy framework analysis • Stakeholder engagements – consultations and interviews (Gender, Equality, Diversity and Social Inclusion (GEDSI) approach was also used in engagement) • Focus Group Discussions • Geospatial data analysis - GIS and drone mapping • Community mapping	x	X	X	X	X	X

Country	Project title and year completed	Scope	Method	Water Tenure Assessment Steps					
				1	2	3	4	5	6
Thailand	Water Tenure Assessment: Prasae Sub-basin, Thailand, completed in February 2026	National legal and institutional analysis Case study of Prasae Sub-basin Location: Chachoengsa, Chonburi, Chanthaburi and Rayong provinces	• Legal and institutional analysis • Semi-structured interviews • Key informant interviews • Focus Group Discussions • Community mapping • Spatial analysis – GIS • Water balance model using water resources engineering methodology	x	X	X	X	X	X

Country	Project title and year completed	Scope	Method	Water Tenure Assessment Steps					
				1	2	3	4	5	6
Viet Nam	Report on Water Tenure Viet Nam, completed in February 2022	National legal and institutional analysis Case study: Nui Coc Irrigation System (Cau River sub-catchment) Location: Thai Nguyen City, Song Cong City, Pho Yen Town and Phu Binh District.	• Legal analysis • Field investigation • Stakeholder consultation	x	X	X	X		
Lao PDR	Preliminary National Water Tenure Assessment Report of Lao PDR, completed in May 2026	Preliminary water tenure assessment focusing on legal analysis	Desk review		x				
Malaysia	Preliminary National Water Tenure Assessment Report: Malaysia, completed in May 2026	Preliminary water tenure assessment focusing on legal analysis	Desk review		x				

Country	Project title and year completed	Scope	Method	Water Tenure Assessment Steps					
				1	2	3	4	5	6
Philippines	Preliminary National Water Tenure Assessment Report: Philippines, completed in May 2026	Preliminary water tenure assessment focusing on legal analysis	• Desktop legal and policy review • Fit-Stretch-Friction analytical framework		x				

1.4 Methodology for the Synthesis

Two methods were used, i.e. modified Qualitative Comparative Analysis and Document Analysis using the water tenure assessment guideline and method as the basis for the review[1]. The two methods provided a cursory situational analysis of water governance through the water tenure assessment lens. The Qualitative Comparative Analysis considered the depth and scope of the seven reports, and comparability focused on commonalities or similarities of water tenure arrangements to the water use typologies recommended in the FAO 2024 Water Tenure Assessment.

Key considerations, challenges and options or recommendations from the reports are analysed and commonalities synthesised to better understand the common challenges or gaps relating recognition and legitimisation of water tenure arrangements i.e. access and use, particularly arrangements not derived from formal law. Given the differences in depth and scope of the seven reports, the synthesis of the commonalities will then be matched to the 12 elements of responsible water tenure governance.

[1] Bowen, G.A. (2009). Document analysis as a Qualitative Research Method. Qualitative Research Journal, Vol. 9 No. 2 pp2 7-40; Byrne, D., & Ragin, C. C. (2009). The SAGE handbook of case-based methods. SAGE Publications Ltd; Ragin, C. C. (1987). The comparative method: Moving beyond qualitative and quantitative strategies. University of California Press.

REGIONAL CONTEXT OF WATER GOVERNANCE IN SOUTHEAST ASIA

The ASEAN Long Term Strategic Plan for Water Resources Management endorsed by the ASEAN Environment Ministers in November 2002 and the ASEAN Strategic Plan of Action on Water Resources Management sets the direction for ASEAN member countries looking at the development of a regional water conservation programmes focusing on water supply, sanitation, floods, droughts, environmental degradation, food security, livelihoods, human interventions and changes in climate. The current focus is linked to the main challenges in water resources management particularly, increasing water demand and uncertainty regarding the availability of freshwater resources; degradation of water quality; severe floods, droughts and sea level rise due to climate change; and the need to strengthen coordination and cooperation among ASEAN Member States and relevant agencies at national level in implementing Integrated Water Resources Management (IWRM).

The Strategic Priority Areas are: IWRM Country Strategy Guideline and Indicator Framework implementation; public awareness and cross-sectoral coordination; water conservation; water quality and sanitation; and water-related disasters. Four objectives underlie the work of ASEAN in relation to water resources namely, promoting IWRM for sustainability of water resources, equitable accessibility, and sufficient water quantity of acceptable quality to meet the needs of the people, economy and environment; managing water resources efficiently and effectively in order to provide adequate and affordable water services; reducing the number of people without sustainable access to safe drinking water and improved sanitation; and reducing risks and impacts of water-related disasters and strengthen the resilience of social and ecosystem.

The programme is based on the principles of IWRM encouraging the participation of all stakeholders in the management of ecosystems at all scales, from the rivers to coastal ecosystems, at local and basin levels; using river basin organisation platforms to facilitate dialogue, conflict resolution and collaborative management. This is supported by an IWRM Performance Indicators Framework. The initial framework was developed in 2009, looking at water supply management, irrigation management, stormwater management, flood management, water pollution management and sanitation management. In 2015, a revision of the framework was conducted, and now includes four types of indicators; i.e. outcome indicators, enabling environment indicators, institutional set-up indicators and management tools indicators. ASEAN has also established a Water Data Management and Reporting System which serves as a platform for regional river monitoring system that helps assess the status and broad trends of river conditions and water quality across the region.

The work of regional water resources management cooperation and strategic implementation is helmed by the ASEAN Working Group on Water Resources Management (AWGWRM) that carries out programmes and activities related to strengthening cross-sectoral coordination on water-related issues, including water-related disasters; and water quality and sanitation. The AWGWRM is guided by the ASEAN Environment Ministers and the ASEAN Senior Officials on Environment who provide policy and strategic guidance. Member countries who are involved in programme or activity under the strategic priority are expected to develop proposal of detailed implementation workplan and provide regular updates to AWGWRM. ASEAN also works closely with several partners or platforms including Mekong River Commission (MRC), Global Water Partnership - Southeast Asia (GWP-SEA), ASEAN Plus Three Countries (China, Japan and ROK), Network of Asian River Basin Organisations (NARBO), and International Commission on Irrigation and Drainage (ICID).

SYNTHESIS OF WATER TENURE ASSESSMENTS IN SOUTHEAST ASIA: CAMBODIA, INDONESIA, LAO PDR, MALAYSIA, PHILIPPINES, THAILAND AND VIET NAM

3.1 General Overview

The overview of the findings and recommendations from the seven reports reviewed, is divided into two sub-categories, i.e. reports that were based on full water tenure assessments and reports that were based on a preliminary analysis. To help identify commonalities in the seven reports, the review is structured based on information collected on the country's water governance profile looking at the legal framework and institutional arrangements; water tenure arrangements for each water use typology which is summarised and shown in the dedicated tables for each country.

The brief analysis is divided into two parts, water tenure assessment reports based on specific field studies; and preliminary water tenure assessments that focused on legal analysis. In some of the reports, the water tenure arrangement and water use / user typology differed a little with the typologies in the Water Tenure Assessment document (Hodgson, et al. 2024), which is shown in Annex 1 of this policy brief. The reason for the 'departure' is not explored and did not serve as primary point of interest.

3.2 Countries that conducted water tenure assessments with field analysis

3.2.1 Synthesis notes

This section looks at the four countries that conducted a water tenure assessment which included a field assessment of a selected site. The assessments also looked at water tenure security of the site studies, which have been included in the respective tables.

BOX. 2
Classification of security of water tenure (Hodgson et al. 2024)
1.Relatively secure water tenure.
2.Somewhat secure water tenure with practical limitations.
3.Limited water tenure security.
4.Very little to no security of water tenure.

The water tenure arrangement and water use/user typologies were mapped and included in the country reports; however, it is important to note that the report prepared by Viet Nam was completed in 2022, pre-dating the Water Tenure Tenure Assessment 2024 document. In addition, the typologies for water use / user and in some cases water arrangements for Cambodia, Thailand and Viet Nam, were adjusted or changed to perhaps suit the local conditions. The change in terms was not explored in this policy brief, and it is suggested that an in-depth overview looking the framing and conduct of the assessment could be undertaken to understand the necessity for the change, and the bearing it has on the assessment process.

The four countries water tenure assessment reports that were briefly analysed in this section are:
A. Water Tenure Assessment in the Staung River Basin, Cambodia
B. Water Tenure Assessment in the Cimanuk River Basin, Indonesia
C. Water Tenure Assessment in the Prasae Sub-Basin, Thailand
D. Water Tenure Assessment in the Nui Coc Irrigation System, Viet Nam

A. Cambodia

The Water Tenure Assessment Report focused on a case study of Staung Basin, with a primary objective of identifying the water tenure arrangements in the assessment area, which included looking at arrangements that derive from formal law as well as those that do not; identification of water uses in the assessment area; linking water uses to applicable water tenure arrangements; undertaking a governance analysis to identify the extent to which formal laws are implemented; undertaking an analysis of the security of water tenure and linking that analysis to the different water uses; and undertaking an analysis of the relationships between tenure arrangements and uses. The assessment provided context to the term water tenure, which was translated into Khmer and carries the English language meaning as ‘water access rights’.

The legal basis for water governance is drawn from the Constitution of the Kingdom of Cambodia, particularly Article 58, that states that water resources belong to the state, and such the state is under a duty to preserve and protect the environment and the management of natural resources (Article 59). The primary law for water resources management is the 2007 law on Water Resources Management of the Kingdom of Cambodia (Water Law). The purpose of the Water Law is to foster the effective and sustainable management of the water resources to attain socio-economic development and welfare of the people. Provisions in the law include the rights and obligations of water users; fundamental principles of water resources management; and the participation of water users' associations in the sustainable development of water resources. However, the requirement in the Water Law for the adoption of subordinate legislation on water use permitting, in theory the most secure type of water tenure arrangement, has not been fulfilled, leaving an important gap in the legislative framework for IWRM.

A National Water Resources Policy of 2004 sets out Cambodia's water vision i.e. access for all to safe, adequate, and affordable drinking water, hygiene, and sanitation; freedom for all from the threat of loss of life and livelihood as a result of floods and droughts; sufficient water where it is needed, to provide for food security, people's livelihoods, and economic activities; and a water environment that is unpolluted and supports healthy fisheries and aquatic ecosystems. Fundamental principles that underlie the policy include, the right to use water resources; alignment of water projects with the national water resources plan, economic development plan, and the national and regional environmental plans; and sustainable and effective management of water resources. The Policy also sets out specific principles for water resources management as well as specific policy measures focused on river basin management; water in agriculture; water for energy; water for industry; small manufacturing enterprises and services; water for domestic use; water for navigation and tourism; equitable water sharing and allocation; mitigation of water-related disasters; data collection, forecasting and warning; maintenance, protection and sustainability of aquatic system; administrative and institutional strengthening; financial aspects; and international aspects of water and transboundary management of waters.

The water tenure assessment revealed several points for consideration and challenges. It was noted that water governance encompasses political, social, economic and administrative systems that influence how water is used and managed. Security of water tenure is dependent on how it is protected under law. The primary water tenure arrangement types identified were those derived from formal law, namely agency control and de minimis/small scale rights.

The assessment noted in the field research area, the community were not fully aware of the provisions of the Water Law and considered instead that water belongs to the people as a common property. However, as competition for water increases, primarily between large scale irrigation and smaller uses such as domestic water needs, fisheries and ecosystems particularly during dry seasons, arrangements derived from formal law tend to prevail. Security for water tenure is seen as better protected under formal law, though at local levels customary uses are recognised but remains unprotected. Conflict resolution mechanisms are available through the exercise of the authority of the community, and if unresolved, it can be brought to the Provincial Governor.

Challenges identified include overlapping jurisdiction with unclear mechanisms for coordination, and lack of enforcement of relevant laws regarding water abstraction and pollution. In addition, the lack of awareness of rights among water users is seen to affect water allocation rights. Illegal activities also pose a problem such as small reservoir development that block water flows; draining of reservoir water for rice cultivation; as well as land and water grabbing. The field assessment also noted that erratic rainfall and drought have exacerbated water shortages which intensifies conflicts among users. This is compounded further by unsustainable practices such as fertiliser and pesticide uses, excessive groundwater abstraction and encroachment of agriculture areas into wetlands.

Key tenure related problems identified include weak water governance, illegal activities, competition over water resources, climate change and water scarcity, unsustainable practices, and fisheries and wetland degradation. Water tenure security is also affected by users perceiving water as common public property, low awareness of legal provisions, and weak law enforcement and local governance impacting on the security of non-irrigation water users which in turn increases water scarcity for these users.

The assessment identified seven recommendations that include:

- The adoption of subordinate legislation necessary for the proper implementation of the Water Law together with appropriate financial support to facilitate effective enforcement.
- Strengthen institutional arrangements within the water tenure assessment areas, including the establishment of a river basin committee for the Stung Staun River Basin, and FWUCs within public irrigation schemes, to work together with civil society stakeholders and water users.
- Strengthen water tenure arrangements for small landholders and indigenous communities through awareness raising programs and law enforcement.
- Increase community participation and transparency in water governance through targeted stakeholder engagement processes.

- Strengthen institutional capacity for integrated water resources management and governance with development partners' support.
- Provide open access of legal record of all water tenure arrangements with tri-annual monitoring of tenure implementation.
- Define, implement and monitor appropriate environmental flow to help strengthen water tenure arrangement particularly for the Boeng Tonle Chhmar Ramsar Site.

The assessment also recommended that water tenure assessments be conducted in other river basins where there is intensive rice cropping, large scale water infrastructure such as hydropower, and high levels of water pollution due to economic development (e.g. from mining and urban settlements), to better guide water reform and water resources management. A sample of the summary of water tenure arrangements in accordance with water use typology as modified in the study is shown in Table 3 below.

Table 3. Water tenure arrangements in relation to water use typology in Staung River Basin

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Water supply	Urban Infrastructure	Other (Drinking water arrangement)	3		
	Rural Infrastructure	Drinking water arrangement	3	Assumed water rights	3
	Rural unimproved	De minimis / small scale use	4		
Agriculture	Public irrigation scheme	• Agency control • Farmer irrigation arrangements	**2**		
	Small scale non-public irrigation			Informal rights	3
	Livestock watering	De minimis / small scale use	4		
	Aquaculture	De minimis / small scale use	4		

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Environment	Instream	Reserves/ minimum flow	4		
Livelihoods	Inland fishing			• Customary tenure • Unrecognised water tenure	4
	Wetlands			Unrecognised water tenure	4

B. Indonesia

Indonesia's water tenure assessment report focused on the Cimanuk River Basin, which is within the operational area BBWS Cimanuk-Cisanggarung (Balai Besar Wilayah Sungai or River Basin Organization) which is a technical unit under the Ministry of Public Works and Housing. Water governance in the assessment study area encompasses a complex interplay of national regulations, provincial and district authorities, and local community institutions, with formal institutions include the BBWS, provincial and district Public Works (PUPR) and Agriculture departments, and the Operation and Maintenance Assistance Taskforce (TPOP), as well as the Water User Farmers Associations (P3A) and traditional institutions like Raksabumi at the community level play significant roles, particularly in managing tertiary irrigation systems.

Law No. 17 of 2019 on Water Resources provides the foundational legal framework for managing water resources. Key provisions include the right of States to control water resources; the right to water; priority of use; use of permits; conservation measures and community participation. The Law establishes a hierarchy for water access, where States prioritise basic daily needs, followed by smallholder agriculture, followed by drinking water supply. These rights as further clarified in a 2022 amendment to Article 8 of the Law, sets out a tiered system that distinguishes minimal needs from broader people's rights, and these rights pertain to allocation water quota as opposed to conferring outright ownership.

Findings of the assessment can be divided into three segments. Firstly, the Cimanuk River Basin has a complex mix of tenure arrangements, from formal tenure based on permit-based rights, agency control and land linked tenure within irrigation schemes, with cases of tolerated illegality. Secondly, the assessment revealed that customary based tenure arrangements or customary practices persist, such as the management of sacred springs. The traditional Raksabumi role has become part of the coordination mechanism, although it was noted that there have been overlaps with other stakeholders. Traditional / cultural practices have influenced irrigation timing (practices such as Sedekah Bumi), including adaptive practices like bobokan (channel tapping) and farmer-led piping (pipanisasi). These customary or traditional practices hold social legitimacy but lack formal legal recognition and protection.

Thirdly, informal or unrecognized tenure, such as widespread informal river/canal pumping remains prevalent due to infrastructure failures or inadequate formal supply. These unrecognized uses include duck farming in irrigation canals and inland fisheries impacted by water management decisions. In addition, assumed and impossible tenure may exist for some community groups lacking legal personality.

The present water tenure arrangements do present challenges, such as drinking water access, as it relies on fragmented sources due to limited rural coverage and quality issues, vulnerable shallow wells, springs, direct abstraction, and purchased water. Rural areas face significant scarcity and quality problems that contribute to health issues.

Another challenge relates with agriculture, being the dominant water use, primarily irrigated rice via aging infrastructure, and irrigation deterioration, sedimentation, and inefficiency have led to water losses, necessitating informal pumping. Further, modernization is uneven, and allocation is often inequitable and conflict prone. Livestock farming, such as duck farming, and aquaculture particularly in coastal areas, rely on various sources with unclear tenure security for many. In addition, industry or mining has seen expansion, resulting in competition for water, compounded by concerns over pollution and permit compliance as well as power generation i.e. thermal and hydropower altering flows/coastal ecosystems, which add further pressure to tenure arrangements.

The assessment using the water tenure lens, revealed that the governance framework required strengthening due to several factors, such as, partial implementation and weak enforcement of formal rules; limited public accessibility of formal records relating to permits, or plans; inadequate water measurement and flawed planning processes; limited effective stakeholder participation, especially farmers, in basin-level decisions; systematic overlooked of GEDSI concerns; insufficient water quality monitoring and enforcement; lack of implemented environmental flows; and poor policy coherence between water, agriculture, and spatial planning. Tenure security at present faces conflict, dues to limited legal security (formal irrigation, de minimis rights) or non-existent (informal, customary, unrecognized).

Perceived security is also varied, though customary sites feel secure socially despite legal weakness, while informal users feel highly insecure, such as downstream farmers and those reliant on failing infrastructure or informal pumping face the lowest security. Numerous conflicts were noted, such as upstream vs. downstream users, inter-village disputes over gates, intra-village competition, farmer vs. agency frustrations maintenance, and competition between sectors (e.g. agriculture vs. industry). Where conflicts are concerned, dispute resolution relies heavily on informal, localized mechanisms.

Water tenure arrangements also face future pressures, such as climate change impacts, e.g. droughts/floods), industrial and urban development, population growth, and agricultural intensification which can exacerbate existing tenure insecurities and conflicts. The assessment of Cimanuk River Basin,

Water tenure arrangements also face future pressures, such as climate change impacts, e.g. droughts/floods), industrial and urban development, population growth, and agricultural intensification which can exacerbate existing tenure insecurities and conflicts. The assessment of Cimanuk River Basin, listed several recommendations including policy and legal reform focusing on clarifying formal tenure, recognizing customary/ or local arrangement; institutional strengthening by clarifying roles, building agency capacity, improving participation or enforcement or dispute resolution; encourage gender-responsive actions; improving data and monitoring such as water measurement, quality monitoring, tenure mapping; and exploring areas for further research such as water tenure influence, customary tenure; and governance modernization.

The assessment further notes that strengthening water tenure governance is crucial for equity, climate resilience, and achieving sustainable development goals in the basin. Table 4 provides a sample of water tenure arrangements according to water use typology.

Table 4. Water tenure arrangements in relation to water use typology in Staung River Basin

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Water supply	Urban Infrastructure	• Permit based water rights [Relatively Secure] • Agency control – River Basin Authority (BBWS) (Law No. 17) [Relatively Secure]	1/2[2]	Assumed (little security)	4
	Rural Infrastructure	• Permit based water rights (Law No. 17) [Relatively Secure] • Agency control (River Basin Authority – BBWS) (Law No. 17) [Relatively Secure]	1/2	Assumed (water gate operators – mantri air) (little security)	4

[2] Indonesia merged security levels 1 and 2.

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Water supply	Rural unimproved	De Minimis / small scale rights (Limited security)	3	Customary tenure(Adat/ kearifan tempatan/ hak ulayat)	4
	Public irrigation scheme	• Agency control (Relatively secure) • Commonhold (Limited security)	1 / 2	• Customary tenure (Very little security) • Informal (Very little security)	4
	Small scale non-public irrigation	• Permit based water rights (Relatively secure) • Commonhold (Limited security)	1 / 2 3	• Customary tenure (Very little security) • Informal (Very little security)	4
	Riverbank garden / flood recession irrigation	• De Minimis / small scale rights (Limited security)	3	• Informal Very little security)	4
	Livestock watering			• Informal (Very little security) • Unrecognised tenure (Very limited security)	4
	Aquaculture	Permit based water rights (Law No. 17) [Relatively Secure]	1 / 2		

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Industry	Mining and quarrying	Permit based water rights (Majalengka RTRW) [Relatively Secure]	1 / 2	Customary tenure (Very little security)	4
	Industry	Permit based water rights (Law No. 17) [Relatively Secure]	1 / 2	Informal (Very little security)	4
Power generation	Thermal, nuclear and solar	Permit based water rights [Relatively Secure]	1 / 2		
	Hydropower	• Permit based water rights [Relatively Secure] • Agency control [Relatively secure	1 / 2		
Livelihoods	Wetlands			Unrecognise (Very limited security)	4
Recreation/ Landscape	Instream use	Permit based water rights [Relatively Secure]	1 / 2		
	Other			Customary tenure (Very little security)	4

C. Thailand

The water assessment report acknowledges that the water tenure assessment is important as it helps identify the true patter of water use, which is essential in addressing climate change and water scarcity; competing water demands; customary rights recognition; governance and coordination; and sustainable development goals and target that need to be met. The term 'water tenure' does not have a corresponding term in Thai, the closest term would be 'right' that fits both in legal and everyday vocabulary, though this also has its complications, as at present with the existing legal framework, right does not fully capture the breadth of the water tenure concept.

In the Constitution of the Kingdom of Thailand, access to water is referenced primarily within the State's fundamental policy commitments to provide adequate and safe water, rather than as an explicitly enforceable, individual right. The Water Resources Act 2018, classifies water use into three types, I.e., use of public water resources for subsistence and household-related purposes (including small-quantity uses, subsistence agriculture and livestock, household industry, ecosystem conservation, customary practices, disaster mitigation, and communications); use for industrial, tourism, electricity generation, waterworks, and similar undertakings; and use for large-scale undertakings that require substantial water volumes or have effects across drainage basins or large areas. These categories are not water tenure categories but provide an entry point to see how formal regulatory regimes intersect with customary arrangements that constitute water tenure on the ground.

Thailand has a national guideline for prioritising water allocation contained in the Declaration of the National Water Resources Committee on the Priority of Water Allocation 2021. Nine levels of priority have been identified, i.e., water for consumption; ecosystem conservation; public disaster mitigation; customs; communications; agriculture; industry; commerce, andtourism. These national priorities are fixed; however, the river basin committees are allowed to rearrange priorities to suit local conditions, under the supervision of the National Water Resources Committee. This Guideline, according to the assessment report, is still in the preparatory stage for enforcement. There are three levels of government water agencies, divided into national level agencies (policy making and implementation), regional level agencies (government agencies, river basin committees and regional offices of the national level agencies) and local level agencies (water related management involving multiple agencies making up a complex institutional landscape governing water use, water supply, environmental control, irrigation, fisheries and maritime administration). The National Water Resources Committee and the River Basin Committee are the main agencies responsible for integrating water use and water related stakeholders at all levels.

Policy directions for water governance is provided for in the 13th National Economic and Social Development Plan, Thailand National Reform Plan, 20 Years National Strategic Plan, and 20 Years Water Management Master Plan. The policy directions are focused on ensuring equity under climate stress, balancing competing uses, recognizing customary rights, improving governance, and supporting Sustainable Development Goals such as SDG 6 and SDG 11.

Where formal water rights are concerned, there are several laws that can be linked to water tenure, such as the Water Resources Act B.E. 2561, Groundwater Act B.E. 2520, Royal Irrigation Act B.E. 2485, Civil and Commercial Code, National Reserved Forest, National Land Policy Committee Act and National Parks Act. The Water Resources Act law recognizes two categories of rights, i.e. traditional water rights and modern water rights. The report also notes that traditional water rights are linked with ownership or lawful possession of land, meaning that the right to use water is inherent to the land itself rather than granted via an administrative permit. Often the rights given, allow these rights allow individuals to use water without specifying the quantity, quality, or duration of use, and are limited only by the obligation not to cause harm to other users.

There are also associated rights drawn from various laws that stem from rights that emerge from landholding, rather than from state-issued permits, which are characterized as land-based traditional rights. Agency control falls within the Metropolitan Waterworks Authority Act, Provincial Waterworks Authority Act, Municipal Act and Subdistrict Administrative Organisation Act. The Prasae Sub-Basin covers multiple water use, and the typology from the water tenure assessment was adjusted accordingly (see Table 5 below).

It was also highlighted in the assessment report that water permits in Thailand span a maximum duration of five years. Customary water tenures are recognised in the Water Resources Act as a form of water use, i.e. ‘water for custom’. In addition, it was pointed out when determining water tenure security, there is a need to look at both the bundle of rights together with the bundle of power which is namely factors or sources of power that influences water uses and access.

The challenges identified include absence of clear subordinate rules and standardised processes or criteria that institutionalises water tenure assessment and recognition of water tenure types. There is a lack of cross-sector integration or coherent policy or mechanisms for integrated tenure governance, which can result in inconsistent decisions and unclear responsibilities. It was also noted that there are no proactive dispute-prevention or resolution mechanisms, and community representation tends to be too formalistic. Water accounting remains at pilot stage, which limits evidence-based allocation and climate resilience planning. It was also noted that there was little safeguard to protect water-tenure rights from potential impacts from foreign or large -scale investments.

Recommendations include, institutionalisation of periodic water tenure assessments; affirmation of human right to safe and sufficient water; adopting an evidence-first, phased approach to legal recognition of water uses, including customary practices adoption of measures to improve cross-sectoral integration; shifting toward demand-side water management; promoting women's leadership; and at the legal, operational, and capacity levels, clarifying water use categories, recognizing Water User Organizations and institution proper safeguards to strengthen allocation, monitoring, enforcement, and dispute resolution mechanisms; improving water accounting and data systems; building farmer and LAO capacity, by integrating practical water management knowledge into education and public communication, and promoting public understanding of water tenure as access and governance rather than ownership. Table 5 provides a sample of water tenure arrangements according to water use typology.

Table 5. Water tenure arrangements in relation to water use typology in the Prasae Sub-Basin

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Water supply	Regional Waterworks	Agency control (secure water tenure)	1		
	Village Water Supply System	• Agency control (secure water tenure) • Commonhold water tenure (relatively secure water tenure)	1 2	• Customary tenure (Limited tenure security) • Informal tenure (Very little to no security) • Assumed water right (Limited tenure security)	3 4 3
	Household Water Use	• Land based formal rights (Relatively secure water tenure) • Commonhold water tenure (Relatively secure water tenure)	2 2	Assumed water right (Limited tenure security)	3

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Commercial	Government Irrigation	• Modern permit-based water rights (Relatively secure water tenure) • Agency control (secure water tenure) • De minimis rights (relatively secure water tenure)	2 1 2		
	Village Water Supply System			Informal tenure (Very little to no security)	4
Agriculture	Government Irrigation	De minimis rights (relatively secure water tenure)	2		
	Rainfed agriculture	Land based formal rights (Relatively secure water tenure)	2	• Informal tenure (Very little to no security) • Assumed water right (Limited tenure security)	4 3
	Livestock watering	De minimis rights (relatively secure water tenure)	2	Customary tenure (Limited tenure security)	3

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Agriculture	Fishing	De minimis rights (relatively secure water tenure)	2	• Customary tenure (Limited tenure security) • Assumed water right (Limited tenure security) • Unrecognised water tenure (Limited tenure security)	3 3 3
Tourism	National Parks / Terrestrial areas	Land based formal rights (Relatively secure water tenure)	2		
Industry		• Modern permit-based water rights (Relatively secure water tenure) • Water supply contract (relatively secure watern tenure)	2 2		
Customary use	Public water sources/ reservoir			Religious rights (secure water tenure)	1

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	Security level	Not derived from formal law	Security level
Ecosystems	Reservoir Management	Reserves/ Minimum flow requirements (Secure water tenure)	1		
	Rivers/ Wetlands	Reserves/ Minimum flow requirements (Secure water tenure)	1		
Disaster Management	Flooding	Agency control (secure water tenure)	1		
	Drought	Agency control (secure water tenure)	1		
	Others such as landslides	Agency control (secure water tenure)	1		

D. Viet Nam

The water tenure assessment report on the Nui Coc Irrigation System looked at water tenure assessment to review water governance, to help address water scarcity due to climate change and socio-economic development, which require informed and effective water resources management. The Constitution of the Socialist Republic of Viet Nam states that water resources are owned by the people and managed by the State. The main legal instrument on water resources is the Law on Water Resources, and there are several laws that are linked to multiple aspects of water resources such as the Law on Environment Protection; the Law on Land Use; the Law on Hydraulic works; the Law on Dyke Management; the Law on Natural Disaster Prevention and Control; the Law on Forestry; the Law on Electricity; the Law on Fisheries; and the Law on Planning.

The Law on Water Resources covers surface water, rainwater, groundwater and seawater, and includes provisions on integrated water resource management and the allocation of responsibilities for key functions under the overall direction of the Ministry of Natural resources and Environment. The Law also provides forrequirements for assessment, strategy and planning for water resources development; provisions for protection and sustainability of water quality and quantity; regulation of water resources allocation and use, including protection of groundwater; and provision for financing for water resources management. Aspects of water tenure or water rights can be read in the Law, looking at provisions related to investment, abstraction, use of water and wastewater, principles related to the protection, exploitation and use of water resources, the minimum flow of rivers, obstruction to water flow caused by all activities related to water resources; licenses of water uses, water abstraction and waste water discharge to water resources for investors, organization and individuals; water allocation among water users; controlling water through adjacent land plots which are managed and used by others in accordance with law; responsibility for forest protection; and water use right of investors in water sector and also waste water treatment as well as investments related to waste water discharge.

Challenges identified in the water tenure assessment report include the institutional arrangements and laws that run across multiple levels of government leading to complexities in integrating water resources management. Each Ministry has its own legal framework, strategies, policies and plans related to water management for their specific purpose. The fragmentation in water management at national level has created a certain overlap in responsibilities resulting in obstacles in water governance at different levels from national to local.

There is also no clear interagency coordination mechanism, and there are also inter-disciplinary issues as planning and development of upstream forest, protection of vegetation, and water resources conservation in hydropower, irrigation and aquaculture projects are not integrated, as envisioned by the Integrated Water Resources Management that is stipulated in the Law on Water Resources. Implementation of IWRM in river basins is confronted with many challenges and obstacles attributed to there being no formal river basin organizations in Viet Nam, although some large river basin as Red, Dong Nai and Mekong delta have River Basin Planning Management Board (RBPMB). Further, the roles and functions of these RBPMBs are limited without decision-making powers in water management, thus there is a lack of the legal authority, institutional capacity, and financial resources for operation.

The assessment report concludes with a note that the main problem relating to water tenure assessment in the case study area is the ineffective enforcement of current regulations. Recommendations include developing a national water resources master plan to boost effective management and allocation and address inconsistent water allocation and uses. Existing legal framework will need to be reviewed, and coherence made a priority to ensure better coordination. Focus should also shift to water demand management to improve water allocation through water accounting. Water efficiency will need to be strengthened to help improve paddy irrigation practices. Stakeholder participation should be further strengthened to encourage buy in. Monitoring and evaluation of water usage will need to be ramped up. Licensing of water use and wastewater discharge will need to be improved to strengthen enforcement of existing regulations. Table 6 provides a sample of water tenure arrangements according to water use typology.

Table 6. Water tenure arrangements in relation to water use typology

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Water supply	Urban water supply	• Modern permit (secure water tenure) • Water supply contracts (secure tenure)	1 1		
	Rural water supply	Water supply contracts (secure water tenure	1	Assumed (Very little or no security)	4
	Unimproved sources	De Minimis/ small scale rights (Limited water tenure security	3	Religious rights (Limited water tenure security)	3
Agriculture	Estate Irrigation	De Minimis/ small scale rights (Limited water tenure security)	3		
	Public irrigation scheme	• Modern permit (secure water tenure) • Agency control (secure water tenure) • Water supply contract (secure water tenure) • Reserves minimum flow (secure water tenure)	1 1 1 1	• Informal (Very little or no security) • Assumed (Very little or no security)	4 4

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS			
		Derived from formal law	**Security level**	**Not derived from formal law**	**Security level**
Agriculture	Small scale non-public irrigation	• Water supply contract (secure water tenure) • Commonhold (secure water tenure)	1 1		
	Livestock watering	De Minimis/ small scale rights (Limited water tenure security)	3		
Commerce and Industry		• Modern permit (secure water tenure) • Water supply contracts (secure water tenure)	1 1		
Power generation	Hydropower	• Modern permit (secure water tenure) • Water supply contracts (secure water tenure) • Reserves minimum flow (secure water tenure	1 1 1		
Environment	Diversion	Reserves minimum flow (secure water tenure)	1		
Recreation/ Landscape	Instream use			Assume (Very little or no security)	4
	Other			Assume (Very little or no security)	4

3.3 Countries that conducted legal analysis of water tenure

3.3.1 Synthesis notes

The following reports listed below were assessments that only focused on a brief legal analysis of water tenure at a national level. Based on the six-steps as stated in Box. 2., these reports only focused on Step 2, where a preliminary assessment of the water tenure arrangements derived from law. The reports that were analysed cursorily are:

e. Preliminary National Water Tenure Assessment Report: Lao PDR
f. Preliminary National Water Tenure Assessment Report: Malaysia
g. Preliminary National Water Tenure Assessment Report: Philippines

e. Lao PDR

The preliminary assessment of water tenure in the Lao PDR relying on desk review and brief legal analysis, contained a disclaimer that the analysis did not benefit from a detailed case study or field research that would have drawn from interviews and consultations. At the outset, water rights and use of water resources are recognised in the Law on Water and Water Resources, where small-scale water uses with non-commercial purposes such as for household water drinking and subsistence does not require permission or fee, while medium and large-scale water uses require permissions and are subject to fees.

The Constitution of Lao's People's Democratic Republic provides the basis for the water sector being state driven and centrally managed, where water is owned by the national community and administered by the government. The State holds primary responsibility for allocation, regulation, protection, and sustainable use of water resources, and some responsibilities are delegated to local authorities, but overall control and decision-making remain strongly centralized at the national level.

The Law on Water and Water Resources in the Lao People's Democratic Republic (Lao PDR) sets out the principles and regulatory framework for the management, protection, development, and use of water resources, including measures to prevent water-related impacts and to rehabilitate affected areas. The provision of the Law supports livelihoods, agriculture, industry, and services, while ensuring environmental protection, sustainability, national security, and regional and international integration, contributing to overall socio-economic development.

The Law has categorized river basins into three sizes for administrative responsibility ; large with an area of more than 4,000 km^2, medium with an area between 1,000 to 4,000 km^2 and small with an area of less than 1,000 km^2.

Five principles of Water and Water Resource Management (article 6) underpin the law, i.e.:

- Ensure the management, utilization, protection, and conservation of water and water resources align with the national policy on green environment and sustainability;
- Coherent with national socio-economic development plan, strategic plan on water and water resources management, utilization, water and water resources management plan, strategic environmental assessment, integrated water resources management, and national safety and security aspects;
- Prioritize water and water resources protection and recovery;
- Ensure the participation of individuals, juristic entities, or organizations in the processes of planning, development, utilization, and reservation of water and water resources in sustainable way;
- Individuals, juristic entities or organizations who make any advert impact or damage or losses to water and water resources shall be responsible for those impacts.

The Law defines rights for water use in both surface and groundwater, where individuals, juristic entities, and organizations have rights to use water for any purpose but shall be economic, reasonable, effective and with minor impact on the environment, society and nature. Approval or permission from relevant authorized agencies is required prior to obtaining the right to occupy and use water and water resources in any activity, except that small-scale water use does not require any permission, water fee or service fee. It also covers water use and permission, using the water use permits. Control measures for water conservation zones are also stipulated in the Law to ensure areas are reserved to maintain water quantity and quality to meet consumption needs and institute measures to prevent flood and minimise drought impacts.

Challenges identified include introducing water tenure, as it is a new concept for Lao PDR, requiring more capacity building and raising awareness for the governmental agencies and public. The revised Water Law is not well disseminated, thus impacting on enforcement and the roll out of subordinate legislations to ensure effectiveness, fairness, and sustainability of water use. The existing water permit and monitoring system is not well supported by a water data base that will ensure better water allocation and will need to be set up at local levels. Data collection and modelling approaches to estimate water demand are not robust enough. The availability of an integrated river basin plan for each river basin plays a crucial role to manage and allocate water throughout a basin for all sectors and needs; the priority of use differs among basins based on hydrological characteristics and sectoral requirements; and this needs to be developed and updated regularly with all relevant stakeholders.

There are not enough field data and information about small-scale water use that allows for

access on daily basis needs which does not require legal permits and fees, and information on traditional water allocation and use practices within their communities will need to be collected and analysed further. This also includes relooking at concession agreements for hydropower projects considering small reservoir-dam with the maximum of 40 years and renewable before 5 years of expiration or for water supply projects defined as 30 years maximum but can be renewable for 10 years, which under the present scheme water use permits define the validation of every 2 years after the review of the water use plan.

No significant recommendation was made for legal and policy reform, save the dissemination of relevant policies and laws on a wider scale to local authorities and the public. It is suggested that a detailed guidance for allocation and reallocation intime of drought or water scarcity be developed, supported by capacity building of stakeholders involved. This can be augmented by integrated river basin plans for areas that do not have such plans. Capacity building to facilitate a more comprehensive roll out of the water tenure assessment throughout the country is suggested with the support from FAO. Information collection and monitoring need to be improved and updated to support better water management. The analysis report did not map water use typology with water tenure arrangement. Table 7 below is an indicative mapping; based on information contained in the report.

Table 7. Water tenure arrangements in relation to water use typology

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**
		Derived from formal law
Water supply	Urban Infrastructure	Permit based rights
	Rural Infrastructure	De Minimis / small scale use
Agriculture	Estate Irrigation	Permit based rights
	Public irrigation scheme	Permit based rights
	Small scale non-public irrigation	Permit based rights
	Aquaculture	Permit based rights
	Hydropower	• Permit based rights • Agency control
Environment	Diversion	Minimum Reserve Flow
Navigation		Permit based [boat license)

f. Malaysia

The preliminary analysis of water tenure in Malaysia report notes that the existing legal framework does recognise the various dimensions of legally or customarily defined relationships between people with respect to water resources. The analysis primarily focused on the legal framework in place in Peninsular Malaysia, with a special emphasis on laws in the State of Terengganu.

The Federal Constitution of Malaysia states that the proprietary right over water resources is vested in the States by virtue of Item 6 of the State List in the Ninth Schedule of the Federal Constitution. As noted in Article 74 and the Ninth Schedule, various aspects related to water resources however fall within the remit of both Federal and State legislative lists. The National Land Code 1965 highlighted the inseparability of land and water, as land is defined to include land covered by water, and the roots for proto-riparian governance can be drawn from a historical document Al-Tarikh Salasilah Negeri Kedah, where water functions as a legal common. The proprietary ownership over water does not however clearly consider the usufructuary entitlement to the reasonable use of water established under common law by landowners adjacent to water resources.

There are various laws that provide for regulatory licences and permits serve as the primary administrative mechanisms for water abstraction and use beyond subsistence thresholds while the legal framework on water resources management at the state level explicitly recognises de minimis or subsistence use rights, not as an informal, tolerated practice, but, by virtue of its recognition in the law, a right to abstract water for household and subsistence agricultural uses. The laws also spell out formal licensed rights and subsistence use rights are explicitly defined by statute whereas riparian rights are similarly recognised and enforceable through the courts under applied common law. The report looked at the legal framework adopted in the state of Terengganu and examples were drawn to highlight possible water tenure arrangements.

The report notes, that despite the breadth and scope of the legal framework, at the implementation and operational level, indigenous and native communities, subsistence, and small-scale rural users will be functionally underserved if administrative registration processes or their statutory rights are not made plain to them. Customary agricultural communities that still be practising traditional farming methods, such as rotational cultivation, are also at risk of displacement due to the under recognition of their customary land titles, the deprivation of their right to livelihood and way of life, and the high cost of litigation for the assertion of such rights.

Customary water tenure is not well defined, and indigenous groups have to content with having their rights determined on a case-by-case basis by the courts when disputed.

The security of water tenure for these groups is at risk, and steps are needed to raise their awareness and ensure that current legal frameworks can accommodate and recognise as well as legitimise these rights.

Findings show that Malaysia's legal framework does acknowledge and protect a range of water tenure arrangements, but for customary arrangements, recognition remains primarily mediated through the courts. There is a 'gap', as there is no overarching statutory framework that comprehensively identifies and protects customary water tenure across all states.

The report also highlighted the need to look at not just water tenure in relation toallocation of water, but to look at the degradation of the quality of the water resources that may affect the access to a certain quantity of water, and the quality of such water that may not be amenable to the purposes thus posing a high risk to water tenure. These risks would be more pronounced in subsistence, small-scale, traditional, or indigenous uses, and warrant further research. Environmental and social safeguards will need to be intensified and further operationalised through the environmental impact assessment regime and stringent pollution control conditions attached to licences and authorisations.

There is no explicit allocation framework within the existing legal framework, which can put certain groups that do not hold permits or licenses at a disadvantage. Rules for the reallocation of water during drought or acute scarcity are also not clearly defined, even though priority is consistently given to meeting basic human needs for drinking water.

There is also the challenge of overlapping jurisdictional claims between sectors, particularly between water resource enactments and mining enactments, though the ultimate authority of the State provides a mechanism for resolution. This necessitates the harmonisation of sectoral laws governing water, agriculture, fisheries, mining, and environment to ensure that licences and permits issued under different regimes are coordinated.

Most of the State water laws provide for roles and responsibilities for water allocation, monitoring and enforcement however, the specific criteria and data underpinning individual licensing decisions are not clear. Public participation is solicited in the drafting and amendment of integrated river basin management plans, but it does not obligate the Board or the Director to publish reasons for decisions or to disclose how public comments have been considered.

A key improvement area is to address the absence of an explicit recognition of the right to water as a basic human right to life, livelihood and way of life, a right to a safe, clean, healthy, and sustainable environment, and a right to self-determination to allow indigenous communities to practise their culture. Embedding these rights will strengthen decision-making particularly development decisions that have direct impact on water resources.

Five recommendations to address these areas of improvement, include, expanding and integrating existing water data systems to incorporate water tenure and properly trained public authorities and officials in rights-based water governance. Secondly, conduct a basin-specific water tenure assessment to establish an empirical evidence repository through comprehensive mapping all existing tenure arrangements. Thirdly, ensure that the prioritisation and allocation mechanisms are formalised in the institutional framework of those who are mandated to manage and allocate water resources, with transparent decision-making processes which will allow for balanced public scrutiny.

Fourthly, procedural justice of the right to participation, the right to information and the right to access justice where public authority should be compelled by law to disclose information to the public in the conduct of public participation, and to obtain free prior informed consent for the deprivation of rights should be made a priority. Fifthly, widen the understanding of basic human rights to life, livelihood, and way of life; water and sanitation; a safe, clean, healthy, and sustainable environment, and more importantly, the recognition of the rights of the indigenous peoples, not just as the beneficiary of a water tenure, but the governance authority in decisions made on water tenure. As the preliminary report did not provide a mapping between water use typology with water tenure arrangements, Table 8 below provides an indicative mapping; based on information contained in the report.

Table 8. Water tenure arrangements in relation to water use typology

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**
		Derived from formal law
Water supply	Urban Infrastructure	Permit based rights
	Rural Infrastructure	De Minimis / small scale use
Agriculture	Estate Irrigation	Agency control
	Public irrigation scheme	Agency control
	Aquaculture	Permit based rights
Industry	Mining and quarrying	Permit based rights
Environment	Diversion	Reserves / Minimum flow
Livelihoods	Inland fishing	Permit based rights

g. The Philippines

In the Preliminary analysis of water tenure in the Philippines, the legal framework reviewed can be best understood as a strong water-rights administration system that has not yet matured into a comprehensive water-tenure system. The concept closest to water tenure in national law is “water rights,” that are defined and processed through State-issued permits. The President decree no. 1067, the Water Code of the Philippines provides the rules governing appropriation and utilisation of waters, where water belongs to the State, and access is mediated through administrative authorization.

The State has clear legal control over allocation, but this also narrows recognition to uses that can be formally documented and processed through administrative channels. No person, including government entities and government-owned or controlled corporations, according to the Water Code may appropriate water without a water right evidenced by a water permit, and the National Water Resources Board (NWRB) frames a water right as a privilege granted by the government to appropriate and use water.

Through the water tenure lens, the core issue is not the absence of law but the selectivity of legal recognition, where formal rights are clearly defined for permitted uses, yet informal, communal, livelihood-based, and customary uses remain weakly recognized in the core allocation framework. The present narrow model of recognition where the broader relationships, through which people access, share, negotiate, and depend on water remain only partially visible, thus affecting low-income households dependent on mediated access, rural and upland communities using springs or communal systems, Indigenous Peoples and ancestral-domain communities, and small-scale users competing with better-resourced permit holders. It can be said that the present legal framework is coherent for water-rights administration, but from a water-tenure governance perspective, it reveals an uneven landscape that does not accommodate the wider range of relationships.

The main challenge lies with the mismatch between water supply and demand due to the present understanding of water tenure, which in turn affects the institutional coordination and management. There is a governance gap concerning identification, recognition, and protection of legitimate tenure arrangements, and the problem is not simply informal but a selective recognition. This fragmentation is documented, leading to weak coordination, fragmented mandates, and limited data systems as persistent constraints to effective water governance.

Evidence- based reform and policy coherence is another challenge identified. This also affects the transparency of the governance process, the engagement and participation of a broader range of stakeholders, where siloed approaches, while well-intentioned, can lead to uneven and potentially fragile water access outcomes. Using the water tenure lens, the importance of coordinated, system-wide governance can ensure that short-term solutions translate into secure and sustainable access in the long term.

The analysis identified five recommendations. Firstly, widening the concept of water rights and not be constrained by existing regulatory framework. Secondly, reform the incentive structure, based on beneficial use, so that conservation, efficiency measures, and reduced abstractions in times of water stress do not automatically weaken tenure security; and for larger users' conservation and efficiency plans could be incorporated into permits, permit amendments, or petitions for increased allocation. Thirdly, simplify and differentiate permit procedures, where small users or communities can use a simpler procedure that recognises and legitimises their tenure, and this can help make enforcement more realistic.

Fourthly, prioritise institutional coherence, either through legislative or coordinated administrative reform, allocation, basin planning, watershed protection, data management, and local service governance need to be better aligned so that basin conditions, climate risks, and cumulative withdrawals shape formal allocation decisions more directly. Finally, modernize abstraction charging and raw-water valuation over the medium term, beyond pure administrative cost recovery and toward a scarcity-aware structure that considers quantity, environmental effects, impacts on the source, and development costs, with improved volumetric monitoring to support that transition. As the preliminary report did not provide a mapping between water use typology with water tenure arrangements, Table 9 below provides an indicative mapping; based on information contained in the report.

Table 9. Water tenure arrangements in relation to water use typology

TYPOLOGY OF WATER USES		**WATER TENURE ARRANGEMENTS**
		Derived from formal law
Water supply	Urban Infrastructure	• Permit based right • Agency control
	Rural Infrastructure	Agency control
Agriculture	Estate Irrigation	Agency control
	Public irrigation scheme	• Permit based right • Agency control
	Small scale non-public irrigation	Agency control
	Aquaculture	Permit based rights
Industry	Mining and quarrying	Agency control
Power generation	Hydropower	Agency control

TYPOLOGY OF WATER USES		WATER TENURE ARRANGEMENTS
		Derived from formal law
Environment	Diversion	Permits based rights
	Instream	Permits based rights
Recreation/ Landscape	Instream use	Agency control
Other	Climate, disaster and hydrological systems	Agency control

3.4 Comparative Insights

The cursory review of the seven reports provided insights on points that will need to be considered when conducting water tenure assessments. This also includes the common challenges and options or recommendations that will need to be put into place should a water tenure assessment approach be made part of the existing water governance framework. There were several common points that were identified and summarised in the Table 10 below.

Table 10. Summary of common water tenure arrangement considerations, challenges and options

Country	Considerations	Challenges	Options
Cambodia	Water tenure security is also affected by users perceiving water as common public property, low awareness of legal provisions, and weak law enforcement and local governance impacting on the security of non-irrigation water users which in turn increases water scarcity for these users.	Weak water governance due to factors such as overlapping jurisdictions, lack of awareness of rights among water users and the issue relating to water allocation where certain groups are favoured over others.	The adoption of subordinate legislation necessary for the proper implementation of the Water Law together with appropriate financial support to facilitate effective enforcement; and establish river basin organisations.
		Illegal activities and competition over water resources	Strengthen water tenure arrangements for small landholders and indigenous communities through awareness raising programs and law enforcement.

Country	Considerations	Challenges	Options
Cambodia		Climate change and water scarcity	Strengthen institutional capacity for integrated water resources management and governance as well as provide open access to the legal record of all water tenure arrangements withtri-annual monitoring of tenure implementation.
		Unsustainable practices, and fisheries and wetland degradation	• Increase community participation and transparency in water governance through targeted stakeholder engagement processes • Expand water tenure assessments to other river basins and define as well as implement monitoring an appropriate environmental flow to help strengthen water tenure arrangement.
Indonesia	Water tenure assessment revealed a complex mix of tenure arrangements, from formal tenure based on permit-based rights, agency control and land linked tenure within irrigation schemes, with cases of tolerated illegality	General concerns for rural areas facing significant scarcity and quality problems that contribute to health issues.	Policy and legal reform focusing on clarifying formal tenure, recognizing customary/ or local arrangement

Country	Considerations	Challenges	Options
	Customary based tenure arrangements or customary practices persist even without formal recognition	Agriculture, being the dominant water use, primarily irrigated rice via aging infrastructure, and irrigation deterioration, sedimentation, and inefficiency have led to water losses, necessitating informal pumping	Institutional strengthening by clarifying roles, building agency capacity, improving participation or enforcement or dispute resolution
	Impossible tenure may exist for some community groups lacking legal personality.	Partial implementation and weak enforcement of formal rules; limited public accessibility of formal records relating to permits, or plans; inadequate water measurement and flawed planning processes; limited effective stakeholder participation, especially farmers, in basin-level decisions; systematic overlooked of GEDSI concerns; insufficient water quality monitoring and enforcement; lack of implemented environmental flows; and poor policy coherence between water, agriculture, and spatial planning	Improve data and monitoring such as water measurement, quality monitoring, tenure mapping and explore areas for further research such as water tenure influence, customary tenure; and governance modernization.

Country	Considerations	Challenges	Options
	Future pressures, such as climate change impacts, e.g. droughts/floods), industrial and urban development, population growth, and agricultural intensification which can exacerbate existing tenure insecurities and conflicts	Tenure security at present faces conflict, due to limited legal security (formal irrigation, de minimis rights) or non-existent (informal, customary, unrecognized).	Encourage gender-responsive actions
Thailand	• Policy direction for water governance contained in four policies; 13th National Economic and Social Development Plan, Thailand National Reform Plan, 20 Years • National Strategic Plan, and 20 Years Water Management Master Plan.	The law does not define water rights as proposed by FAO. As it does not specifically mention the consideration of right to access water as a human right	Institutionalise periodic water tenure assessment within or through national policy framework
	Consideration will need to be given to both bundle of rights and bundle of power.	No clear mention of customary rights to water but is guided by the meaning provided for water rights stated by the Human Rights Committee in Thailand.	Affirm human rights to safe and sufficient water and consider adopting a national integration policy
	Legal framework based on numerous laws that have jurisdiction over multiple aspects of water governance, to ensure due process, transparency and protection against arbitrary interference with water rights.	There is no clear connection between the related laws, and there are issues related to enforcement that have a mismatch in purpose.	Consider legal recognition of allocation priorities and ecosystem protection to strengthen cross sector integration

Country	Considerations	Challenges	Options
	There are multiple agencies involved at multi levels of government, which can be divided into three types, i.e. policy-making agencies; regional level agencies; and local level agencies.	Recognition of water user organisations	Register all public water sources and determine responsible authority and develop national guidebook for registration of water tenure categories
	Efforts have been made to integrate and reform water management organisations grounded on principles of IWRM.	Arrangements are not supported by dues process and protection options and pathways to address grievances.	• Strengthen and provide coherence among water user organisations • Introduce systematic water accounting • Strengthen monitoring and reporting
	There are multiple interest groups at local/ community level that require tenure recognition and have a role to play in water tenure security	No clear recognition of the local groups, and their tenure	• Build capacities of local groups to better understand water tenure as access and governance not ownership • Recognise and integrate local mediation as part of official dispute resolution
Viet Nam		Existing institutional arrangements and laws run across multiple levels of government leading to complexities in integrating water resources management, as each government Ministry has its own legal framework, strategies, policies and plans related to water management for their specific purpose.	Develop a national water resources master plan to boost effective management and allocation and address inconsistent water allocation and uses.

Country	Considerations	Challenges	Options
		Overlap in responsibilities resulting in obstacles in water governance at different levels from national to local, as there is also no clear interagency coordination mechanism, and there are also inter-disciplinary issues in planning and development that impact water resources	Existing legal framework will need to be reviewed, and coherence made a priority to ensure better coordination, and shift to water demand management to improve water allocation through water accounting
			Stakeholder participation should be further strengthened to encourage buy in.
			Monitoring and evaluation of water usage will need to be ramped up
Lao PDR	The concept of water tenure requires more capacity building to improve awareness and facilitate incorporation into existing systems	The revised Water Law is not well disseminated, thus impacting on enforcement and the roll out of subordinate legislations to ensure effectiveness, fairness, and sustainability of water use.	Expand the dissemination of relevant policies and laws on a wider scale to local authorities and the public
		The existing water permit and monitoring system is not well supported by a water database that will ensure better water allocation, at local levels. Data collection and modelling approaches to estimate water demand are not robust enough.	Develop a detailed guidance for allocation and reallocation intime of drought or water scarcity be developed, supported by capacity building of stakeholders involved

Country	Considerations	Challenges	Options
		Concession agreements will need relooking as water permits require validation every two years, and the agreements span a maximum of 40 years.	Information collection and monitoring need to be improved and updated to support better water management
Malaysia	Proprietary ownership over water does not however clearly consider the usufructuary entitlement to the reasonable use of water established under common law by landowners adjacent to water resources.	Customary water tenure is not well defined, and there is no overarching statutory framework that comprehensively identifies and protects customary water tenure across all states	Expand and integrate existing water data systems to incorporate water tenure and properly trained public authorities and officials in rights-based water governance
	Water tenure in relation to allocation of water, but to look at the degradation of the quality of the water resources that may affect the access to a certain quantity and the quality of such water	Overlapping jurisdictional claims between sectors and rules for the reallocation of water during drought or acute scarcity are also not clearly defined, even though priority is consistently given to meeting basic human needs for drinking water.	Conduct a basin-specific water tenure assessment to establish an empirical evidence repository through comprehensive mapping all existing tenure arrangements
	Absence of an explicit recognition of the right to water as a basic human right to life, livelihood and way of life, a right to a safe, clean, healthy, and sustainable environment, and a right to self-determination to allow indigenous communities to practise their culture.	Public participation is solicited in the drafting and amendment of integrated river basin management plans, but it does not obligate the Board or the Director to publish reasons for decisions or to disclose how public comments have been considered.	Procedural justice of the right to participation, the right to information and the right to access justice where public authority should be compelled by law to disclose information to the public in the conduct of public participation, and to obtain free prior informed consent for the deprivation of rights should be made a priority.

Country	Considerations	Challenges	Options
Philippines	Expand water rights as defined and contextualised in existing legal frameworks to include the water tenure concept.	Selectivity of legal recognition, where formal rights are clearly defined for permitted uses, yet informal, communal, livelihood-based, and customary uses remain weakly recognized	Widen the concept of water rights and not be constrained by existing regulatory framework
		There is a mismatch between water supply and demand due to the present understanding of water tenure, which in turn affects the institutional coordination and management.	Simplify and differentiate permit procedures, where small users or communities can use a simpler procedure that recognises and legitimises their tenure, and this can help make enforcement more realistic.
		Poor evidenced based reform and policy coherence affects the transparency of the governance process, the engagement and participation of a broader range of stakeholders, which can lead to uneven and potentially fragile water access outcomes	Reform the incentive structure, based on beneficial use, so that conservation, efficiency measures, and reduced abstractions in times of water stress do not automatically weaken tenure security

The reports show that water rights are predominantly determined by laws, and rights that are not 'enshrined' in legal instruments were often excluded in the water management process. It was also noted that the water tenure assessment is a useful tool to understand the water uses and water tenure arrangements. The exercise, particularly for the case studies showed that:

- While many, but not all, types of **water tenure arrangement are expressed in terms of water rights**, the 'relationship' aspect of water tenure can reveal the wider spectrum of water users; the types of use; purpose for access; allocation requirement based on demand; and quality of water needed based on the water use or purpose.
- There were also suggestions that the water tenure assessment be **embedded as part of the water governance framework and process**, as it will facilitate and ensure better demand management, allocation and intervention measures in times of conflict or dispute or water scarcity.

There were also common challenges faced, such as the depth or coverage of existing legal frameworks to accommodate all water tenure relationship types not being comprehensive; and recognising, legitimising and incorporating customary users or uses not derived from formal law into the water management process, in particular demand management. This has led to uneven and inconsistent allocation, and as highlighted disputes or conflict.

Another common challenge faced is the evidence-based decision-making, without proper identification of water use typology and water tenure arrangements, ensuring and determining fair and equitable allocation can be complicated. Without proper tenure arrangement mapping, monitoring, assessment and evaluation of allocation processes or procedures can be challenging. The shift towards a more comprehensive water use listing and water user requirement, including seasonal or continuous use will be useful, especially in developing interventions to address scarcity or strengthen climate resilient practices.

The mapping of water tenure arrangements shows that for the case studies, customary or tenure not derived from formal law were not fully secure. The permit based or agency-controlled arrangements were more secure though this can be seen as tipping towards uneven recognition of water use relationships.

Based on the typology mapping, there seems to be a common thread in the recommendations put forward in the report. Firstly, water tenure assessments are necessary as it can help reveal water users on a broader scale and allow for transparency when managing water resources. Secondly there were recommendations for the expansion of the assessment to more basins, and for the countries who conducted the preliminary analysis, a basin case study is essential to help 'open' the water governance framework. Thirdly, the engagement of a broader group of stakeholders (tenure holders) can improve water resource management and evidenced based allocation as well as informed water demand management, which helps ensure the sustainability of the resource.

The seven reports, do show that water tenure assessment methodology and process is useful to determine and provide a comprehensive profile of water use and water tenure arrangement, beyond arrangements that draw from law. A comprehensive profile can strengthen existing water governance frameworks and allow for strategic interventions that will address conflict or disputes; make room for multiple uses and users; ensure management transparency; and facilitate a bottom-up approach in water demand management, which supports existing IWRM approaches that are in place in the seven countries that form part of this review.

KEY ELEMENTS OF RESPONSIBLE WATER TENURE GOVERNANCE IN SOUTHEAST ASIA

In view of increasing water allocation challenges, the FAO Committee on Agriculture (COAG), at its 28th Session[3], recommended FAO to undertake an assessment of existing water tenure arrangements and their components; to initiate a Global Dialogue on Water Tenure on matters that include water rights' administration, tenure arrangements within water user organizations; and to provide regular updates to COAG; and encouraged Members to participate in identifying principles for the responsible governance of water tenure[4]. This mandate was reaffirmed at COAG 29[5].

FAO officially launched the Global Dialogue on Water Tenure at the UN 2023 Water Conference in New York, presenting the Global Dialogue as one of FAO's commitments to the water action agenda[6]. As part of the Global Dialogue process, FAO consulted with a diverse set of relevant stakeholders, including civil society, academia, Indigenous Peoples, Youth and the broader UN system. In parallel, FAO established an Expert Group on Water Tenure to support the identification of draft principles for responsible governance of water tenure. Based on the evidence drawn from water tenure assessments across diverse country contexts,

BOX. 3.
Twelve Elements of Responsible Water Governance

1. Recognition and protection of legitimate water tenure arrangements
2. Evidence-based and context-specific reforms
3. Security of water tenure
4. Policy and legal coherence
5. Fair and inclusive water allocation
6. Gender equality
7. Accountability and transparency in water allocation
8. Rights-based approaches
9. Sustainability
10. Resilience
11. Enforceability and accessibility

[3] COAG/2022/15, available at https://www.fao.org/3/nj011en/nj011en.pdf
[4] C/2023/22, para 21. https://www.fao.org/3/nj925en/nj925en.pdf
[5] COAG 29 Report, para 17.
[6] https://sdgs.un.org/partnerships/global-dialogue-water-tenure

expert research and analysis, multiple stakeholder consultations, and lessons learned from the development and implementation of a variety of policy guidelines of the Committee on Food Security (CFS), such as the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT).

The draft elements for the responsible governance of water tenure were discussed in a global expert consultation held in May 2025 as the basis for national, sectoral and regional dialogues. National Dialogues on water tenure governance were held in Thailand in March 2026 and in Colombia in June 2025, followed by Regional Dialogues in Latin American and the Caribbean (Panama, February 2026) and Asia and the Pacific (Thailand, May 2026)[7].

In January 2026 the Global Dialogue was presented at the Global Forum for Food and Agriculture (GFFA) in Berlin, Germany. In the final communiqué[8] of the Berlin Agricultural Ministers' Conference, 59 countries took note of the Global Dialogue as a policy initiative to support context-specific, equitable, timely and safe access to water resources. Furthermore, the Global Dialogue was discussed at the International Conference on Agrarian Reform and Rural Development (ICARRD+20), in Cartagena, Colombia in February 2026.

The draft twelve elements for responsible water tenure governance, is used to synthesise the findings from the brief analysis of the seven reports. The twelve elements are arranged into three clusters; factors to be considered to strengthen water governance (Elements 1, 2, 3, 4, 11 and 12); drivers of change (Elements 5, 6, 7 and 8); and future aspirations (Elements 9 and 10). The clustering of elements was arranged based on the similarity of terms, purpose, goal and target group. Based on the analysis of the terms, the three clusters were determined, to help countries conducting the water tenure assessment to frame water management plans that secures water tenure, recognising its legitimacy and building coherence, so as to ensure governance measures, interventions and programmes become more inclusive particularly of non-formal tenure arrangements.

It is important to note that not all the reports addressed the 12 elements, and the mapping below, is indicative, based on the synthesis of the points for considerations, challenges and recommendations and how the elements can be used to help push the water tenure assessment agenda. These common factors are drawn from the summary from the comparative analysis of all the man points from the seven reports and does not make a specific reference to legal and institutional arrangements.

[7] The multistakeholder dialogues included representatives of governments, academia, civil society, private sector, Indigenous Peoples, local communities, women, and youth.

[8] https://www.bmleh.de/SharedDocs/Downloads/EN/_International-Affairs/gffa-2026-communique-en.pdf?__blob=publicationFile&v=3

The content of Tables 11-13 maps the findings from the analysis to the twelve elements as clustered, to indicate key points that should be taken into consideration when conducting water tenure assessment or framing the steps to conduct water tenure assessments or options to embed the water tenure assessment as a method to review water tenure and stakeholder interests, and determine actual arrangements and bundle of rights, as well as bundle of power.

The first set of clusters brings together similar or common factors that can be considered to strengthen responsible water governance. The seven reports highlight the importance to contextualise water tenure to suit local conditions and legal frameworks to help recognise and legitimise tenure particularly arrangements not drawn from formal law.

Table 11. Factors to be considered to strengthen responsible water governance

Element	Key Elements	Considerations	Challenges	Recommendations
1	Recognition and protection of legitimate water tenure arrangements	• Contextualise the term 'water tenure' to not only look at water rights, but relationships. • Incorporate the water tenure assessment method into existing water related demand and allocation assessment mechanism • Integrate purposes related to water governance using the water tenure lens	• Policy and legal framework adjustments • Interpreting 'water tenure' to fit within existing legal framework and community practices • Ensuring coherence across legal and policy framework to accommodate the water tenure assessment method • Recognising and legitimising local informal dispute resolution processes/ mechanisms	• Interpret and provide context for water tenure to be included or incorporated into existing policy or legal frameworks • Contextualise the term water tenure to suit national conditions • Develop guides to raise awareness and build capacity to use of the water tenure assessment method to support existing water governance measures • Develop a registry of water tenure typologies and arrangement • Incorporate local dispute resolution processes/ mechanisms into formal resolution measures
2	Evidence-based and context-specific reforms			
3	Security of water tenure			
4	Policy and legal coherence			
11	Enforceability and accessibility			
12	Access to justice and dispute resolution			

The second set of elements of responsible water governance focuses on strengthening drivers for responsible governance. Based on the mapping of common factors in Table 10, the need to recognise water tenure arrangements over water uses that are not derived from law is important. Further, flexibility will need to be considered to 'fit' water tenure assessments within existing governance framework, to allow customary arrangement to be incorporated into governance measures.

Table 12. Factors to be considered to drive change for responsible water governance

Element	Key Elements	Considerations	Challenges	Recommendations
5	Fair and inclusive water allocation	• Contextualising and recognising water rights in accordance with customary and formal practices / arrangements • Water resource accounting using the water tenure assessment method • Consider the factoring both bundle or rights and bundle of power when developing the water tenure arrangement profile.	• The term water tenure is new and does not fit within existing water governance legal frameworks • Selectivity of legal recognition, where formal rights are clearly defined for permitted uses, yet informal, communal, livelihood-based, and customary uses remain weakly recognized • Stakeholder engagement and transparency of water allocation based on water tenure arrangements	• Establish a mechanism that recognises, legitimises and incorporates tenure arrangements in water demand management
6	Gender equality			
7	Accountability and transparency in water allocation			
8	Rights-based approaches			

Table 10, together with Tables 11 and 12 highlighted that assessing existing water governance arrangements using the water tenure assessment as a lens can help reveal customary or community-based arrangements and practices, that are often missed in water accounting. This affects the demand management and allocation of water resources and has bearing on measures to address water scarcity and climate resilience. The recommendations from the analysis of the seven reports emphasised the need for transparency, and programmes that can boost public awareness and capacity to ensure legitimacy of all types of water tenure arrangements

Table 13. Factors to be considered in framing future aspirations for responsible water governance

Element	Key Elements	Considerations	Challenges	Recommendations
9	Sustainability	• Water tenure assessment is used to support water resource accounting, water demand management, water allocation and water related intervention measures to address water scarcity, climate risks and climate resilience in line with IWRM approaches incorporated in existing governance framework and help meet SDG 2030 targets.	• Integrating practical management knowledge into public awareness and capacity building programmes that shows water tenure as being more than right.	• Increase community participation and transparency in water governance through targeted stakeholder engagement processes • Expand water tenure assessments to other river basins and define as well as implement monitoring an appropriate environmental flow to help strengthen water tenure arrangement.
10	Resilience			

COMMON CONCERNS AND OPTIONS

The brief review of the seven reports showed that there were common aspects relating to points for consideration, challenges and recommendations. This even extends to the big take away messages in the reports. The assessments using the water tenure lens, showed that current governance frameworks do not consider the relationship of all water users with water resources, and water tenure arrangements recognised through formal laws or not.

The lack of the full information on water users and water use arrangements puts existing water demand management at a disadvantage, as allocation of water resources are not evidence based, and arrangements not recognised through formal law will be side lined. This creates uncertainty and threatens tenure security, even if customary sites are socially recognised, users with formal recognition will trump over unsecured tenure arrangements. With varied perceived security of tenure, conflicts or disputes, and as highlighted the bundle of power, not just bundle of rights will come into play, contrary to principles of IWRM and the proposed 12 elements of responsible water tenure governance.

The water tenure assessments revealed an opportunity to embed the water tenure assessment method to take stock and determine the comprehensiveness of existing water governance framework. The reports indicated that the 'lack of comprehensiveness' means that certain users are not factored in when allocation decisions are made. It was also highlighted that there were also concerns regarding the enforcement of existing laws, particularly transparency in decision-making regarding water demand management and allocation. This is further hampered by poor coherence between legal arrangements, policy direction and governance mechanisms, particularly institutional roles and responsibilities, where potential for overlap or mismatch is high. Dispute resolution or conflict resolution will need to be localised, to allow for expedient intervention measures to address competing uses.

The water tenure assessment methodology should be carried out periodically, and assessments carried out at strategic scales, either river basin or sub-basin scales. This would be dependent on the legal framework for water governance, as the mandate to institute governance changes e.g. introducing coherence or coordinative mechanisms, is fundamental to expanding the water demand management scope. Priority will need to be given to determining water use types, users and water tenure arrangements, focusing on developing a profile of water use, user and influence over use and users (bundle of power).

The development of specific water tenure assessment guidelines suited to a country's state and condition will need to be considered. This will help design a complementary interagency and cross stakeholder data architecture for collection and data analytics. This hopefully will help keep data secure, scalable and accessible for evidence-based decision making. A strong and effective governance framework will also require strategic capacity building programmes, that not only help strengthen government capacity, but also empower all stakeholders or water users and groups.

OPPORTUNITIES FOR WATER TENURE FOR WATER GOVERNANCE IN THE SOUTHEAST ASIA REGION

ASEAN has provided a great opportunity for the water tenure assessment methodology to be incorporated into its programmes and activities, where a partnership between ASEAN, through the ASEAN Working Group on Water Resources Management, FAO and GWP SEA can be formed to help with the development of a specific assessment programme. The findings of the seven country projects can be shared at the ASEAN working group level, and the water tenure assessment method can also be used to update the ASEAN Strategic Plan of Action on Water Resources Management.

Support and capacity building programmes can be developed to aid not just the conduct of water tenure assessment, but for the development of tailor-made guidelines suited to country conditions, priorities and capacities. This would also include training stakeholders who can help conduct the water tenure assessment. These efforts can leverage on existing IWRM initiatives, as the water tenure assessment exercise can provide an in-depth assessment not just on water use, users and arrangements of tenure, but help structure the 'integrated' aspect of water resources management, that will consolidate and connect multiple mandated stakeholders in water demand management and allocation.

The assessments conducted can be replicated within the Southeast Asian Region, with countries with assessment experience can share and support training and capacity building activities. ASEAN can also consider developing a specific work programme that will leverage on IWRM initiatives and networks, to conduct detailed national and strategic scale water tenure assessments. There is also an opportunity to boost water intelligence and analytics at regional scale, which can later be used to also help with evidence-based management of transboundary water resources.

CONCLUSION

The water tenure assessment conducted by Kingdom of Cambodia; Republic of Indonesia; Lao People's Democratic Republic; Malaysia; Republic of the Philippines; Kingdom of Thailand; and Socialist Republic of Viet Nam showed that the assessment does help map complex water use and user realities, identify gaps and overlaps, determine tenure security, and identify competing interest. It helped identify and determine measures to address gaps, overlaps and mismatch in existing water governance framework, which in turn serves as a basis towards ensuring tenure security. This helps determine measures for sustainable water use; minimise risks from conflicts or disputes or insecurity; boost climate resilience; and most importantly safeguard water security.

Water tenure arrangements provide a people-centred water demand management, providing a means to determine the convergence point between regulated water tenure arrangement and customary or arrangements that are not derived from law. Common points of consideration include clarifying the term 'water tenure', looking beyond water rights. The assessment looked at water tenure from a water rights perspective, looking at the legal coverage of diverse water rights based on water use, customs and practices, in addition to equity.

Key considerations, challenges and options or recommendations from the reports are analysed and commonalities synthesised to better understand the common challenges or gaps relating recognition and legitimisation of water tenure arrangements i.e. access and use, particularly arrangements not derived from formal law. Given the differences in depth and scope of the seven reports, the synthesis of the commonalities was matched to the 12 elements of responsible water tenure governance. The key messages from the seven reports show that the water tenure assessment method helps not only to strengthen water demand management and allocation, but it also helps expand the ambit for tenure arrangement and help ensure security in the event of dispute or conflict.

There is also opportunity leverage on ASEAN and water governance, to help link the water tenure concept and assessment methodology with initiatives undertaken by ASEAN, particularly the ASEAN Working Group on Water Resources Management (AWGWRM) through the ASEAN Integrated Water Resources Management (IWRM) Country Strategy Guidelines. This also includes the ASEAN Long Term Strategic Plan for Water Resources Management (ASPA-WRM) and the ASEAN Strategic Plan of Action on Water Resources Management.

REFERENCES

Bowen, G.A. (2009). Document analysis as a Qualitative Research Method. Qualitative Research Journal, Vol. 9 No. 2 pp2 7-40.

Byrne, D., & Ragin, C. C. (2009). The SAGE handbook of case-based methods. SAGE Publications Ltd

FAO. 2016. Exploring the concept of water tenure. Land and Water Discussion Paper 10. Rome.
https://www.fao.org/3/i5435e/i5435e.pdf

Hodgson, S., Rothe, A. -K., Espinosa Flor, S., Troell, J., & Kiersch, B. (2024). Water tenure assessment. Food and Agriculture Organization of the United Nations (FAO)

Ragin, C. C. (1987). The comparative method: Moving beyond qualitative and quantitative strategies. University of California Press.

ANNEX

Below are two tables that sets out the terms used for arrangements and typologies in the Water Tenure Assessment 2024 document (Hodgson, et al., 2024)

Table 1. Factors to be considered in framing future aspirations for responsible water governance

Water tenure arrangements derived from formal law	Water tenure arrangements not established by formal law
• Land-based formal water rights • Permit-based formal water rights • Regulatory licences • Agency control • Water supply contracts • Commonhold water tenure • Investment contracts • De minimis rights – small scale uses • Declared/exempt commercial uses • Reserves/minimum flow requirements • Other	• Assumed water rights • Customary water tenure • Impossible water tenure • Informal water tenure • Religious law water tenure • Unrecognised water tenure

ANNEX

Table 2. Water Tenure Arrangement and Water Use/User Typologies

WATER USES		WATER USERS	
A	Water supply	A1	Urban water supply: infrastructure systems providing treated water to individual homes, operated by various entities
		A2	Rural water supply: infrastructure systems supplying water to rural areas, operated by different organizations
		A3	Rural unimproved: users take water directly from rivers and streams without the use of structures
B	Agriculture	B1	Estate irrigation: irrigation infrastructure used by a single entity, privately or publicly owned
		B2	Public irrigation schemes: large-scale irrigation systems funded by public funds or aid, serving multiple farmers
		B3	Farmer-led irrigation: irrigation schemes constructed by farmers or with NGO support
		B4	Small-scale agriculture: riverbank vegetable gardens or flood recession agriculture
		B5	Livestock watering: watering of livestock, particularly relevant for pastoralists
		B6	Aquaculture: cultivation of aquatic animals or plants, subject to licensing and water tenure arrangements
C	Industry and mining	C1	Industrial use: water abstraction for industrial processes or cooling, with potential contamination requiring treatment
		C2	Mining and quarrying: activities including mineral extraction and dewatering using groundwater

ANNEX

Table 2. Water Tenure Arrangement and Water Use/User Typologies

WATER USES		WATER USERS	
D	Power generation	D1	Thermal, nuclear, and solar: water abstraction for cooling purposes in thermal and nuclear plants, and for cleaning in solar farms
		D2	Hydropower: generation of power using flowing water without impounding
E	Environment	E1	Instream: water deliberately left in watercourses for ecological purposes
		E2	Diversion: water diversion to ecologically important areas like national parks and wetlands
F	Navigation		Formal and informal navigation activities, regulated or unregistered
G	Livelihoods	G1	Inland fishing: capture fishing excluding aquaculture, with fish having legal status as un-owned resources
		G2	Wetlands/other livelihoods: activities dependent on water resources in wetlands, such as reed harvesting
H	Recreation/ Landscape	H1	Instream use: activities like rafting and bathing in watercourses, or watercourses serving as tourist attractions
		H2	Extractive use: abstraction of water from natural sources for purposes like golf course irrigation
I	Other		Residual category for miscellaneous water uses not covered in the typology, such as construction or tanker water supply in urban areas

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