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Assessing the enabling
conditions for investment
in water security: Scorecard
pilot test in Asian countries

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Assessing the enabling conditions for investment in water security

Scorecard pilot test in Asian countries

Environment Working Paper No. 235

By Delia Sanchez Trancon (1), Allison Woodruff (2), Xavier Leflaive (1), Lylah Davies (1) and Sigurjon Agustsson (1)

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Abstract

This report outlines results from the initial pilot-testing of a Scorecard to assess the enabling environment for investment in water security, referred to as "the Scorecard".

Developed in collaboration with the Asian Development Bank and partners, the Scorecard aims to identify conditions for attracting and maintaining investment in water security. The report outlines the Scorecard's rationale, scoring methodology, and presents its main components. It also provides results from seven Asian countries, namely, Bangladesh, Mongolia, Nepal, Pakistan, the Philippines, Uzbekistan, and Sri Lanka. Armenia's findings from a subsequent Eastern European pilot test are also incorporated.

This is the first in a sub-set of working papers within the Environment Working Paper series presenting research on the enabling environment for investment in water security. It marks the beginning of a process to apply the tool and support policy reforms.

The report refrains from offering policy recommendations, focusing on testing the scorecard's ability to assess conditions to attract and sustain investing in water security. For an illustration of country-specific policy recommendations, please refer to the Environment Working Paper "Enabling environment for investment in water security: Pilot test in the EU's Eastern Partner Countries - Armenia case study".

Keywords: water security, investment, public and private finance, enabling environment, tool, data, policy, regulation, water supply, sanitation, wastewater, water resource management, irrigation, Asia, Pacific.

JEL Classification: H23, H41, H51, H54, L32, L38, L50, L95, L98, Q25, Q53, Q54, Q58.

Résumé

Ce rapport présente les résultats des premiers tests du Scorecard pour évaluer les conditions favorables pour l'investissement dans la sécurité hydrique au niveau national, mentionné comme « le Scorecard ».

Développé en collaboration avec la Banque asiatique de développement et ses partenaires, le Scorecard vise à identifier les conditions pour attirer et maintenir les investissements dans la sécurité hydrique. Le rapport présente le Scorecard, sa méthodologie de notation et ses principaux indicateurs. Il fournit également les résultats de sept pays asiatiques, à savoir le Bangladesh, la Mongolie, le Népal, le Pakistan, les Philippines, l'Ouzbékistan et le Sri Lanka. Les résultats de l'Arménie issus d'un test pilote ultérieur en Europe de l'Est sont également intégrés.

Il s'agit du premier d'une sous-série de documents de travail dans la série des documents de travail sur l'environnement, présentant des recherches sur l'environnement favorable à l'investissement dans la sécurité hydrique. Il marque le début d'un processus visant à appliquer l'outil et à soutenir les réformes politiques.

Le rapport s'abstient de proposer des recommandations politiques, se concentrant sur le test de la capacité du Scorecard à évaluer les conditions pour attirer et maintenir les investissements dans la sécurité hydrique. Pour une illustration des recommandations politiques spécifiques à chaque pays, veuillez-vous référer au document de travail sur l'environnement "Environnement favorable à l'investissement dans la sécurité de hydrique: Test pilote dans les pays partenaires orientaux de l'UE - Étude de cas de l'Arménie"

Mots-clés : sécurité de l'eau, investissement, financement public et privé, environnement propice, outil, données, politique, régulation, approvisionnement en eau, assainissement, eaux usées, gestion des ressources en eau, irrigation, Asie, Pacifique.

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The responsibility for the content of this publication lies with the authors.

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Executive summary

The world has less than six years to achieve Sustainable Development Goal (SDG) 6, which seeks to “ensure availability and sustainable management of water and sanitation for all”. Achieving SDG 6 is crucial to reaching other SDGs such as poverty reduction (SDG 1), zero hunger (SDG 2), and good health and well-being (SDG 3). Addressing the water-related crisis is also a prerequisite to address climate change and the rapid loss of biodiversity.

Despite the clear need for investment in securing water resources and delivering water services, financing mobilised to reach SDG 6 is not on track. The World Bank projects water infrastructure financing needs to reach around \$6.7 trillion by 2030 — and \$22.6 trillion by 2050. Yet the global water sector currently attracts less than 2% of public spending, with a similar low level of private investment in low- and middle-income countries.

Addressing the water financing challenge will require strengthening the enabling environment for investment. Evaluating the enabling environment is a key first step to identify how it can be improved.

This report presents a tool to assess the enabling environment for investment in water security at national level, referred to as “the Scorecard”. This tool aims to help governments, funders and financiers identify existing barriers to investment and to provide analytical foundations to design policy reforms to address them.

Results from the pilot tests conducted in seven countries in Asia are presented in this report: these include Bangladesh, Mongolia, Nepal, Pakistan, Philippines, Uzbekistan, and Sri Lanka. A second pilot testing of the tool was carried out in Eastern European countries, where specific country policy recommendations were provided based on the results from the Scorecard.

How does the Scorecard define the enabling environment for investment in water security?

The enabling environment for investment in water security is characterised based on four dimensions in the Scorecard, including: the overall policy framework for investment (dimension 1), the water policy framework for investment (dimension 2), bankability and sustainability of projects (dimension 3), and the contribution that other economic sectors make to water security (dimension 4). The framework does not aim to be definitive, but rather to suggest a common starting point that is flexible enough to be applied in many situations around the world.

The Scorecard helps explore these four dimensions by identifying key indicators to aid governments and relevant partners in removing investment barriers. These indicators are divided into sub-indicators, covering major risks, expected financial return, as well as social and environmental implications for both public and private investors. Each indicator has been assigned equal weight at this stage of the tool's development.

These four dimensions are interconnected. If a country's enabling environment for investment is not attractive overall, this can create a barrier to investing in water security. If the water policy framework does not make investment in water at least as attractive as for other sectors, investment in water security will continue to be limited. Projects that undermine environmental sustainability and citizens' rights do not support water security. The challenge is to develop bankable projects that align business interests with broader social and environmental goals related to water security. Lastly, if other economic sectors do not contribute to water security, costs will escalate for all water users, limiting the country's ability to attain and maintain water security.

Based on the assessment for the different sub-indicators, countries are then classified according to their overall scores into different stages of maturity for the enabling environment for water security, ranging from nascent to engaged, capable, effective and model.

The Scorecard uses publicly available data sources. As many data points were unavailable, such as data on economic instruments in place, contractual arrangements, or on access to finance for service providers, among many others, surveys were also used to collect primary data. This research aims to bridge the current data gap and highlights the limited availability of data from both public and private sources for investments related to water security.

What actionable steps can policymakers take based on the Scorecard?

The results of the assessment can help decision-makers optimise the use of existing funds by addressing the main investment barriers and help mobilise additional investments. Findings can allow governments to prioritise investment decisions and to collaborate and coordinate with donors more effectively. Assessing the enabling conditions lays the foundations for building project pipelines in a strategic manner, rather than taking a project-by-project approach.

The Scorecard provides a comprehensive analysis of the enabling environment, allowing decision-makers to identify priority barriers, as well as cross-sectoral opportunities and synergies, align with the government priorities. The assessment brings together a wide range of stakeholders within and outside water related sectors, underscoring the necessity for coherent approaches within and across sectors.

Conducting an assessment based on the Scorecard can lower transaction costs for both public and private investment projects by anticipating risks in the investment environment. The findings from the pilot test indicate that the overall enabling environment, rather than a singular condition, is key to attracting and sustaining investment in water security.

1. Assessing the enabling environment for investment in water security

The OECD, in collaboration with the Asian Development Bank (ADB), developed a tool to assess the enabling environment for investment in water security at national level, referred to as “the Scorecard”. Findings of this assessment can help pinpoint existing barriers to investment for public and private investors and catalyse policy reforms aimed at addressing these barriers.

The tool allows assessing the various enabling conditions for investment at national level. The results generated by this tool might not capture the full spectrum of realities within a country, especially considering factors like the country’s size, geographical complexities (e.g., countries spanning multiple islands), hydrological conditions, and institutional structures (e.g., federal systems). It is not designed to evaluate specific projects.

The scoring method, detailed further in the methodology section, allow countries to benchmark their performance, illustrating what an optimal enabling environment might look like. This benchmark is grounded in best practices observed across OECD member countries and non-member countries. It is also in line with the OECD Council's recommendation on water (OECD, 2016^[1]). Additionally, the data collection phase allows shedding light on how specific enabling conditions have been implemented within a country. It also provides the opportunity to do longitudinal analysis of conditions that prevail in a particular country. As an illustration, the establishment of a sectoral investment framework for sanitation could have bolstered both domestic and foreign investments, subsequently leading to a policy reform in relation to wastewater treatment standards.

The Scorecard is primarily aimed at policy makers, donors and investors looking to improve the enabling environment for water security and/or to reduce the transaction costs of investment of water security in a country. This includes, but is not limited to, Ministries overseeing water services and water resources management, Ministries of Finance, Domestic Commercial Banks, National Development Banks and other entities that are investing in water security. Furthermore, the tool is also relevant for foreign stakeholders, such as International Financial Institutions (IFIs) and development agencies, who are investing in water in specific regions or countries, through policy loans or other instruments.

The Scorecard can serve as an initial platform and component to foster national dialogues among various entities responsible for creating the enabling conditions for investments in water security. By leveraging sound research and comprehensive systemic analysis, the tool can drive transformative changes in institutional arrangements, policies, regulations, and economic instruments, within the water policy framework and beyond.

1.1. Rationale

Investment in water security makes economic sense and is a necessary condition to achieve all SDGs. However, this imperative does not always translate into investment at scale (OECD, 2022^[2]). Water security is essential for sustainable development, both at the basin level and globally. The impacts of water-related risks on economic growth and macroeconomic stability are well-established (Leflaive, Dominique and J. Alaerts, 2022^[3]).

The widespread under-valuing of water resources and the benefits associated with water investments limit investment opportunities for public and private actors. A weak enabling environment for investment appears as a major challenge in many countries (OECD, 2022^[2]). Within the enabling environment, multiple barriers can be cited as obstacles such as concerns over contract structures, the lack of a robust business model for service providers, particularly limits on their ability to price water to cover costs and the small scale and fragmented nature of many water-related projects.

1.2. Definitions

A strong enabling environment for water-related investment can be broadly characterised as a set of policies, regulations and institutional arrangements that facilitate investment in activities that contribute to water security. This includes sector-specific policies, regulations, and institutional arrangements, as well as measures related to the regulation of the financial sector and capital markets (OECD, 2022^[4]). This also includes the capacity to create the conditions to identify, prepare and develop projects that can attract investments, and to ensure that investments in a range of sectors contribute to water security.

A water-related investment is defined as any investment related to water and sanitation services and water resources management or which mitigates exposure and vulnerability to water risks. This covers a large spectrum of potential investments with different ability to attract finance. For example, the hydropower sector usually generates projects with predictable lifecycle costs (including very large capital costs) and revenue streams. This often comes with low risk and high potential returns, although the social and environmental impacts of such investments need to be considered with extreme caution. On the contrary, non-sewered sanitation services in rural areas have limited cash flows and unknown unit costs, as these tend to be context-specific. As a result, they face higher risk and generate low returns.

Investment here refers to all types of sources of funding and finance. This includes private equity, venture capital investing in early-stage companies pursuing disruptive innovation. It also includes traditional public investments such as infrastructure development and capacity building for service authorities and service providers.

1.3. Structure of the Scorecard

The conditions to enable investment in water security can be clustered into four categories:

1. A sound policy framework for investment overall (Dimension 1);
2. A sound policy framework for the management of water resources and services (Dimension 2);
3. The capacity to develop water-related projects that are both bankable and sustainable (Dimension 3); and

4. An economy-wide water lens¹ to ensure that investments in other domains contribute to water security (Dimension 4).

These four dimensions are described in more detail in the following sections.

1.3.1. A sound policy framework for investment overall (Dimension 1)

The first dimension focuses on the overall framework for investment in the country. It aims to assess if the country is attractive for investors in general.

Numerous organisations identify features of a strong investment environment (see the OECD Policy Framework for Investment, the G20 Infrastructure Hub, OECD report on Financing a Water Secure Future (OECD, 2022^[2]) and the World Bank). These features are common in some cases and can differ in other depending on the objectives of the analysis or the nature of the investment study. Many features focus on investment policy, including promotion and facilitation, trade, corporate and public governance, public procurement and business conduct, institutional arrangements, independent oversight, decentralisation and accountability (OECD, 2022^[4]).

The tool uses the OECD Policy Framework for Investment (PFI) as the basis to assess country attractiveness. However, substantial modifications were necessary due to the need to automate Dimension 1 using public databases and the tool's specific focus on water. Findings from the OECD PFI can help governments with mobilizing private investment to support sustainable development, thereby contributing to the prosperity of countries and their citizens while combating poverty. It provides a set of key questions to be examined by any government aiming to create a favourable investment climate. Designed by governments to support international investment policy dialogue, co-operation, and reform, it has been used by over 25 countries as well as by regional bodies to assess and reform the investment climate. The PFI was updated in 2015 to take this experience and changes in the global economic landscape into account (OECD, 2015^[5]).

The Scorecard uses existing indicators from the World Economic Forum, the World Bank, the International Monetary Fund, and the OECD as proxies for this dimension. It covers most of the PFI policy areas that can be automated using external data sources. Additionally, the tool incorporates other elements that will impact the water policy framework, such as decentralisation. For instance, given that service authorities are typically located at the municipal level in most countries, whether or not decentralisation is effective has significant implications for water and sanitation service delivery.

The first dimension delves into the investment policy framework, examining aspects like macro-economic indicators, credit markets, policy coherence, and governance as well as non-commercial risks, similar to analyses conducted by institutions like the World Bank and the International Monetary Fund.

1.3.2. A sound policy framework for the management of water resources and services (Dimension 2)

As the OECD Policy Framework for Investment notes: "Part of this effort to channel investment will involve removing sector-specific impediments, whether policy-induced or specific to the market structure of each sector. This effort might be complemented by targeted and well-

¹ It refers to an economy that supports water security through its actions and objectives.

designed incentives, but more broadly, it will also require policies to ensure that returns to investors in that sector are sufficient to entice them to invest.” (OECD, 2022^[4]).

Water related policies can create the conditions for water projects to create value and attract investment, particularly if part of that value can be transformed in a revenue stream. Water projects that can attract investment will need to demonstrate a robust business model, generate stable revenue streams and minimise risks for investors. It is noteworthy that water investments operate in a competitive environment, as investors explore opportunities in other domains (energy, transport, or else). That said, it is important to note that the main motivations of investors may be different. Some investors may seek investment opportunities for multiple reasons, including social or environmental impacts (OECD, 2022^[4]).

This dimension, along with dimension four, addresses opportunities and risks from a water security perspective. A prevalent example is the presence (or lack) of abstraction and pollution charges. While the absence of these charges can be seen as an advantage, attracting investment due to lower operating costs in the short term, it poses a significant threat for investments in water security over the longer term. Indeed, the absence of water charges can lead to widespread misuse of this vital resource. For investors, this becomes a direct risk, as they might not receive the initially agreed or estimated quantity or quality of water. This mismanagement can result in heightened costs as well as transitional and reputational risks. For instance, if water scarcity becomes acute, regulators might introduce measures limiting the amounts of water that can be withdrawn. In addition, water charges generate a fiscal revenue that, if earmarked, can be the foundation of a sound and sustainable funding model for the sector.

Dimension 2 is organised around some cross-cutting issues. It evaluates the water sectors' policy framework, identifying market conditions, policy barriers, and regulatory shortcomings that might hinder successful water security investments. For instance, it considers whether economic policy instruments are in place for water management; for example, if tariffs are set for water services on a cost-recovery basis. Where appropriate, some issues can be disaggregated for selected services (water supply and sanitation, irrigation, water resources management...). In this case, questions and sub-questions are very similar for all sectors, to allow common and comparable analysis. However, the data sources used may vary depending on the data available (please see the methodology section for more details).

1.3.3. The capacity to develop water-related projects that are both bankable and sustainable (Dimension 3)

This dimension assesses whether the arrangements put in place in terms of institutional set-up, mandates, policies and regulations are conducive to the preparation of projects that are both bankable and sustainable. This considers business models, economic and financial viability, and their broader societal and environmental impacts. Project bankability relates to the size, the revenue streams, the business model, risk-return profiles, returns time of a project.

It is worthy of note that national culture and legacy can influence perspectives on which projects are viewed as 'good'. For example, a place that has a long experience with water scarcity may favour projects that augment water supply, whereas residents in a flood prone area may favour flood mitigation projects (OECD, 2022^[4]).

While financiers typically focus on the availability of a pipeline of bankable projects, government authorities and project developers should also develop project pipelines within broader strategic investment pathways to ensure that they are resilient and contribute to water security and sustainable growth over the long term and preferably at least cost (OECD, 2022^[2]).

1.3.4. An economy-wide water lens to ensure that investments in other domains contribute to water security (Dimension 4)

The fourth dimension focuses on economic sectors' impact on water security. Investments in agriculture and food, energy and climate resilience, urban development and other domains can have significant unintended consequences on water availability and exposure and vulnerability to water risks. For example, increased floodplain development can lead to higher risk exposure and economic losses. Urban or industrial development in water scarce areas intensifies competition over water resources and introduces a bias towards supply augmentation schemes. One element of an enabling environment of water is to ensure that investments in these domains contribute to – and do not undermine - water security. Key to managing water effects and unintended water consequences emerging from infrastructure projects in other sectors are the mechanisms that are established particularly during the ideation and investigation phases (OECD, 2022^[4]).

This dimension aims to assess how other sectors consider their impacts on - and vulnerability to - water resources. It covers the main economic sectors that have an impact on green and blue water resources. It assesses physical risks (such as water availability) as well as transitional risks (such as changes in regulation like disclosure or policy like public procurement criteria) that economic actors can suffer, as well as the impact they have on water security.

1.4. The four dimensions are interlinked

Empirical evidence demonstrates linkages between these four dimensions, which may differ between countries and regions.

A country's investment policy framework (D1) is important for attracting investments across all economic sectors, including into the water sector. Dimension 1 indicators and sub-indicators, which cover the general investment attractiveness of a country, do influence investment in water security. Decision-makers often identify these conditions as obstacles to securing investments for water security. Public and corporate governance, access to foreign currency, decentralisation, inflation, or land acquisition process are key barriers for investing in water security in many countries (OECD, 2022^[2]) (Khemka, Lopez and Jensen, 2023^[6]).

As much as the investment policy framework (D1) is a requirement for investors, the water policy framework (D2) which guides investment towards water-related sectors impacts the country's attractiveness for investment overall. As indicated by the World Bank, the lack of water security poses a significant obstacle to growth and development, impacting the country's investment attractiveness. For instance, in relation to water quality, rivers that are very heavily polluted reduce economic growth of regions downstream, generating between 0.8 and 2.0 percent of economic growth in losses (Russ et al., 2022^[7]). Moreover, recent OECD research has identified that water-related risks are financially material in the financial system, with important implications for financial stability (Davies and Martini, 2023^[8]).

Through the water policy framework (D2), decision-makers in water sectors can exert a significant positive influence on the enabling environment, on top of what can be achieved from improving the investment policy framework (D1). In numerous OECD countries and partner countries, supportive water policies, institutions, regulations, and the introduction of economic regulations have all facilitated water sector development. These allow attracting public funding, facilitate private and commercial financing and private sector participation (OECD, 2022^[2]) (Khemka, Lopez and Jensen, 2023^[6]). These water policies, institutions, and regulations not only influence the bankability and sustainability of water projects (D3) but also exert an effect

on other economic sectors (D4). For instance, robust water policies that make pollution costly and that signal the opportunity costs of using water when and where it is scarce drive the pace of technology across various sectors, including manufacturing and service sectors (Leflaive, Kriebel and Smythe, 2020^[9]).

The ability to develop a pipeline of bankable and sustainable water-related projects is contingent upon the countries' investment policy framework (D1) and water policy framework (D2), as well as the country project development framework (D3). For instance, low tariffs, within the water policy framework (D2), often impede the bankability of water-related projects. Similarly, within the investment policy framework (D1), limited domestic commercial lending and capital markets can restrict project bankability. National project frameworks (D3) can support the water policy framework (D2) thereby attracting investment in water security. National project framework that includes standardised economic cost-benefit analyses and social and environmental impacts assessment support the bankability of water projects (Khemka, Lopez and Jensen, 2023^[6]), but also their sustainability.

Economic sectors impact water security and its enabling environment for investment (D4). Nevertheless, the complexity of natural resources usage and its interlinkages with economic sectors makes the assessment of their impact on the enabling environment for investment extremely challenging. The nexus of water, agriculture, and energy appears to be well studied. For instance, it is well-established in relation to water utilities stocks (D2) that agricultural prices positively impact returns on water stocks, whereas energy prices negatively affect them (D4) (Roson, 2017^[10]).

The principles and guidelines that govern economic sectors, and the consideration of water security within them (D4), have significant implications for a country's prosperity (D1). For example, water scarcity contributes to increasing economic inequality globally (Roson, 2017^[10]) and water deficits are linked to 10% of the rise in global migration (Zaveri et al., 2021^[11]). Enabling conditions such as a national water security strategy, positive incentives supporting water security, biodiversity, and the environment more broadly, along with disclosure standards (D4), can reduce water risks and costs, while enhancing the efficacy of both the water policy and investment policy frameworks (D1 and D2).

This research cannot attempt to fully identify the linkages between the dimensions, however, as well as the types of linkages between indicators (e.g., hierarchical, cascading, feedback, synergistic, etc). For this reason, for pilot testing the tool, each dimension has been assigned equal weight.

1.5. Enabling conditions captured in the Scorecard

Across the four dimensions, the enabling conditions for investment in water security have been identified and subsequently formulated as questions to facilitate an assessment of a country's current status. Table 1.1 delineates these questions. These enabling conditions can also be seen from the investor's perspective as the risks associated with an investment opportunity. Each primary question is further subdivided into sub-questions and associated indicators so as to allow for a more comprehensive assessment. For a complete list of the enabling conditions, their corresponding questions, and the associated sub-questions, refer to 2.6.2. Annex A.

Table 1.1: Scorecard's underlying questions across the four dimensions

Dimension 1. A sound policy framework for investment: is the country attractive for investors?
Are macro-economic indicators conducive to sound investment?
What is the strength of the domestic financial sector?
Is domestic finance available?
How strong are public governance mechanisms?
How strong are corporate governance mechanisms?
What level of regulatory permits and approvals are required for investment and are they streamlined?
What accountability mechanisms are in place to ensure responsible business conduct?
What is the level of non-commercial risks for investors?
How effective and practical is decentralization for policy and investment?
Are infrastructures sufficient to attract investments?
Dimension 2. Channeling investment to water: Authority(ies) in charge of water resources
Is data on current and future water resources availability, demand and supply forecast and water risks available?
Do water resource allocation mechanisms support water security investment?
Are economic instruments coherent between sectors?
Are mechanisms to solve conflicts between water users effective
Dimension 2. Channeling investment to water: Water supply for domestic use: urban and rural / Sanitation: urban and rural/ Irrigation big schemes
Is a strategic investment plan in place including water security?
Is there independent and transparent regulation of the sector?
Are contracts arrangements for service providers attractive for investment?
Do incentives support investment?
Does economic regulation sustain and attract investment?
Is the legal status of stakeholders participating in the investment clear?
Are service providers allowed and able to access finance?
What are service authorities' capacity levels?
What are service providers' capacity levels?
Dimension 3. A pipeline of good projects: to what extent are water projects bankable and sustainable?
To what extent are the community, stakeholders, third parties, engaged in projects?
Is there a standard methodology for assessing the social and environmental value and impact of investment?
How is cost benefits methodology carried out to ensure impartiality?
Are data, process and methods for projects collected and published? How is the data used for future decisions-making?
Can projects be grouped to overcome high credit risks and transaction costs?
Are they guidelines on how to support projects to be bankable and financially viable?
Dimension 4. An economy-wide water lens: are economic sectors contributing to a water secure future?
Does a national strategy guide water security in the country?
Do national strategies for climate change mitigation, adaptation, agriculture, economy, development, and energy transition address water security?
Is a water risks mitigation strategy in place?
Are economic incentives designed to support water security?
Is water security embedded in public policy measures?
Do mandatory and voluntary disclosure standards consider water?

Note: Dimension 2 can be subdivided into distinct sub-sectors: urban domestic water, rural domestic water, urban sanitation, rural sanitation, and irrigation. Each sub-sector's unique attributes are addressed through specific sub-questions. According to the pilot test, rural sub-sectors – inclusive of irrigation – pose significant challenges in accessing data at the country level. Covering all sub-sectors is possible, as it was done for the pilot test in Armenia. However it implies a wider consultation across Ministries and stakeholders, increasing the data collection time.

Source: Authors.

1.6. Methodology

The Scorecard is a tool designed to be used as part of a policy dialogue to support the design of policy reforms to attract and sustain investment in water security. The government or a relevant donor should lead the process. Several meetings and workshops are required to ensure the quality, validity, and impact of the analysis.

1.6.1. A tool to support policy reforms and reduce transaction costs

The process is designed to initiate a national dialogue among various entities responsible for creating the necessary enabling conditions, specifically those engaged in water security investments. This collaboration can act as a catalyst for policy, regulatory, and economic transformations, grounded in comprehensive research and systemic analysis. By bringing together all pertinent stakeholders, including agencies, Ministries, Treasury, donors, and civil society, the dialogue fosters a collaborative environment. Within this framework, stakeholders must engage in thoughtful discussions regarding the assessment and converge towards the primary priorities that align with both governmental strategies and the country's actual needs. Compilation of the Scorecard is intended not as an endpoint but as a catalyst for a reform process.

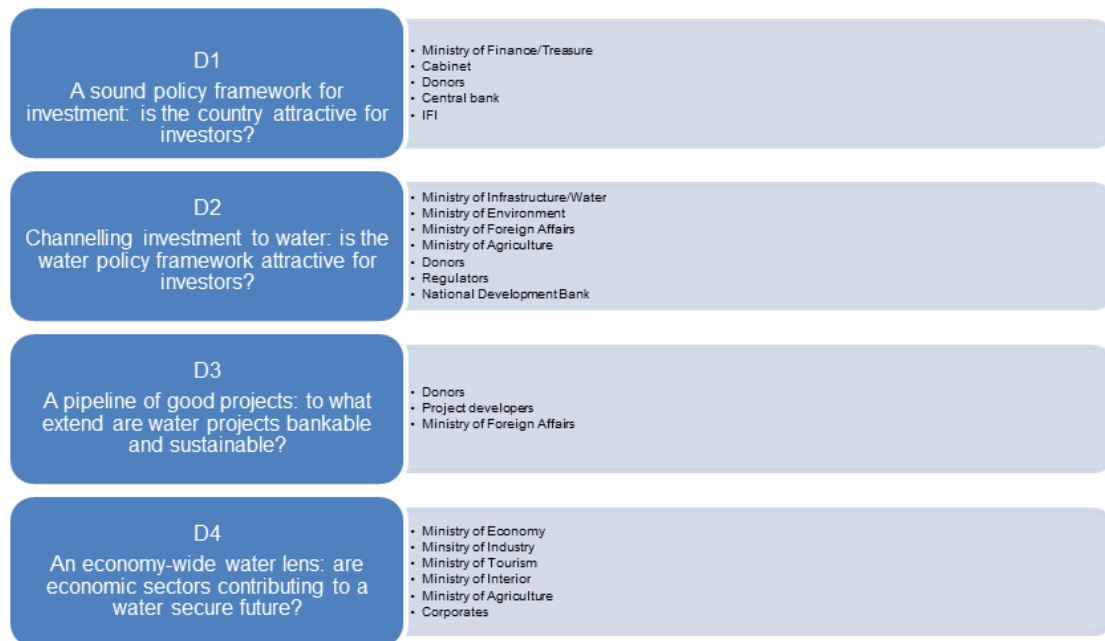
The data collection and validation processes have been designed to be led by a relevant authority within one of the involved ministries. This ensures legitimacy and ownership of both the results and of the entire process. Additionally, the process includes stakeholder consultations, dialogue, and approval steps throughout. This approach is illustrated in the Armenia report (see [ENV/EPOC/WPBWE\(2023\)7](#)) as an example².

The process establishes a focal point within the government to lead data collection and coordinate with the stakeholders. It involves a kick-off meeting to present the process and objectives, a workshop to discuss results, address potential disagreements, and identify priority barriers. A final workshop presents policy recommendations aligned with country and donor priorities, followed by a policy seminar with high-level representatives. These steps aim to enhance the likelihood of integrating policy recommendations into ongoing reforms or investment planning in the respective country or study region.

As illustrated by Figure 1.1, the enabling environment for investment in water security covers a wide range of stakeholders within a country. The tool is designed to provide the basis for generating tailored recommendations for each stakeholder group. Prior to initiating data collection, it is therefore essential to start by mapping these stakeholders, and to ensure their involvement so as to deliver coherent and inclusive reforms.

² As an illustration, considering the case of Armenia, where high-quality data was available and there was robust senior political support for the process, the entire procedure took approximately 6 months. This duration included 2 months dedicated to data collection in the country by the national focal point. The OECD team conducted data analysis, facilitated the workshops, and offered policy recommendations in alignment with the priorities identified by the national stakeholders.

Figure 1.1. Numerous stakeholders are involved in the enabling environment for investment in water security



The stakeholders listed are merely examples of the varied interests across the four dimensions. This list of typical stakeholders would vary from one country to the next.

Source: Authors

1.6.2. Data collection

For each of the questions in the four dimensions, data is either collected using publicly existing databases (in an automated manner as much as possible), or an online survey needs to be filled in by the government or relevant country experts appointed by the government or donors, when easily accessible databases are not available. The databases used are from accredited international organizations (OECD, WB, IMF, UN)¹.

The tool has been designed to group questions based on government structures and relevant agencies, to reduce data collection time, as shown on Figure 1.1. A focal point, within the champion agency, needs to oversee data collection across Ministries and agencies.

The survey instrument has been designed to address a broad range of contexts, encompassing policy and institutional arrangements and service delivery arrangements. It is important to note that various service provision arrangements exist both across and within countries, such as fully public, fully private, and public-private partnerships and diverse types of arrangements in between.

When a data source is not indicated, it means that the data must be collected by the focal point because no available database exist for this data point. All indicators indicated in blue are collected from external data sources and their scoring is automated.

1.6.3. Data sources

The usage of the data sources varies³ by dimension. D1 relies entirely on automated data sources, whereas the other dimensions also use data reported by government representatives or country experts. The World Bank is the primary source of data used for D1, which evaluates a country's overall investment climate through economic, financial, and governance indicators, among others. Other data sources extensively used are the IMF's Financial Soundness Indicators; OECD-UCLG World Observatory on Subnational Government Finance and Investment; the World Economic Forum's Global Competitiveness Index; the World Justice Project's Rule of Law Index; and Transparency International's Corruption Perceptions Index.

D2 uses the World Bank's IBNET and the UN-Water Global Analysis and Assessment of Sanitation and Drinking-water (GLAAS) databases. For both water supply and wastewater services, several IBNET indicators are used, from technical information about the capacity of the service (e.g., collection ratio and non-revenue water) to financial information such as operating cost coverage and debt service ratio. D3 uses data from GLAAS as proxies for both urban and rural water and sanitation.

For a detailed definition of the indicators of each dimension, and the year of the data points please see 2.6.2. Annex B.

1.6.4. Data analysis and scoring

Indicators are divided into sub-indicators, covering major risks and financial, environmental⁴, and social returns for both public and private investors. Each indicator is assigned an equal weight in a dimension.

According to the OECD, an alternative to a single monetary measure is a composite index, which aggregates normalised scores of average achievements in various dimensions. This method requires specifying weights for the various achievements and could therefore be criticised for being arbitrary or based on a priori value judgements (OECD, 2011_[12]).

When weights are directly assigned by decisionmakers, the Scorecard no longer represent an ad-hoc worldview and instead reflects the decisionmakers' judgements, which are legitimate for addressing the identified barriers to investment.

Also, at this stage of the tool's development, each dimension has been assigned equal weight to compute a composite score. As discussed in the previous section, the complexity of the linkages between dimensions in a country presents an argument against weighing the dimensions or the indicators during this phase of the tool's pilot testing.

Each dimension and question are scored on a scale of 0-5, where 0-1 signifies '*nascent*', 1-2 is '*engaged*', 2-3 is '*capable*', 3-4 stands for '*effective*', and 4-5 represents '*model*', as illustrated in Figure 1.2. For the cumulative scoring, based on a maximum of 20, the classifications are as follows: 0-5 as '*Nascent*', 5-10 as '*Engaged*', 10-15 as '*Capable*', 15-17.5 as '*Effective*', and 17.5-20 as '*Model*'.

³ Indicators are extracted from these data sources: the OECD-UCLG World Observatory on Subnational Government Finance and Investment, the Global Competitiveness Index, Financial development Index, Country Policy and Institutional Assessment, IbNet, SDG, GLAAS and Fitchratings.

⁴ Environmental returns refer to the outcomes or benefits that investments or projects generate in terms of environmental improvement or sustainability. Financial returns alone are insufficient for considering water security.

The application of this scoring system is illustrated in Figure 2.1 in the next chapter. This scoring is automated based on the results. Within the survey, all sub-questions are either binary (yes/no) or multiple-choice, with each leading to one point. For multiple-choice questions, an average score is calculated, ranging between zero and one point, depending on the results.

Neither 'no responses' nor 'not applicable' responses are counted as zero; therefore, the average is not impacted by missing values. For multiple-choice questions, if over half of the categories lack a 'yes' or 'no' response, the answer is deemed 'no response'. For a detailed breakdown of the scoring for each indicator, please refer to the full methodology report.

Figure 1.2: Scoring's banding system: covering the developmental stages of a country



Each dimension's score is the result of the sum of the sub-questions score, on a basis of 5. These are not rounded. Every round result is always allocated to the next higher level; for example, a score of 1 corresponds to the "Engaged" stage. Responses are only considered if a proof of official document or report is attached to the response. The scoring is automatically calculated based on the results from indicators in the databases and the sum of positive binary/multiple choices questions. This makes the results more robust, limiting the "expert subjective assessment", but adds a layer of complexity for the assessment.

The analyses reported here were carried out by the authors in collaboration with the government or international donor, through a designated focal point.

The indicators, questions and dimensions are not weighed. The tool aims to assess the enabling environment for all type of investors. Consequently, depending on their mandate and objectives, some conditions may be more important than others.

2. Pilot test results: Asian countries

This section presents the overall results of the pilot tests conducted in seven countries to assess the enabling environment for investment in water security at the national level, in collaboration with the Asian Development Bank (ADB). The seven countries selected by ADB were: Bangladesh, Mongolia, Nepal, Pakistan, Philippines, Uzbekistan, and Sri Lanka. The Scorecard was updated based on the results of this pilot test, including incorporating ADB's feedback from a workshop in February 2023.

The analysis presented in this chapter was conducted using the second version of the tool. For more information, please refer to the methodology section. More information in relation to the data collection can be found in Annex C.

The pilot test has confirmed that the Scorecard is a capable tool for assessing a country's barriers and enabling conditions to attract and sustain investment in water security. The results indicate the tool's potential, through its scoring, to accurately reflect the ability of countries to attract and sustain investment (see Figure 2.1). The analysis is based on public data on public investment, and investment with private participation in the selected countries. However, given the scope of this analysis, which encompasses only seven countries, drawing definitive conclusions regarding the correlation between the enabling conditions variables and in-country investment to water security remains challenging.

2.1. Assessment of the enabling environment for investment in water security

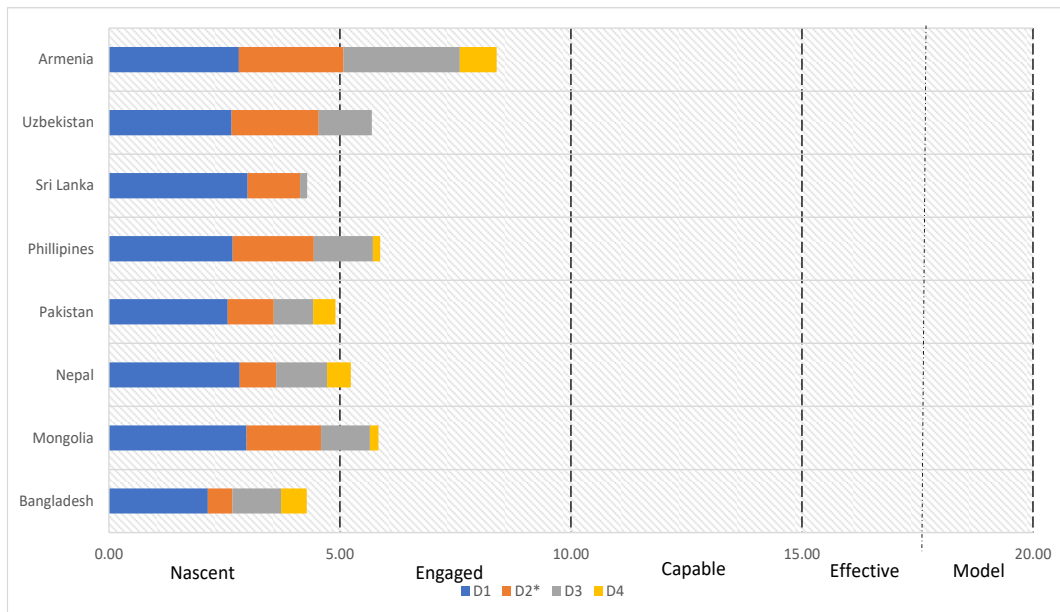
Findings from the seven Asian countries studied indicate that a conducive environment, rather than a singular condition, is key to attracting and sustaining investment in water security. Some countries, including Mongolia and Nepal, have established a robust investment policy framework but which would require being extended to the water policy framework. In contrast, countries like the Philippines and Uzbekistan have created conditions specifically designed to attract investments in water security. For example, the Philippines' master plan to improve the country's water supply and sanitation investments until 2030 provides visibility and direction for potential investors.

Within the pilot test group of countries, Mongolia, Nepal, the Philippines, and Uzbekistan have achieved the highest scores for the enabling environment for investment, each reaching the '*Engaged*' stage with scores of 5.81, 5.18, 5.85, and 5.69, respectively. Conversely, Bangladesh, Pakistan, and Sri Lanka find themselves in the '*Nascent*' stage, reaching scores of 4.22, 4.85, and 4.29, respectively.

Figure 2.1 illustrates that Dimension 1 consistently achieves the highest scores among the dimensions for the countries under study. In the case of countries reaching an *engaged* stage, they also tend to score almost the average for Dimension 2, with some achieving approximately half of the average scores in Dimension 3. Across all countries, Dimension 4 consistently

records the lowest scores. Armenia has been included in the analysis to expand the sample size.

Figure 2.1. Three of the seven countries reached the *engaged* stage.



Note: Dimension 2 represents the average of the scoring for the water resources management policy framework, drinking water rural and urban policy framework, sanitation urban and rural policy framework, hydropower and irrigation. For more information on the specific sub-sectors included based on data availability, please see the specific section for Dimension 2. Armenia was included in this graph, because it is part of the pilot test group in Eastern European countries, it reaches an 8.16 scoring being in an *engaged* stage.

Source: Authors.

2.2. Assessment of the policy framework for investment (Dimension 1)

Dimension 1 (D1) quantifies how attractive a country is for investments in general. It covers ten indicators, ranging from macroeconomic to regulation. The indicators track *Macroeconomic performance*; *Strength of Domestic Finance Sector*; *Availability of Domestic Finance*; *Public Governance Mechanisms*; *Corporate Governance Mechanisms*; *Regulatory Permits and Approvals*; *Accountability Mechanisms*; *Non-Commercial Risk*; *Decentralisation*; and *Access to Infrastructures*, as shown on Table 2.1⁵.

⁵ The authors acknowledge the inherent limitations of relying solely on indicators such as GDP for comprehensive assessments of the policy framework for investment. This includes the error of considering economic growth as synonymous with the quality of life, disregarding the fact that the economy benefits from natural, social, and human capital (Giannetti et al., 2015^[47]), thereby limiting water security. Despite recognizing the constraints of GDP, there is currently no comprehensive and recognized alternative that provides metrics for all countries worldwide. The metrics presented are currently instrumental for investors (public or private) when assessing the attractiveness of a country for investment. This report presents the results of the first pilot test, and the authors are open to exploring alternative metrics to assess the Policy Framework for Investment in a country.

Each is based on the latest publicly available data from internationally recognised sources, including the OECD, the World Bank, and the International Monetary Fund. Table 2.1 presents the indicators and sub-indicators for D1.

Table 2.1. D1 A sound policy framework for investment

Enabling conditions	Data sources from external databases
Are <i>Macro-economic Indicators</i> conducive to a sound investment?	World Bank: Gross Domestic Product (GDP) Growth Rate Inflation Rate (Consumer Price Index): Unemployment Rate Current Account Balance (% of GDP) Government Debt (% of GDP) Fitch: Credit Rating
What is the <i>Strength of Domestic Finance</i> sector?	International Monetary Fund: Financial Soundness Indicators World Bank: Bank nonperforming loans (% of total gross loans)
Is <i>Domestic Finance Available</i> ?	World Bank: Domestic Credit Provided by Financial Sector (% of GDP) Lending interest rate (%) Broad money (% of GDP)
How strong are <i>Public Governance Mechanisms</i> ?	World Bank's Worldwide Governance Indicators: Voice and Accountability Government Effectiveness Regulatory Quality Rule of Law Control of Corruption
How strong are <i>Corporate Governance Mechanisms</i> ?	World Bank's Doing Business Index: Protecting Minority Investors World Economic Forum's Global Competitiveness Index: Corporate Governance
What level of <i>Regulatory Permits and Approvals</i> are required for investment and are they streamlined?	World Bank's Doing Business Index: Starting a Business Dealing with Construction Permits Getting Electricity Registering Property
What <i>Accountability Mechanisms</i> are in place to ensure responsible business conduct?	Rule of Law Index - Regulatory Enforcement Transparency International - Corruption Perceptions Index
What is the level of <i>Non-commercial Risks</i> for investors?	Worldwide Governance Indicators - Political Stability and Absence of Violence/Terrorism
How effective and practical <i>Decentralisation</i> is for policy and investment?	OECD: Subnational governments' total expenditure (% GDP) Subnational governments' total revenue (% GDP) Subnational governments' debt (% GDP)
Are <i>Infrastructures</i> sufficient to attract investments?	World Bank: Access to electricity Renewable energy consumption Fixed broadband subscriptions Individuals using the Internet Mobile cellular subscriptions Educational attainment, at least Bachelor's or equivalent, population 25+, total Hospital beds

Note: For a detailed methodology, please refer to the methodology section in the previous chapter and in Annex A and B. Indicators in the text are presented in italics, with initial capital letters. Sub-indicators are presented in italics. Source: Authors.

Most countries of the pilot test are at a *capable* stage for D1, with Bangladesh being the exception, positioned at the *engaged* stage, (see Figure 2.2)⁶. The Philippines emerges as a relative strong performer in *Macro-economic* indicators with low unemployment, strong growth rate and a good credit rating, while Mongolia faces challenges such as low current account balance⁷ and high central government debt to GDP ratio. Uzbekistan distinguishes itself in *Strength of Domestic Finance Sector*, but, then exhibits low scores in the *Availability of Domestic Finance* because of unfavourable lending interest rates and low broad money levels⁸. For most countries, *Public Governance Mechanisms* pose significant challenges, while *Corporate Governance Mechanisms* demonstrate robustness across the board. The countries exhibit areas for improvement in *Regulatory Permits and Approvals*, *Accountability Mechanisms*, *Non-Commercial Risk*, and *Decentralisation*, with disparities in *Access to Infrastructures* also noted.

In relation to *Macro-economic* indicators, the seven countries under consideration have, on average, each achieved a score around 3, indicating a *capable* stage. An exception is the Philippines, which distinguished itself with a score nearing 4, comparable to a high-income country like Singapore's. This higher score can be attributed to consistent economic growth, *low unemployment* over the observed period, and a *credit rating* that is stronger than those of the other economies in this study. Another outstanding performance is that of Bangladesh, whose solid growth and *low unemployment* before the pandemic contributed to a score above 3.

With regards to the *Strength of Domestic Finance Sector*, the pilot countries exhibit similar scores, averaging around 3. However, Uzbekistan stands out due to recent liberalisation reforms. The country's banking system is vibrant with steady returns on its assets and good quality loans (International Monetary Fund, 2021_[13]). To evaluate the *Domestic Finance* sector, emphasis is placed on assessing the robustness of two categories of institutions: deposit-taking institutions (entities that accept customer deposits, such as banks and credit unions) and other financial corporations (a diverse array of non-bank entities including insurance companies, pension funds). Pakistan underperforms in this indicator because of other financial corporations' small role in the economy, vulnerability to exchange rate fluctuations and low-quality capital in deposit-taking institutions such as banks. Bangladesh fares better with above average returns on assets and fewer exchange rate fluctuations but is also hampered by banks' low-quality capital and lacks data on other financial corporations.

In relation to the *Availability of Domestic Finance*—an indicator covering access to capital in the economy, based on factors such as *domestic credit* provided by the financial sector and *lending interest rate*—the scores vary considerably between countries. Uzbekistan receives a score of below 1 due to unfavourable interest rates over the observed period, while Bangladesh and Pakistan each score 3, thanks to stable performance in the same sub-indicators.

⁶ For most indicators, the observed period is the years 2015 to 2021 (see Annex B for details), which in the case of Sri Lanka only covers 2 years of its ongoing economic crisis. In this regard, as many indicators are based on average values over the period, the effects of the crisis have yet to manifest in the scoring for the country.

⁷ The sum of net exports of goods and services, net primary income, and net secondary income (World Bank, 2022_[24]).

⁸ Broad money (IFS line 35L..ZK) is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

One of the areas where the seven countries in the analysis face the biggest challenge is *Public Governance*. This indicator assesses a country's governance quality by considering factors such as *citizen participation, government effectiveness, regulatory quality, rule of law, and control of corruption*. Four out of the seven countries receive a score below 1, with the remaining countries scoring below 3.

In contrast, *Corporate Governance Mechanisms* are strong across the board, with four countries - Mongolia, Pakistan, Sri Lanka, and Uzbekistan achieving a score above 3. In principle, this reflects the fact that *minority shareholders and investors are generally well-protected* against misuse by larger ones, *corporate transparency* is upheld, and auditing standards and conflict of interest regulations are robust.

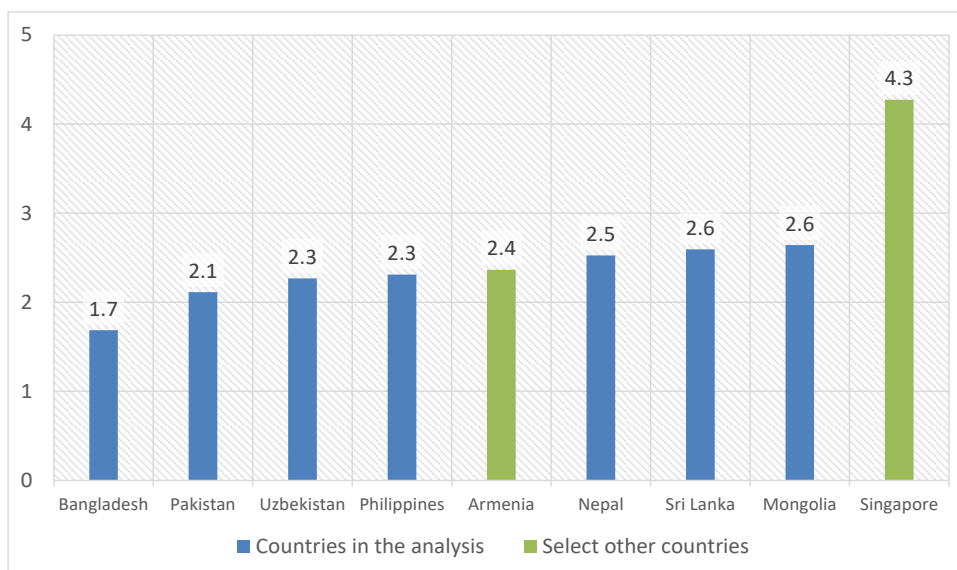
All seven countries have opportunities for improvement in the context of *Regulatory Permits and Approvals*, an indicator based on the World Bank's Doing Business Index, focusing on elements of starting and operating a standardized medium-sized business. Uzbekistan and Mongolia stand out with commendable scores, attributed to the ease of starting a business in the former and the ease of dealing with construction permits in the latter. For countries that score low on this indicator, such as Bangladesh, Nepal, and Pakistan, access to electricity is the limiting factor—a challenge not present in relatively stronger economies like the Philippines.

Regarding *Accountability Mechanisms*, where only Nepal achieves a score greater than 2, and *Non-commercial Risk*, where Mongolia and Sri Lanka² receive scores of 4 and 3, respectively, all countries have ample opportunity for improvement. These indicators assess the extent to which *regulations are fairly implemented, the perceived corruption in the country, and political stability and risk of terrorism*.

Decentralisation scores are low for all countries in the study. This indicator measures the significance of subnational governments in the overall economy. A high *Decentralisation* score indicates that responsibilities are shared across different layers of government, an important factor in the enabling environment for water security (World Bank, 2022, p. 14^[14]). Nepal is the only country under review with a score above 2 on this indicator, attributed to its subnational governments' revenue and expenditure levels being between 10 and 15 percent of the GDP.

Regarding *Access to Infrastructures*, the countries generally score well due to good access to electricity and the Internet. Mongolia and Sri Lanka boast markedly higher scores than the other countries, while Bangladesh and Pakistan underperform. In general, the lower scores are driven by low numbers of fixed broadband subscriptions per 100 people, low educational attainment levels, and insufficient numbers of hospital beds.

Figure 2.2. Most investment policy frameworks are at the *capable* stage



Note: Average D1 scores of the countries in the analysis. Fully automated data collection in D1 allows for detailed comparison between countries. For reference, Singapore, which is one of the highest scoring countries. It has been included to demonstrate that the assessment can be done for any country, provided that sufficient data is available from the various data sources. Source: Authors analysis of data from OECD, World Bank, IMF, World Economic Forum, and Fitch.

2.3. Assessment of the water policy framework for investment (Dimension 2)

Dimension 2 (D2) represents the average of the scoring for the water resources management policy framework, drinking water rural and urban policy framework, sanitation urban and rural policy framework, hydropower and irrigation. D2 evaluates the attractiveness of water policy frameworks for investment, uncovering big differences between water resource management and drinking water policies.

Table 2.2 and Table 2.3 present the indicators used to assess the enabling environment for investment in water security. The full list of indicators, which also covers irrigation and sanitation, can be found in the annex, along with a detailed list of sub-indicators and the data sources used.

Table 2.2. D2: Channelling investment to water: Authority(ies) in charge of water resources

Indicators
Is data on current and future water resources availability, demand and supply and water risks available?
Do water resource allocation mechanism support water security investment?
Are economic instruments coherent between sectors?
Are mechanism to solve conflicts between water users effective?

Note: The full list of sub-indicators can be found in Annex A.2
Source: Authors.

Table 2.3. D2: Channelling investment to water: Drinking water services: urban and rural

Indicators
Is a strategic <i>Investment Plan</i> in place including water security?
Is there independent and transparent <i>Regulation</i> of the water supply sector?
Are <i>Contracts Arrangement</i> for service providers attractive for investment?
Do incentives support <i>Private Investment</i> ?
Does <i>Economic Regulation</i> sustain and attract investment?
Is the legal status of stakeholders participating in the investment clear? (<i>Clarity of Roles</i>)
Are water service providers allowed and able to <i>Access Finance</i> ?
What are service authorities' <i>Capacity Levels</i> ?
What are service providers <i>Capacity Levels</i> ?

Note: The full list of sub-indicators can be found in Annex A.3.

Sanitation and irrigation have similar indicators, for that reason the tables have not been included in this section. The full list of indicators and sub-indicators can be found in the Annex A.3.

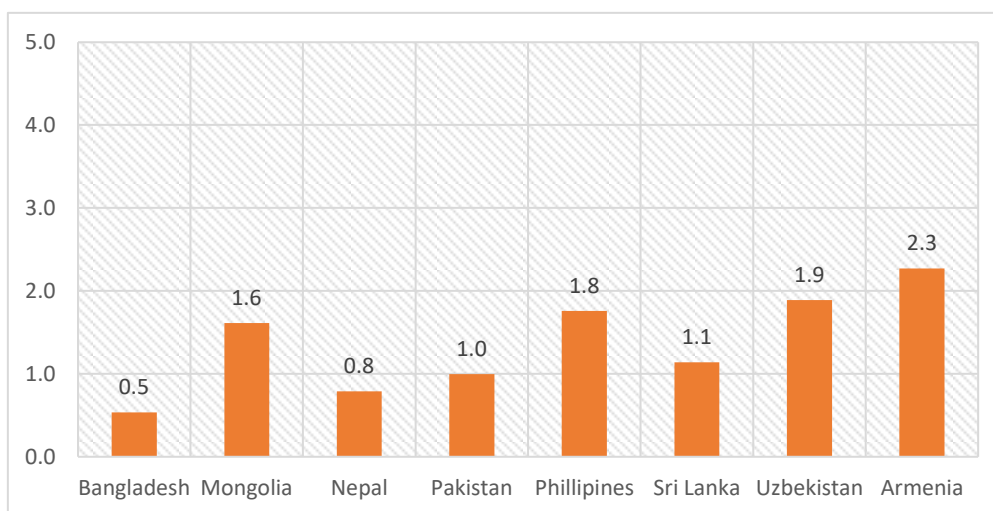
Source: Authors.

As illustrated by the following Figure 2.3, countries face barriers within their water policy frameworks, predominantly situating them in either *nascent* or *engaged* phases. Mongolia, the Philippines, and Uzbekistan are within the *engaged* phase, nearing the *capable* stage.

The results in D2 present disparities between water resources management and drinking water policy framework. No clear relationship can be established between both policy frameworks, underlining the absence of a cohesive national strategy for water security, as proven in Dimension 4 (D4). To illustrate this point, Uzbekistan has the highest score in water resources management, being at an *engaged* stage with 2.3, while it is a *nascent* stage for urban drinking water policy framework. Conversely, the Philippines stands out for its urban drinking water scores, despite having a *nascent* policy framework for water resources management.

Five out of seven countries in the pilot test reached an *engaged* water policy framework in at least one of the water related sectors. For more detailed information, please refer to the specific chapter for each country. Urban drinking water is a priority for Mongolia, the Philippines, and Uzbekistan (see Figure 2.5), while Mongolia and Uzbekistan also focus on water resource management as illustrated in Figure 2.4. However, no country presents a promising water policy framework across most sub-sectors, with rural drinking water and water resources proving to be the most challenging ones.

Figure 2.3. D2: Most countries studied are at the *engaged* stage for the water policy framework.



Note: Dimension 2 represents the average of the scoring for the water resources management policy framework, drinking water rural and urban policy framework, sanitation urban and rural policy framework, hydropower and irrigation.

All countries have missing data, or national consultants' responses were not included due to lack of justification proven the response. The detail response rate can be found in Annex.

For Bangladesh, information was provided only for water resources management and urban drinking water. For Mongolia, information was provided for water resources management and urban and rural drinking water. For Nepal, information was provided for water resources management and urban and rural drinking water. Information was also provided for hydropower and irrigation, but to ensure consistency on the comparison with the other countries, the data was included in the country fiche but not in the overall scoring. For Pakistan, information was provided for water resources management and urban drinking water. For the Phillipines, information was provided for water resources management and urban drinking water. For Sri Lanka, information was provided for water resources management and urban drinking water. For Uzbekistan, information was provided for water resources management and urban and rural drinking water.

Source: Authors.

2.3.1. A weak enabling policy framework for water resources management increases risks for investors, even beyond water.

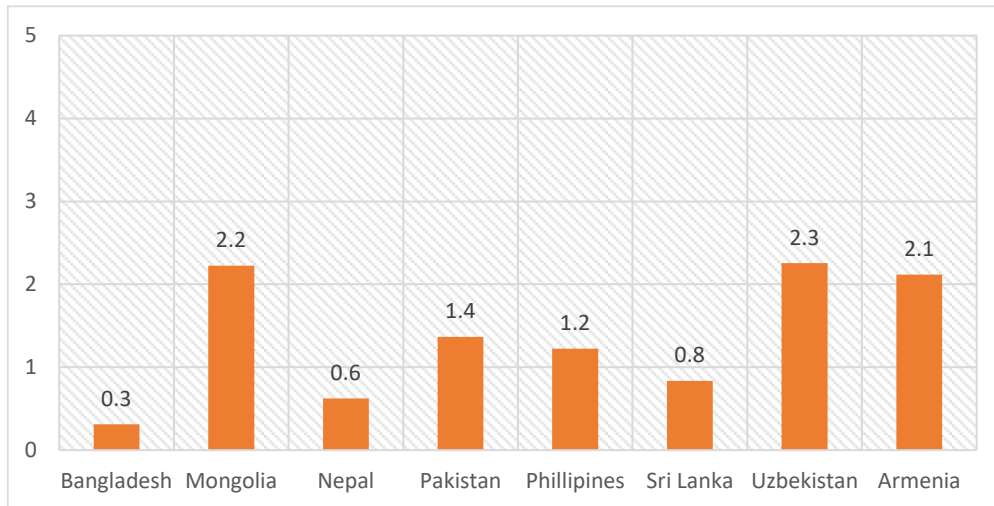
The assessment reveals a fragile policy framework for water resource management across countries, with data accessibility issues and inconsistent economic regulation amplifying investment risks, not just in water security but potentially extending to other sectors too.

Uzbekistan, the Phillipines, and Mongolia have more promising water resources management policy framework at an *engaged* stage Figure 2.4. However, all countries face challenges in accessing the necessary *Data* to protect and use water resources. The availability of *data on water resources, demand and supply forecasts, and water risks* significantly vary. For example, Mongolia has restrictive access due to confidentiality, and Nepal lacks a comprehensive national database.

While all countries have some form of water law, the application of *Economic Instruments* is inconsistent, and most do not have effective *water charges* in place to prevent resource deterioration. There is no *overarching Economic Regulation* for water in these countries, posing potential impediments to attracting investment and economic growth. Additionally, while

mechanisms to solve *Conflicts* are present in most countries, they often rely on traditional practices⁹, which could be perceived as risks by private investors.

Figure 2.4. Uneven water resource management policy framework, with *nascent, engaged* and *capable* stages.



Source: Authors.

The *Available Data on current and future water resources* availability, demand and supply for water resources and water risks varies significantly between countries. In Mongolia, groundwater monitoring is insufficient, and data access remains restrictive due to security concerns. As climate change intensifies, the challenge to access data creates further uncertainty for investors and policymakers. In Nepal, the focus on data collection is predominantly on hydropower. The country is missing comprehensive national database. Pakistan has incorporated climate change scenarios into its water resource planning. This recognises the profound impacts of climate factors on water availability. Pakistan has also integrated climate considerations into its national policies for various sectors. In the Philippines, the National Water Resources Board holds the mandate to collect water data, but its public access is notably limited, with most details undisclosed online.

All countries surveyed recognised the importance of Water Allocation mechanism, but their success levels varied. All countries have a water law or equivalent document, setting the legal framework, including responsibilities, licenses, and management during exceptional circumstances. All countries recognize the significance of Integrated Water Resource Management in their respective strategic and policy domains, but only the Philippines emphasises to water security. However, each national framework presents limitations that can deter private investors. For example, there are challenges such as Pakistan's ambiguity around private sector water licensing, Nepal's licensing sustainability issues, or the Philippines' challenges in data accessibility and monitoring.

⁹ Based on the data collected, traditional practices for solving water conflicts among users typically refer to established or customary methods that have been used for generations by communities to manage and resolve disputes related to water resources. These practices often rely on local knowledge, cultural norms, and historical precedents.

The lack of a consistent and effective application of Economic Policy Instruments to manage water services and water resources remains a significant barrier to public and private investments. Not all users are charged proportionally for services, and the majority do not pay for the resource they use. Most countries do not have water charges in place. When established, charges are not effective to prevent resources deterioration. Water pollution charges are a case in point. In addition, fines are often established too low to ensure compliance with water and environmental regulations and to prevent mismanagement of the resource.

In the countries studied, no overarching economic regulation exists for water. All countries in the pilot study lack a coherent strategy to protect and ensure the resource through a combination of economic instruments and regulation. This poses a risk to current and future investments, as the allocated resources may not be available due to depletion resulting from misuse or pollution. None of the countries mentioned has in place water tariffs covering operation and maintenance cost paid by all users, and abstraction and water pollution charges that incentivise a rationale use of the resource. This situation deprives service providers (public and private alike) and public authorities from necessary revenues. It also affects the capacity to generate stable revenue flows, a foundation for any form of private finance. Moreover, in the longer term, it may become an impediment to sustainable growth, thereby deterring investment in specific industries or regions (OECD, 2022^[15]).

Mechanisms to resolve *Conflicts* are present in most countries, but in many cases, they rely on traditional practices, which may be perceived as risks by private investors. Mongolia and Pakistan have official legal frameworks, Nepal depends on local governance, and the Philippines lacks a universally accepted process. In Uzbekistan the mechanisms for settling disputes related to water use are not effectively implemented.

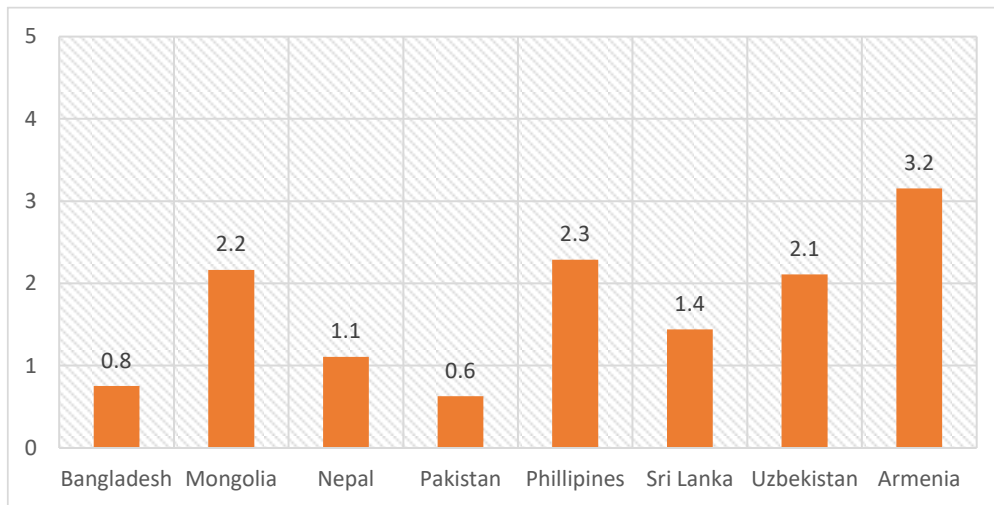
2.3.2. Some promising elements in the drinking water policy frameworks for investments.

Despite some notable advancements in drinking water policy frameworks, a landscape of uneven enabling conditions both within and between countries emerges, with persistent challenges in rural areas. The clarity of contractual and regulatory frameworks, alongside adaptable tariff structures, is crucial for cultivating investor trust and fostering private sector engagement, as demonstrated by the Philippines' success in attracting substantial private investments in drinking water and wastewater.

Mongolia and the Philippines demonstrate the positive impact of having comprehensive drinking water *Investment Plans*. Nevertheless, there is a substantial need for clear *Contract Arrangements* and effective *Regulations* across the studied countries to attract investment. While Mongolia has notable *Access to Capital Markets*, Bangladesh faces challenges engaging the *Private Sector*, primarily due to an emphasis on public management of water services. Tariff structures continue to be a barrier, especially in countries maintaining low tariffs as a form of subsidy for low-income households, thereby hindering attraction of private financing.

The *Clarity of Roles* is pivotal for building investor trust, with the Philippines serving as a model through the establishment of clear rules and service providers licensing. Across countries, *financial Performance of Service Providers* outside capital cities remains constrained, mirroring a wider regional trend.

Figure 2.5. An uneven policy framework for investment for urban water supply.



Note: The results, presented in this graph, cover only drinking water in urban areas, as this is the only sub-sector where all countries reported data. Other sub-sectors, such as rural drinking water, urban sanitation, rural sanitation, irrigation, and hydropower, also have data available for some countries. For specific analyses of both urban and rural drinking water, please refer to the analysis in this section; for the other sub-sectors, please refer to the specific country profiles.

Source: Authors.

Mongolia and the Philippines demonstrate the benefit of investment plans to guide investments towards water security.

A common thread among the countries under review is the acknowledgment by all governments of the critical importance of water security. However, this does not translate into detailed *Investment Plans*. A characteristic shared by Mongolia and the Philippines, is the formulation of comprehensive frameworks or strategies dedicated to addressing water security. The Philippines, for instance, has crafted a meticulous Water Supply and Sanitation Master Plan, delineating a roadmap to attain universal access to water and sanitation by 2030. Similarly, Mongolia has conveyed its vision, with a particular emphasis on urban water security, via its Sustainable Development Vision 2030, and a significant water security investment programme.

Conversely, Pakistan, similar to Nepal and Uzbekistan, does not have distinct sectoral investment plans. However, Pakistan can direct efforts towards water-related projects through diverse funding mechanisms and lean on existing national policies, with water security overseen by both the Ministry of Water Resources and the Ministry of Climate Change. In Uzbekistan, a water resources management and development strategy exists, without a related long term investment plan to guide public and private investment.

Limited information on contract arrangement for water service provision.

Contract arrangements play a pivotal role in attracting investment for water security, acting as legal backing between service providers and authorities. Performance-based contracts are a common tool to attract investment. They can encompass a wide array of indicators such as service coverage, water quality, reliability, operational efficiency, customer service, financial performance, asset management, and environmental and social indicators. The public reporting of results and the attractiveness of contract conditions further bolster the investment appeal.

Investors are drawn to contracts that articulate clear objectives, rights, obligations, responsibilities, and methodologies for monitoring progress. Specifying bidding and selection

procedures, evaluation criteria, performance indicators, minimum service standards, compliance measures, and tariff formulas are common element to reduce risks for potential investors. Additionally, contracts that define financial obligations, subsidy schemes, reporting requirements, conflict resolution mechanisms, and risk mitigation measures create a transparent and secure environment for investment.

As an illustration, in Uzbekistan ambiguity surrounding terms such as the “right to water” and the “right to use water facilities” further complicate matters. These ambiguities can lead to contractual disagreements, which in turn deter potential investments.

Independent and effective regulation is still a missed opportunity for attracting investment to water security.

The lack of independent and effective *Regulation* emerges as a significant hurdle in attracting investment to water security in certain countries, with regulatory frameworks often favouring public management over private sector involvement. This scenario is particularly salient in Bangladesh, where the water sector is predominantly perceived as a realm of public sector investment, leaving little room for private sector finance. Similarly, Pakistan's legal framework is clear and well-defined, but it primarily revolves around public investment, often neglecting considerations of financial sustainability.

Mongolia provides a more favourable environment for service providers to *Access Capital Markets* and commercial finance. In Mongolia, service providers can secure collateral and access interest rates comparable to market averages, albeit with necessary permits from the government for state-owned enterprises. By contrast, in Bangladesh, service providers primarily access to funds through development finance mobilised through the Economic Relations Division.

The regulatory frameworks in Nepal and the Philippines showcase respective dichotomies in relation to the private sector regulation. In Nepal, the absence of independent regulatory bodies for drinking water and irrigation sectors creates a disconnect with the private sector, with no clear mechanism for private sector financing. The Philippines, on the other hand, experiences a regulatory dichotomy where attractive investment regulations coexist with a significant number of unregulated utilities, leading to disparities in performance and capital flow monitoring, especially outside Metro Manila.

However, numerous efforts are made to improve *Economic Regulation* to attract investment. Uzbekistan and Pakistan, each with their unique challenges, are navigating through regulatory setups and exploring mechanisms to enhance private sector participation. Uzbekistan's regulatory setup does not incentivize high-standard services, with annual performance reviews not translating to tangible improvements. The government requires banks to finance public-private partnerships, particularly for infrastructure projects using the design-build-operate model. In this model, the government is responsible for operating the infrastructure, while the private sector handles the design and construction. In contrast, Pakistan is actively experimenting with various financing mechanisms, such as public-private partnerships, to attract private sector investment across water projects. The involvement of private companies in High Efficiency Irrigation Systems and initiatives by the State Bank of Pakistan signal progress, despite the commercial financing landscape still being in its infancy.

In most cases, water tariffs are still a major barrier for investment, not being set to cover operation and maintenance costs.

The inadequacy of water tariffs in covering operational and maintenance costs poses a barrier to investment across the examined countries, with the Philippines making some strides in urban areas through cost recovery principles. In contrast, Nepal sets low water tariffs, particularly in the irrigation sector, which scarcely meet operational and maintenance expenses, thereby impeding investment. The Philippines, on the other hand, manifests a more conducive environment for investors, with urban area tariffs structured on cost recovery principles and diverse methodologies applied based on the nature of water utilities.

While Nepal and the Philippines exhibit some flexibility in tariff adjustments, countries like Uzbekistan and Pakistan grapple with outdated tariff systems and low collection rates, hindering their attractiveness to investors. In the Philippines, the initiation of tariff adjustments is typically operator-driven and necessitates regulatory approval. In Nepal, service providers set tariffs according to local contexts, with the hydropower sector enjoying notable flexibility and affordability. As anticipated, variations in tariff methodologies are evident among the countries. Uzbekistan, characterised by low collection rates and investor-government disputes, has instituted new tariff methodologies and resolutions to increase foreign loans for state-owned water utilities. Pakistan lacks an independent regulator and a consistent methodology for tariff revision. The prevailing tariff system for various water services is outdated, and political sensitivities often surround it. For domestic water use, tariffs are fixed and not based on consumption levels.

The choice of low tariffs over subsidies for low-income households further amplifies the challenge, underscoring the need for a balanced tariff methodology ensuring affordability and enhancing the creditworthiness and investment appeal of the service delivery. Some countries like Pakistan and Uzbekistan opt for low tariffs to address affordability, rather than subsidies for low-income households outside the water tariff. This can be a barrier to attract public and private investment to the sectors even in urban areas, even the tariff arrangement does not cover operation and maintenance costs. A lack of creditworthiness constrains their ability to obtain finance and they are often perceived as high-risk borrowers, however notable exceptions suggest this does not need to be the case (OECD, 2022^[2]).

Increasing clarity of roles in some countries, results in improving attractiveness for investors

The *Clarity of Roles* within countries significantly impacts their attractiveness to investors, as demonstrated by the Philippines' clear regulatory framework fostering a trustworthy investment ambiance. In contrast, Pakistan has a well-defined legal framework but mainly focuses on public investment. On the other hand, Uzbekistan faces disputes stemming from ambiguous and outdated investment agreements.

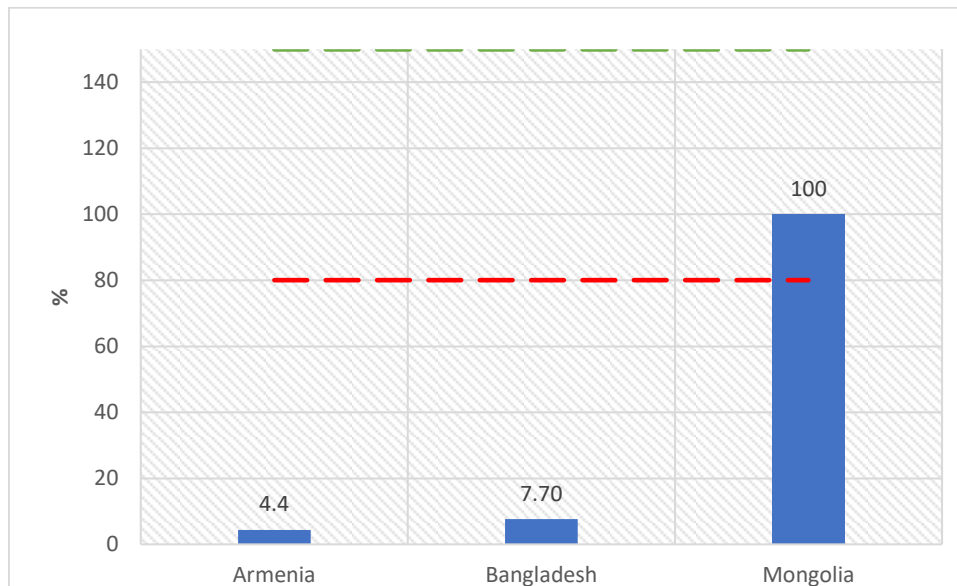
The limited financial performance for service providers for water supply and sanitation services outside capitals a barrier for investment

Investors tend to view poor financial and operational performance of service providers as a key barrier to investment (OECD, 2019^[16]) (ADB, 2022^[17]). However, it is a key element but not the sole factor limiting investment in water security in countries (OECD, 2019^[16]) (World Bank, 2022^[14]) (ADB, 2022^[17]). The following section focuses on the performance of service providers in the countries studied. It establishes thresholds, as requested by governments, based on

those found in OECD Member Countries, to guide best practices. It is important to note that the performance of a service provider cannot be determined by a single indicator alone.

For those countries for which data is available, financial challenges exist in water and wastewater service provision, as highlighted in Figure 2.6. With an Operating Cost Coverage exceeding 1, the utilities in Bangladesh and Armenia may be capable of covering their operational expenses, a stark contrast to the situations in Nepal and Mongolia. The Debt Service Ratio below 10 for Armenia and Bangladesh further points to important financial pressure on utilities, which could signal a looming risk of default. Of the group studied, Mongolia is the sole country with a utility reporting a healthy debt service ratio. A significant concern is high non-revenue water, while technical and managerial measures could mitigate this. Mongolia and Bangladesh are able to keep the water losses under 20%, however Nepal overpasses 30% presenting major losses.

Figure 2.6. Service providers' financial performance limited regarding debt service ratio

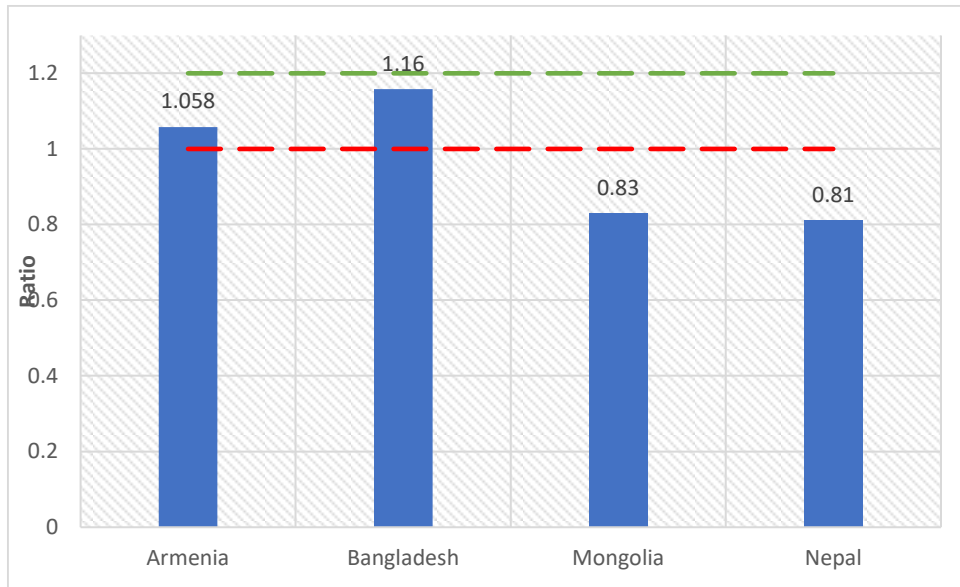


Note: The line dots represent the recommendations for operating cost coverage. Above 1.4 the total annual operational revenues are sufficiently higher to the total annual operating costs including covering a part of the fixed cost but also backlog elements which sometimes can be due to external reasons of the utility (change in regulation, inflation, etc), under 0.8 it is considered that revenues are too short to cover its debt service obligations with its net operating income

Data for Bangladesh covers 57 utilities whereas data for Armenia and Mongolia covers one utility.

Source: Data is from the ibnet and the Armenian government.

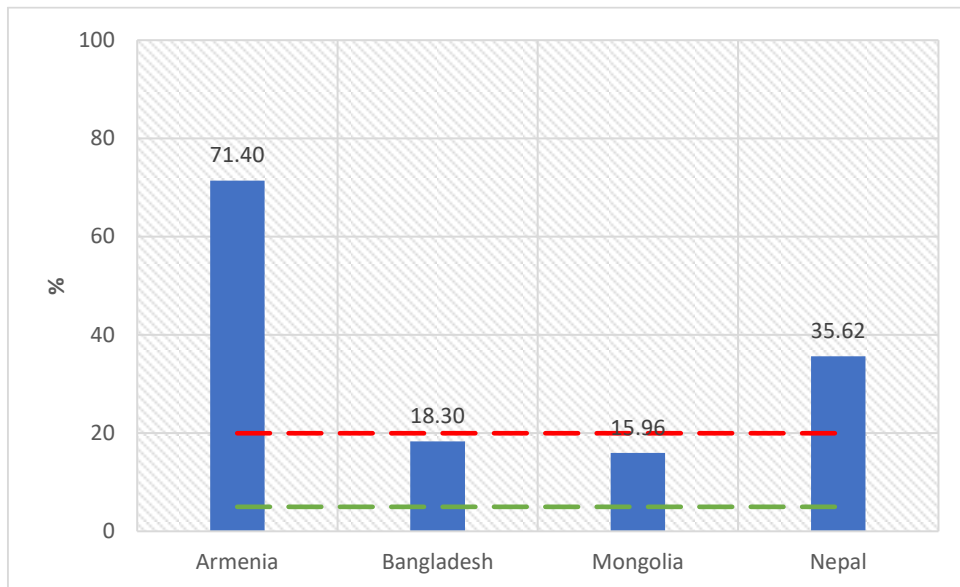
Figure 2.7. Challenges relating to operating cost coverage as service providers do not reach the desired levels



Note: The line dots represent the recommendations for operating cost coverage. Above 1.2 the total annual operational revenues are sufficiently higher to the total annual operating costs, under 0.8 it is considered that revenues are too short to cover its operating costs from its net income.

Data for Bangladesh covers 57 utilities, data for Armenia and Mongolia covers one utility, and data for Nepal covers 26 utilities. Source: Data is from the ibnet and the Armenian government.

Figure 2.8. High non-revenue water levels signify important losses in Armenia and Nepal, with no country achieving negligible losses



Note: The red dotted lines represent the recommendations for non-revenue water. Above 20% of water losses it is considered very important losses, under 5% it is considered negligible losses.

Data for Bangladesh covers 57 utilities, data for Mongolia and Armenia covers one utility, and data for Nepal covers 26 utilities. Source: Data is from the ibnet and the Armenian government.

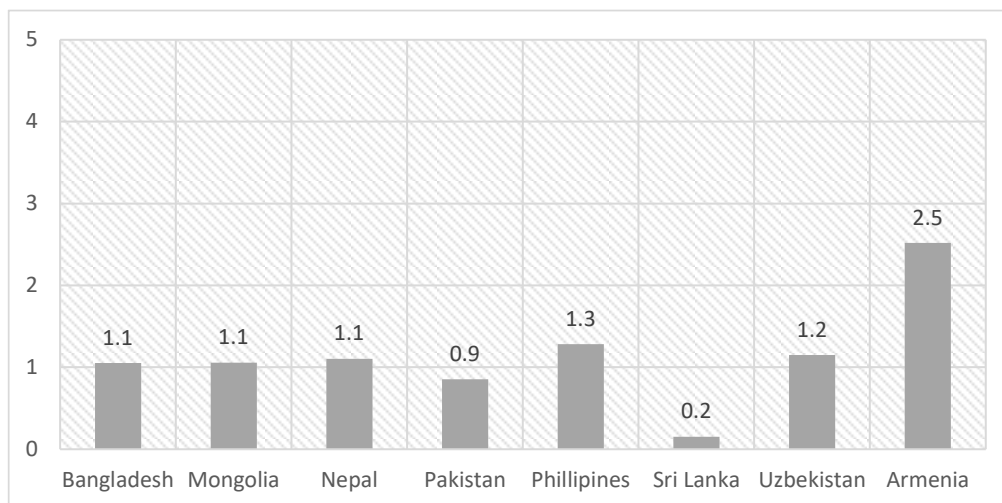
2.4. Assessment of the framework for projects sustainability and bankability (Dimension 3)

As illustrated by Figure 2.9, the surveyed countries face serious limitations in relation to the development of sustainable and financially viable projects concerning water security. They all are at a *nascent* stage, with the exception of Armenia.

Main deterrents for investors stem from a lack of formal environmental and social impact assessments, especially in projects without international donor involvement. The absence of centralised and updated data systems further complicates the investment landscape.

Most countries have not put in place any platform or mechanism to pool projects and overcome high credit risks and transaction costs for water security projects. A notable exception is the Philippines. Such mechanisms exist in other sectors, for instance, energy and mining, as evidenced in Nepal, but still need to be extended to water. Governments, when equipped with these structures, display a more proactive role in enhancing the financial viability and bankability of projects.

Figure 2.9. Fairly similar – although at a low level - conditions to develop projects that are sustainable and bankable faces challenges



Note: Armenia has been included in the figure to illustrate a country in a capable stage. For detailed results in Armenia, please refer to the country fiche.

Source: Authors.

Engagement with stakeholders throughout a project's lifecycle, particularly in the design phase, is evolving across countries. Notable practices are seen in Uzbekistan and the Philippines, where stakeholder engagement is institutionalised via legislation or detailed guidelines for project developers. Despite the presence of well-established guidelines, there remains a significant discrepancy in the actual avenues available for public input, notably in online platforms. As evidenced in Pakistan, the representation and influence of marginalized groups continue to be restricted.

Most countries surveyed recognized the importance of social and environmental assessments, the depth, scope, and efficacy of which vary, as they are mainly applied for large scale projects financed by international donors. For instance, Pakistan has institutionalised environmental and social assessments, but implementation lags. Similarly, while Uzbekistan and Bangladesh have

environmental considerations within legal frameworks, standardised assessment methodologies are lacking. In Nepal, sectors like hydropower show a broader scope of assessments than others, such as irrigation. In the Philippines, comprehensive environmental assessments are not matched by social impact assessments.

Several countries have integrated robust cost-benefit analysis methodologies into their project lifecycles, with varied success. A recurrent theme across these countries is the challenge of balancing rigorous analytical methodologies with political interests, local governance dynamics, and the need for practical implementation. While every country has its methodologies, the effectiveness and inclusivity in official guidelines still require further support; otherwise, potential investors may be discouraged by reputational risk. For instance, Uzbekistan has an official methodology in place; however, it falls short of incorporating tangible and intangible benefits, especially for small-scale projects.

Environmental considerations have progressively become integral in project assessments. The Philippines, for instance, employs mechanisms such as the Environmental Compliance Certificate, showcasing the growing weight of environmental impact in decision-making. Yet, it's noteworthy that while the environmental and societal benefits are increasingly recognized, they sometimes remain overshadowed by more immediate financial returns. The interaction between political dynamics and these methodologies is an intriguing issue observed across regions. Nepal's use of cost-benefit analyses, while robust on paper, sometimes conflicts with political motivations, relegating these analyses to mere formalities.

While most countries carry out economic and financial analyses, thereby identifying both the net economic benefits and the financial viability, several challenges persist to make projects financially viable, except for regulated service providers in the Philippines. The primary issue arises from weak business models not covering operation and maintenance costs of the infrastructures. Consequently, many countries face difficulties in ensuring that economically robust projects are also financially viable, a significant impediment to private investment. For example, few countries were able to provide information in relation to mechanisms to pool projects.

However, some countries, such as Nepal, have established Investment Boards that promote and facilitate foreign and domestic investment across various sectors. In Nepal, the focus is primarily on hydropower and urban development. Projects in Nepal are categorized into public-private partnership projects (including solicited projects, unsolicited projects, and direct negotiation projects) and private investment projects, each with clear steps and specific document requirements for each stage. All the information is available online.

The Philippines has made significant advancements in establishing a framework that promotes bankable projects for water and sanitation. The National Economic Development Authority's Unified Resources Allocation Framework seeks to rectify the uneven delivery of basic water and sanitation services, a result of insufficient funding, the limited technical capacity of smaller service providers, and institutional challenges. It does so by introducing a unified structure for the rational allocation of available financial resources. For example, prioritization criteria for candidate projects, eligibility requirements, and the scope of the grant or subsidy programme have been clarified. This includes clustering of service providers according to performance and creditworthiness, to allocate more efficiently and effectively public financial resources. Providers will be prioritized according to the characteristics of the population in terms of poverty and health risks. Then, the type of support will be determined by how the service provider is performing and what, if any, resources they can access on their own. Typically, some service providers may be able to access the market directly and do not require concessional government

financing, while others may need significant subsidy support, or require grant funding for efficiency improvements prior to taking on additional debts.

Ideally, water-related investments would be viewed as bankable based on the expected returns of the project. However, some projects may involve risks that private companies are reluctant to accept. Depending on their budgetary situations, governments or international donors offer partial credit guarantees or loans at lower costs than commercial loans in this group of countries. The Philippines is considered a model in the region. However, no data was available to determine the market size compared to other countries. The ratio of ODA received to private investment in a country appears to follow with the maturity of its enabling environment, as illustrated in see Figure 2.11.

2.5. Assessment of how other economic sectors contribute to water security (Dimension 4)

While there is a universal acknowledgment of water's importance across the seven countries studied, a gap prevails between policy design and actual implementation, often favouring sector-specific strategies over integrated approaches for water security.

Considering alterations between the first and second versions of the survey, the final scoring is absent. Consultants faced challenges in data collection for this dimension, given that it encompasses elements beyond the conventional water investment framework. This includes economic incentives, public policy measures, and water risk mitigation strategies in several economic sectors. This section compiles anecdotal evidence on selected indicators.

Water security remains a pivotal concern across the seven countries studied, with its implications deeply tied to broader developmental strategies. A universal recognition of water's importance is evident, but nations often prioritize sector-specific strategies over integrated approaches. The gap between policy design and actual implementation is recurrent, influenced by factors such as financial limitations, institutional challenges, and data constraints.

Most countries under review consider water into their national development strategies, acknowledging the pivotal role of water in socioeconomic advancement. Yet, they demonstrate sector-specific water security plans rather than a cohesive, holistic strategy. Divergences among the countries manifest themselves in several areas. For instance, Uzbekistan has detailed policy instruments that emphasize a progressive vision for the water sector; Sri Lanka and the Philippines do not have specific targets or a comprehensive cross-sectoral strategy.

Financial mechanisms for water-related risks and disasters also vary. While Pakistan showcases established instruments like the National Disaster Risk Management Fund, other nations are on a path of gradual evolution in developing risk financing tools specific to water security. The availability of data on water-related risks varies in terms of reliability and across these countries, limiting the development of financial mechanisms.

Furthermore, the nexus between climate risks and water security is recognized by all countries. It has yet to be effectively translated into regulatory and actionable measures. The reliability and accessibility of data on climate change impact at the local level exhibit noticeable variance. This issue concerning data, particularly in the context of water security, varies from country to country but appears to be a common barrier in all countries.

2.6. Countries performance in attracting different source of investment evolves through the Scorecard stages

To assess the quality of the enabling environment scoring in relation to a country's capacity to attract investment, both in general and specifically within water-related sectors, a series of checks has been conducted based on the available data. First, the investment attracted by country has been assessed. Second, the investment attracted has been compared with the D2 scoring.

This assessment shows that countries' ability to attract finance, including water-related sectors, mirrors their progression through different stages of the enabling environment.

2.6.1. Countries capacity to attract investment to water security

The ability to attract investment for water and sanitation across the surveyed countries varies both in terms of total amount and the source of investment (see Figure 2.10). These countries account for 1.6% of the total ODA investment directed towards water and sanitation during 2015-2021 (OECD, 2023^[18]). Moreover, they represent 2.5% of the total investment involving private participation in water and sanitation from 2015 to 2021 (World Bank, 2022^[19]).

Among them, the Philippines emerges as one of the top ten countries in terms of investment with private participation, drawing over \$568 million between 2015-2021. Armenia and Uzbekistan also rank within the top 25, with investments of \$200 million and \$160 million respectively in the same period (World Bank, 2022^[19]).

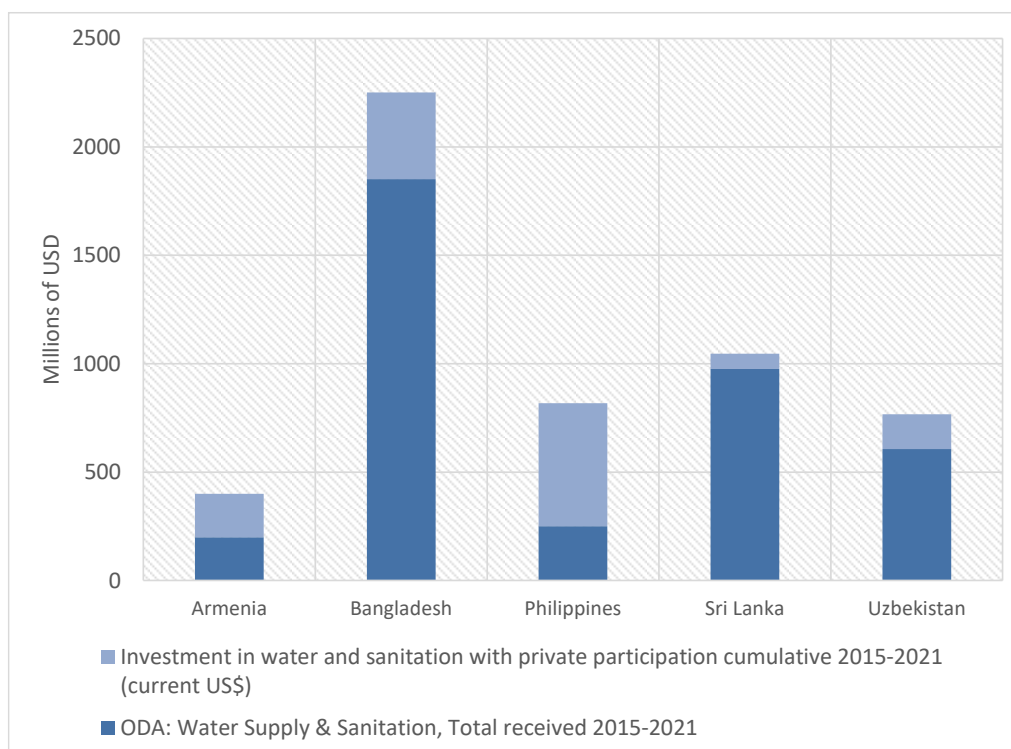
Bangladesh receives the highest total investment in water and sanitation, exceeding 2.2 billion USD. However, investment with private participation constitutes less than 20% of the total, with the majority of the investment deriving from ODA, cumulating 1.85 billion USD between 2015-2021. Investment involving private participation for water and sanitation is significantly lower, being 400 million USD during the same period, (see Figure 2.10).

The Philippines managed to attract over \$818 million USD, with the bulk coming from private participation, representing 88% of the total investment received. Uzbekistan nearly garners \$159 million USD for water and sanitation, primarily from private participation. ODA for water supply and sanitation accounts for 40% of the total received during the period 2015-2021.

Sri Lanka has managed to attract over 1 billion USD, primarily from ODA, which represents more than 90% of the investment received for water supply and sanitation.

Armenia attracted \$400 million USD for water and sanitation during the same period. Investment with private participation in water and sanitation amounts to \$200 million USD, attributable to the lease contract signed with Veolia for the management of the water and wastewater system, covering 80% of the population.

Figure 2.10. Countries' cumulative investment in water and sanitation from different financing sources (2015 – 2021)



Note: Due to the absence of data, the other countries of the studied have not been included in the figure. In addition, no information on public data was available. No data is available for the number of projects behind the investment in water and sanitation with private participation.

See (World Bank, 2022^[19]) for details of what is included under Investment in water and sanitation with private participation. ODA to water supply and sanitation covers: Water sector policy and administrative management; Water resources conservation (including data collection); Water supply and sanitation - large systems; Water supply - large systems; Sanitation - large systems; Basic drinking water supply and basic sanitation; Basic drinking water supply; Basic sanitation; River basins' development; Waste management / disposal; Education and training in water supply and sanitation (OECD, 2023^[18]).

Source: World Bank 2022 and OECD.

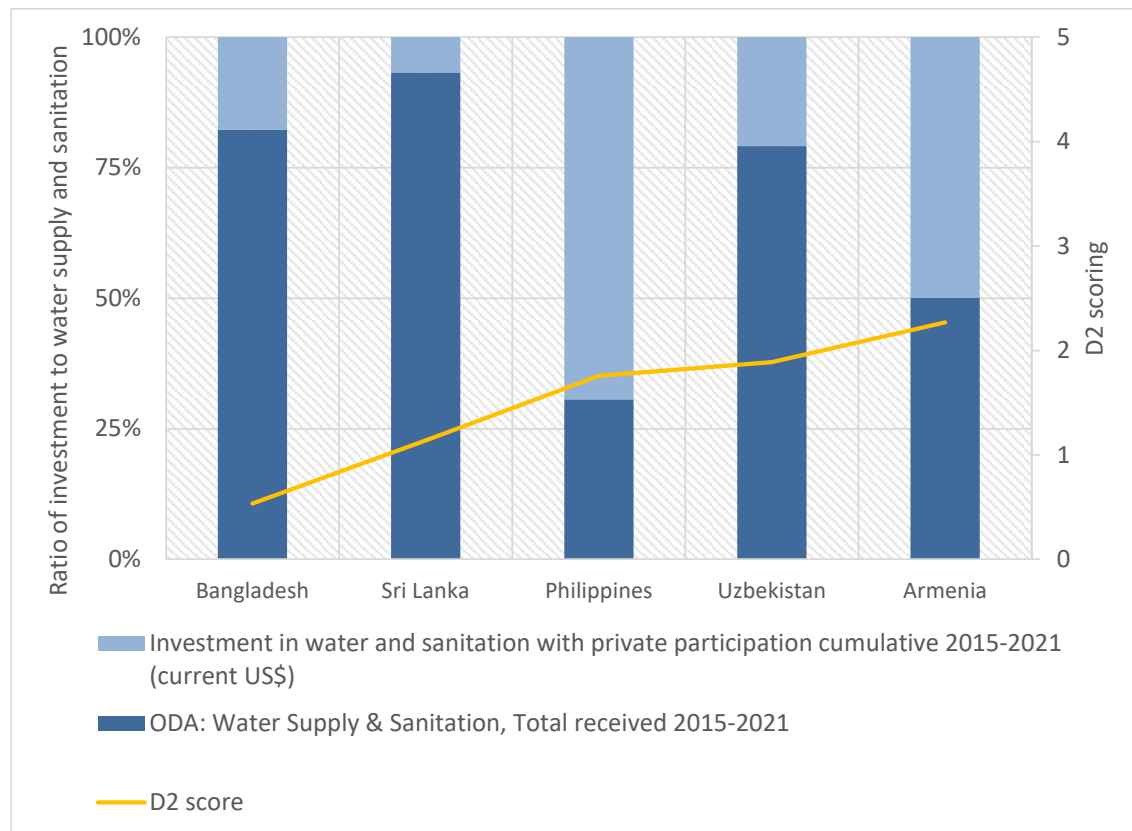
2.6.2. D2 scoring follows country capacity to diversify finance sources for water security

Despite the barriers identified across D2, notable efforts and advancements are evident in specific water-related sectors. This is evidenced by the investments allocated to water and sanitation from both private and public sources (see Figure 2.10).

The momentum for access to investment with private participation is increasing in countries at an *engaged* stage (see Figure 2.11), with a diversity of strategies being observed.

Based on available data from the pilot countries, as depicted in Figure 2.11, there is a proportional increase in private investment for water and sanitation as the country's D2 scoring rises, while ODA investment in water and sanitation decreases. Above 1.8 scoring in Dimension 2 seems to indicate a stronger capacity to attract private investment towards water security, suggesting that certain barriers have been addressed.

Figure 2.11. The countries with the lowest D2 score rely significantly more on ODA whereas stronger performing countries attract comparatively more private investment.



Note: The Philippines exhibits a higher percentage of private investment compared to Uzbekistan, despite having a marginally lower score in Dimension 2, of 0.1 points. This discrepancy is assumed to derive from the effective mechanism for pooling projects in the water sector, facilitated by the National Economic Development Authority's Unified Resources Allocation Framework. However, to confirm, further research is needed, incorporating countries with analogous mechanisms. It is noteworthy that data pertaining to public investment has not been included, owing to the unavailability of public data specific to water security or the water sector; only data on Official Development Assistance for water and sanitation were accessible. A significant transition in investment sources for water security appears to occur around a score of 1.5 for Dimension 2. See (OECD, 2023^[18]) for details of what is included under Water Supply & Sanitation.

Of note, the allocation of ODA for water and sanitation (including on a per capita basis) is not correlated to countries' service levels and needs (Kim, Cha and Jin, 2022^[20]) which is why the water and sanitation service levels were not included in the analysis of D2.

Source: World Bank 2022 and OECD.

As countries advance in their D2 scoring, reflecting better water policy frameworks for investment, they seem to exhibit an enhanced capacity to diversify financial sources for water security. This relationship suggests that targeted reforms and strategic advancements within the water policy framework for investment can potentially unlock more diversified financing source, thereby supporting a country's water security.

Looking after private investment for water security, countries exhibit a diverse spectrum of strategies to attract investment. The Philippines and Uzbekistan illustrate how different strategies can succeed attracting private investment to water and sanitation sector (see Figure 2.11).

In the Philippines the sector has witnessed a surge in private-led water investments, making the country a regional model, being in the top ten of countries highest investment in water and

sanitation with private participation (World Bank, 2022^[19]). This is especially evident in areas like bulk water supply, water distribution, and wastewater treatment, fuelled by favourable joint venture guidelines and the establishment of the Water Regulatory Commission. In Uzbekistan, the Cabinet of Ministers adopted a resolution to improve procedures and permissions to attract, use and optimize foreign loans for state owned enterprises, including water utilities. This – combined with the new cost recovery tariffs methodology - addresses several barriers to investment. In Armenia, contract arrangements for service delivery are a model in the region, being very attractive for private investors. The country was able to secure a private operator to operate the water and wastewater system for 80 of the population.

Meanwhile, Pakistan is actively exploring various financing mechanisms, particularly in the irrigation sector. The introduction of public-private partnerships and independent power producer schemes has attracted private sector involvement in diverse water projects. The State Bank of Pakistan's introduction of the Green Banking Guidelines 2017 exemplifies efforts to facilitate investment, but the balance between public and private investment remains a critical consideration.

In Nepal, despite policies advocating for public-private partnerships across all sectors, tangible outcomes are predominantly observed in the hydropower sector. For irrigation and water and sanitation sectors, the perceived risks associated with low or absent returns from tariff structures further deter private entities.

No data on public investment was available for the countries studied. Data on public investment, combined with an assessment of the enabling environment and a sufficient sample size, could support further analysis on how to maximise the use of public investment towards key enabling conditions, thereby unlocking the potential for increased private financing.

Annex A. The Scorecard: questions and sub-questions and data sources

Table A A.1. D1 A sound policy framework for investment: is the country attractive for investors?

Enabling conditions	Data sources from external databases
Are macro-economic indicators conducive to a sound investment?	World Bank: Gross Domestic Product (GDP) Growth Rate Inflation Rate (Consumer Price Index): Unemployment Rate Current Account Balance (% of GDP) Government Debt (% of GDP) Fitch: Credit Rating
What is the strength of domestic financial sector?	International Monetary Fund: Financial Soundness Indicators World Bank: Bank nonperforming loans (% of total gross loans)
Is domestic finance available?	World Bank: Domestic Credit Provided by Financial Sector (% of GDP) Lending interest rate (%) Broad money (% of GDP)
How strong are public governance mechanisms?	World Bank's Worldwide Governance Indicators: Voice and Accountability Government Effectiveness Regulatory Quality Rule of Law Control of Corruption
How strong are corporate governance mechanisms?	World Bank's Doing Business Index: Protecting Minority Investors World Economic Forum's Global Competitiveness Index: Corporate Governance
What level of regulatory permits and approvals are required for investment and are they streamlined?	World Bank's Doing Business Index: Starting a Business Dealing with Construction Permits Getting Electricity Registering Property
What accountability mechanisms are in place to ensure responsible business conduct?	World Justice Project's Rule of Law Index: Regulatory Enforcement: Transparency International's Corruption Perceptions Index
What is the level of non-commercial risks for investors?	World Bank's Worldwide Governance Indicators Political Stability and Absence of Violence/Terrorism
How effective and practical decentralisation is for policy and investment?	OECD-UCLG World Observatory on Subnational Government Finance and Investment: Subnational governments' total expenditure (% GDP) Subnational governments' total revenue (% GDP) Subnational governments' debt (% GDP)

Are infrastructures sufficient to attract investments?	World Bank: Access to electricity Renewable energy consumption Fixed broadband subscriptions Individuals using the Internet Mobile cellular subscriptions Educational attainment, at least Bachelor's or equivalent, population 25+, total Hospital beds
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Table A A.2. D2. Channelling investment to water: Authority(ies) in charge of water resources

Enabling conditions	Sub-questions and data sources from external databases (in green)
Is data on current and future water resources availability, demand and supply and water risks available?	<p>Do planning authorities assess water availability demand and water system efficiency prior considering investments per basin and sectors?</p> <p>Do planning authorities consider future changes?</p> <p>Is information on (national or international) upstream water resource availability available for decision- making?</p> <p>What are the main assumptions used in the demand forecast?</p> <p>Population growth</p> <p>Economic growth</p> <p>Climate change scenarios impact on water resources availability</p> <p>Historical consumption trends</p> <p>Demand management measures (price, communication, etc)</p> <p>Increased technology efficiency for households, agriculture, and industry</p> <p>What are the main assumptions used in the supply forecast?</p> <p>Water re-use</p> <p>Climate change scenarios impact on water resources availability</p> <p>Non-revenue water (potential for losses / clogging reduction in the existing water network)</p> <p>Storage opportunities (grey and green)</p> <p>Increased water technology efficiency for households, agriculture, and industry</p> <p>Is this data easily accessible by project developers and the financial sector?</p> <p>Do planning authorities enforce investors/project developers to take into account the water demand and supply data when investing in the country?</p>
Do water resource allocation mechanism support water security investment?	<p>Are clear and transparent water resource allocation mechanism in place to facilitate stakeholder engagement when defining the sequence of priority uses and other key allocation decisions?</p> <p>Is there a clear legal status for all water resources (surface and ground water and alternative sources of supply), which defines: public or private ownership?</p> <p>the authority in charge of deciding the access to the resource?</p> <p>Is there an abstraction limit (“cap”) for a specific hydrological unit that reflects in situ requirements and sustainable use?</p> <p>Are adequate arrangements in place for dealing with exceptional circumstances (such as drought or severe pollution events)?</p> <p>Is there a process for dealing with new entrants and for increasing or varying existing entitlements?</p> <p>Are there effective mechanisms for monitoring and enforcement, with clear and legally robust sanctions?</p> <p>Are obligations related to return flows and discharges (including the net amount of water) enforced?</p> <p>Do several licences/permits categories exist to cover all the population?</p> <p>Yes</p> <p>No, some population is not covered by the allocation, such as community-based management or self-supply</p>

<p>Are economic instruments coherent between sectors?</p>	<p>Are water tariffs applied to all users? Residential users Commercial users Industrial users Agricultural users Bulk water</p> <hr/> <p>Do charges for water abstraction reflect water scarcity and reflect the impact of the abstraction on resource availability for other users and the environment? Is it applied to all consumers? Residential users Commercial users Industrial users Agricultural users Bulk water</p> <hr/> <p>Are charges for pollution in place for users pay? Residential users Commercial users Industrial users Agricultural users Are they effective in discouraging water pollution from users? Are incentives in place for using treated wastewater for irrigation?</p>
<p>Are mechanism to solve conflicts between water users effective?</p>	<p>Are there national guidelines providing a clear procedure, known by all parties, which provide transparent and fair conflict resolution? Are there effective mechanisms for monitoring and enforcement of water use, with clear and legally robust sanctions? Is there a clear dispute resolution procedure between competing claims (to avoid "allocation by litigation or by adjudication)? Do contract conditions between service authorities and service providers secure users' and the environment's needs and rights? Do transboundary basins have an operational arrangement for water cooperation? <i>SDG 6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation</i></p>

Table A A.3. D2 Drinking water services: urban and rural

Is a strategic investment plan in place that includes water security?	<p>Is there a sectoral investment plan in place?</p> <p>Do the targets include: Improvement of water services (access, efficiency and quality) Protection of natural resources (quantity and quality) Reduction of losses caused by water disasters</p> <p>Are strategic investment plans or targets aligned with climate change scenarios? <i>GLAAS [STD13]: Climate change preparedness for WASH used in national planning</i></p> <p>Is the national budget aligned with government plans, priorities and targets for water security? <i>GLAAS [FIN12]: Sufficiency of funding to reach national target(s)</i> <i>GLAAS [FIN05.1]: Cost recovery addressed in financial plan / budget</i></p> <p>Has the government set up a comprehensive framework to track and monitor progress to water security? <i>GLAAS [PI02]: Existence and monitoring of performance indicators for water or treated effluent quality</i></p> <p>Does a process exist to regularly evaluate progress against targets? <i>GLAAS [PI01]: Existence and monitoring of performance indicators for government expenditures</i></p> <p>Is there a process in place to update these targets and policy support based on progress and changes in costs?</p>
Is there independent and transparent regulation of the water supply sector?	<p>Do independent institution(s) regulate and oversee contract implementation and service delivery for water services? <i>GLAAS: [ATH04] Regulatory authority established by law</i> <i>GLAAS: [ATH05] Regulatory authority in different institution from service provider</i> <i>GLAAS: [ATH06] Regulatory authority has authority to report independently</i> <i>GLAAS: [ATH10] Regulatory authority publishes reports on drinking-water service delivery</i> <i>GLAAS: [ATH11] Regulatory authority takes corrective action against non-performers</i> <i>GLAAS: [ATH17] Regulatory authority recommends planning and actions in cases of non-compliance</i> <i>GLAAS: [TGT10] Data to assess progress on targets publicly available</i></p> <p>Does the regulator have an independent methodology for cost assessment and tariff revision? <i>GLAAS: [ATH01] Regulatory authority responsible for setting tariffs</i></p> <p>Is there an annual performance review of service providers?</p> <p>Are performance-based contracts in place for service delivery?</p>

Are contracts arrangements for service providers attractive for investment?	<p>Are contract conditions between service authorities and service providers attractive for investment, by including:</p> <ul style="list-style-type: none"> Bidding and selection process (technical and financial evaluation) Contract type and obligations Performance evaluation: methodology, indicators, compliance, standards Tariff formula, including revision mechanism Rate of return Duration of contracts Minimum revenue or offtake Exit strategies without excessive penalties Conflict resolution
Do incentives support investment?	<p>Are incentives well targeted to channel private capital towards strategic projects?</p> <ul style="list-style-type: none"> Tax credit, tax deductions Preferential interest rate ceilings (sometimes backed by compensatory refinancing lines from the central bank) Grant and subsidies Accelerated depreciation Tax exempt bonds Guarantees and risk mitigation Reduction import duties Green Bonds Land acquisition clarity Credit quotas on commercial and public banks, specifying the share of their lending that goes to water services Additional infrastructure development (urban development)
Does economic regulation sustain and attract investment?	<p>Is the process for setting tariffs clearly defined and can it be regularly reviewed or indexed?</p> <p>Do tariffs enable cost recovery (operation and maintenance, and replacement)?</p> <p>If no, do they just cover operation and maintenance costs of service provision?</p> <p><i>GLAAS: [FIN05] Operations and maintenance covered by tariffs</i></p> <p>Are cross subsidised between urban and rural areas?</p>
Is the legal status of stakeholders participating in the investment clear?	<p>Are service providers corporatized (follow business principles)?</p> <p>Is there clarity on the mandate to invest in water security within sectors, including underserved for households/users/farmers/flood risk areas?</p>
Are water service providers allowed and able to access finance?	<p>Is there any financial rule that constraint financial flows for investment in water service provision around?</p> <ul style="list-style-type: none"> Equity Bonds Commercial banks Collateral requirements Others

	Do financially viable service providers have access to finance with maturity and interest rate adapted to their needs ? Meaning a long-term maturity and sufficient grade periods to accommodate construction schedules and market interest rates
What are service authorities capacity levels?	<p>Can service authorities fulfil their mandate?</p> <p><i>GLAAS: [HRS04] Sufficiency of human resources for operations and maintenance</i></p> <p><i>GLAAS: [HRS05] Sufficiency of human resources for design and construction</i></p> <p><i>GLAAS: [HRS26] Sufficiency of human resources for monitoring and evaluation</i></p>
	<p>Have service authorities the sufficient absorption capacity for the financial services offered?</p> <p><i>GLAAS: [FIN08] Absorption of domestic capital commitments (estimated %)</i></p> <p><i>GLAAS: [FIN07] Absorption of donor capital commitments (estimated %)</i></p>
What are service providers capacity levels?	<p>Have service providers the capacity to invest, operate and maintain the infrastructures?</p> <p><i>IBNET: 15.1 Continuity of Service</i></p> <p><i>IBNET: 7.1 Metering level</i></p> <p><i>IBNET: 23.2. Collection ratio</i></p> <p><i>IBNET6.1 Non-revenue water, average %</i></p> <p><i>IBNET: 12.2 total number of staff expressed as per thousand connections</i></p>
	<p>Are cash flows sufficient to meet financing obligations, with some reserve margin?</p> <p><i>IBNET: 24.1 Operating Cost Coverage</i></p> <p><i>IBNET: 25.1 Debt Service Ratio</i></p>

Table A A.4. D2 Sanitation services: urban and rural

Is a strategic investment plan in place that includes water security?	<p>Is there a sectoral investment plan in place?</p> <p>Do the targets include:</p> <ul style="list-style-type: none"> Improving wastewater services (access and quality) Protect natural resources (quantity and quality) Reduce losses caused by water disasters <p>Are they adapted to climate change scenarios?</p> <p>GLAAS: [STD13] <i>Climate change preparedness for WASH used in national planning</i></p> <p>Are the government plans, setting priorities and targets, aligned with national budget?</p> <p>GLAAS: [FIN12] <i>Sufficiency of funding to reach national target(s)</i></p> <p>GLAAS: [FIN05.1] <i>Cost recovery addressed in financial plan / budget</i></p> <p>Has the government set up a comprehensive framework to track and monitor progress towards water security?</p> <p>GLAAS: [PI02] <i>Existence and monitoring of performance indicators for water or treated effluent quality</i></p> <p>Does a process exist to regularly evaluate progress against and update these targets and policy support based on changes in deployment and costs?</p> <p>GLAAS: [PI01] <i>Existence and monitoring of performance indicators for government expenditures</i></p> <p>Is there a process in place to update these targets and policy support based on progress and changes in costs?</p>
Is there independent and transparent oversight of the sanitation sector?	<p>Do independent institution(s) regulate and oversee contract implementation and service delivery for water services?</p> <p>GLAAS: [ATH04] <i>Regulatory authority established by law</i></p> <p>GLAAS: [ATH05] <i>Regulatory authority in a different institution from the service provider</i></p> <p>GLAAS: [ATH06] <i>Regulatory authority has the authority to report independently</i></p> <p>GLAAS: [ATH10] <i>Regulatory authority publishes reports on drinking-water service delivery</i></p> <p>GLAAS: [ATH11] <i>Regulatory authority takes corrective action against non-performers</i></p> <p>GLAAS: [ATH17] <i>Regulatory authority recommends planning and actions in cases of non-compliance</i></p> <p>GLAAS: [TGT10] <i>Data to assess progress on targets publicly available</i></p> <p>Does the regulator have an independent methodology for cost assessment and tariff revision?</p> <p>GLAAS: [ATH01] <i>Regulatory authority responsible for setting tariffs</i></p> <p>Is there an annual performance review of service providers?</p> <p>Do several licences/permits categories exist to cover all the service provision needs?</p> <p>Rural areas only – Is there a mechanism in place to formalise informal rural service providers while reaching service quality standards?</p>
Are contracts arrangements for service providers attractive for investment?	<p>Are performance-based contracts in place for service delivery?</p> <p>Are contract conditions between service authorities and service providers attractive for investment, by including:</p> <ul style="list-style-type: none"> Bidding and selection process (technical and financial evaluation) Contract type and obligations Performance evaluation: methodology, indicators, compliance, standards Tariff formula, including revision mechanisms

	<p>Rate of return</p> <p>Duration of contracts</p> <p>Minimum revenue or offtake</p> <p>Exit strategies without excessive penalties</p> <p>Conflict resolution</p>
Do incentives support investment?	<p>Are incentives well targeted to channel private capital towards strategic projects?</p> <p>Tax credit, tax deductions</p> <p>Preferential interest rate ceilings (sometimes backed by compensatory refinancing lines from the central bank)</p> <p>Grants and subsidies</p> <p>Accelerated depreciation</p> <p>Tax exempt bonds</p> <p>Guarantees and risk mitigation</p> <p>Reduction in import duties</p> <p>Green Bonds</p> <p>Feed in tariff when using renewable sources for energy</p> <p>Land acquisition clarity</p> <p>Credit quotas on commercial and public banks, specifying the share of their lending that goes to water services</p> <p>Additional infrastructure development (urban development)</p>
Are economic policy instruments in place sufficient to ensure investment?	<p>Is the process for setting tariffs clearly defined and can it be regularly reviewed or indexed?</p> <p>Do tariffs enable the recovery of operation, maintenance, and replacement of assets?</p> <p>Or at least cover operation and maintenance costs of service provision?</p> <p><i>GLAAS: [FIN05] Operations and maintenance covered by tariffs</i></p> <p>Is there setting process clearly defined for tariffs and can be regularly review or indexing?</p> <p>Are there cross-subsidies between urban and rural areas?</p>
Is the legal status of organisations participating in the investment clear?	<p>Are service providers corporatized (follow business principles)?</p> <p>Is there clarity on the mandate to invest in water security within sectors, including for underserved households/users/farmers/flood risk areas?</p> <p>Is the legal mandate appropriate for the size, scale, and operating parameters of different investors?</p>
Can sanitation service providers access affordable finance?	<p>Is there any financial rule that constraints financial flows for investment in water service provision around?</p> <p>Equity</p> <p>Bonds</p> <p>Commercial banks</p> <p>Collateral requirements</p> <p>Others</p> <p>Do financially viable service providers have access to finance with maturity and interest rate adapted to their needs ? Meaning a long-term maturity and sufficient grace periods to accommodate construction schedules and market interest rates</p>
What are service authorities capacity levels?	<p>Can service authorities fulfil their mandate?</p>

	<p>GLAAS: [HRS04] Sufficiency of human resources for operations and maintenance</p> <p>GLAAS: [HRS05] Sufficiency of human resources for design and construction</p> <p>GLAAS: [HRS26] Sufficiency of human resources for monitoring and evaluation</p>
	<p>Do service authorities have sufficient absorption capacity for the financial services offered?</p> <p>GLAAS: [FIN08] Absorption of domestic capital commitments (estimated %)</p> <p>GLAAS: [FIN07] Absorption of donor capital commitments (estimated %)</p>
What are service providers capacity levels?	<p>Do service providers have the capacity to invest, operate, and maintain the infrastructures?</p> <p>IBNET: 15.1 Continuity of Service</p> <p>IBNET: 7.1 Metering level</p> <p>IBNET: 23.2. Collection ratio</p> <p>IBNET6.1 Non-revenue water, average %</p> <p>IBNET: 12.2 total number of staff expressed as per thousand connections</p>
	<p>Are cash flows sufficient to meet financing obligations, with some reserve margin?</p> <p>IBNET: 24.1 Operating Cost Coverage</p> <p>IBNET: 25.1 Debt Service Ratio</p>

Table A A.5. D2 Irrigation: Big schemes

Is a strategic investment plan in place for irrigation schemes including water security?	<p>Is there a sectoral investment plan in place?</p> <p>Do the targets include:</p> <ul style="list-style-type: none"> Improvement of services (access, efficiency and quality) Protection of natural resources (quantity and quality), including water, air and soil resources Reduction of losses caused by water disasters Food security
	<p>Are strategic investment plans or targets aligned with climate change scenarios?</p>
	<p>Is the national budget aligned with government plans, priorities, and targets for irrigation?</p>
	<p>Has the government set up a comprehensive framework to track and monitor progress to water security including irrigation?</p>
	<p>Does a process exist to regularly evaluate progress against targets?</p>
	<p>Is there a process in place to update these targets and policy support based on progress and changes in costs?</p>
	<p>Does the irrigation investment plan cover agricultural support systems (access to input, credit, extension service, and building capacity of farmers and their organizations) supporting production systems change and providing access to stable, reliable market?</p>
Is there independent and transparent oversight of the irrigation schemes?	<p>Do independent institution(s) regulate and oversee contract implementation and service delivery for water services?</p>

	Does the regulator have an independent methodology for cost assessment and tariff revision?
Are contracts arrangements for service providers attractive for investment?	Are performance-based contracts, including environmental targets in place?
	Are the results publicly reported?
	Are contract conditions between service authorities and service providers attractive for investment, by including: Bidding and selection process (technical and financial evaluation) Contract type and obligations Performance evaluation: methodology, indicators, compliance, standards Tariff formula, including revision mechanism Rate of return Duration of contracts Minimum revenue or offtake Exit strategies without excessive penalties Conflict resolution
Does the regulatory environment support investment?	Are incentives well targeted to channel private capital towards strategic projects? Tax credit, tax deductions Preferential interest rate ceilings (sometimes backed by compensatory refinancing lines from the central bank) Grant and subsidies Accelerated depreciation Tax exempt bonds Guarantees and risk mitigation Reduction import duties Green Bonds Land acquisition clarity Credit quotas on commercial and public banks, specifying the share of their lending that goes to water services Additional infrastructure development (urban development)
Does economic regulation support investment?	Is the process for setting tariffs clearly defined and can it be regularly reviewed or indexed?
	Do tariffs enable recovery for operation, maintenance and replacement of assets? If no, do they cover operation and maintenance costs of service provision?
Is the legal status of organisations participating in the investment clear? Is it appropriate for the size, scale, and operating parameters of different investors?	Are service providers corporatized (follow business principles)?
	Do water entitlements/rights take into account agricultural and environmental objectives?
Can water service providers access affordable finance?	Is there any financial rule that constrains financial flows for investment in water service provision around? Equity Bonds Commercial banks Collateral requirements Others

	Do financially viable service providers have access to finance with maturity and interest rate adapted to their needs ? Meaning a long-term maturity and sufficient grace periods to accommodate construction schedules and market interest rates
What are service authorities capacity levels?	Do service providers have sufficient human resources for operations and maintenance? Do service authorities have sufficient human resources for design and construction? Do service providers have sufficient human resources for design and construction? Do service authorities have sufficient human resources for monitoring and evaluation? Do service authorities have sufficient absorption capacity for the financial services offered?
What are service providers capacity levels?	What are service providers' capacity levels? Do service providers have the capacity to invest, operate, and maintain the infrastructures? Are cash flows sufficient to meet financing obligations, with some reserve margin?

Table A A.6. D3 A pipeline of good projects: to what extent water projects are bankable and sustainable?

To what extent are the community, stakeholders, third parties, engaged in projects?	Are procedures defined by law? <i>GLAAS, WASH [PRT01]: Procedures defined in law / policy</i>
	Do users/communities participate during all the project cycle? <i>GLAAS, WASH [PRT03]: Extent to which service users / communities participate</i> <i>GLAAS, WASH SDG 6.b.1: Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management</i>
	Have users/communities access to formal feedback mechanisms? <i>GLAAS, WASH [PRT23]: Population with access to formal feedback to address complaints / concerns</i>
Is there a standard methodology for assessing the social and environmental value and impact of investment?	Are national guidelines for Environmental and Social Impact Assessment used for all project types?
	Do water security and water-related risks feature in the methodology, including beyond the boundaries of the project?
	Does the assessment inform investment decisions?
How is the cost benefits methodology carried out to ensure impartiality?	Is there an official methodology for cost benefit analysis used for all types and sizes of projects?
Is data, processes and methods for projects collected and published? How is the data used for future decisions-making?	Is there one institution overseeing data collection on water projects?
	Is there a clear methodology for collecting data on water projects?
	Is this data shared with the public?
	Do the results from the data analysis guide future decisions?
Can projects be grouped to overcome high credit risks and transaction costs?	Are effective mechanisms or instruments available to pool projects/manage joint accounts for specific funding?
	Water supply
	Water services
	Sanitation

	Irrigation Resource conservation
Are there guidelines on how to support projects to be bankable and financially viable?	Are there guidelines on how to assess if a project is economic viable? (economic benefits > economic costs) Are there guidelines on how to assess if a project is financial viable? (net present value > 0, debt service coverage ratio > 1.2 -3]) Are there guidelines on how to support economic viable but financially unviable projects? (wtp < revenue) Are there guidelines on how to support financially viable but not bankable projects? Are there guidelines on how to distribute risks across participants of the project, without putting all the risk in the public sector?

Table A A.7. D4 An economy-wide water lens: are economic sectors contributing to a water secure future?

Does a national strategy guide water security in the country?	Is there an overarching water security strategy/ National water plan in the country? Does the strategy inform plans in other sectors strategies? Has the government implemented a tracking system to ensure that projects aligned with these targets?
Do national strategies for climate change mitigation, adaptation, agriculture, economy, development, and energy transition address water security?	Are water resources (quality and quantity) considered when doing economic plans, at national and sub-national levels for agriculture (food security, trade, land use), development, tourism, industry, urban development and land transports, and energy transition Are impacts on water-resources (quality and quantity) considered when doing economic plans, at national and sub-national levels for agriculture (food security, economy, land use), development, tourism, industry, urban development and land and soil use transports, and energy transition Please indicate the indicators used, or a link to the assessment Are water-related risks (drought, flood and pollution) considered in economic plans, at national and sub-national levels for agriculture (food security, economy, land use), development,

	<p>tourism industry, urban development and land and soil use transports, and energy transition Please indicate the targets</p> <p>Are existing subsidies for consumption or production leading to harmful consequences on water resources, notably by supporting or reducing the cost of activities contributing to over-exploitation or pollution of water resources in : agriculture (food security, economy, land use) development, tourism industry, urban development and land and soil use transports, and energy transition Please indicate the subsidy in place (For example, do subsidies support use of pollutants such as pesticides and herbicides, plastics, or other endocrine disruptors? Or else, do subsidies support overuse of water resources, for example through free energy for water pumping?)</p> <p><i>SDG 6.3.2: Proportion of bodies of water with good ambient water quality</i></p> <p><i>SDG6.4.2: level of water stress: freshwater withdrawal as a proportion of available freshwater resources</i></p>
<p>Is a water risks mitigation strategy in place?</p>	<p>Are insurance schemes for water risks allowed? Flood Drought Pollution</p> <p>Are insurance schemes or premiums for water risks mandatory? Flood Drought Pollution</p>
<p>Are economic incentives designed to support water security ?</p>	<p>Are fiscal incentives in place to decrease water risks exposure by companies (drought, flood, pollution)? Please indicate</p> <p>Are regulatory measures in place to support water security, including: Banning areas for land development Requirement to protect natural areas for natural flooding for land developments Protecting a percentage of land for new land development Have probability threshold for (grey green) infrastructures been reviewed (such as flood return period, water storage (including in soil), contaminants of emerging concern included in wastewater treatments, etc) Volumetric performance reported through company's products and services (water savings improvements including treated wastewater)</p>

	Water intensity of the production process reported Others
Is water security embedded in public policy measures?	Do public procurement guidelines support: Water consumption reduction Water conservation (surface and groundwater) Water pollution reduction Nature protection Soil protection Flood protection Social protection
Do mandatory and voluntary disclosure standards consider water?	Does a policy for corporate disclosure on water related risks (within non-financial reporting) exist? Is it mandatory or voluntary? Does it cover water governance practices? Does it cover the impact of corporates on water resources (pollution and quantity)? Does it require an assessment of corporate exposure to water-related risks? Does a policy for financial institution's disclosure on water related risks exist? Is it mandatory or voluntary?

Annex B. Indicator definitions

Dimension 1

For each indicator of D1, data is collected from publicly available databases from the following internationally accredited organisations: The World Bank, the International Monetary Fund, the World Economic Forum, the OECD, the World Justice Project, and Transparency International. Each question is scored from 0-5 (less than 0-1 = nascent; 1 – 2 = engaged; 2 – 3 = capable; 3 – 4 = effective 4 – 5 = model) automatically, based on the results.

Ten indicators make up D1, with each one further divided into sub-indicators, as presented in Table A B.1:

Table A B.1. List of indicators name, data source, unit and observed period used in Dimension 1

No.	Indicator	Data source	Unit	Observed period
1	Macro-Economic Indicators			
1.1	Gross Domestic Product (GDP) Growth Rate	World Bank	Annual percentage	Average (2015 - 2021)
1.2	Inflation Rate, Consumer Prices	World Bank	Annual percentage	Average (2015 - 2022)
1.3	Unemployment Rate (National Estimate)	World Bank	Percentage of total labor force	Average (2015 - 2021)
1.4	Current Account Balance (Percentage of GDP)	World Bank	Percentage of GDP	Average (2015 - 2021)
1.5	Central Government Debt (total) to GDP Ratio	World Bank	Percentage of GDP	Average (2015 - 2021)
1.6	Credit rating	FitchRatings	Fitch credit rating	Latest available year
2	Strength of Domestic Finance Sector			
2.1	Tier 1 capital to risk weighted assets	International Monetary Fund	Percentage of risk weighted assets	Average (2015 - 2021)
2.2	Tier 1 capital to assets	International Monetary Fund	Percentage of total assets	Average (2015 - 2021)
2.3	Return on assets	International Monetary Fund	Percentage of total assets	Average (2015 - 2021)
2.4	Bank nonperforming loans to total gross loans	World Bank	Percentage of total loan portfolio	Average (2015 - 2021)
2.5	Net open position in foreign exchange to capital	International Monetary Fund	Percentage	Average (2015 - 2021)
2.6	OFCs' assets to total financial system assets	International Monetary Fund	Percentage	Average (2015 - 2021)
2.7	OFCs' assets to gross domestic product	International Monetary Fund	Percentage	Average (2015 - 2021)
3	Availability of Domestic Finance			
3.1	Domestic Credit Provided by Financial Sector	World Bank	Percentage of GDP	Average (2015 - 2021)
3.2	Lending interest rate	World Bank	Percentage	Average (2015 - 2022)
3.3	Broad money	World Bank	Percentage of GDP	Average (2015 - 2021)
4	Public Governance Mechanisms			

No.	Indicator	Data source	Unit	Observed period
4.1	Voice and Accountability	World Bank	Percentile ranking	Average (2015 - 2021)
4.2	Government Effectiveness	World Bank	Percentile ranking	Average (2015 - 2021)
4.3	Regulatory Quality	World Bank	Percentile ranking	Average (2015 - 2021)
4.4	Rule of Law	World Bank	Percentile ranking	Average (2015 - 2021)
4.5	Control of Corruption	World Bank	Percentile ranking	Average (2015 - 2021)
5	Corporate Governance Mechanisms			
5.1	Protecting Minority Investors	World Bank	Percentile ranking	Score, 2020
5.2	Corporate Governance	World Economic Forum	Percentile ranking	Score, 2019
6	Regulatory Permits and Approvals			
6.1	Starting a business	World Bank	Percentile ranking	Score, 2019
6.2	Dealing with Construction Permits	World Bank	Percentile ranking	Score, 2019
6.3	Getting Electricity	World Bank	Percentile ranking	Score, 2019
6.4	Registering Property	World Bank	Percentile ranking	Score, 2019
7	Accountability Mechanisms			
7.1	Regulatory Enforcement	World Justice Project	Percentile ranking	Score, 2022
7.2	Corruption Perceptions Index	Transparency International	Percentile ranking	Score, 2022
8	Non-commercial Risk			
8.1	Political Stability and Absence of Violence/Terrorism	World Bank	Percentile ranking	Average (2015 - 2021)
9	Decentralisation			
9.1	Subnational governments' total expenditure (% GDP)	OECD-UCLG	Percentage of GDP	Latest available year
9.2	Subnational governments' total revenue (% GDP)	OECD-UCLG	Percentage of GDP	Latest available year
9.3	Subnational governments' debt (% GDP)	OECD-UCLG	Percentage of GDP	Latest available year
10	Access to Infrastructures			
10.1	Access to electricity	World Bank	Percentage of population	Most Recent Year
10.2	Renewable energy consumption	World Bank	Percentage of total final energy consumption	Most Recent Year

No.	Indicator	Data source	Unit	Observed period
10.3	Fixed broadband subscriptions	World Bank	Per 100 people	Most Recent Year
10.4	Individuals using the Internet	World Bank	Percentage of population	Most Recent Year
10.5	Mobile cellular subscriptions	World Bank	Per 100 people	Most Recent Year
10.6	Educational attainment, at least Bachelor's or equivalent, population 25+, total	World Bank	Percentage of population	Most Recent Year
10.7	Hospital beds	World Bank	Per 1,000 people	Most Recent Year

Macro-Economic Indicators

The first indicator assesses the countries' overall macro-economic situation in relation to their attractiveness for investors, private and public.

The data for sub-indicators 1.1 through 1.5 is sourced from the World Bank's data portal, a publicly accessible database for official data. They are:

- GDP Growth Rate (World Bank, 2022^[21])
- Inflation Rate (World Bank, 2022^[22])
- Unemployment Rate (World bank, 2022^[23])
- Current Account Balance (Percentage of GDP) (World Bank, 2022^[24])
- Central Government Debt (Percentage of GDP) (World Bank, 2022^[25])

For each sub-indicator, the data used to determine the score is an aggregated average for the years 2015-2022 inclusive. This average gives a more meaningful insight of a country's economic situation and where it is headed than taking just the most recent available value.

The data for sub-indicator 1.6 is sourced from Fitch, an internationally reputable credit rating agency and one of the so-called 'Big-three' credit rating agencies, along with Standard & Poor's and Moody's. Neither Standard & Poor's nor Moody's has publicly available data, leaving Fitch the natural choice as a data source. Since a credit rating is an estimation of a country's likelihood to default, the most recent data is the most relevant. (Fitch, 2023^[26])

Strength of Domestic Finance Sector

To assess the domestic finance sector, we look primarily at the strength of two types of institutions: deposit-taking institutions, i.e. institutions that accept deposits from customers (e.g. banks); and other financial corporations, i.e. various non-bank entities such as insurance companies, pension funds and more.

Sub-indicators 2.1 through 2.5 all measure the strength of deposit-taking institutions. Indicators 2.1 and 2.2 measure the quality of banks' capital base by comparing their highest quality capital (tier 1) with their risk and assets. Indicators 2.3, 2.4 and 2.5 measure banks' profitability, quality of outstanding loans, and their vulnerability to exchange rate fluctuations.

Sub-indicators 2.5 and 2.6 measure the strength of financial institutions other than banks, so-called OFCs, by comparing their size to that of the rest of the financial system and economy.

The data for these sub-indicators is sourced from the International Monetary Fund, through its data portal (International Monetary Fund, 2021^[13]), apart from sub-indicator 2.5, which is sourced from the World Bank (World Bank, 2022^[27]).

Availability of Domestic Finance

This indicator assesses the access to capital in the economy.

Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, except for credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies. (World Bank, 2022^[28])

Lending rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability. (World Bank, 2022^[29])

Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's checks; and other securities such as certificates of deposit and commercial paper. (World Bank, 2022^[30])

Public Governance Mechanisms

This indicator provides a comprehensive assessment of a country's governance quality by considering factors such as citizen participation, government effectiveness, regulatory quality, rule of law, and control of corruption. It is based on five sub-indicators which collectively offer valuable insights into the overall governance environment and effectiveness of public institutions in a given country. They are all based on the Worldwide Governance Indicators (Kaufmann, Kraay and Mastruzzi, 2021^[31]).

Voice and Accountability measures to what extent are a country's citizens able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

Government Effectiveness assesses the quality of public and civil services, and the degree of its independence from political pressures, the quality of policy and the credibility of the government's commitment to such policies.

Regulatory Quality refers to the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law refers to quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Control of Corruption Measures to what extent is public power exercised for private gain.

Corporate Governance Mechanisms

Protecting Minority Investors How well are minority shareholder protected against misuse by larger shareholders, as well as shareholder rights and corporate transparency (World Bank, 2019^[32]).

Corporate Governance assesses auditing standards, conflict of interest regulation, and shareholder governance rights in a country's corporate framework (World Economic Forum, 2019^[33]).

Regulatory Permits and Approvals

Starting a business measures how difficult it is to start a small to medium sized business in each country's largest business city.

Dealing with Construction Permits measures the procedures, time, and cost to build a warehouse, including licenses, inspections, and utility connections, as well as building quality control and safety mechanisms.

Getting Electricity measures how easy it is for a business to obtain electricity and the reliability of the supply.

Registering Property measures how easy it is for an entrepreneur to buy a land or building, as well as the quality of land administration in each country. (World Bank, 2019^[32])

Accountability Mechanisms

Regulatory Enforcement Measures the extent to which regulations are fairly and effectively implemented and enforced (World Justice Project, 2022^[34]).

Corruption Perceptions Index measures the perceived corruption in each country (Transparency International, 2022^[35]).

Non-commercial Risk

Political Stability and Absence of Violence/Terrorism Capturing perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. (Kaufmann, Kraay and Mastruzzi, 2021^[31])

Decentralisation

Subnational government expenditure – total expenditure by economic classification (% of GDP): Total expenditure of subnational (state and local) governments as a percentage of the country's GDP

Subnational government revenue – total revenue (% GDP): Total revenue of subnational governments as a percentage of GDP

Subnational government debt – debt (%GDP): Total debt of subnational governments as a percentage of GDP (OECD, 2022^[36])

Access to Infrastructures

Access to electricity: Percentage of population that has access to electricity (World Bank, 2022^[37]).

Renewable energy consumption: Percentage of total final energy consumption that comes from renewable sources (World Bank, 2022^[38]).

Fixed broadband subscriptions: Number of fixed broadband subscriptions per 100 people (World Bank, 2022^[39])

Individuals using the Internet: Percentage of population with internet a connection (World Bank, 2022^[40]).

Mobile cellular subscriptions: Number of mobile cellular subscriptions per 100 people (World Bank, 2022^[41]).

Educational attainment: Percentage of population over the age of twenty five that has obtained at least a Bachelor's degree or equivalent (World Bank, 2022^[42])

Hospital beds: Number of hospital beds per 1000 people (World Bank, 2022^[43]).

Dimension 2

Contracts arrangement for service providers are considered attractive for investment

- Are contract conditions between service authorities and service providers attractive for investment, by including:
- Clear objectives based on a clear specification of the service area and the scope of the project.
- Clear and unambiguous way, the rights, obligations and responsibilities of each contractual party as well as joint responsibilities.

- The bidding and selection procedure, rules and criteria in a simple and clear manner before the competition is launched
- Few, straightforward and easy to understand and calculate technical and financial evaluation and selection criteria.
- Few, realistic and easy to measure performance indicators and tailor to the capacity of the operator and the contracting authority.
- Minimum standard of service are guaranteed, with a compensation clause to affected customer
- Indicators in terms of levels, timeframes for their achievement, how compliance are measured, events that justify non-compliance and sanctions in the event of non-compliance are indicated.
- Clear methodology for monitoring, calculation and measuring of performance indicators in the contract.
- Clearly the body(ies) responsible for monitoring progress with achieving indicators in the contract. Specify the procedure for monitoring and reporting.
- Tariff formula in the contract
- Clearly specify tariff revision mechanisms in the contracts, both in relation to inflation and the operators
- Rate of return as well as with regard to the improvement of services and in response to force majeure events or changes in the legal regime.
- The meaning of excess profits in the contract and require that part of these profits be reinvested by the operator
- Clearly defined financial obligations in contracts, where the contracting authority is fully (e.g. service or management contracts) or partially (e.g. lease contracts) responsible for financing the investment programmes of the water utility
- The obligations both in terms of amounts and timeframe of investments.
- When the contracting authority is responsible for subsidising the utility as a way of compensating for tariffs which fail to cover the financial costs of the utility, if necessary, by transparent subsidy schemes targeted at well-identified poor households.
- The monitoring and reporting requirements in the contract, including requirements in terms of type of data and information to be monitored and collected, the format in which reports will be provided, frequency of submission of reports, procedures for providing feedback by the contracting authority.
- All possible conflict resolution mechanisms in the contract and the order and procedure for their application.
- If allowed by the legislation, and if appropriate, including in the contract, contract enforcement mechanisms such as performance bonds, parent company guarantees, insurance policies.
- The rules and procedures for determining contract incentives as risk mitigation measures (tariff revisions, bonuses and penalties)
- The methodologies for calculating bonuses and penalties in the contract

Service providers capacity levels

Non-revenue water represents water that has been produced and is “lost” before it reaches the customer (either through leaks, through theft, or through legal usage for which no payment is made). Part of this can be saved by appropriate technical and managerial actions. It can then be used to meet currently unsatisfied demand (and hence increase revenues to the utility), or to defer future capital expenditures to provide additional supply (and hence reduce costs to the utility).

The IWA distinguish between non-revenue water (%) and unaccounted for water, which does not include legal usage that is not paid for, and is usually measured in m³/conn/day. The difference is usually small, and here only non-revenue water is used.

There is a debate as to the most appropriate measure of unaccounted for water. A percentage approach can make utilities with high levels of consumption, or compact networks, look to be better performing than those with low levels of consumption or extensive networks. To capture these different perspectives the reporting of three measures of unaccounted for water has become the norm (IBNET, 2017^[44]).

Operating Cost Coverage is the total annual operational revenues over total annual operating costs.

Debt Service Ratio is cash income over debt service.

These two indicators have been selected from a much larger range of financial indicators (which include leverage, liquidity, profitability and efficiency ratios). They help answer two important questions: “Do revenues exceed operating costs?” and “Does the utility’s income enable it to service its debts?” (IBNET, 2017^[44])

Dimension 3

Cost Benefit Analysis are applied to projects or policies that have the deliberate aim of environmental improvement or are actions that affect, in some way, the natural environment as an indirect consequence (OECD, 2018^[45]).

Pooled financing refers to the aggregation of individual project loans by the legal entity which raises the money for the individual project loans (OECD, 2022^[2]).

Economic Viability refers to the assessment of whether a project’s economic benefits outweigh its economic costs. Economic viability is determined by comparing the broader societal and economic advantages of a project against its total economic implications. Guidelines to assess economic viability typically involve ensuring that the economic benefits are greater than the economic costs.

Financial Viability pertains to the ability of a project to generate sufficient revenues to cover its expenses and provide a return on investment. Financial viability is often assessed using specific financial metrics, such as ensuring that the net present value is greater than zero and that the debt service coverage ratio falls within a range of 1.2 to 3. A project deemed financially viable is expected to meet its financial obligations and deliver a positive return to its investors.

Project Bankability describes the likelihood that a project will attract financing, typically from lenders or investors. A project is considered bankable when it is both economically viable and financially viable. However, there are instances where a project may be economically viable but not financially viable. In such cases, where the willingness to pay is less than the potential revenue, external support mechanisms, such as subsidies or grants, might be required to bridge the financial gap and enhance the project’s bankability.

Annex C. Data collection results from Asian pilot test

This document is part of a series of analyses conducted across seven countries to pilot test the Scorecard for assessing the enabling environment for investment in water security at the national level. The seven countries selected by ADB for this study are Bangladesh, Mongolia, Nepal, Pakistan, the Philippines, Uzbekistan, and Sri Lanka. Armenia was part of the second phase of the pilot test.

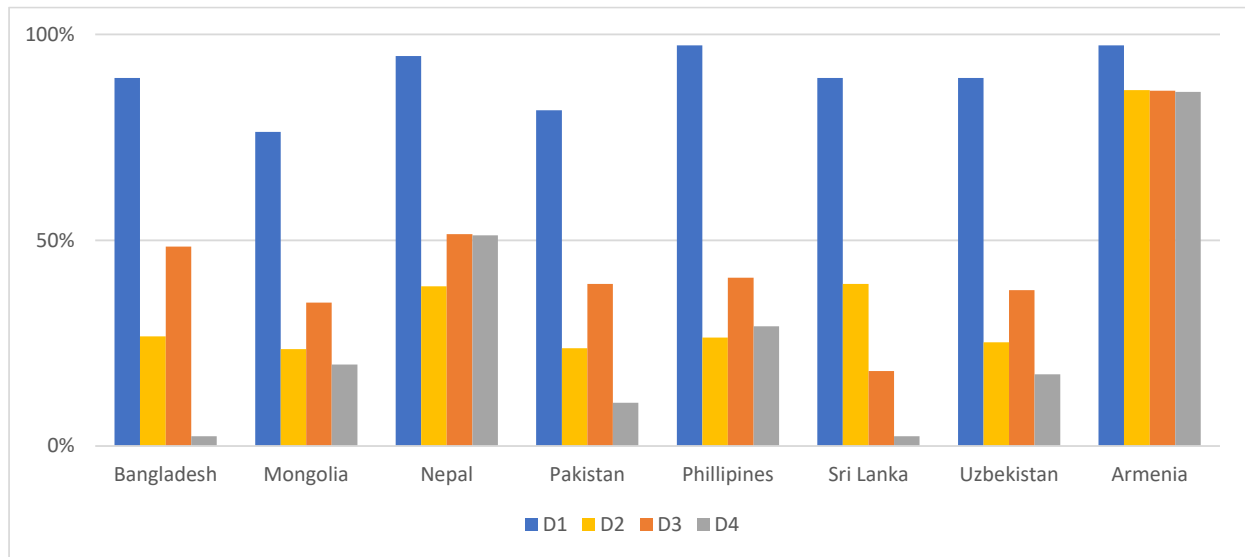
The initial version of the Scorecard (version 1) was reviewed and updated based on the results of this pilot test, including feedback from ADB's workshop mission in February 2023. The analysis presented in this paper has been conducted using the second version of the tool (version 2), which includes automation of Dimension 1, sectoral division of Dimension 2, and modifications to the questions.

The country fiches are based external data sources (for dimension 1 as well as some indicators in dimension 2 and 3) and data collected by external consultants hired by ADB. This document does not reflect the opinion of the OECD and its Member Countries. No final scoring has been provided for the countries in the country fiches. The analysis was conducted using the second version of the tool, which relied on data from the first version, limiting the comparability of the analysis. The update of the tool and the data collection from external consultants from ADB, led to an uneven response rate between countries, as illustrated by Figure A C.1.

Dimension 1 (D1) has a high response rate for all countries because it has been fully automated through online databases. Dimensions 2 and 3 (D2 and D3) are partially based on external databases; however, some of the data is outdated for many of the countries. For example, the IBNET data for the Philippines and Sri Lanka is from 2009, making it unsuitable for inclusion in the analysis. For more details on this, please refer to the methodology section.

Armenia's country fiche was developed based on data collected from version two of the tool. This led to a higher response rate compared to the other countries and provides an illustration of the full assessment that users can expect when carrying out the analysis.

Figure A C.1. Response rate per country

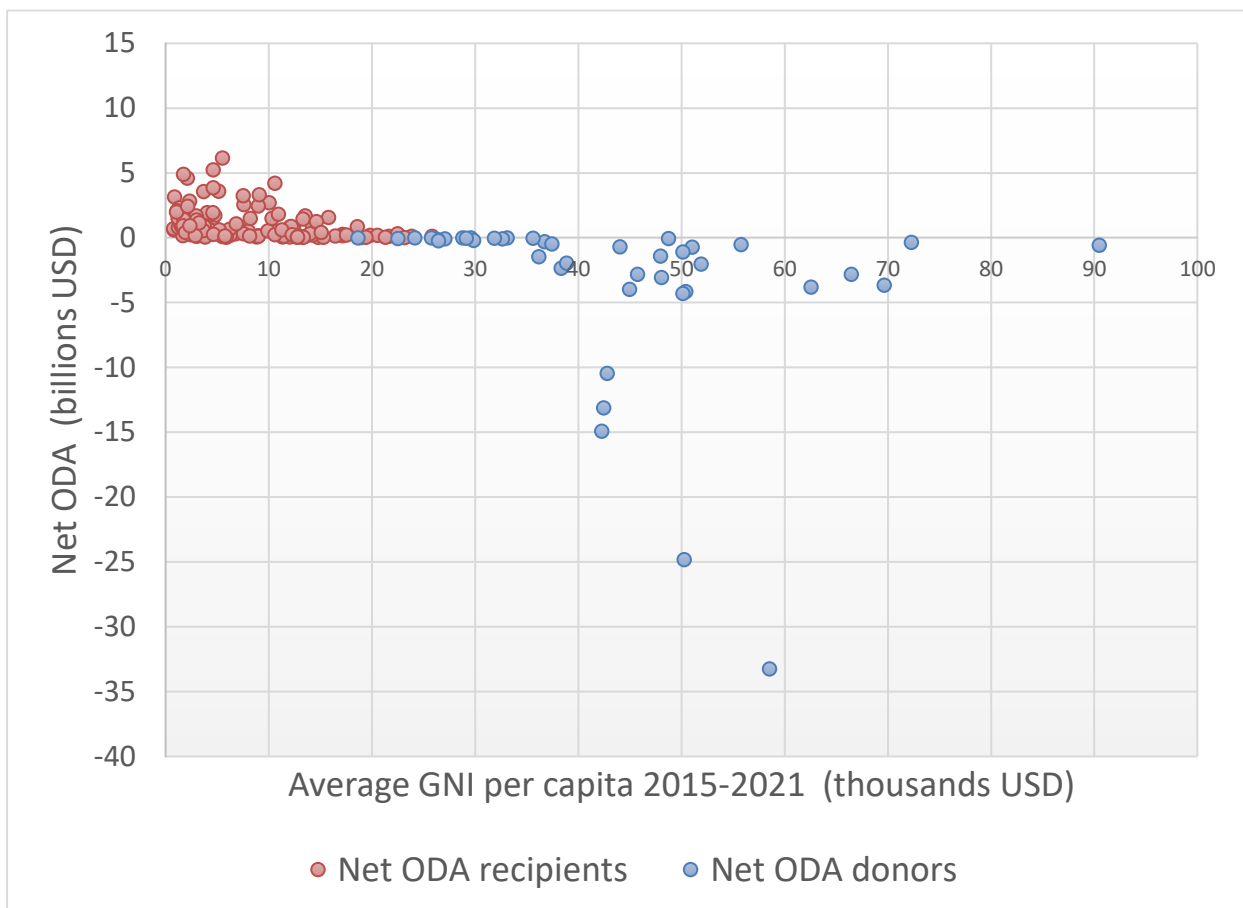


Source: Authors analysis based on data provided by the consultants providing references to the original source.

Annex D. Supplementary analysis for assessing the robustness of the tool

A country's Gross National Income (GNI) per capita is an indicator for the total ODA received, as illustrated in Figure A D.1. A country capacity to attract investment is linked to its GNI, but other indicators do influence as presented in dimension 1. Indeed, as demonstrated in Figure A D.1, the biggest recipients of ODA have an average GNI of less than 10 thousand USD over the period 2015-2021, and as the GNI per capita rises above 15 thousand USD, the amount of ODA received quickly subsides.

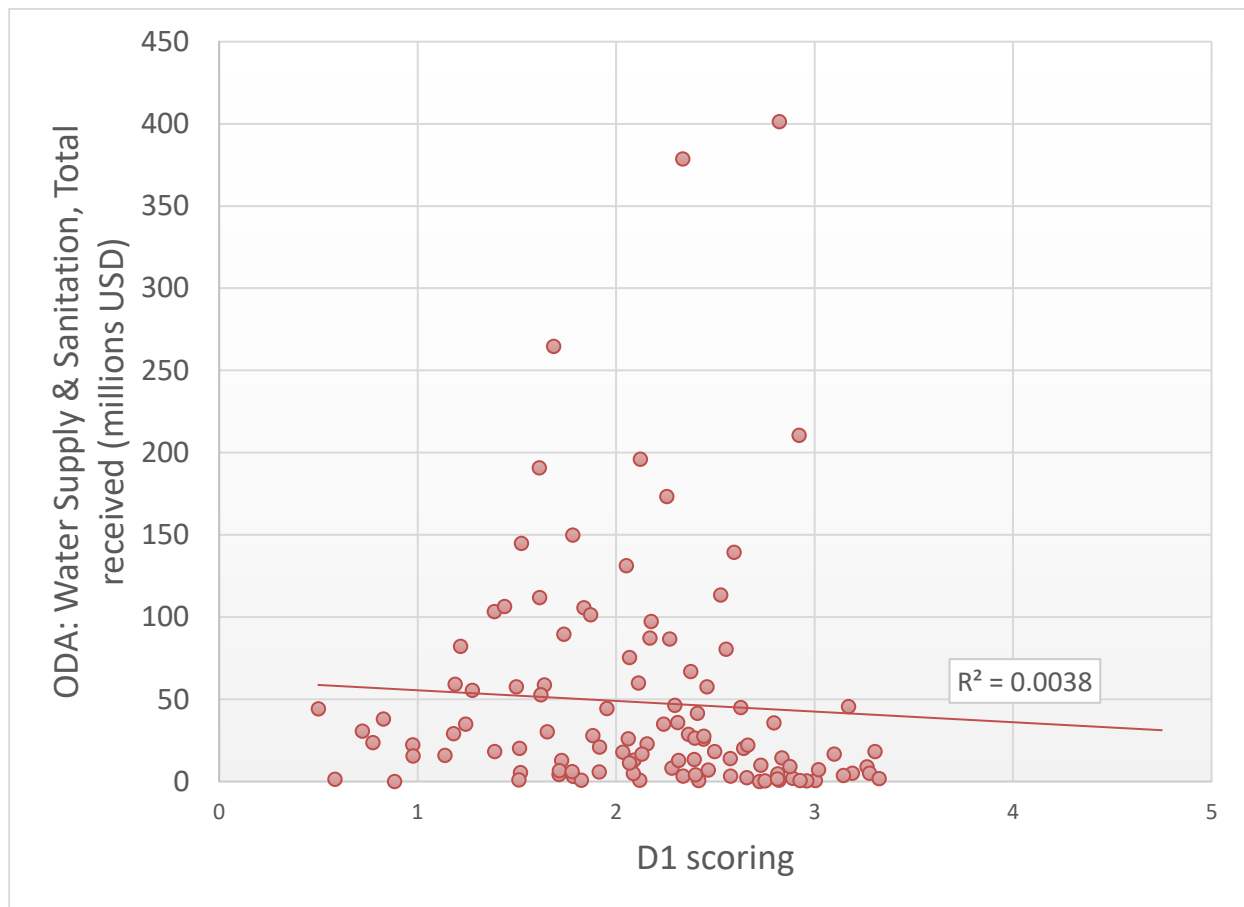
Figure A D.1. For net ODA recipients, the countries which receive the most ODA tend to have lower GNI per capita than the others



Source: Authors

There's no observed correlation or little correlation between ODA for water supply and sanitation and Dimension 1, as can be seen in Figure A D.2.

Figure A D.2. No observed correlation between D1 scoring of ODA recipients and ODA to Water Supply & Sanitation



Note: D1 assesses the policy framework for investment in general on a scale from 0 to 5. Little or no correlation is observed between a stronger investment environment and ODA to water supply and sanitation. D1 scoring: 0- 1 = nascent; 1-2=engaged; 2-3=capable; 3-4= effective 4-5=model stage. See (OECD, 2023^[18]) for details of what is included under Water Supply & Sanitation.

Source: Authors.

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