



2022

ASIA-PACIFIC WATER POLICY REPORT

LISTENING TO NATIONAL WATER LEADERS



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ABOUT WATER POLICY GROUP

The Water Policy Group is comprised of people who have been decision-makers and trusted advisers within governments and international bodies handling complex water policy and strategy. Water Policy Group members have the common goal that their knowledge, networks and practical experience can help achieve the sustainable development of water resources.

For more, see waterpolicygroup.com

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2022 Asia-Pacific Water Policy Report

Cover photo: Aerial view of fishing boats in Phan Thiet, Binh Thuan Province, Vietnam. ©Shutterstock.

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Planting rice, Indonesia.
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PREFACE

In 2021, the Water Policy Group undertook a survey of national water leaders across the world with the objective of understanding why achieving ‘sustainable water management for all’ seems so difficult. Their views on the risks and challenges they faced in water management and in meeting the water-related Sustainable Development Goals are reported in the Global Water Policy Report 2021: Listening to National Water Leaders. This report is focused on the Asia-Pacific region and represents the views and opinions of water leaders of 30 countries of the region as expressed through the 2021 survey. This report aims to highlight the water issues for the attention of high level political leadership and policy makers in the region.

Water is essential to every element of the economy, environment and social fabric of every country across the world. As a limited resource, water needs to be shared among competing demands and used to the best effect for the entire community over the long term.

Every decision that a government makes about water will have social, economic and environmental consequences, and that makes achieving ‘sustainable water for all’ a key challenge for governments - one that can be politically very difficult due to the diversity of values, needs and expectations within all societies.

Not only is success with water integral to the sustainable development of individual countries, it is essential to achieving the collective global Sustainable Development Goals (SDGs) of Transforming our world: the 2030 Agenda for Sustainable Development (Agenda 2030). SDG 6 “Ensure availability and sustainable management of water and sanitation for all” reflects the increased attention to water and sanitation issues in the global political agenda. Successive Global Risks

Reports, published by the World Economic Forum have identified ‘water crises’ as one of the top five risks identified from their surveys, in terms of the severity of impact at a global level (www.weforum.org/global-risks/reports).

Good water outcomes are also pivotal for adapting to climate change. More broadly, improved water outcomes underpin wider efforts to end poverty, advance sustainable development and sustain peace and stability (UN SDG 6 Synthesis Report 2018).

Yet, the United Nations has reported the world as a whole is not on track to achieve SDG 6 and many countries are going backwards (UN Water Summary Progress update 2021). The clear picture is that collectively there is a long way to go.

Why is achieving the availability and sustainable management of water for all so difficult? The Asia-Pacific Water Policy Report seeks to answer this question by identifying the key issues faced in improving water outcomes in this region, as perceived through the eyes of national water leaders - the people with water leadership responsibility - in a wide range of countries.

This report provides governments of the Asia-Pacific region with both a comparative perspective and opportunities to learn from others’ experiences. In doing so, we hope to provide a common understanding of these factors to assist governments in overcoming them.

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Brahmaputra valley in Tibet, China. © Honeyypics, Freepik.

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We recognise the numerous individuals and organisations who assisted in realising the survey in so many countries.

Most of all, Water Policy Group thanks the national water leaders who participated in the survey, who must remain unnamed - you know who you are!

AT A GLANCE

This report is based on the experiences and perspectives of national water leaders from 30 countries across the Asia-Pacific region.

Among them they have responsibility for achieving sustainable water for around 3.8 billion people.

In summary, this is what they are saying:

National water leaders in the Asia-Pacific region consider the highest water-related risks their countries face are **climate change** and associated pressures on water supplies and worsening floods and droughts.

The **greatest challenges** they face are inadequate infrastructure, data and public awareness coupled with the problem of administrative fragmentation.

Many consider the **Sustainable Development Goal 6** targets to be '**challenging**' or '**impossible**' to achieve, with governance problems and lack of financing the main reasons for this.

While **groundwater** is considered by many national water leaders in the Asia-Pacific region to be essential to their country's future water supply, far fewer consider their groundwater is being used sustainably.

The results from the national water leaders of the Asia-Pacific region largely mirror the concerns and issues of their counterparts across the world.

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CHAPTER 1

INTRODUCTION

The Asia-Pacific Water Policy Report 2022 is intended to support the achievement of better water outcomes in the region. This Report is derived from and reflects the opinions, perspectives and experience of Ministers, agency heads, senior officials and others whose job it is to make difficult decisions on water management in their respective countries. These are the 'national water leaders' described in this report.

These opinions, perspectives and experiences were obtained from a comprehensive survey, the 2021 Global Water Leaders Survey, open to national water leaders of all United Nations member States in 2021. Overall, 127 national water leaders participated from 88 countries of all regions with combined populations of 6 billion, around 75% of the global population.

In the Asia-Pacific region, 49 survey responses were received from national water leaders of 30 of the 60 countries of the UN Asia and Oceania regions – with a total population of approximately 3.8 billion people. Of these, 22 responses were from Ministers or water agency heads (currently serving or serving in the past five years), 15 were from national government senior officials or advisers and 12 were from persons with other national water leadership roles, such as sub-national Government Ministers and/or civil society leaders.

Approximately three quarters of the countries from which responses were received are classified as being of 'low water stress' and one quarter (7) of 'some water stress' (see Appendix). 57% are considered to be high or upper middle income whilst 43% are in the low or lower middle income categories. For the four designated sub-regions, responses were

received from 64% of countries in East and South East Asia, 60% of countries in Central and Southern Asia, 42% of countries in Oceania and 35% of countries in North Africa and West Asia¹.

This Report collates the survey results across all of these countries with responses to some questions broken down further by sub-region, country income group and/or water stress status. The method for processing and presenting the respondents' answers to the survey questions is explained in the Appendix. The research method used in the survey was reviewed and approved by UNSW's Human Research Ethics Committee to protect the anonymity of the respondents, including national affiliation, and to ensure compliance with ethical standards.

The survey was in three parts, asking about: (1) water management risks and challenges; (2) Sustainable Development Goal 6 water targets and the value of the SDG 6 Global Acceleration Framework; and (3) groundwater issues. This Report is structured accordingly, providing aggregate survey outcomes under each topic, broken down by income group and water stress status where that is most relevant.

This Report contains a selection of graphs and tables illustrating some of the data that is discussed. Graphs and/or tables of all the data upon which this Report is based is available online (www.waterpolicygroup.com).

This Report reflects perspectives and opinions held by survey respondents in 2021. Water Policy Group intends to repeat the survey regularly, to follow how attitudes to these matters change over time.

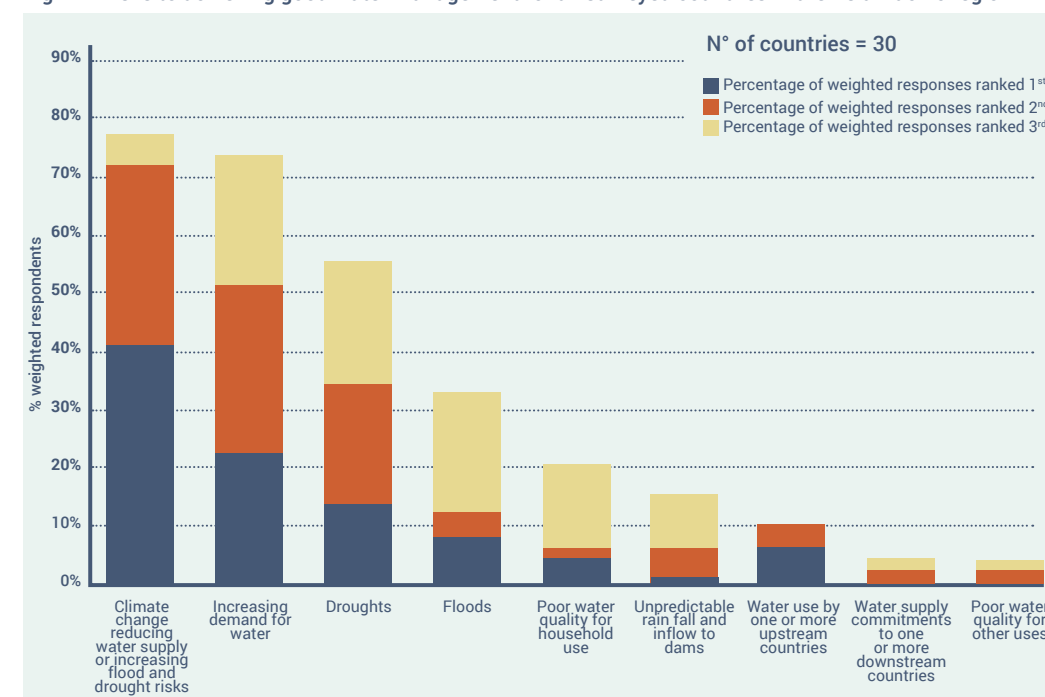
¹. Sub-regional results are shown only where there are clear differences between them.

CHAPTER 2 PERCEPTIONS OF RISKS AND CHALLENGES

■ WATER MANAGEMENT RISKS

National water leaders were asked to identify, from a set of nine risks, at least three risks which they think are the greatest risks to maintaining or achieving good water management in their country and to rank them in order of importance. These 'risks' are matters that are generally **outside the immediate control of governments** and that water management policies need to address.

Fig 2.1: Risks to achieving good water management for all surveyed countries in the Asia-Pacific region



The Nam Ngum Dam, a hydroelectric dam on the Nam Ngum River, a major tributary of the Mekong River in Laos. It was the first hydropower dam built in Lao PDR. © Shutterstock.

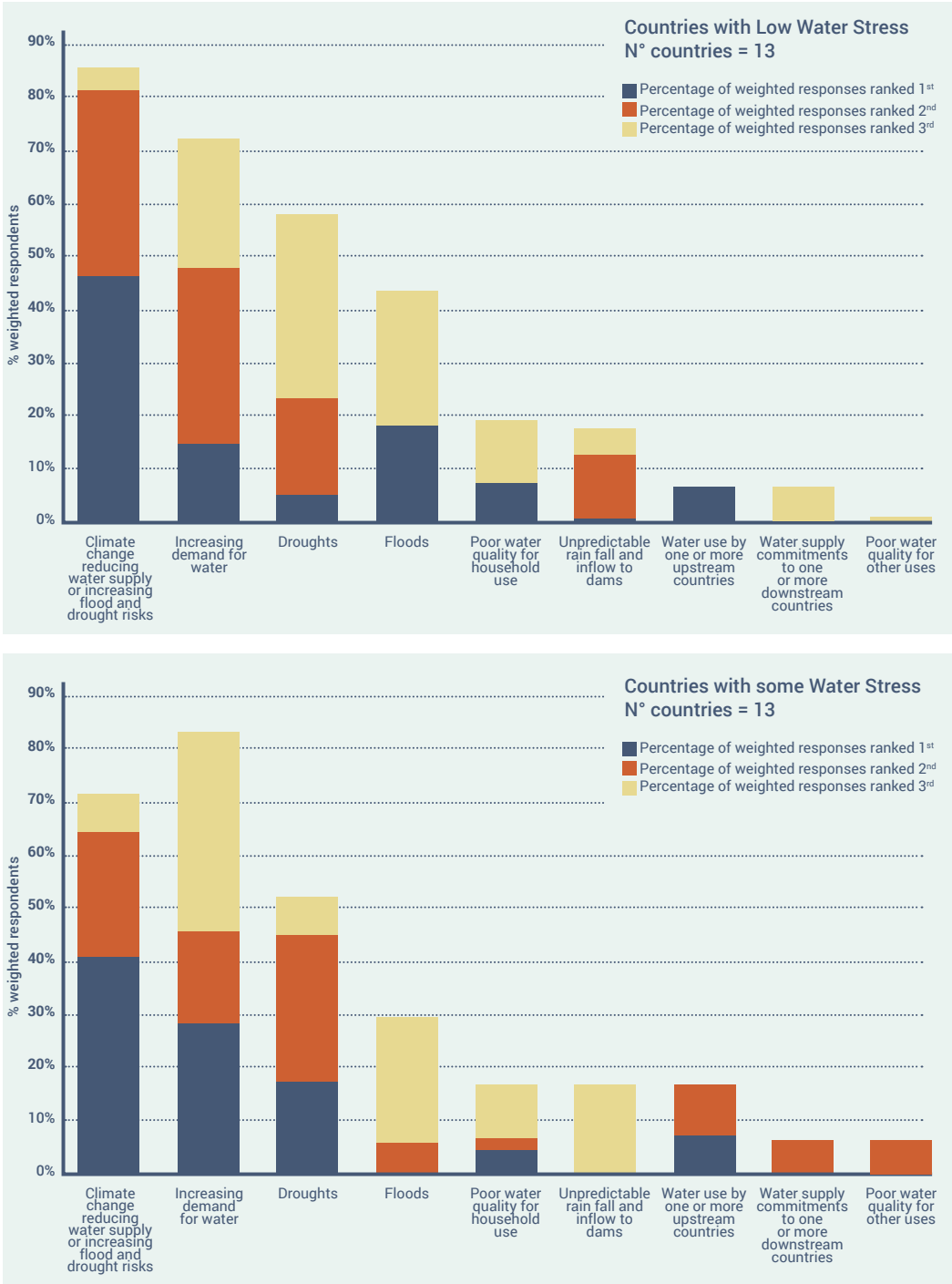
Climate change is perceived to be the greatest risk. ‘Climate change reducing water supply or increasing flood and drought risks’ is the highest ‘first ranked’ risk across all countries (43%) and this holds true regardless of the country income level and water stress.

When looking at the ‘top three’ risks, climate change is still ranked highest with 75% of the Asia-Pacific countries including it in their ‘top three’, closely followed by ‘increasing demand for water’. The water-based disasters of droughts and floods were the third and fourth ranked risks, adding to the overall climate risk profile.

There are some differences when the results are broken down further. When looking at the ‘top three’ risks’, countries with ‘some water stress’ ranked ‘Increasing demand for water’ (82%) slightly higher than climate change (78%).

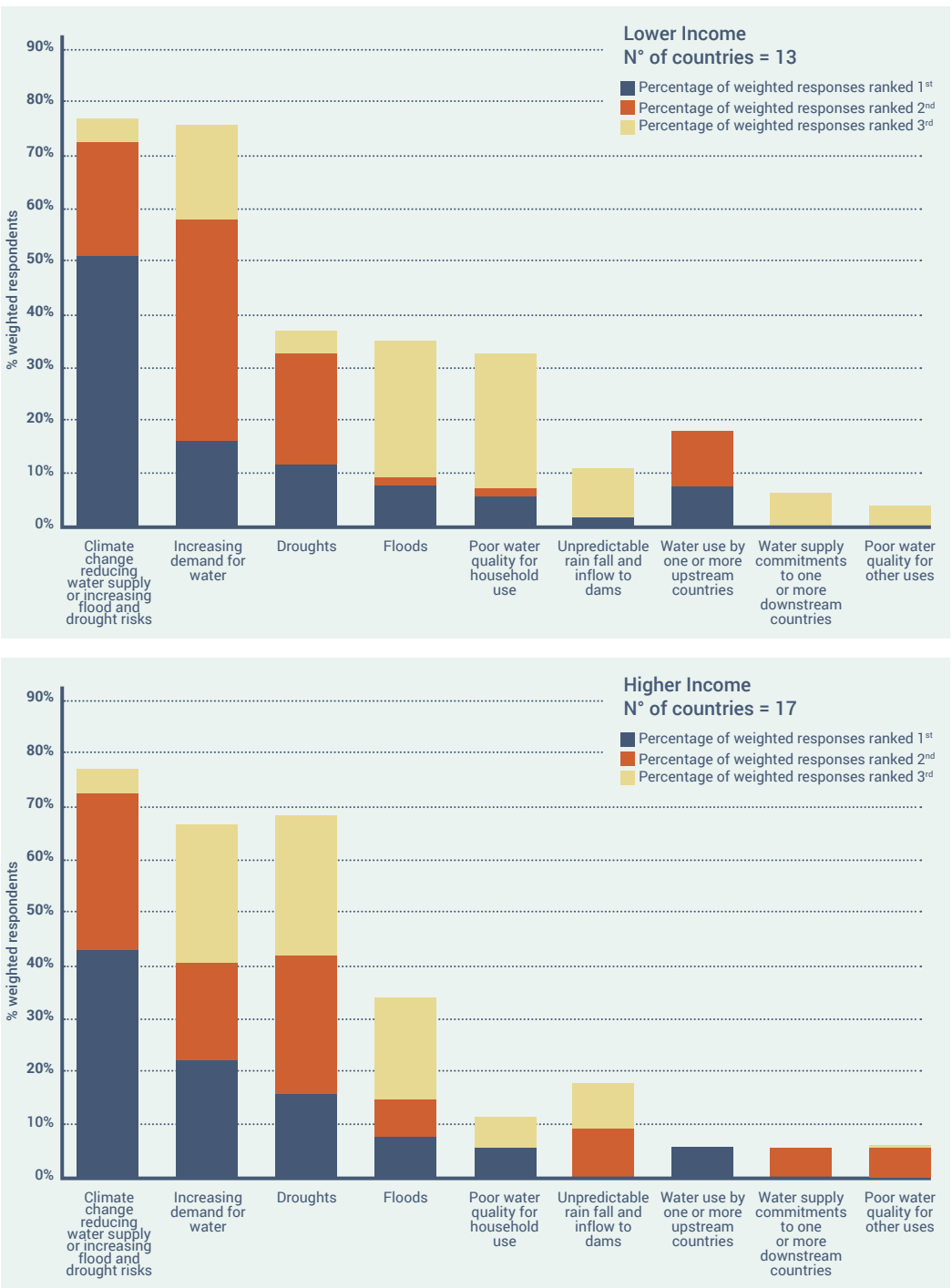
Lower income countries were also more concerned with ‘poor water quality for households’ than countries in the higher income category.

Fig 2.2: Risks to achieving good water management for all surveyed countries in the Asia-Pacific region by water stress



A young man carrying jerrycans filled with water in Port Moresby, Papua New Guinea. © Shutterstock.

Fig 2.3: Risks to achieving good water management for all surveyed countries in the Asia-Pacific region by income grouping



There were also some sub-regional differences

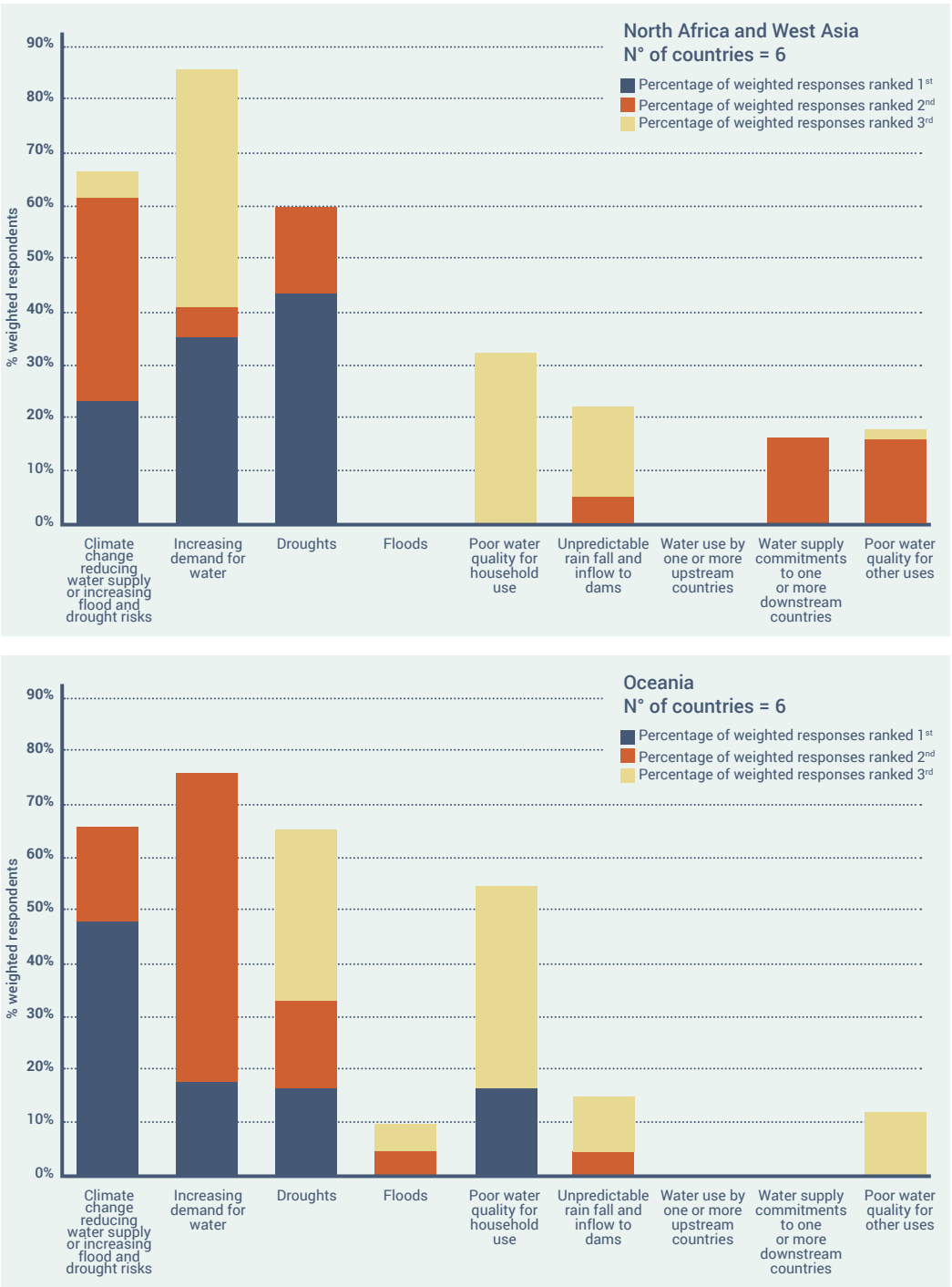
- Central and South Asia shows similar rankings to the overall pattern but ‘water use by upstream countries’ also rates highly with almost 40% including it in the ‘top three’
- East and South East Asia - 75% of countries ranked Climate change as their “first ranked” risk with almost 90% including it in their ‘top three’ with floods ranked second
- North Africa and West Asia rank ‘droughts’ as their top ‘first ranked risk’ (43%). When looking at the ‘top three’, increasing demand is the greatest problem with 85% putting in the top three, followed by climate change (67%) and droughts (60%)
- Oceania has climate change as the top ‘first rank’ risk but when considering the ‘top three’, increasing demand is ranked higher, closely followed by climate change and drought. However, countries in Oceania are also concerned with ‘poor water quality for households’ with 55% putting it in their ‘top three’ risks.

Compared with the world overall, water leaders of the Asia- Pacific are somewhat more concerned about risks of increasing demand for water.

Fig 2.4: Risks to achieving good water management for all surveyed countries in the Asia-Pacific region by sub-region



Fig 2.4: Risks to achieving good water management for all surveyed countries in the Asia-Pacific region by sub-region



WATER MANAGEMENT CHALLENGES

National water leaders were asked to identify from a list of nine ‘challenges’ which they think are the greatest challenges to maintaining or achieving good water management in their country and to rank them in order of importance. These ‘challenges’ are issues largely of a policy and administrative nature **which are within the control of governments.**

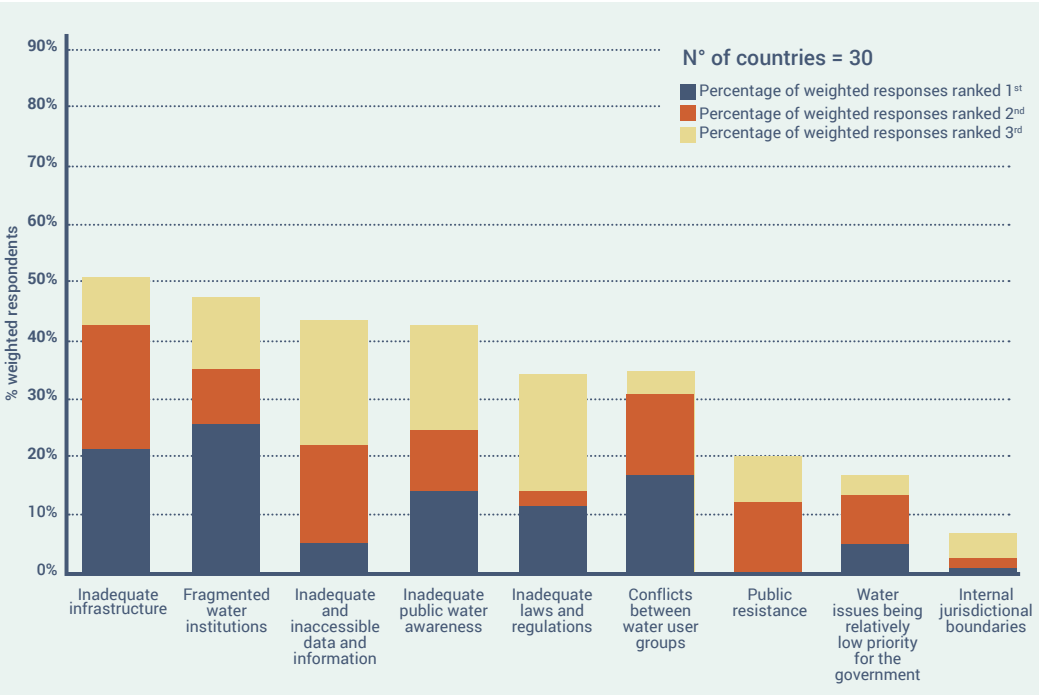
It is clear that there are many water management challenges across the Asia-Pacific region.

MINISTER PERSPECTIVES
A Minister of the South-eastern Asia subregion says: “The most significant risk that [my country] faces in relation to water management is climate change. For cities..., some challenges of climate change may be amplified, including heat (since urban areas are usually warmer than their surroundings) and flooding from heavy precipitation events. The unpredictability of climate impact drivers on extreme weather events could impact the effectiveness of the measures we have in place, despite our best efforts... Drought is the next highest risk as... water supply sources... are heavily dependent on rainfall and will be severely impacted in the event of prolonged dry weather. Floods pose another key risk. While we have invested significantly in flood protection measures, it is impossible to totally eliminate floods – it would be impractical to expand... [drainage infrastructure]... to accommodate all instances of extreme rainfall as this would require... much higher costs.”



Asian farmer harvesting fresh sweet yellow marian plums, Thailand. © Freepik.

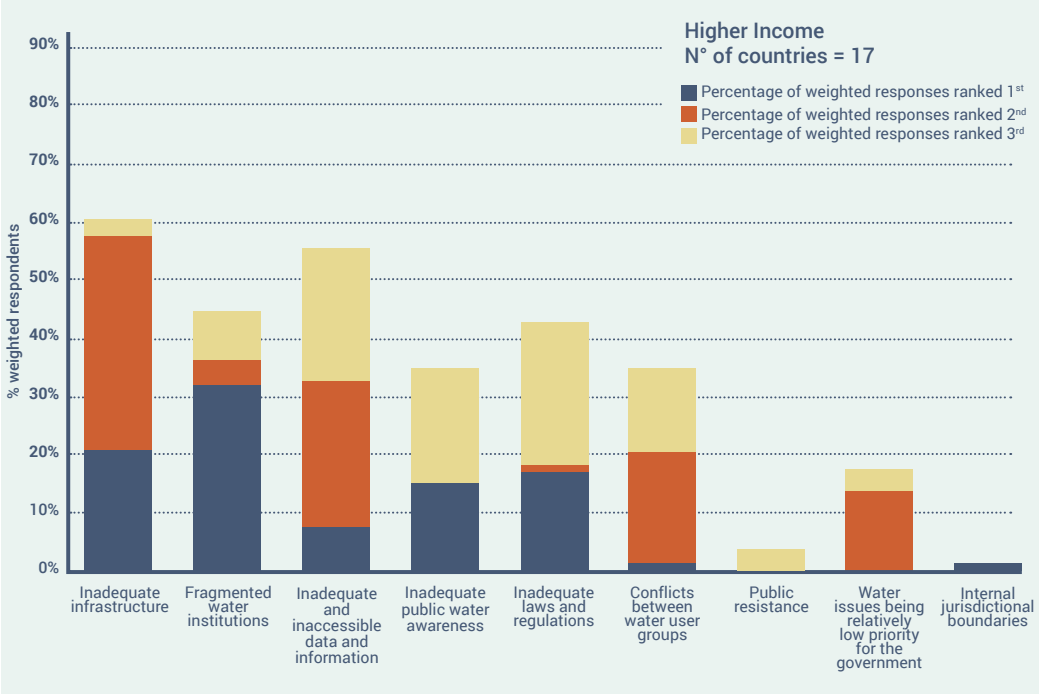
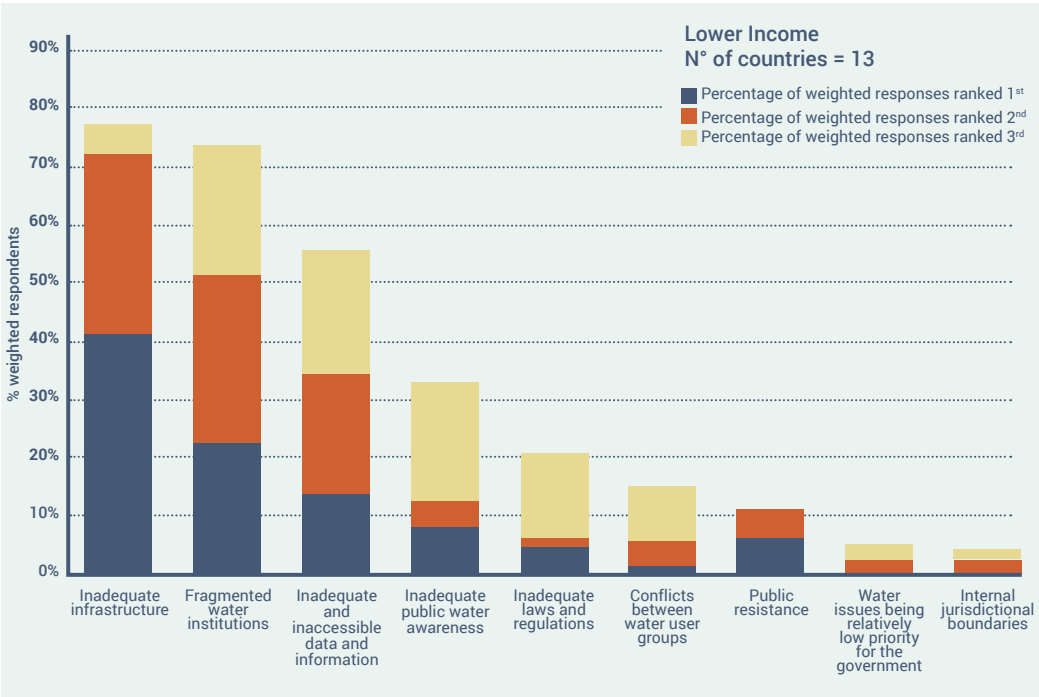
Fig 2.5: Challenges to achieving good water management for all surveyed countries in the Asia-Pacific region



When only the ‘first ranked’ challenge is counted, ‘fragmented water institutions’ is the most often identified across the Asia-Pacific countries. When considering the ‘top three’ challenges, ‘inadequate infrastructure’ rates highest, closely followed by ‘fragmented water institutions’, ‘inadequate and inaccessible data’ and ‘inadequate public awareness’ – however, there is little to choose between the top six challenges. But notably, the challenges of ‘public resistance’, ‘water being a low priority for government’ and ‘internal boundary issues’ were generally ranked low.

Some differences emerge when these results are broken down by country income group and water stress. In higher income countries, ‘inadequate data’ is less important and ‘conflicts between users’ ranks more highly. In lower income countries, ‘inadequate laws and regulations’ are more of a concern to national water leaders.

Fig 2.6: Challenges to achieving good water management for all surveyed countries in the Asia-Pacific region by income grouping



Countries with low water stress rank ‘inadequate laws and regulations’ very highly whilst national water leaders in countries with ‘some water stress’ are more highly concerned with ‘conflicts between user groups’.

- There are also some differences between sub-regions.
- Central and South Asia shows similar rankings to the overall pattern but ‘inadequate data’ is the highest ‘top three’ ranked challenge
 - East and South East Asia - inadequate public awareness’ appears to be more of a challenge with national water leaders ranking it as their second ‘top three’ challenge.
 - North Africa and West Asia rank ‘conflicts between water users’ as the top ‘first ranked’ challenge.
 - Oceania has ‘inadequate laws and regulations’ as their top ‘first ranked’ challenge with ‘inadequate infrastructure’ a close second. National water leaders in Oceania are less concerned with fragmented water institutions and ranked it as the least important challenge.



Rice terraces of Yunnan province, China.
©Freepik.

Fig 2.7: Challenges to achieving good water management for all surveyed countries in the Asia-Pacific region by water stress

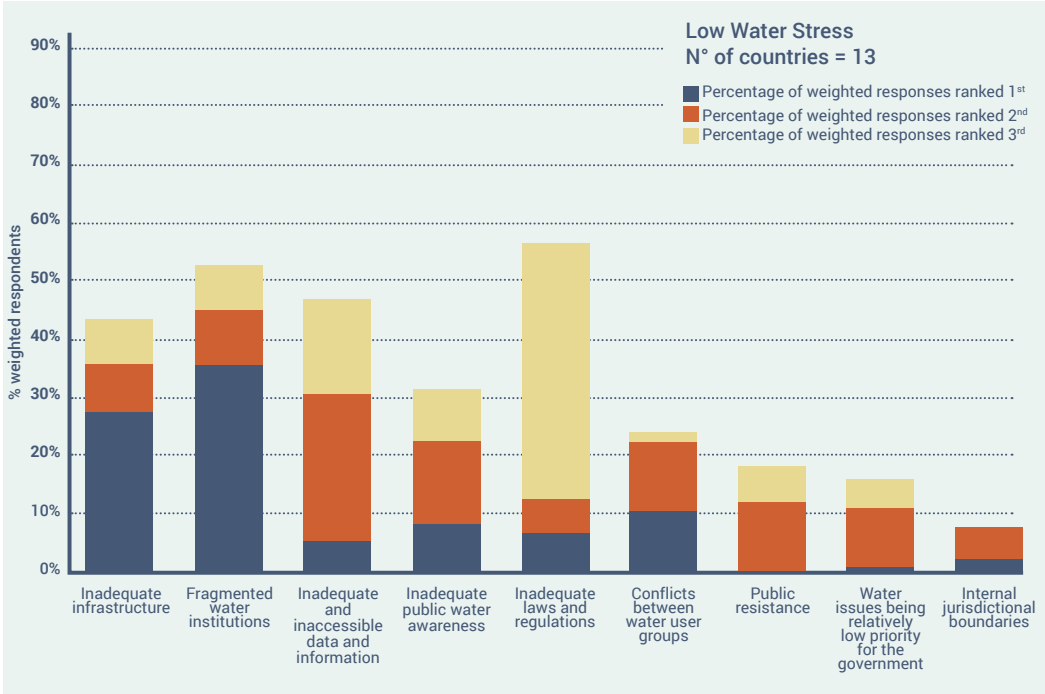
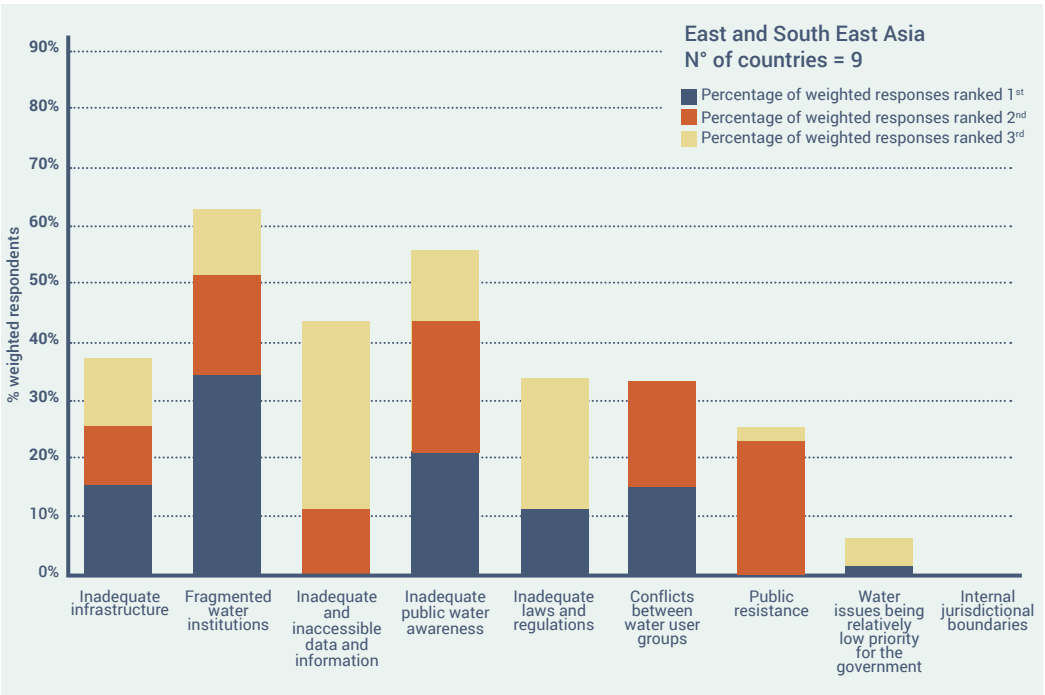
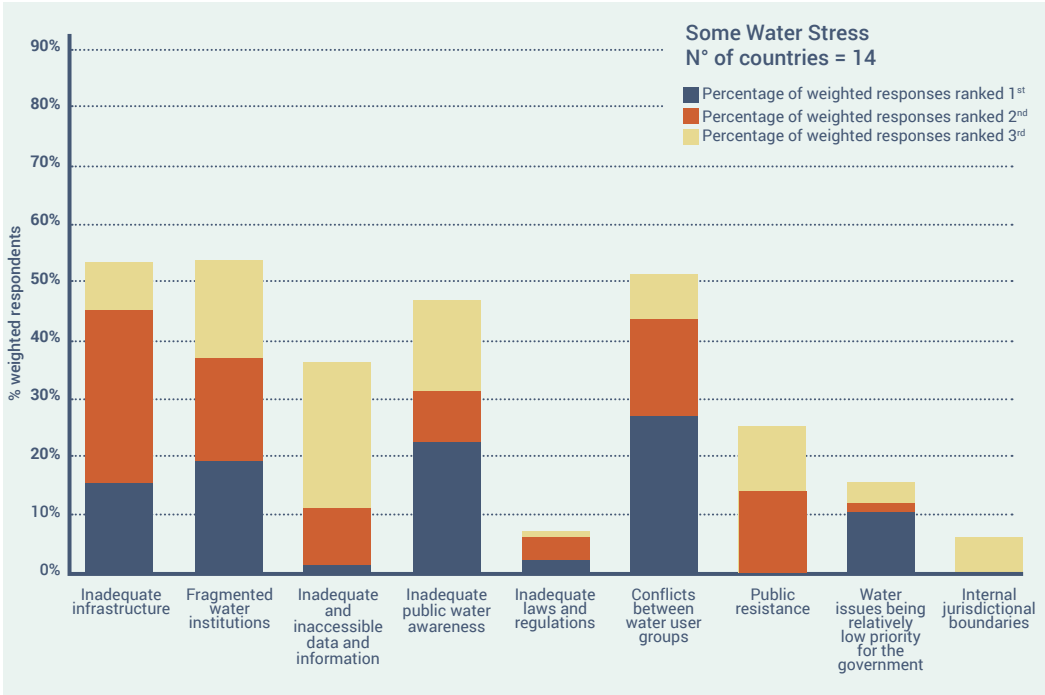
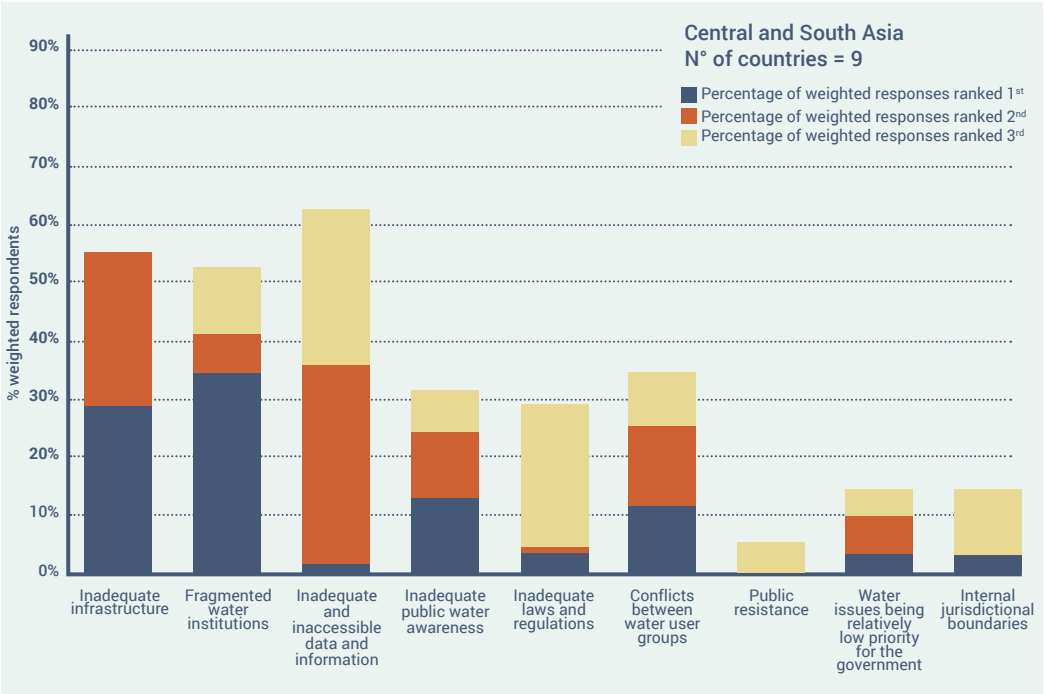


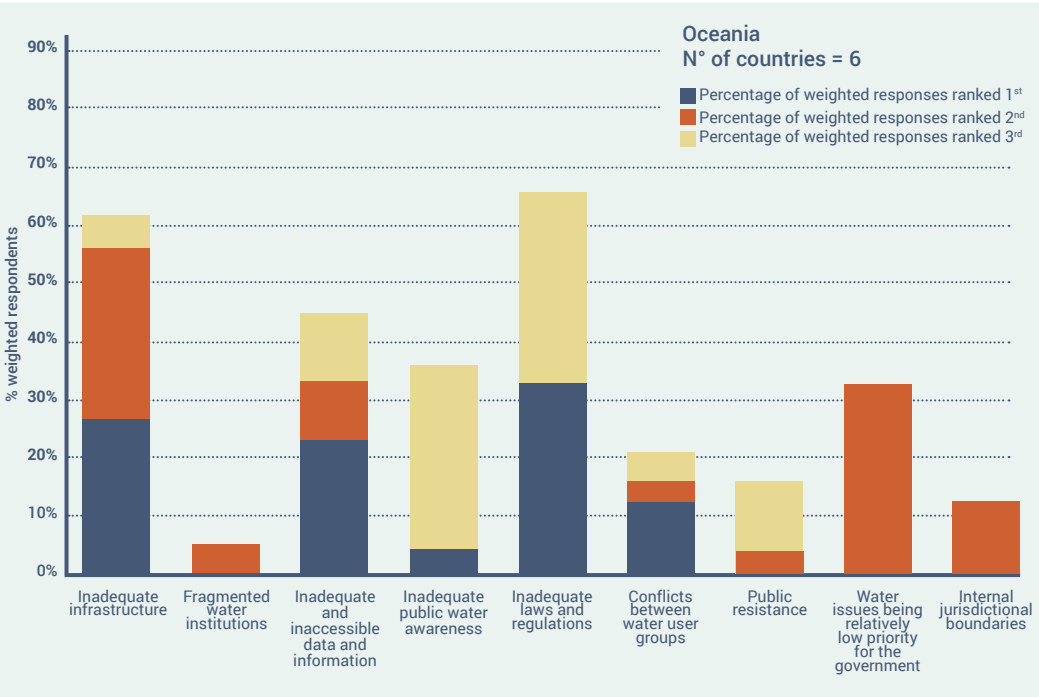
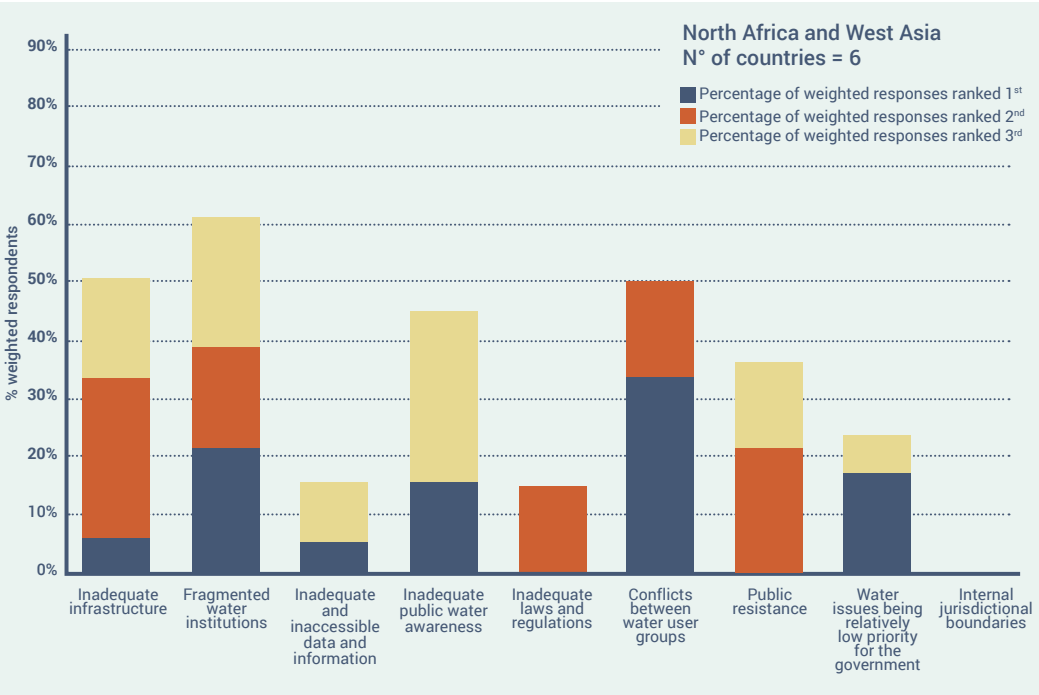
Fig 2.8: Challenges to achieving good water management for all surveyed countries in the Asia-Pacific region by sub-region



MINISTER PERSPECTIVES

On water challenges, a Minister of the South-eastern Asia sub-region says: “... The challenge lies in maintaining public awareness of water vulnerabilities, and acceptance of key water policies. More work needs to be done in public education and engagement, in particular to manage water demand..., which is as important as securing an adequate supply of water. Achieving a sustainable level of water consumption requires the commitment and participation of the community and industries. More readily accessible water consumption data is also critical.”

Fig 2.8: Challenges to achieving good water management for all surveyed countries in the Asia-Pacific region by sub-region



Compared with the world overall, water leaders of the Asia-Pacific are somewhat more concerned about inadequate infrastructure and less concerned about water being a low priority for their governments.

THE IMPACT OF COVID-19

The COVID-19 pandemic has demonstrably affected government priorities globally and caused unprecedented levels of investment (and debt) in many countries striving to maintain both public health and economic activity. There have been many calls to direct some of this increased investment to fast-track new water infrastructure - particularly in the areas of safe drinking water and sanitation - and ultimately accelerate the achievement



Man drinking drinking water straight from a hose in his field, India. © Freepik.

of SDG 6. A key goal for the survey was to investigate how the pandemic had affected water management within countries and how governments had responded to this challenge and potential opportunity.

COVID-19 increased concern about water management but not action.

Asked whether the COVID-19 pandemic has caused their government to be more concerned or less concerned about water issues, national water leaders of 46% of the surveyed countries in the Asia-Pacific region consider there has been no change. For 42% of the surveyed countries, national water leaders consider it has made the government to be more concerned, and for 11% less concerned.

However, respondents of more countries (56%) in the lower income groups felt their governments had become more concerned about water issues than was the case in the higher income groups (32%).

This difference between countries in the higher and lower income groups was also clear when national water leaders were asked how the pandemic has affected their priorities in regard to drinking water services and sanitation and infrastructure.

For drinking water and sanitation, 74% of lower income countries advised the pandemic had made these issues more urgent whilst 12% said it had not affected their priorities and 15% were unsure. By contrast, only 43% of higher income countries considered that the pandemic had made this issue more urgent, 39% said it did not affect their priorities and 17% were unsure.

For infrastructure, 56% of lower income countries said the pandemic had made this issue more urgent whilst 29% indicated no change to their priorities and 15% were unsure. However, only 25% of higher income countries considered it had made this issue more urgent whilst 70% said it did not affect their priorities and only 6% were unsure.

However, when asked whether COVID-19 has changed government attention to achieving water sector improvements, national water leaders of over half of surveyed countries consider there has been no change (53%) or attention had been reduced (10%). This figure was higher in lower income countries with 22% considering attention had been reduced.

These results are comparable to those from the world overall.

MINISTER PERSPECTIVES
In relation to achieving 'safe and affordable drinking water for all', a former (in the past five years) Minister of the Eastern Asia sub-region says "...Countries, especially in the developing world, face numerous development barriers such as rapid population growth, widespread poverty and starvation, plus unprecedented drinking water challenges and related economic difficulties that require immense financial resources. [My country's] access to drinking water is significantly varied due to the variety of their locations, across major cities, smaller urban centres and rural areas, so fair and equitable access to water cannot be ensured."

MINISTER PERSPECTIVES
A Minister of the South-eastern Asia sub-region says of how COVID-19 has affected priorities: *"Water has always been a priority area for... [us]... with or without the COVID-19 pandemic. To ensure the continuity of essential water services during the pandemic,... [we have] put in place various measures such as safe management practices at its workplaces and diversification of supplies to ensure that... operations continue during the pandemic."*

CHAPTER 3

ACHIEVING

GLOBAL GOALS

In 2015, the United Nations General Assembly adopted *Transforming our world: the 2030 Agenda for Sustainable Development* ('Agenda 2030'), embodying 15 Sustainable Development Goals (SDGs) to be achieved by all countries by 2030. Water and sanitation goals are the subject of SDG 6 'Ensure availability and sustainable management of water and sanitation for all' which has eight water management targets (Box 1):

Box 1: SDG 6 Targets

Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Target 6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Target 6.5: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

Target 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Target 6a: By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

Target 6b: Support and strengthen the participation of local communities in improving water and sanitation management.

Sheep searching for something to eat in a dry dusty paddock during a dust storm in drought-stricken New South Wales, Australia
© Shutterstock

Recognising that ‘business as usual’ was not good enough to achieve SDG 6, the United Nations adopted the SDG 6 Global Acceleration Framework (GAF) in 2020 to focus the in-country water and sanitation work of all UN agencies on SDG 6 outcomes and five ‘accelerators’ to expedite progress.

Box 2: United Nations Global Acceleration framework ‘Accelerators’

1. **Financing.** Optimized financing is essential to get resources behind country plans.

2. **Data and information.** Data and information targets resources and measures progress.

3. **Capacity development.** A better-skilled workforce improves service levels and increases job creation and retention in the water sector.

4. **Innovation.** New, smart practices and technologies will improve water and sanitation resources management and service delivery.

5. **Governance.** Collaboration across boundaries and sectors will make SDG 6 everyone’s business.

www.unwater.org/sdg6-action-space

The 2021 Water Leaders Survey sought the perspectives of national water leaders on what they see as the main issues in achieving each of the SDG 6 ‘water targets’ within their country. All the targets were explored except 6.2, due to ‘sanitation and hygiene’ involving issues going well beyond water. In the case of target 6.4, the ‘water-use efficiency’ and ‘water scarcity’ elements were subject to separate questions. In the case of target 6.5, the ‘integrated water resources management’ and ‘transboundary cooperation’ elements were subject to separate questions. The Survey sought to determine their views on the relative difficulty of achieving these targets and for those that are the most challenging to achieve, the reasons why they are so difficult, framed in the terms of the GAF accelerators. This is aimed at a better understanding of the potential usefulness of each accelerator for each SDG 6 target.

ACHIEVING THE SDG 6 WATER TARGETS

Five of the SDG 6 targets are considered to be either ‘challenging’ or ‘impossible’ to achieve for the majority of surveyed countries in the Asia-Pacific region. Of these, across all surveyed countries in the region, ‘protecting/restoring ecosystems’ was considered by the greatest number (63%) to be ‘challenging or impossible’.

However, there are considerable differences between the higher and lower income countries (Table 3.1). For the majority of lower income countries, all but two of the SDG targets are considered ‘challenging or impossible’ with 82% rating the ‘provision of safe and affordable drinking water’ as either challenging or impossible. By contrast, only two of the SDG targets were considered to be ‘challenging’ or impossible’ by the majority of the higher income group, i.e., ‘protection of ecosystems’ and ‘achieving water use efficiency’.



Confluence of Zaskar and Indus rivers - Leh, Ladakh, India. © Shutterstock.

Table 1: Difficulty achieving SDG 6 water targets: proportion of surveyed countries Overall and by Income Group

SDG Target	SDG Target is ‘Impossible or Challenging’		
	All Countries (n=30)	Responses for each Income Group	
		High/Upper-Middle	Low/Lower-Middle
Protecting/restoring water-dependent ecosystems	63%	64%	63%
Increasing water use efficiency	61%	52%	73%
Safe and affordable drinking water	58%	39%	82%
Improved water quality	54%	39%	73%
Implementing IWRM	50%	40%	63%
Impact of water scarcity	43%	32%	57%
Strengthening local participation	37%	31%	44%
Transboundary cooperation	33%	25%	42%

WHY SDG 6 TARGETS ARE NOT BEING REACHED: THE ROLE OF THE ‘ACCELERATORS’

National water leaders in the Asia-Pacific region were asked why it is so difficult to achieve each SDG 6 target they rated as ‘impossible or ‘challenging’ for their country, ranking reasons based on the five SDG 6 accelerators (listed above, Box 2). This question aimed to discern which of the accelerators were likely to be the most (and least) useful for countries in different income groups in achieving each target.

The tables below focus on what national water leaders in the Asia-Pacific region ranked as their most important reasons for each target being ‘impossible’ or ‘challenging’. For each of the target areas, we have identified the most frequently cited ‘first ranked’ reason and then looked at how often a reason was cited as one of the ‘top two’, as briefly summarised below.



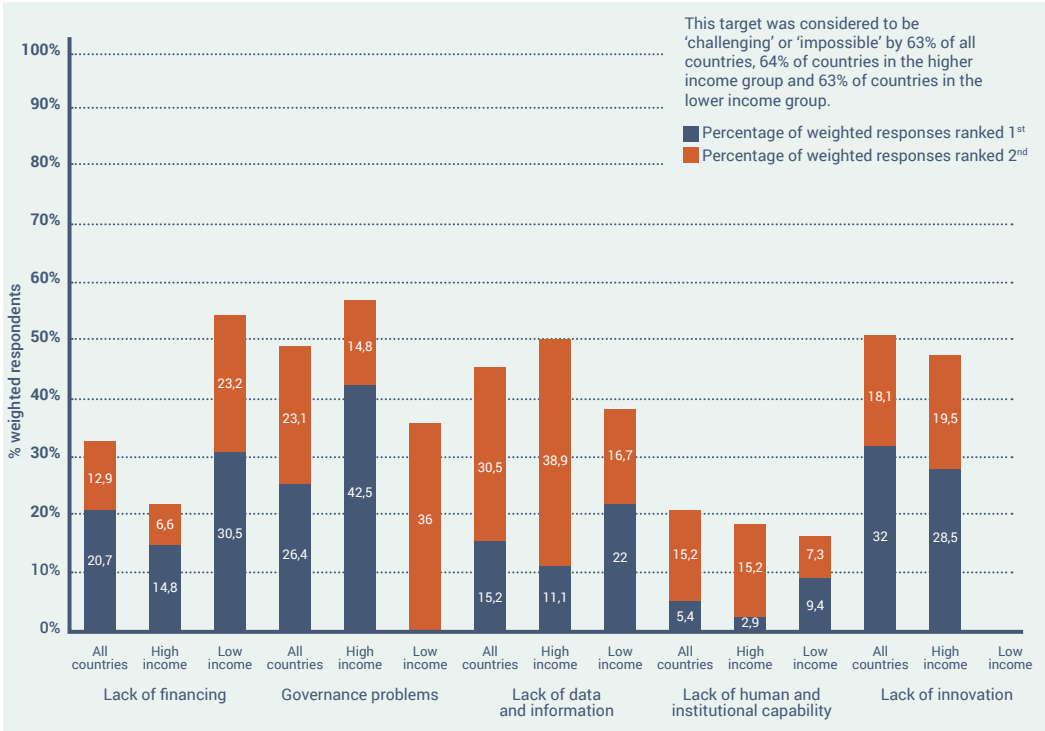
Herd of zebus, Myanmar.
© Freepik.

ECOSYSTEMS

For the 63% of surveyed countries in the Asia-Pacific region where ‘protecting and restoring water-related ecosystems’ is considered to be an ‘impossible’ or ‘challenging’ target, ‘governance problems’ and ‘lack of data’ were the most cited ‘first ranked’ reasons (32% and 26% respectively) and were ‘top two’ reasons for 50% and 49% respectively. The next highest ranked reasons are ‘lack of finance’ (the top reason for 21% and a ‘top two’ reason for 34%) and ‘human and institutional capability’ (the top reason for 15% and a ‘top two’ reason for 45%). Overall, the most cited ‘least important’ reason is ‘lack of innovation’ (lowest ranked for 24%).

For countries in the lower income group, ‘lack of data’ was not cited as the highest ‘first ranked’ reason but was frequently included in the top two.

Fig 3.1: Top two reasons for SDG 6.6 Target ‘Protecting and restoring water-related ecosystems’ being rated as ‘challenging’ or ‘impossible’

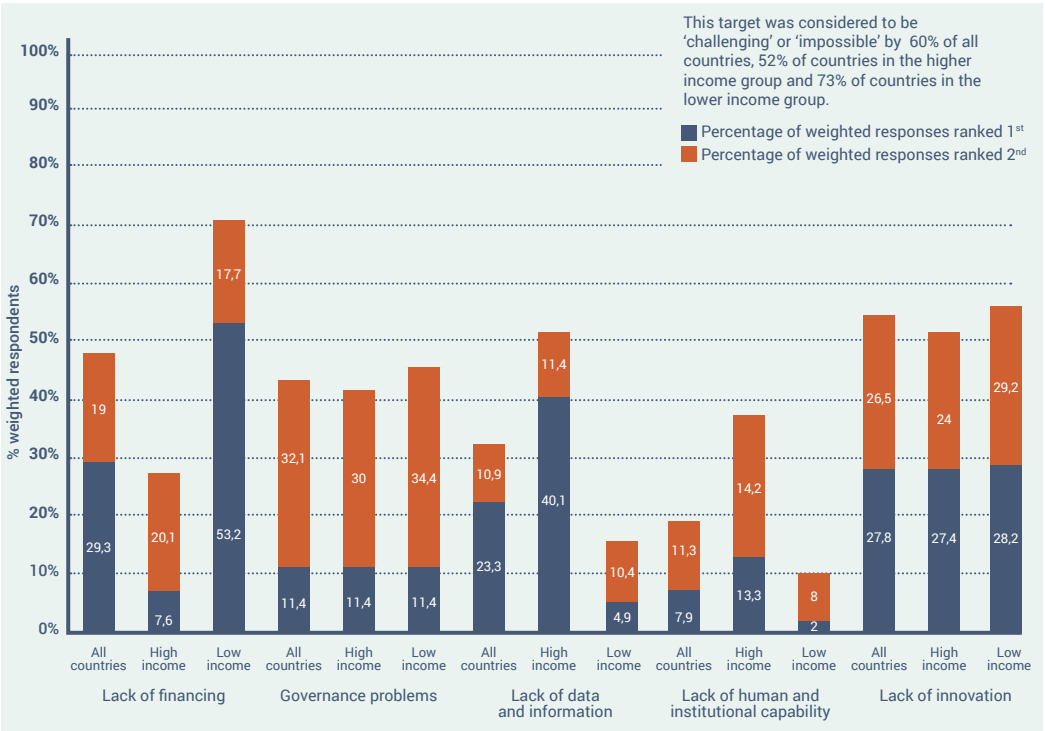


WATER USE EFFICIENCY

For the 60% of surveyed countries in the Asia-Pacific region where ‘improved water use efficiency’ is considered to be an ‘impossible’ or ‘challenging’ target, the most cited ‘first ranked’ reasons are ‘lack of financing’ (29%) and ‘governance’ (29%), with lack of human and institutional ‘capability’ (23%) and ‘lack of data’ (11%). However, when considering the ‘top two’ reasons, then governance is more important. The most cited least important reason overall is ‘lack of innovation’ (8%).

The higher income group cited ‘lack of capability’ as its ‘first ranked’ reason whilst this was clearly ‘lack of financing’ in the lower income group.

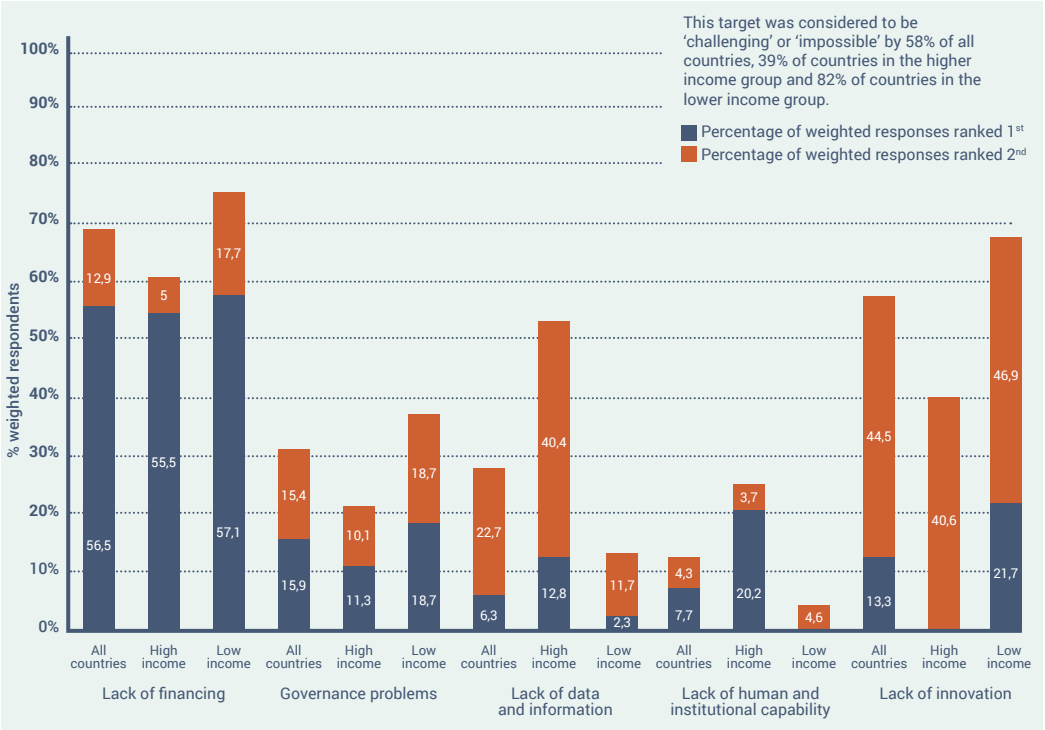
Fig 3.2: Relative importance of reasons for SDG target 6.4 (efficiency element) being rated ‘challenging’ or ‘impossible’: by income group



DRINKING WATER

58% of surveyed countries in the Asia-Pacific region considered ‘the provision of safe and affordable drinking water for all’ to be an ‘impossible’ or ‘challenging’ target. However, this figure was much higher for the lower income countries (82%). For all, the most cited ‘first ranked’ reason is ‘lack of financing’ (57%) with the next most cited ‘first ranked’ reason being ‘lack of data’ (16%). However, when considering the top two, then ‘governance’ becomes the second greatest concern.

Fig 3.3: Relative importance of reasons for SDG target 6.1 ‘Safe and affordable drinking water’ being rated ‘challenging’ or ‘impossible’: by income group



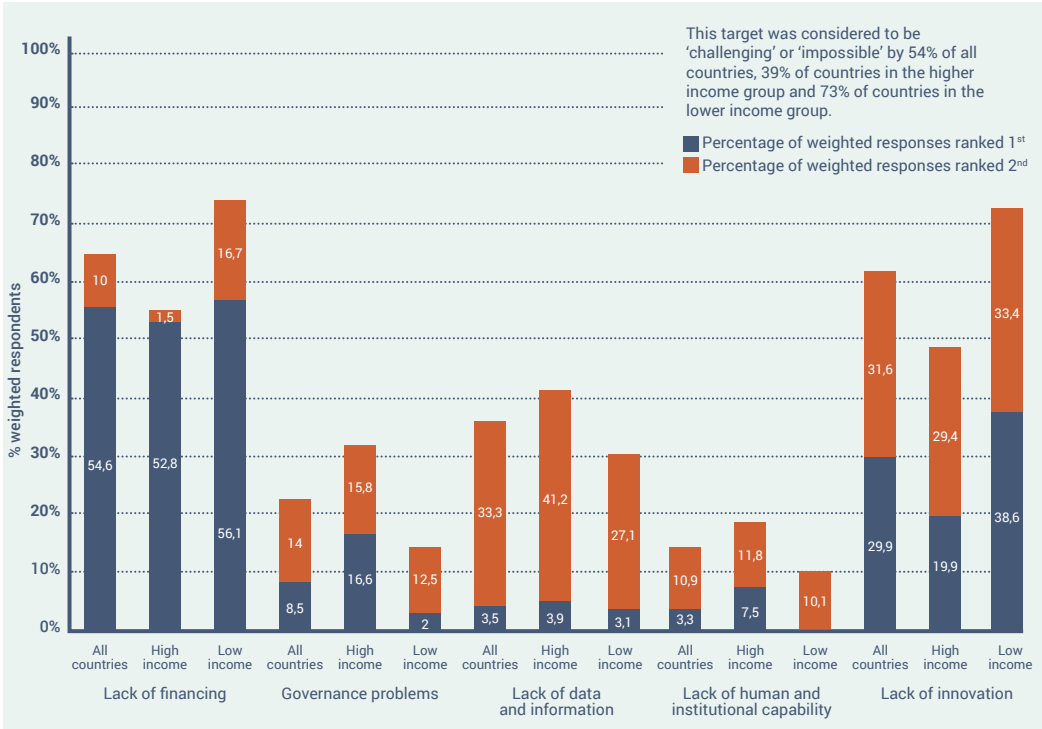


Asian elephant drinking from a river, Northern Thailand
© Freepik.

WATER QUALITY

For the 54% of surveyed countries in the Asia-Pacific region where ‘improved water quality’ is considered to be an ‘impossible’ or ‘challenging’ target, the most cited ‘first ranked’ reason is ‘lack of financing’ (55%) followed by ‘governance problems’ (30%), with little difference between the income groups. This result was even stronger when considering the ‘top two’ reasons, with ‘lack of financing’ cited by 65% of countries and governance by 62%. The most cited ‘least important’ reason is ‘lack of innovation’.

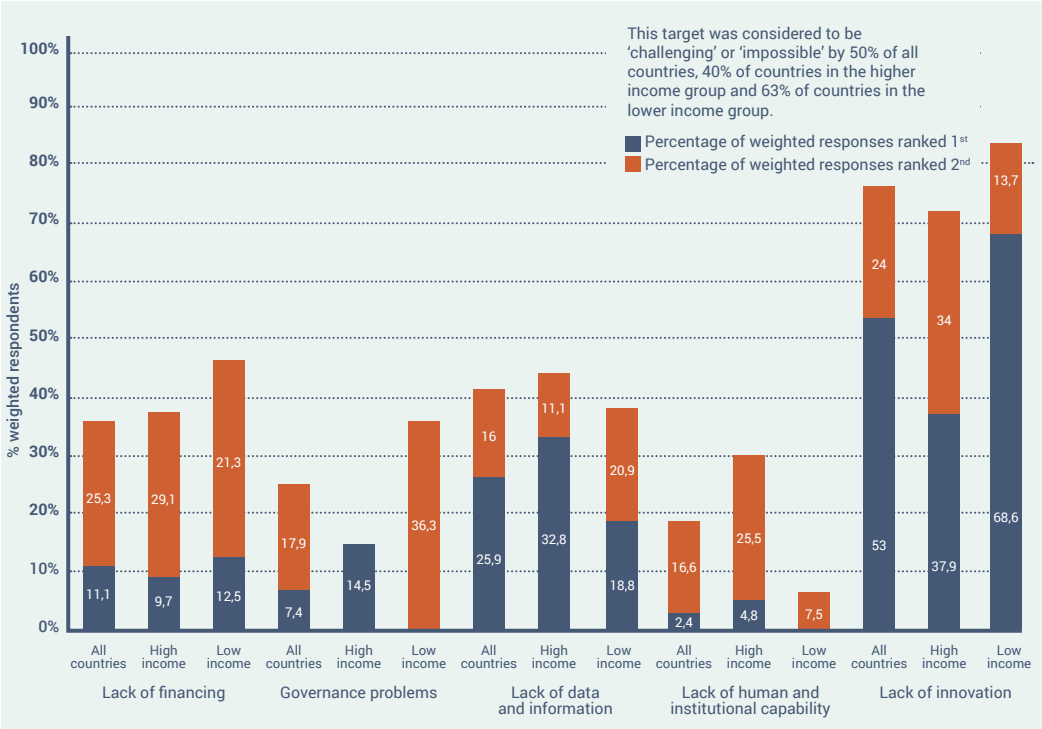
Fig 3.4 : Relative importance of reasons for SDG target 6.3 ‘Improve water quality’ being rated ‘challenging’ or ‘impossible’: by income group



INTEGRATED WATER RESOURCES MANAGEMENT

For the 50% of surveyed countries where ‘implementing integrated water resources management’ is considered to be an ‘impossible’ or ‘challenging’ target, the most cited ‘first ranked’ reason is ‘governance problems’(53%) , followed by ‘lack of human and institutional capability’ (26%) and then ‘lack of financing’ (11%). This pattern held true when considering the ‘top two’ reasons and was regardless of income group. The most cited ‘least important’ reason is ‘lack of innovation’.

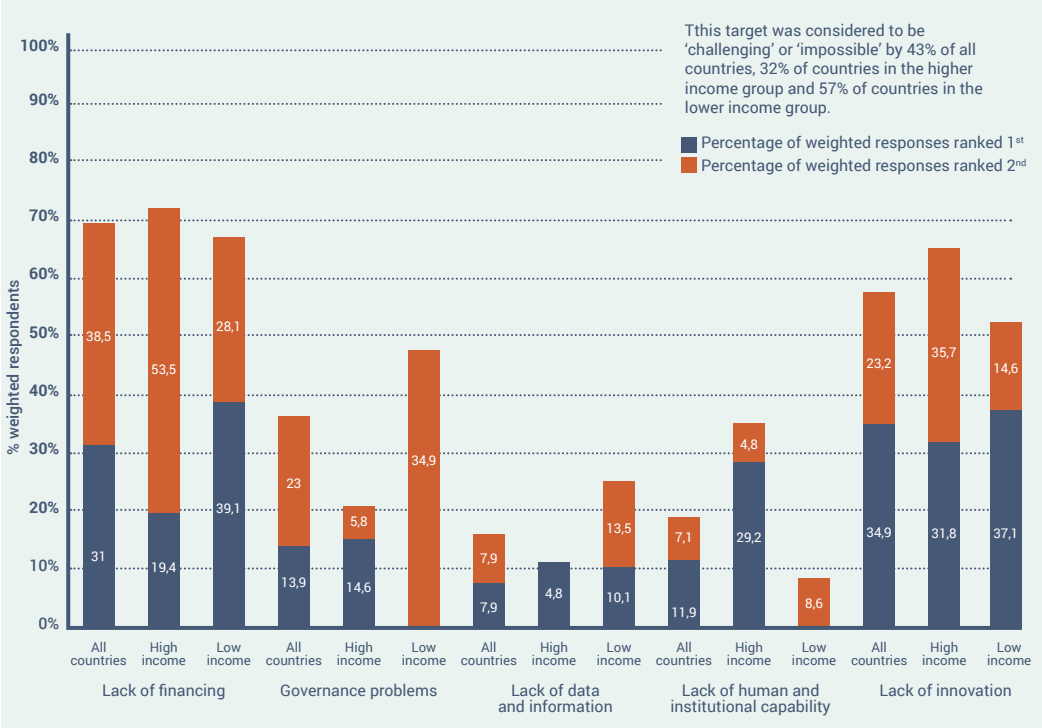
Fig 3.5 : Relative importance of reasons for SDG target 6.5 (IWRM element) being rated ‘challenging’ or ‘impossible’



WATER SCARCITY

For the 43% of surveyed countries in the Asia-Pacific region where ‘substantially reducing the number of people suffering from water scarcity’ is considered to be an ‘impossible’ or ‘challenging’ target, the most cited ‘first ranked’ reason is ‘governance problems’ (35%) closely followed by ‘lack of financing’ (31%). However, when considering the ‘top two’ this order was reversed with lack of financing cited by 70% of countries and governance by 68% in their ‘top two’ and occurred within both income groups. The most cited ‘least important’ reason is ‘lack of innovation’.

Fig 3.6: Reasons for SDG target 6.4 (water scarcity element) being rated ‘challenging’ or ‘impossible’





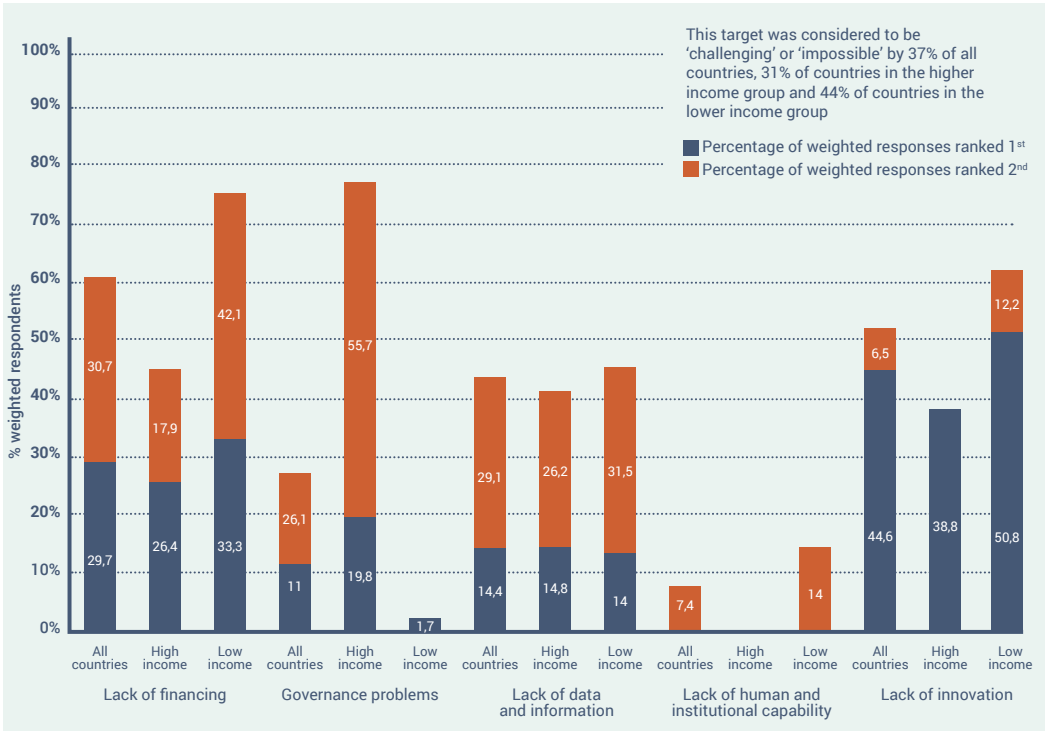
Mountains, Java.
© Galyna Andrushko, Freepik.

PARTICIPATION OF LOCAL COMMUNITIES

For the 37% of surveyed countries in the Asia-Pacific region where ‘supporting and strengthening the participation of local communities’ in water-related policy matters is considered to be an ‘impossible’ or ‘challenging’ target, the most frequently cited ‘first ranked’ reason is ‘governance problems’ (44%), followed by ‘lack of financing’ (29%) - with similar results across both income groups.

When considering the ‘top two’ reasons, there was a stark difference between the two income groups - lack of finance is of most concern in the lower income group (72%) with ‘lack of data’ in the higher income group (76%).

Fig 3.7: Reasons for SDG target 6.6b ‘Strengthen local participation’ being rated ‘challenging’ or ‘impossible’: by income group

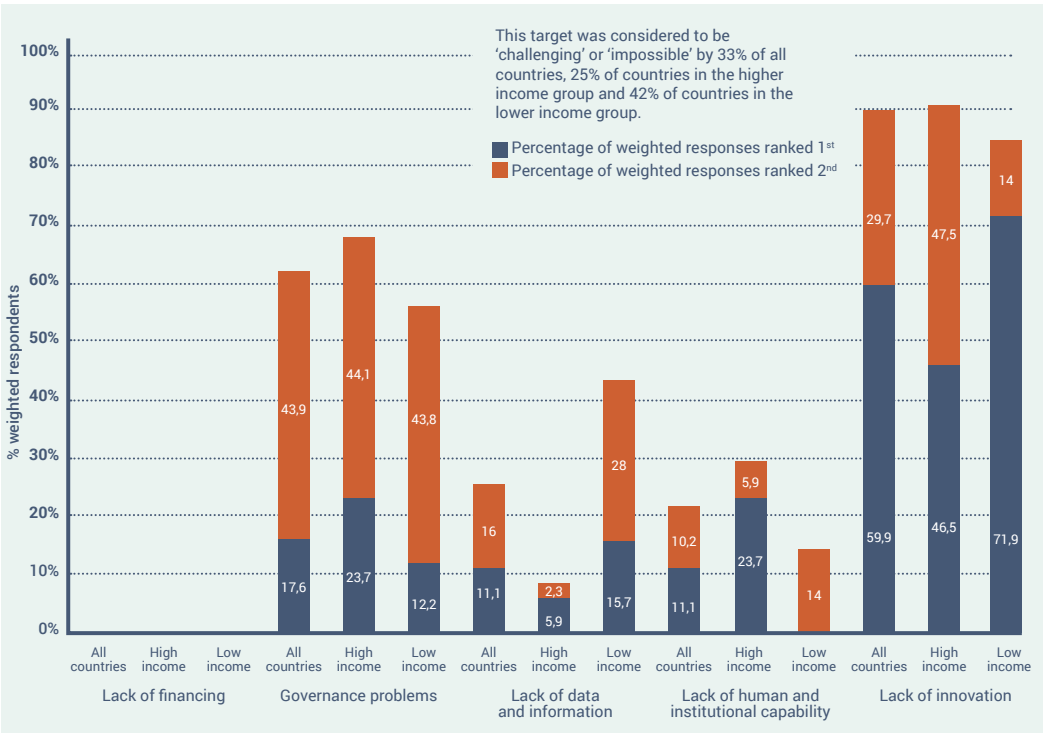


MINISTER PERSPECTIVES
A former (in the past five years) Minister of the Eastern Asia sub-region says the greatest constraint for achieving transboundary water cooperation is “professional capacity to deal with its international negotiations”.

TRANSBOUNDARY COOPERATION

For the 33% of surveyed countries where ‘transboundary water cooperation with your neighbors’ is considered to be an ‘impossible’ or ‘challenging’ target, the most frequently cited ‘first ranked’ reason is ‘governance problems’ (60%), followed by ‘lack of data and information’ (18%). This is generally true across both income groups although ‘lack of capability’ was also important in the lower income group. Lack of financing was not identified by any survey respondents as a reason for transboundary cooperation being ‘impossible’ or ‘challenging’.

Fig 3.8: Relative importance of reasons for SDG target 6.5 (transboundary cooperation element) being rated ‘challenging’ or ‘impossible’: by income group



MINISTER PERSPECTIVES

A former (in the past five years) Minister of the Eastern Asia sub-region country which is a recipient of international development assistance says the main reason is it is challenging to expand international cooperation and capacity building support for water and sanitation related activities and programmes in their country is “... lack of leadership role to advance the water sector in [my country]. The principal approach to improving population access to safe drinking water is good water governance, proper planning based on reliable data, stakeholder cooperation, and coordination....”

DEVELOPMENT ASSISTANCE

Respondents of 18 Asian-Pacific countries advised that their countries are recipients of development assistance and these included virtually all of the lower income countries. Six countries are providers of development assistance and six are neither providers nor recipients.

When asked whether international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes is adequate, respondents from a small majority (53%) of countries consider support to be inadequate. This figure was higher in the lower income groups (63%).

When asked why it is challenging to expand international cooperation and capacity-building support for water and sanitation-related activities and programmes in their country, ‘lack of financing’ was the most cited ‘first ranked’ reason (30%). When looking at the ‘top two’ reasons, lack of financing was still the highest ranked (45%) followed by ‘lack of human and institutional capability’ (31%).

Aerial view of sugar cane farmland in Nadi, Fiji.
© Shutterstock



MINISTER PERSPECTIVES

A former (in the past five years) Minister of the Eastern Asia sub-region says the water and sanitation issue of greater concern to them than any identified in the survey is “... the perception of water as a public good. Water is mostly free with a low or slow revenue stream so that its lack of economic value leads to insufficient funding in the sector. Consequently, the weak and inconsistent financial mechanism causes poor accountability of water infrastructure maintenance. Despite these investment-related reasons, all governments of developing countries must acknowledge that water infrastructure investments are often cost-beneficial due to reduced population healthcare costs and time-saving due to secure access to water which enables the population to become more productive.”

OVERALL CONCLUSIONS ON THE UNITED NATIONS ACCELERATORS

Overall, lack of finance and governance problems dominate the reasons for SDG targets being considered ‘challenging’ or ‘impossible’ by national water leaders in the Asia-Pacific region.

‘Lack of financing’ is the highest ‘first ranked’ reason for the targets on drinking water, water quality, and water use efficiency being viewed as ‘challenging’ or ‘impossible’.

‘Governance problems’ is the highest ‘first ranked’ reason for targets on integrated water resources management, transboundary water cooperation, ecosystems, water scarcity and participation of local communities being viewed as ‘challenging’ or ‘impossible’.

When the ‘top two’ reasons are counted, then several differences emerge –

- ‘Governance problems’ becomes the highest ‘top two’ reason for water use efficiency
- ‘Lack of finance’ becomes the highest ‘top two’ reason for water scarcity and local participation

If ‘finance’ is itself seen as a governance issue, and the ranks for both lack of finance and governance problems are combined, then they rank far higher than any other factors as reasons for SDG 6 targets being difficult to achieve.

The generally low ranking of ‘lack of innovation’ as a reason for not achieving SDG 6 targets may be due to this being narrowly interpreted as only about technology.

When the results are broken down by country income group, some further differences emerge. For lower income countries, ‘lack of finance’ is the most cited ‘top two’ reasons for difficulties with all targets except for the targets on IWRM and transboundary cooperation. In the case of the development assistance target, the question about the reasons for this being ‘challenging’ or ‘impossible’ was asked only for the surveyed countries that are recipients of international development assistance. Their national water leaders also most often ranked ‘financing’ as their top reason.

These results are similar to those for the world as a whole, though Asia-Pacific water leaders report being somewhat less challenged on achieving Sustainable Development Goal 6 targets than was the case with global leaders overall.



Rockpool water hole in the Terrick National park, Australia. ©Freepik.

CHAPTER 4

GROUNDWATER

The theme for United Nations World Water Day 2022 and the 2022 World Water Development Report is ‘Groundwater: Making the Invisible Visible’. This Report shares the perspectives of national water leaders in the Asia-Pacific region on what they see as the main issues in managing groundwater at the national level.

National water leaders have given their perspectives on the importance of groundwater to their country's future water supply, the sustainability of their country's groundwater use, the relative difficulty for their country to achieve SDG 6 targets in relation to groundwater, and constraints in improving groundwater management in their country, including the adequacy of groundwater governance arrangements.

■ IMPORTANCE OF GROUNDWATER AND SUSTAINABILITY OF GROUNDWATER USE

National water leaders of 78% of surveyed countries in the Asia-Pacific region, consider groundwater to be ‘very important’ or ‘essential’ to the future of their country's water supply. For almost half, groundwater is considered ‘essential’ with this figure being higher (60%) for countries with some water stress.

Table 4.1: Importance of groundwater to a country's future water supplies in the Asia-Pacific region by Income Group and Water Stress

Group	Number of Surveyed Countries	Importance of groundwater to a country's future water supplies			
		Essential	Very Important	Important	Not Important
All Countries	29	48%	30%	18%	4%
Income Group					
Higher Income	16	47%	36%	15%	2%
Lower Income	13	49%	22%	21%	8%
Water Stress					
Low Stress	13	34%	42%	22%	2%
Some Stress	13	60%	23%	17%	-

4 countries did not have a water stress rating.

In only 23% of surveyed countries in the Asia-Pacific region do national water leaders believe their groundwater is being used sustainably in most places. For 20% of surveyed countries, national water leaders consider that groundwater is not being managed sustainably anywhere, and for 45% of surveyed countries, that groundwater is being managed adequately somewhere, some of the time only. For 12% of surveyed countries, national water leaders say they do not have enough information to answer the question about where in their country water is managed sustainably.

For the 68% of surveyed countries where national water leaders consider there is at least some sustainable groundwater use, the areas with the most sustainable use were spread relatively evenly across prosperous urban and peri-urban areas (31%), prosperous rural areas (29%) and poorer rural areas (35%). The area with the least sustainable use was considered to be the poorer urban and peri-urban areas (4%).

The reason most often cited for sustainable groundwater use practices is ‘abundance of groundwater’. However, when looking only at countries in the lower income group ‘Self-regulation by water users or other cultural practices’ is most often cited as the reason for sustainable groundwater practices.

Table 4.2: Reasons for Sustainable Use of Groundwater (where it occurs) by Income Group

Group	Number of Surveyed Countries	Reasons for Sustainable Use of Groundwater			
		Abundance of groundwater	Government policies limiting water use or promoting replenishment	Self-regulation by water users or other cultural practices	Other
All Countries	22	31%	22%	20%	27%
Income Group					
Higher Income	12	33%	28%	7%	32%
Lower Income	10	28%	15%	37%	20%

For the 20% of the surveyed countries in the Asia-Pacific region who considered to lack sustainable water use anywhere, there is no dominant reason for this perceived failure. In the 12% of the surveyed countries whose national water leaders do not have enough information to know whether groundwater is being used sustainably, the most commonly cited reason is lack of suitable government programmes for groundwater assessment and monitoring.

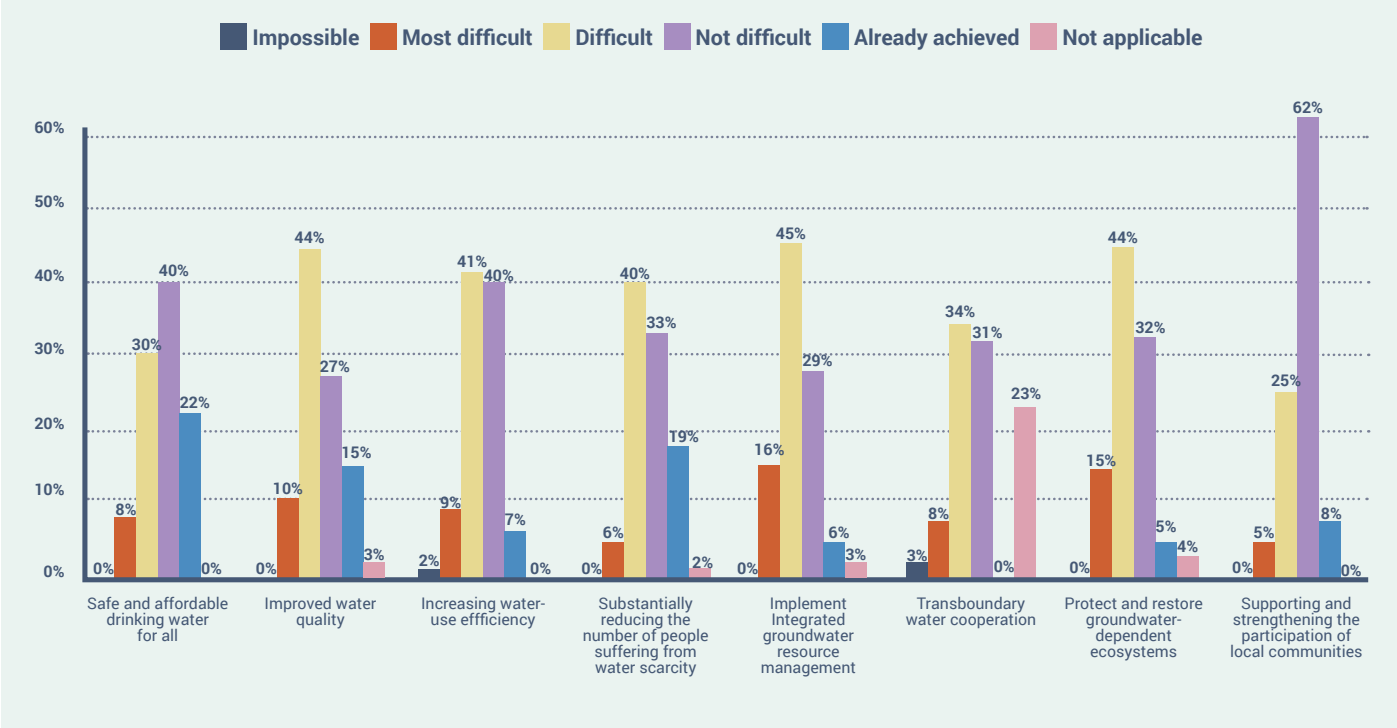
Compared with the world overall, fewer Asia- Pacific water leaders consider groundwater to be essential or important in their future water supplies but where they do, a greater proportion consider it is not being managed sustainably.

SDG 6 TARGETS IN RELATION TO GROUNDWATER

National water leaders in the Asia-Pacific region were asked for their perception of the relative difficulty of achieving the ‘SDG 6 targets’ relating to groundwater in their country, specifically concerning drinking water, water quality, water-use efficiency, water scarcity, integrated water resources management, groundwater dependent ecosystems, transboundary water and local participation.

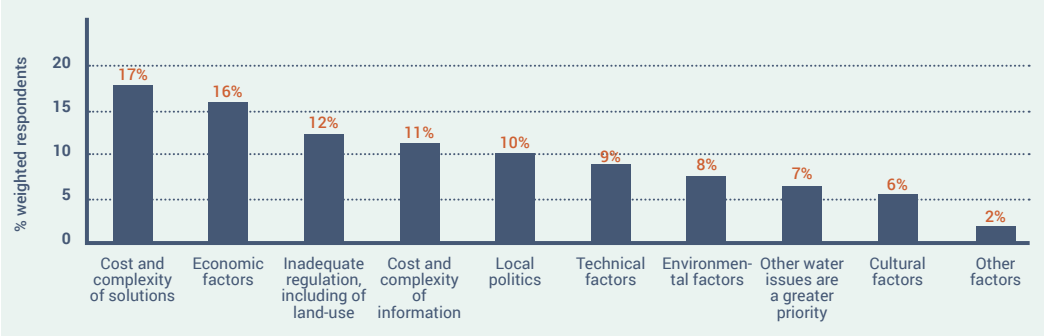
For very few of the surveyed countries (3% or less), national water leaders consider the targets to be ‘impossible’ to achieve when considering national groundwater policy, and no target areas were considered to be even ‘most difficult’ to achieve by respondents of more than 16% of surveyed countries. However, across the majority of target areas, the most common weighted response is the middle choice suggesting that overall countries find these targets ‘somewhat difficult’ in relation to groundwater. This did not apply to three targets where the majority of countries considered them to be either ‘not difficult’ or ‘already achieved’ – ‘participation of local communities’ (70%), the provision of safe drinking water (62%) and reducing the impact of water scarcity (52%).

Fig 4.1: Difficulty achieving SDG 6 water targets in relation to groundwater: proportion of all surveyed countries (n=29)



CONSTRAINTS TO IMPROVING GROUNDWATER MANAGEMENT AND THE ADEQUACY OF GROUNDWATER GOVERNANCE ARRANGEMENTS

Fig 4.2: Constraints to improving how groundwater is managed: proportion of all surveyed countries



When asked about the five main ‘constraints and impediments’ to sound groundwater management (from nine listed), ‘cost and complexity of solutions’ (17%), ‘economic factors’ (16%), and ‘inadequacy of regulations’ (12%) are the most commonly cited. The two constraints that feature the least in the ‘top five’ are ‘other water issues of greater priority’ (7%) and ‘cultural factors’ (6%).

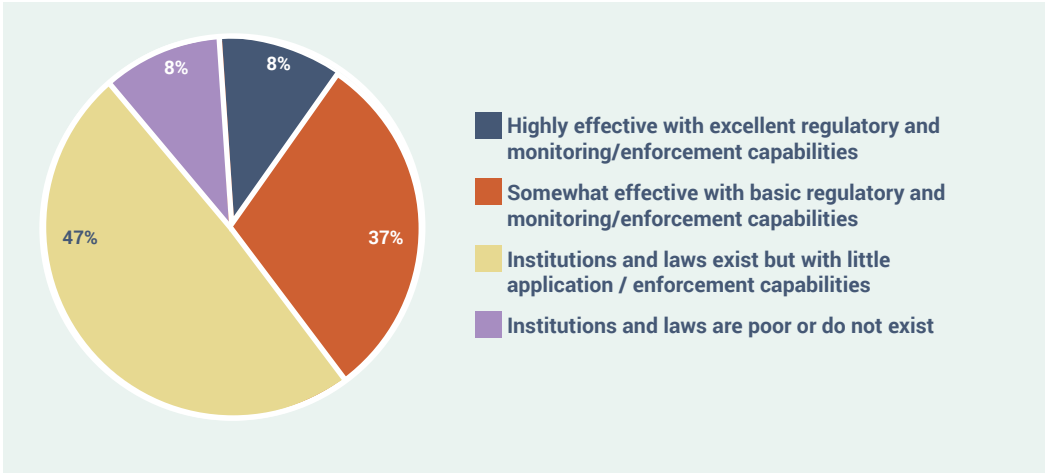
When asked whether groundwater outcomes are well enough integrated into national water management institutions and plans, weighted responses are positive overall (yes 62%; no 38%).

Opinion is more clearly divided on the effectiveness of the institutions and laws that govern groundwater resources. For only 8% of the surveyed countries do national water leaders say their institutions and laws are ‘highly effective with excellent regulatory and monitoring/enforcement capabilities.’ For 84% of countries, they say their institutions and laws are ‘somewhat effective with basic capabilities’ (37%) or have ‘little application and enforcement capability’ (47%).

Children sheltering from the rain.
© Prakasit, Freepik.



Fig 4.3: Effectiveness of institutions and laws governing groundwater resources: proportion of all surveyed countries



When asked about whether groundwater resources planning takes into account climate change scenarios, national water leaders of only 7% of the surveyed countries are confident this is occurring everywhere in the country. For around 50% of countries, they consider this is occurring in most (16%) or some (34%) places. For 21% of the surveyed countries, national water leaders consider groundwater resources planning never adequately takes climate change scenarios into account. For 22% of countries, national water leaders advise they do not have enough information to answer this question.

These survey results suggest that while groundwater is seen as important to national development, it is not necessarily considered to be well managed.

National water leaders of almost all the surveyed countries (95%) consider groundwater to be important, very important or essential but many countries consider that groundwater is not sufficiently integrated into national water management plans, that laws and regulations have little application and enforcement, and that climate change scenarios are not regularly considered in groundwater planning.

For only 12% of the surveyed countries do national water leaders say they do not have enough information to answer the question whether their groundwater is used sustainably. A higher proportion (22%) consider they do not have enough information to know whether groundwater planning adequately takes into account climate change scenarios. This suggests more may need to be done to present groundwater information in ways that can be understood and acted on by the people in leadership and decision making roles.

These results are comparable to those for the world as a whole.



Floating-village in Phang Nga National Park in Thailand.
© Freepik.

CHAPTER 5 CONCLUSIONS

This project set out to answer the question ‘why is achieving sustainable water management for all so difficult?’ It invited the perspective of national water leaders in the Asia-Pacific region- those with the responsibility and opportunity to achieve the best outcomes at the national level. Respondents represented 30 countries with a combined population of around 3.8 billion people.

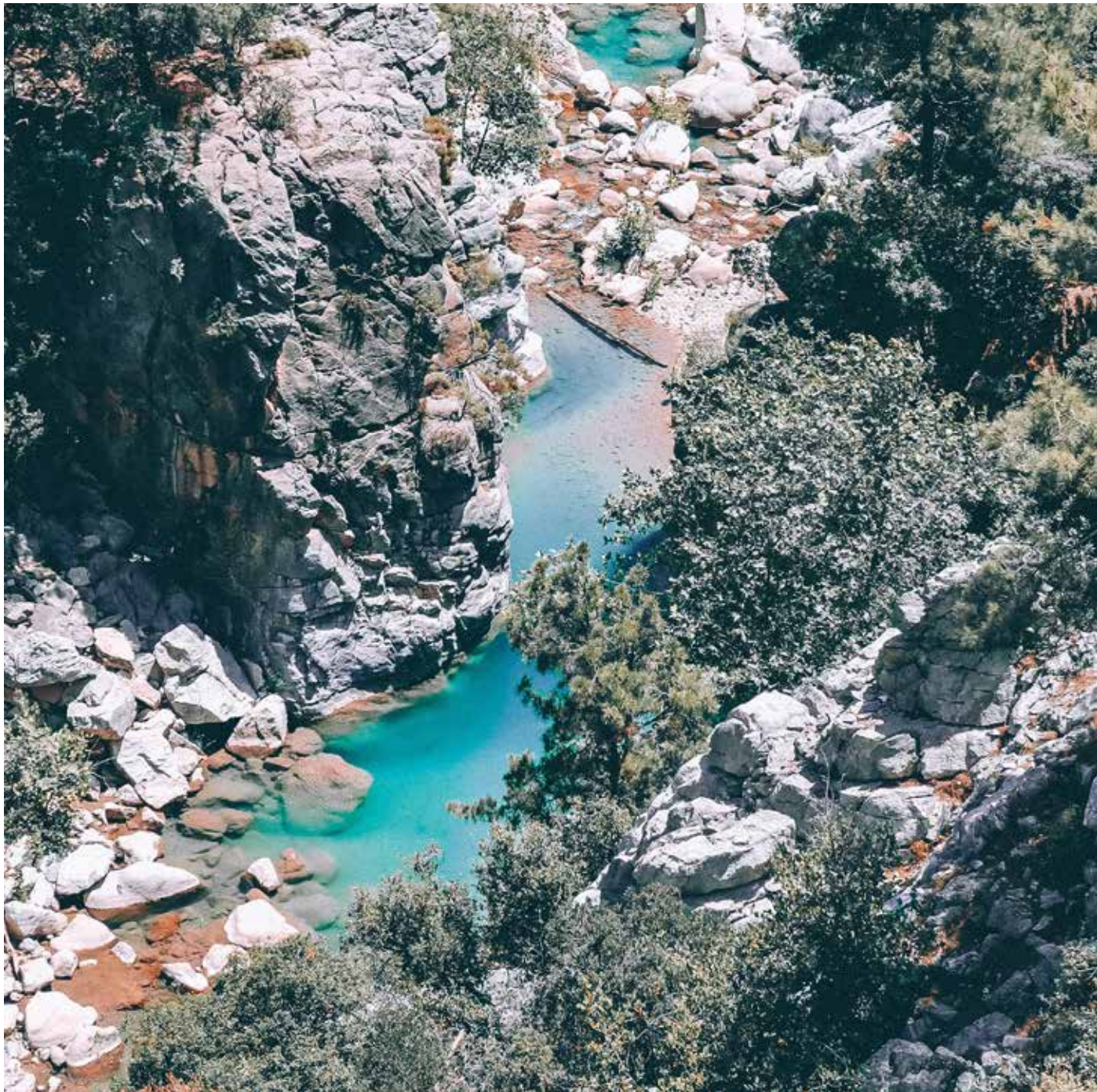
Ultimately readers can draw their own conclusions from this report and the further data on the website. They may use it to broaden their own outlook and understanding based on the experiences the results reveal. For our part, Water Policy Group considers the following to be particularly revealing and useful messages from the 49 national water leaders in the Asia-Pacific region.

■ WATER RISKS – IN 2021, IT WAS MAINLY ABOUT CLIMATE CHANGE

When water leaders consider the risks their country faces, for most of the surveyed countries, and both income groups, their greatest concern is about climate change reducing the water supply or worsening floods and droughts. Increasing demand for water, and more water-based disasters, all amplified by climate change, are also seen as very high risks. While poor household water quality was ranked in the top three risks for fewer countries, this was higher in the lower income group and in the Oceania sub-region, reflecting their struggle to ‘stay on track’ with SDG 6 implementation.

■ WATER CHALLENGES – IN 2021, THERE ARE MANY

When asked to identify the key challenges to achieving good water outcomes in their country, ‘fragmented water institutions’, ‘inadequate infrastructure’, ‘inadequate data’ and ‘public awareness’, are all highly ranked across all surveyed countries, across the two income groups and generally across the subregions (with a couple of exceptions). Broader political concerns such as ‘public resistance to reforms’ and ‘water being a low priority for government’, are generally seen as less challenging.



Göynük Canyon, Kemer, Turkey. © Unsplash.

■ COVID-19 HAS NOT GREATLY AFFECTED THE PRIORITY OF WATER

For most surveyed countries, national water leaders advise that while the COVID-19 pandemic has made water and sanitation services more urgent for them, overall government attention to water matters has not changed.

■ SUSTAINABLE DEVELOPMENT GOALS FOR WATER ARE DIFFICULT FOR MANY

National water leaders of the majority of countries in the lower income group find all but two of the SDG targets to be ‘impossible or challenging’. The majority of those in the higher income group consider them to be more achievable. This confirms the urgency given by the United Nations to supporting member states to implement SDG 6 through the SDG 6 Global Accelerator Framework and may bring into question the realism of some of the targets.

■ GOVERNANCE AND FINANCING ARE THE KEY ISSUES FOR MOST COUNTRIES

The opinions of national water leaders as to why the most challenging targets were so difficult may be an indicator of the overall usefulness of each of the GAF accelerators. Overall, lack of finance and governance problems dominate the reasons for SDG targets being considered ‘challenging’ or ‘impossible’ by national water leaders in the Asia-Pacific region.

‘Lack of financing’ is the highest ranked reason for the targets on drinking water, water quality, and water use efficiency being viewed as ‘challenging’ or ‘impossible’. ‘Governance’ is the highest ranked reason for targets on integrated water resources management, transboundary water cooperation, ecosystems, water scarcity and participation of local communities being viewed as ‘challenging’ or ‘impossible’.

■ GROUNDWATER MATTERS AND IS NOT CURRENTLY SUSTAINABLE FOR MOST

National water leaders of nearly 80% countries surveyed consider groundwater to be essential or very important to their country’s future water supply. Despite this message about the intrinsic importance of groundwater resources, national water leaders of less than a quarter of surveyed countries believe their groundwater is being used sustainably in most locations in their countries. For almost a third of surveyed countries, national water leaders consider groundwater is not being managed sustainably anywhere or they say they do not have enough information to know.

■ SDG 6 TARGETS NOT AS DIFFICULT WITH GROUNDWATER

Overall, national water leaders of most of the surveyed countries consider the SDG 6 targets involving groundwater to be not as difficult to achieve as for water resources as a whole. With groundwater, the targets rated as ‘impossible’ or ‘most difficult’ by the national water leaders of the in more than 15% of countries are those concerning, ecosystems and integrated water of the resource management.

■ GROUNDWATER’S DIVERSE CHALLENGES

National water leaders of the most surveyed countries identify the top three constraints and impediments to sound groundwater management as cost and complexity of solutions, economic factors, and inadequacy of regulations. As is the case with water resources as a whole, there is less concern about the other constraints which are of a more political nature.

While national water leaders of almost all the surveyed countries consider groundwater to be important, many consider groundwater is not sufficiently integrated into national water management plans, and that laws and regulations governing groundwater are not being applied or enforced adequately. Very few national water leaders consider that climate change scenarios are routinely considered in groundwater planning.

■ WRAPPING UP

Water Policy Group encourages readers to look, listen and learn from the national water leaders who have been so generous with their time in sharing their experience and perspectives and draw your own conclusions.



Fishing boats on the ocean.
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APPENDIX EXPLANATORY INFORMATION

OVERVIEW

The research used in the Global Water Policy report used qualitative and quantitative techniques to analyse alphanumeric and text responses to the 2021 Water Leaders Survey. The survey opened on the 1 March 2021 and contained 26 questions covering; meta-data on the nationality and role of the respondent; water risk and challenges, including from COVID-19; issues with Sustainable Development Goal 6; and groundwater resources. The survey was made available to respondents in an on-line format through the Qualtrics^{XM} platform¹ and in a portable document format. All responses were consolidated at the conclusion of the survey on the 1 October 2021.

ETHICAL STANDARDS

To ensure the project complied with the highest standards in ethical research an application was filed with the UNSW Sydney Human Research Ethics Committee (HC200546) which operates in accordance with, and applies the criteria specified in, the Commonwealth of Australia's National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research². Approval to proceed with the research was received from the committee on the 25 August 2020. Opportunity to participate in the survey was widely promoted on social media and at meetings and conference events. Invitations were sent to Ministers and other potential respondents directly, through their staff or through official channels.

ENSURING THE ANONYMITY OF RESPONDENTS

Participation in the survey was voluntary and respondents were not asked to supply information on their name or gender. To further maintain confidentiality and encourage candid responses, meta-data on the professional status of an individual national water leader, nor their country of affiliation can be identified from the data presented in this report.

1. www.qualtrics.com
2. www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018

Respondents to the survey were classified based on their leadership role including as National Government Minister (or equivalent) with responsibility for water portfolio (Category 1), chief executive or equivalent of national sector or utility (Category 2) or other positions, including leadership of civil society or industry associations (Category 3). While respondent classifications were used to weight aggregated responses from each country, the leadership status of any respondent cannot be identified from data presented in this report.

Respondents were asked to identify and select one of the 194 countries on the register of the United Nations Member States³, however, the national affiliation of any respondent cannot be identified from data presented in this report.

DISTRIBUTION OF SURVEYED COUNTRIES

The responses were grouped according to the geographic regions defined under the Standard Country or Area Codes for Statistical Use (known as M49) of the United Nations Statistics Division⁴. In addition, responses were grouped according to income group (GNI per capita) in accordance with the World Bank country classifications by income-level 2020-2021⁵. For this report, these were grouped into two categories higher income (combining the high and upper middle income groupings) and lower income (combining the lower middle and low income groupings). They were also grouped by water stress classifications based on UN Sustainability Goals⁶ as reported by the UN Food and Agriculture Organisation⁷. This report consolidates these into two categories ‘no or low stress’ and ‘some stress’. The designations employed and the presentation of the material in this survey do not imply the expression of any opinion whatsoever on the part of Water Policy Group or UNSW Sydney concerning the legal status of any place or concerning the delimitation of its frontiers or boundaries.

Table: Numbers of countries this report is based on according to geographical region, income group and water stress*

	N° of Countries in Asia-Pacific region
Sub-region	
Northern Africa and Western Asia (Western Asia countries only are counted)	6
Central and Southern Asia	9
East and Southeast Asia	9
Oceania	6
Income Grouping	
Higher Income	17
Lower Income	13
Water Stress	
Low water stress	13
Some water stress	14

**Not all questions were responded to by national water leaders of all 30 countries. The regional and income classifications are based on United Nations and World Bank published lists as set out in the Appendix. 3 countries did not have a water stress ranking.*

3. www.un.org/en/member-states/index.html
4. unstats.un.org/sdgs/indicators/regional-groups
5. datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups
6. <https://sdg6data.org/indicator/>
7. www.fao.org/3/cb6241en/cb6241en.pdf



Fruit and vegetable seller on her traditional boat, Ha Long Bay, UNESCO World Heritag, Vietnam.
© Homerak, Freepik.

EQUAL REPRESENTATION OF PARTICIPATING COUNTRIES

To acknowledge and value the contribution of all respondents that completed the survey, all responses received before 1 October 2021 were included in the analysis. However, to ensure equal representation of each country’s contribution, a weighting process was used to scale all the responses from each country to a value of 1.0. This was achieved by considering the ‘respondent categories’, reflecting their degree of seniority and influence, and assigning a fractional weight. For example, if multiple responses were received from respondents at the same category, an equal fractional weighting was applied based on the number of responses (i.e. two responses weighted 0.5 each, three responses weighted 0.33 each). In the event that multiple responses were received from respondents in different categories the responses were weighted so that category one responses were weighted at twice the value of category two and category two responses were weighted at three times the value of category three (i.e. a weighting ratio of 6:3:1 for Category 1, 2 and 3).

REPRESENTATION OF RANKED RESPONSES

Selected questions were designed to identify risks and challenges faced by water leaders in areas such as general water management and progress on the SDGs. In these questions, respondents were asked to select and rank risks and challenges from most (highest) to least (lowest) priority. Again, these responses were weighted to ensure equitable contribution from all countries irrespective of the number of responses. The weighted rankings were presented in column charts, where a single column corresponded to a particular risk and the column value represents an aggregate of all the weighted rankings (from high to low) arranged from the bottom (highest) to the top (lowest) of the column. The data was presented on the same scale with each column displaying how the challenge was ranked by the respondents, weighted according to their category and with each country having the same total weight. In each case the total number of countries represented in each category was displayed on the graph to indicate sample size per question. Not all respondents answered every survey question. This is reflected in the totals for each answer.



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