Dr Sam Geall, Dr Mohamad Mova Al'Afghani

The right to safe water in Southeast Asia

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1. Strengthening knowledge on connections between human rights, gender equality and environment in the region, aiming to clarify context specific challenges and opportunities and to inform and influence policy, practice and discourse.

2. Strengthening multi-sector synergies, pursuing constructive collaboration and efficient, inclusive and rights-based action towards SDG targets, building bridges and offering platforms for mutual exchange, and;

3. Promoting accountability in relation to programme topics for all in society, including for cross-border violations and actions of private actors, and adequate measures for marginalised and discriminated groups.

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Cover: Collecting water from a lake, Minnanthu, Bagan, Myanmar (Alamy)

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Executive summary

The human right to safe water is fundamental to leading a life with dignity.[1] It is indivisible from, and the foundation for, achieving many other internationally recognised human rights.[2] Yet approximately 844 million people live without access to safe water worldwide.[3] Around 110 million of those people live in Southeast Asia (hereafter ASEAN).

Minimum requirements for safe drinking water are defined by the World Health Organization as: water that does not represent any significant risk to health over a lifetime of consumption, and that is free of microbial pathogens, chemicals and radiological substances.[4]

Water supply should also be sufficient and continuous for individuals' personal and domestic uses, and accessible to everyone, without discrimination. While the human right to water does not require that it be made free, water does need to be affordable.

States are duty-bound to take all necessary steps to ensure the right to safe water, including by protecting it from contamination with hazardous substances and wastes – even if a water system is privately owned.

Businesses have a corresponding responsibility to respect the right to safe water, in their products, supply chains and beyond. Information about water quality, including potential threats such as pollution, must be available and accessible. Businesses should seek to mitigate impacts on access to water, and to help ensure access to effective remedies.

In 2012, the ASEAN Human Rights Declaration explicitly guaranteed "the right to safe drinking water and sanitation", but few ASEAN member states include the right to water in law. Many states have severe problems with water pollution. Rising stresses on the systems needed to ensure the right to safe water include: population growth, urbanisation, rapid industrialisation, and climate change – which poses disaster risks, such as cyclones and saline intrusion from sea-level rise.

In many places, water services provision is inadequate and unequal, with disparity of access between urban and rural areas. Water privatisation has, in some cases, led to poor coverage and high prices. Sanitation is also under-financed in many cases, and provided in an unequal way.

Water quality in Southeast Asia is under threat from many sectors including agriculture, manufacturing and waste management, due to insufficient wastewater treatment, chemical overuse and other factors. Mining is a particular problem, including from acid mine drainage, heavy

metal contamination and leaching, processing chemicals pollution and erosion and sedimentation.

Climate change and the need for adaptation are of growing importance. Many countries in ASEAN are vulnerable to disaster risks, and exposed to sea-level rise and cyclone activity. The Himalayan glaciers are warming far faster than average,[5] threatening the future of the Mekong and other international rivers, making transboundary water governance and large hydropower projects all the more potentially troublesome.

Deltas are particularly at risk. In the Mekong delta, for example, rice-based farming accounts for more than 65% of total freshwater demands, but water availability is increasingly threatened by complex and interrelated problems, including over-exploitation of groundwater, climate change, rising sea levels, industrial pollution, and over-use of pesticides and fertilisers.

Underpinned by government recognition and support of the right to safe water, best practices for addressing these myriad problems can include: innovative technological approaches such as solar desalination;[6] remunicipalised water services; community-led total sanitation (CLTS); greater circularity and efficiency in environmental management of industries like extractives; and better and adjusted investments, operations and maintenance around hydrological infrastructure, to adapt to climatic change.

Introduction

Aaron May/Flickr

All living organisms, from cyanobacteria to people, need water to survive. Clean water is essential to human health.[7] Yet in Southeast Asia, many states have severe problems with untreated wastewater, solid waste, pesticides and heavy metals being released into water supplies. Rising populations, urbanisation, rapid industrialisation and climate change all compound the threats to safe water.

This report takes a closer look at the right to safe water in the ASEAN region, and sets out conclusions and recommendations for policymakers, civil society, business and others. It begins by tracing the emergence of the right to water at the global level. Then it examines what safe water means under international human rights standards, and the implications for states and businesses regarding water quality.

The report then turns to the situation in ASEAN member states, focusing on the extent to which there is national recognition of the right to water and what challenges it faces in implementation. It finds that several states in ASEAN are lagging behind on the realisation of the right to safe water, and identifies problems, such as poorly managed water privatisation, under-financed sanitation, inadequate wastewater treatment and failures in law enforcement. It concludes with selected recommendations for ASEAN countries, including constitutional and legislative recognition of the right to water, stronger health protection standards in law for water quality, better support for sanitation and best practices in climate adaptation.

What is the right to safe water?

States, regional and global bodies have increasingly recognised the right to safe water and seen it as indivisible from many other human rights. Today, its legal basis is well established,[8] and some believe it should be considered customary international law.[9] This section charts how the right to safe water came to be recognised by the global community, and its links to other human rights.

All human rights are "indivisible, interrelated and interdependent."[10] Those particularly closely connected to the right to safe water[11] include the rights to: life, work, the highest attainable standard of health, safe and nutritious food,[12] adequate housing,[13] and education.[14] None of these can be realised without access to safe water.

For example, an aspect of the right to health includes environmental hygiene, which encompasses the prevention of threats to health from toxic and otherwise hazardous water.[15] Unclean water or inadequate sanitation often leads to illness such as cholera, one of the largest causes of death in children under five.[16] And the contamination of water with toxic lead is associated with learning disabilities and behavioural disorders, affecting the rights to education and to the enjoyment of the highest attainable standard of health. [17]

Global recognition of the right to safe water

The right to safe water originates in the right to an "adequate standard of living" enshrined in the

1948 Universal Declaration of Human Rights, Article 25(1).[18] This includes the right to adequate food, clothing and housing, and carries the assumption that water, like air, is freely available to all.[19] A number of UN conventions, declarations and resolutions entrenching the right to safe water have since been passed. They are presented in the following table and described in more detail after that.

Figure 1 | **History of the right to safe water**

DATE	NTERNATIONAL RECOGNITION
10 December 1948	**Universal Declaration of Human Rights** The right to a standard of living adequate for health and wellbeing (Article 25)
16 December 1966	**International Covenant on Economic, Social and Cultural Rights (ICESCR)** The right to an adequate standard of living that includes food, clothing and housing (Article 11) and the right to the highest attainable standard of physical and mental health (Article 12)
18 December 1979	**Convention on the Elimination of all Forms of Discrimination Against Women** The right to adequate living conditions, specifically in relation to water supply (Article14(2)(h))
20 November 1989	**Convention on the Rights of the Child** The right to clean drinking water and adequate food to combat disease and malnutrition (Article 24(2)(c))
11 August 2000	**CESCR General Comment No. 14** Interprets Article 12 of the ICESCR, acknowledging that access to safe and potable water is a prerequisite for achieving the highest attainable standard of health
26 November 2002	**CESCR General Comment No. 15** Interprets the ICESCR enshrining the right to safe water in international law. The right to water is indispensable for leading a life of human dignity and is necessary for realising other human rights (Article 1(1))
24 January 2007	**Convention on the Rights of Persons with Disabilities** To ensure equal access for people with disabilities to clean water services (Article 28(2)(a))
2 October 2007	**UN Declaration on the Rights of Indigenous Peoples** To maintain and strengthen their distinctive spiritual relationship to water (Article 25) and obtain their free and informed consent prior to any project affecting resources, particularly water (Article 32(2))
28 July 2010	**UN General Assembly Resolution 64/292** Formal recognition, for the first time, of the right to water and sanitation, and acknowledgment of clean drinking water as essential to the realisation of all human rights.
30 September 2010	**Human Rights Council Resolution 15/9** Affirms that the rights to water and sanitation are part of existing international law and legally binding upon states.

It was in 1979 that UN rights conventions began to make explicit reference to water. Article 14(2)(h) of the Convention on the Elimination of All Forms of Discrimination against Women[20] specifically outlines that states shall ensure women in rural areas enjoy adequate living conditions, particularly in relation to water supply and sanitation. In 1989, Article 24(2) of the Convention on the Rights of the Child[21] set forth this right within the context of the highest attainable standard of health. It requires states to provide adequate food and "clean drinking-water" in order to combat disease and malnutrition. In 2007, Article 28(2)(a) of the Convention on the Rights of Persons with Disabilities[22] recognised that protecting the right to an adequate standard of living requires states to ensure equal access for people with disabilities to "clean water services."

In the same year, the Declaration on the Rights of Indigenous Peoples (UNDRIP)[23] highlighted the specific concerns of these communities, who have historically been denied access to clean water and been exploited in the process of extracting natural resources, including water itself. UNDRIP focuses on indigenous peoples' "distinctive spiritual relationship" to water (Article 25) and on states' need to consult, cooperate and obtain free and informed consent before approving any project affecting indigenous lands or territories, particularly in connection to water (Article 32). Indigenous peoples have the right to their environments, lands and resources being conserved and protected. And this involves specific protections for water and other natural resources.

In parallel to explicitly mentioning water in human rights treaties and declarations, various UN bodies began to clarify that an adequate standard of living and other international human rights include the right to safe water. First, the Committee on Economic, Social and Cultural Rights (CESCR) underlined access to safe and potable water as a socio-economic factor affecting human health.[24] General Comment No. 14 states that the right to health requires the prevention and reduction of exposure to harmful substances such as those that may contaminate water.[25] The Committee on the Elimination of Discrimination against Women interpreted Article 14(2)(h) as an obligation on states to take all appropriate measures to ensure adequate living conditions in relation to water and sanitation, which are crucial to preventing disease and promoting good health.[26]

Then, two years after its general comment regarding water in the context of the right to health, the CESCR adopted General Comment No. 15 on the right to water. It found the right to be implicit in Articles 11 and 12 of ICESCR (International Covenant on Economic, Social and Cultural Rights), which cover the right to an adequate standard of living and the right to health. CESCR clarified that the word "including" indicated that the catalogue of rights listed in Article 11 was not supposed to be exhaustive.[27] It emphasised that "as one of the most fundamental conditions for survival", the right to water clearly falls within the category of essential guarantees for securing an adequate standard of living.[28]

The UN Committee on the Rights of the Child emphasised that states have a duty to ensure access to clean drinking water and that such access is particularly essential for the health of young children.[29]

On 28 July 2010, the UN General Assembly adopted Resolution 64/292, explicitly recognising "the right to safe and clean drinking water and sanitation as a human right essential for the full enjoyment of life and all human rights". In September of that year, the Human Rights Council (HRC) affirmed the right to safe drinking water and acknowledged that clean drinking water and

sanitation are essential for the full enjoyment of life and to the realisation of all human rights. The HRC confirmed that the right to safe water entails legally binding obligations as part of existing international law. This is derived from the right to an adequate standard of living, and inextricably linked to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity.

HRC Resolution 15/9 provides that "States have the primary responsibility to ensure the full realisation of all human rights", and that delegating the delivery of safe drinking water services to a third party does not exempt a state from that duty. The resolution also calls upon states to develop appropriate tools and mechanisms to progressively achieve the full realisation of their human rights obligations related to access to safe water. This was crucial because in relation to human rights the HRC sets the standard for all service providers, whether public or private.

When the UN General Assembly formally recognised the right to water and sanitation in 2010, quickly followed by the Human Rights Council, it built on a rich history of legal recognition of that right.[30] But the importance of UNGA Resolution 64/292 cannot be overstated as it was the first time all states acknowledged the right to safe water, and thus their obligations to ensure its realisation.

Interpretation of the right to safe water

General Comment No. 15 of the CESCR interprets the right to safe water (informed in part by Comment No. 14 on the right to the highest attainable standard of health). It defines water as a "social and cultural good, and not primarily an economic good".[31] CESCR also underscores that the right to safe water should be realised in a sustainable manner.[32]

CESCR interprets that "[t]he human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses."[33] It further clarifies that water must be adequate for human dignity, life and health in accordance with the rights to the highest attainable standard of health and an adequate standard of living.[34] To allow for different conditions, the right to water allows flexibility in the definition of "adequate" water. But quality, availability and accessibility apply in all circumstances.[35]

Basic human rights principles critical to the right to safe water include equality and non-discrimination.[40] States have a special obligation to prevent discrimination[41] in the provision of water and water services and to ensure equality, in law and practice, of access to safe drinking water.[42] There is a strong emphasis on states' accountability for ensuring individuals have access to safe water, particularly in the development of laws, policies, institutions, administrative procedures and mechanisms of redress when the right is violated.[43]

Participation and access to information are not only proven features of good governance, but also legally underpinned by the Stockholm Declaration, Rio Declaration and Aarhus Convention. They are crucial to ensuring equitable and sustainable water services. Transparency is also key, particularly regarding budgeting, price-setting and information exchange.[44]

General Comment No. 15 considers what constitutes adequate water quality, and clarifies the domestic and international obligations of states. Elements of the right to water are elaborated upon below, with a specific focus on water quality.

THE CESCR NORMATIVE FRAMEWORK ON THE RIGHT TO SAFE WATER

Quality

Water must be safe, meaning free from micro-organisms, chemical substances and radiological hazards that constitute a threat to health. Water should be of an acceptable colour, odour and taste.[36] CESCR also refers to the World Health Organisation (WHO) guidelines for drinking water quality, which are intended to be used as a basis for the development of national standards to ensure the safety of drinking water supplies. If properly implemented, these standards would eliminate, or reduce to a minimum, constituents of water that are hazardous to health.[37]

Availability

Water supply must be sufficient and continuous for personal and domestic uses, which include drinking, sanitation, clothes washing, food preparation, personal and household hygiene. The quantity of water available for each person should correspond to WHO guidelines; additional water may be required for certain individuals and groups due to health, climate and work.[38]

Accessibility

Water and water facilitation services must be accessible to everyone, without discrimination, within the state's jurisdiction. There are four overlapping dimensions to the accessibility requirement: physical, economic, non-discriminatory and informational.[39]

Water quality: What is 'safe' and 'clean'?

As water must be safe to drink in order to meet human rights' requirements, several international guidelines and documents address principles and provisions related to water quality. They provide guidance for states to meet specific obligations. The subject has been clarified via the WHO Guidelines for Drinking-water Quality, the UN Guidelines for the Realization of the Right to Drinking Water and Sanitation, UN Sustainable Development Goal 6.3 and further interpreted through numerous reports from various UN special rapporteurs.

The WHO's 2006 Guidelines for Drinking-water Quality[45] constitute an international reference point for drinking-water quality regulation and a standard to protect public health from water contaminants.[46] The guidelines, which apply to all sources of water provision, describe the minimum requirements of safe practice to protect the right to health and derive numerical "guideline values" for constituents of water or indicators of water quality.[47]

"Safe drinking water" is defined as water that does not represent any significant risk to health

over a lifetime of consumption and that is free of microbial pathogens, chemical and radiological substances.[48] The guidelines identify a framework for safe drinking water, comprising health-based targets established by a competent health authority; adequate and properly managed infrastructure and monitoring systems; and a system of independent surveillance.[49] In support of this framework, the guidelines also provide information on the microbial, chemical, radiological and acceptability aspects necessary to ensuring the safety of drinking water.[50]

The guidelines also elaborate on the need for water to have an acceptable taste, odour and appearance.[51] They provide an authoritative basis for the right of consumers to information on the safety of the water supplied to them for domestic purposes.[52] Realising the right to information on the safety of drinking water, particularly as it relates to chemical aspects of water, is critical not only to protecting human health from hazardous contaminants but also to maintaining and improving water quality.[53]

In 2006, the Sub-Commission on the Promotion and Protection of Human Rights built on the work of the CESCR, adopting the UN Guidelines for the Realisation of the Right to Drinking Water and Sanitation in Resolution 2006/10.[54] These guidelines do not legally define the right to water and sanitation. Rather, they are intended to assist policymakers, international agencies and members of civil society working in the water and sanitation section to implement the right to water.[55]

Guideline 7 concerns the water quality standards necessary for the full realisation of the right to water. Under it, states must establish water quality standards in accordance with the WHO Guidelines for Drinking Water Quality, and must take into account the specific needs of vulnerable groups. Such standards should:

1. prioritise the elimination of pollutants with the most significant health impacts;

2. devise regulations and policies to control pollution of water resources by all persons and organisations, public and private, including surveillance, disincentives, pollution penalties, assistance with compliance, and provide financial and technical assistance;

3. prevent and progressively reduce contamination of watersheds and aquatic ecosystems from chemical pollutants and biological contaminants, including monitoring quality in reservoirs and distribution systems;

4. provide financial and technical assistance (including information and training) to communities that depend on small-scale water supply systems, especially those considered low-income.[56]

On 25 September 2015, the UN General Assembly adopted a “people-centred” set of universal and transformative Sustainable Development Goals (SDGs) and targets, the so-called 2030 Agenda.[57] Goal 6 seeks to “ensure availability and sustainable management of water and sanitation for all.”

Target 6.3 represents a positive, mutually supportive convergence of human rights and sustainable development. It focuses on improving water quality by “reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.”[58] It aims to improve ambient water quality, essential for the protection of both ecosystem and human health, by minimising and significantly reducing different sources of water pollution,[59] mainly from waste

water from households, commercial establishments and industries.[60]

Two global indicators have been introduced to track progress towards Target 6.3. The first (6.3.1) is the "Proportion of waste water safely treated," which includes waste water generated by both households and economic activities. The second (6.3.2) concerns the "Proportion of bodies of water with good ambient water quality".[61] In accordance with ambient water quality parameters, "good" is when the target value is met 80% of the time, indicating an ambient water quality that does not damage ecosystem functions or human health.[62] Preliminary data obtained suggest that "one third of all rivers in Africa, Asia and Latin America are affected by severe pathogenic pollution, one seventh suffer from severe organic pollution and one tenth have moderate to severe levels of salinity".[63]

The monitoring of wastewater from hazardous industries and ambient water quality assists policy and decisionmakers in identifying water bodies at risk and enables stricter enforcement of pollution laws and discharge permits.[64] To date, the UN Human Rights Council has requested two special rapporteurs to examine, monitor, report and promote the full realisation of the human rights to safe drinking water and sanitation.[65] But considering the crosscutting nature of this right, many other special rapporteurs have also elaborated on the right's implications.

In his 2007 report to the UN General Assembly, the former special rapporteur on the right to the enjoyment of the highest attainable standard of health focused on water quality as an underlying determinant.[66] The right to health requires a state to do all it can to ensure safe water and adequate sanitation is available to everyone in its jurisdiction. It imposes an obligation on states to ensure that safe water is available for personal and domestic uses. [67]

The special rapporteur on the management and disposal of hazardous substances and wastes (known as "toxics") has noted that states are explicitly required to take into consideration the dangers and risks of water pollution and contamination in realising every child's right to health. He further interpreted the Convention on the Rights of the Child as requiring states to first and foremost prevent childhood exposure to toxic substances, including those in water.[68] In a 2015 report on access to information, the special rapporteur on toxics underlined that states have a duty, and businesses a corresponding responsibility, to ensure that information on water quality is available, accessible and in a format that functions to protect the rights of those most vulnerable.[69] In various country missions, the special rapporteur on toxics has also underlined that "to protect the right to safe water, strong and fully enforced regulations on chemicals used and waste generated and continuous monitoring, including after closure, are needed."[70]

II

Right to safe water: Duties of states and responsibilities of businesses

Pumping water from communal well, Jakarta, Indonesia. (RSMultimedia)

As primary duty-bearers, states have obligations to respect, protect and fulfil all human rights. As such, they are duty bound to take all necessary steps to ensure the right to safe water, including by protecting it from contamination with hazardous substances and wastes. As endorsed by the UN Human Rights Council, businesses have a corresponding responsibility to respect the right to safe water.

When a business enterprise or other third party is introduced into the relationship between the state and the individual in meeting the right to safe drinking water, the state maintains its human rights duties. Only the type of actions it must take changes. The state is still directly accountable for the protection and provision of water but the nature of accountability becomes more complex through the introduction of a third party.[71]

Even if a water system is privately owned, delegating water service delivery does not exempt the state from its human rights obligations, nor does it allow businesses to opt out of their responsibility to respect human rights.[72]

Duties of states

As clarified by the adoption of UN General Assembly Resolution 64/292 in July 2010, and Human Rights Council Resolution 15/9 in September 2010, states have clear obligations to protect, fulfil and respect the right to water of everyone in their territory and/or jurisdiction.

States are obliged to perform these three obligations without discrimination.[73] Their minimum core obligations are laid out in the International Covenant on Economic, Social and Cultural Rights (ICESCR). These obligations require, no matter what level of resources are at a state's disposal, at least essential levels of protection for people living under its jurisdiction. The Committee on Economic, Social and Cultural Rights (CESCR) has articulated minimum core obligations in the relation to the right to water.[74] The parts of these minimum core obligations related to water quality, and special considerations, are summarised as follows.

Core obligations in relation to the right to safe water

A legal/regulatory framework to:[75]

a. ensure access to the minimum essential amount of water, sufficient and safe for personal and domestic uses to prevent disease;

b. ensure the right of access to safe water and water facilities and services on a non-discriminatory basis, especially for disadvantaged or marginalised groups;

c. ensure physical access to water facilities or services that provide sufficient, safe and regular water;

d. ensure equitable distribution of all available safe water facilities and services;

e. take measures to prevent, treat and control diseases and disabilities linked to water, in particular ensuring water quality.

Special considerations

a. Non-Discrimination and Equality: data must be both collected and disaggregated by sex, age and various population groups to understand discriminatory practices and existing inequalities.[76]

b. Accountability: establish water quality monitoring systems combined with regulatory enforcement to ensure safe water quality standards.

c. Sustainability: drinking water should be economically, socially and environmentally sustainable.[77]

d. Participation: encourage meaningful participation in the decision-making process, while ensuring access to relevant information like water quality. To include marginalised groups, community-based, participatory mechanisms are best.[78]

e. Access to Information and Transparency: states must provide information on the risks, mitigation measures and safer alternatives available to prevent harm. In the context of the contamination of water with hazardous substances, lack of information and/or lack of consent to exposure is unacceptable. It is obligatory to have free, active and meaningful public participation by individuals and communities in decisions related to the risks they are willing to accept.

States have primary and ultimate responsibility to ensure the full realisation of the right to water "by ensuring access to sufficient, safe, acceptable, accessible and affordable water and sanitation services for all".[79] In instances when water services are operated by non-state actors, states should ensure that such private provision of services do not compromise equal, affordable and physically accessible water and sanitation of a good quality. States have an obligation to take steps, individually and through international cooperation, to the maximum of their available resources, to progressively achieve the full realisation of the right to safe drinking water by all appropriate means, including the adoption of legislative measures.[80] While this allows for progress to be made over time,[81] certain obligations such as non-discrimination have immediate effect on states.

The duty to respect, protect and fulfil the right to safe drinking water (and interrelated rights such as health) requires the realisation of the right to information. Information is a prerequisite for the realisation of several civil and political rights and is fundamental to ensuring that hazardous wastes and substances are kept out of water sources to the maximum extent possible.[82]

As formulated by the special rapporteur on toxics, information about water quality, including potential threats such as pollution, must be available and accessible in an appropriate form to meet the needs of everyone, including those most at risk.[83] Monitoring water quality is essential for compliance with the normative content of the right to safe water. Because interference is broadly defined and can either be direct or indirect, indicators for the obligation to respect the right to safe water should include information disaggregated by prohibited grounds for discrimination.[84] Thus governments must be able to collect, analyse and disseminate accurate water-quality information. Where water contamination is identified, those potentially affected must be promptly informed of the risks, and provided with effective remedies. Information-related obligations of states and businesses are summarised as follows.

Duties of states

1. generate, collect, assess and update information on water quality
2. effectively disseminate information on water quality
3. identify and inform those at risk of contaminated water
4. ensure confidentiality claims are legitimate
5. cooperate internationally to help make information available and accessible

Responsibilities of businesses

1. identify and assess adverse impacts on water quality
2. effectively communicate information regarding water-related risks and water contamination
3. engage in cross-border cooperation to respect the right to safe water

Duty to *respect* the right to safe drinking water

States must not unjustifiably interfere with the provision of the right to water. This includes any practice or activity that denies or limits equal access to adequate water; arbitrary interference with customary or traditional arrangements for water allocation; unlawful diminishing or polluting of water; limiting access to, or destroying, water services and infrastructure as a punitive measure; or engaging in any practice or activity that limits or denies access to adequate water.[85]

Common indicators include interference with access to water services; pollution, diversion or depletion of resources; and the criminalisation of activities linked to a lack of access to water. For example, a state can disrespect the right to water by: selling land with a water source on it and preventing users from continuing to access the source without providing an adequate alternative; polluting water through waste from state-owned facilities or through use and testing of weapons; or destroying water services and infrastructure during armed conflicts in violation of international humanitarian law.

Duty to *protect* the right to safe water

States must enact and enforce necessary protections of the right to water from abuses by third parties.[86] Third parties include individuals, groups, corporations and other entities, as well as agents acting under their authority.[87] Where water services or facilities are operated and controlled by third parties, states must still ensure equal, affordable and physical access to sufficient, safe and acceptable water.

States must take steps to ensure that non-state actors comply with human rights law and do not

impair access to water and sanitation for all.[88] States have an obligation to prevent human rights abuses by third parties by establishing an effective regulatory system, which includes independent monitoring, genuine public participation and penalties for non-compliance.[89]

Many business operations have direct and indirect effects on water quality, especially as industrial and agricultural activities expand worldwide and as climate change affects the hydrological cycle.[90] One of the most significant sources of water pollution is inadequately managed and treated industrial and agricultural waste. It is estimated that industry dumps between 300 to 400 metric tons of polluted waste into water annually.[91] There is also growing concern for low-income communities in cities and towns, especially in developing countries, where highly toxic chemicals and medical waste are dumped directly into wastewater systems.[92]

The UN Guiding Principles on Business and Human Rights are an authoritative global standard unanimously endorsed by the Human Rights Council in 2011.[93] The principles do not create new legal obligations. Rather they elaborate on the implications of existing obligations for states and businesses. They are comprised of 31 principles that define responsibilities and set expectations for states and businesses regarding how to prevent and address negative impacts of businesses on human rights,[94] such as pollution of water sources.

Principles 1 to 10 concern the state's duty to prevent human rights abuses by businesses in its territory through taking appropriate "steps to prevent, investigate, punish and redress such abuse through effective policies, legislation, regulation and adjudication."[95] Principle 5 is directly relevant to the provision of water. It concerns states meeting their human rights obligations when they contract with, or legislate for, businesses. The commentary stipulates: "States do not relinquish their international human rights law obligations when they privatize the delivery of services that may impact upon the enjoyment of human rights." This applies to outsourcing the delivery of water.

The obligation to protect entails a duty on states to adopt a legal framework requiring businesses to exercise human rights due diligence in order to identify, prevent and mitigate the risks of violation of ICESCR and to take account of the negative impacts caused or contributed to by their operations. This is particularly relevant to Principle 4 which requires states to take additional steps to prevent human rights abuses in relation to businesses that are owned or controlled by the state, or receive substantial support from state agencies.

The state's duty to protect involves policy coherence, provided in Principle 8, requiring states to ensure that all governmental departments, agencies and institutions that influence and shape business practices observe human rights obligations, by making certain they receive relevant information, training and support.

In its General Comment 24, in 2017, the Committee on Economic Social and Cultural Rights (CESCR) clarified states' duties in preventing and addressing the adverse human rights impacts of business activities to the rights enshrined in ICESCR.[96] As the Committee on the Rights of the Child had previously highlighted, in its General Comment No. 16 (2013), environmental degradation and contamination arising from business activities can compromise health and access to safe drinking water, implicating a number of rights.[97] In particular, the right to life, survival and development.[98]

States breach their international human rights law obligations when they fail to take appropriate steps to prevent the abuse of third parties and fail to consider the full range of permissible

preventative measures.[99] Thus, it is the state's duty to have adequate standards and regulations for proper water quality and to enforce them effectively. The increased role and impact of private actors in traditionally public sectors, like the provision and management of water, does not remove any state obligation to prevent water quality from degradation. Rather, industry is subject to stringent regulations to protect water quality as put forward by the state to prevent any such abuse. And, as discussed, private providers should be subject to stricter regulations for public service obligations such that they respect the need for universal coverage and continuity of services, prices, quality requirements and user participation.[100] Appropriate monitoring and accountability procedures, like imposing a duty on businesses to report waste management measures and address adverse effects on water quality, must be in place to ensure effective prevention and enforcement.[101]

General Comment No. 24 recognises that states have obligations of non-discrimination,[102] particularly in regards to groups often disproportionately affected by the adverse impacts of business activities; and obligations to respect, protect and to fulfil.[103] The obligation to respect is violated when a state prioritises the interests of business enterprises over the ICESCR or pursues policies that negatively affects these rights.[104] The obligation to protect requires states to effectively prevent infringements of ICESCR in the context of business activities by adopting legislative, administrative, educational and other appropriate measures to ensure protection of these rights and provide victims of such abuses with access to effective remedies.[105] The obligation to fulfil requires states to take the necessary steps to facilitate and promote the realisation of ICESCR and, in certain circumstances, to directly provide any essential goods and services for the exercise of these rights.[106] This would include the provision of access to safe water.

The principle of the best interests of children, provided in Article 3(1) of the Convention on the Rights of the Child (CRC), is the primary consideration for states in all actions concerning children. And General Comment No. 16 requires this principle to be central to all legislative, administrative and judicial proceedings concerning business activities and operations.[107] This involves undertaking continuous child rights impact assessments.[108] Regarding the right to non-discrimination in Article 2 of the CRC, General Comment No. 16 also obliges states to create an enabling and supportive environment for business enterprises to respect children's rights, including across any business relationships linked to their operations, products or services and across their global operations.[109] The comment recognises that business activities and operations can negatively impact on the realisation of the child's right to life, survival and development in Article 6 of the CRC and requires the state to implement preventative measures such as "effective regulation and monitoring of advertising and marketing industries and the environmental impact of business".[110]

Article 12 of the CRC provides the right of the child to be heard, and General Comment No. 16 provides that states should ensure businesses take into account the views of affected children.[111] States also have obligations to guarantee access to effective remedies for children whose rights have been infringed by a business acting as a private party or state agent.[112] Moreover, to meet their obligations to adopt measures to ensure that businesses respect children's rights, "states should require businesses to undertake child rights due diligence" and as part of this, states should encourage businesses to make public their efforts to address impacts on children's rights.[113]

States can be held directly responsible when they fail to prevent damaging third-party behaviour, particularly within the context of public contracts or if a private entity is empowered to exercise traditionally governmental functions, such as the provision of water.[114] Again, when businesses

play a role in the provision and management of clean water, states are not exempted from their obligations to prevent negative effects on water quality. Business interests should never be prioritised over the right to clean water. Poor communities lose access to clean water when land and water resources are used without respect for their rights in the name of agriculture, mining and other industry activities,[115] and states have a duty to actively prevent this.

When business activities result in pollution and/or contamination of water sources, states should consider imposing administrative – or in certain circumstances, criminal – sanctions. States should adopt measures that set forth due diligence requirements to prevent abuses to water quality by a business.[116] In this way, states would violate their duty to protect the right to safe water if they fail to prevent or counter business conduct that leads to that right being violated, such as by granting exploration or exploitation permits for water sources without considering potential adverse consequences.[117]

Duty to *fulfil* the right to safe drinking water

The obligation to fulfil the right to safe drinking water obligates states to take positive measures to *facilitate, promote* and *provide* the right to safe water for individuals and communities. In other words the state must ensure conditions exist for everyone to realise their rights. For example, it must allocate maximum resources to ensure everyone can progressively realise the right to safe drinking water regardless of their status. States have clear regulatory obligations when delegating the provision of safe drinking water to public or private providers. Most importantly, the obligation to fulfil requires that states adopt regulatory frameworks – all appropriate legislative, administrative, budgetary, judicial and other measure – towards the full realisation of the right to safe water.[118]

The obligation to facilitate requires the state to take positive measures to assist individuals and communities to enjoy that right. A good indicator for facilitation is introducing a “pro-poor” water tariff structure as part of a sustainable finance plan. Most water regulatory frameworks incorporate some sort of economic regulation, usually in the form of tariff-setting and/or asset management planning, for regulating aspects of drinking water quality, but that may not always be sufficient.[119] Expenditure for water and sanitation services should not exceed 5% of a household’s income,[120] so where that is the case, subsidies for basic water must be provided.

The obligation to *promote* the right to safe water requires the protection of water sources and methods to minimise waste.[121] In the instance of using natural water sources, a suggested indicator states can use to increase equitable access, reduce water waste, and shift economies toward sustainable ecological practices is to establish licensing and metering of consumption.[122] Finally, the obligation to *provide* requires that states use the means at their disposal to realise the right for individuals or groups that are unable to do so themselves.[123] Consider rural communities or densely populated, informal settlements in urban areas. Often, these populations are not well served by typical piped water services and must either rely on small-scale service providers who overcharge for poor-quality water, or continue to utilise unsafe water sources.

Finally, when a state does not directly provide services, the obligation to *fulfil* should also aim at creating an enabling environment for the realisation of the right to safe water, especially regarding a regulatory framework on affordability. States have a duty to regulate and monitor private providers.[124] While the human right to water does not require that it be made free, water does need to be affordable. There are also special considerations regarding state-owned companies that act as service providers. At the very minimum, such entities have the same responsibilities as businesses and must comply with the national regulatory framework. And the state must ensure they adhere to the realisation of the right to safe water.[125]

Responsibilities of businesses

Businesses have a responsibility to respect human rights. Indeed, virtually every industry and business sector is directly or indirectly linked to the production, use, release or disposal of hazardous substances and wastes, up and down supply and value chains, that may result in water contamination.

The UN Guiding Principles on Business and Human Rights are clear that businesses everywhere have a responsibility to respect the right to safe drinking water, which means they must avoid negative impacts on water quality and address such impacts when they occur.[126]

While the duty to realise the right to safe water rests squarely with the state, businesses also have a responsibility, at minimum, to respect all internationally recognised human rights, including the right to safe water.[127] Under the Dubai Declaration on International Chemicals Management, chemical manufacturers and other polluting industries committed themselves "to respecting human rights and fundamental freedoms",[128] which includes the right to safe water and other interdependent human rights. Human Rights Council (HRC) Resolution 15/9 stipulates that non-state service provides have a responsibility to "integrate human rights into impact assessments as appropriate" to identify and help address human rights challenges.

The Guiding Principles elaborate on existing human rights standards for states and businesses. Principles 11 to 24 specifically address the responsibility of businesses to respect human rights, which includes doing due diligence to identify and assess risks and impacts. A number of the principles are directly relevant to water quality and ensuring access to safe drinking water.

HRC special rapporteurs have emphasised the responsibility of business enterprises in exercising due diligence for their impacts on the right to safe water, including water quality. The special rapporteur on water and sanitation included water quality and monitoring in a previous report.[129] The special rapporteur on hazardous substances and wastes further clarified in his 2017 Guidelines for good practices that businesses "have a responsibility to respect the human rights that are implicated by their activities, supply chains, products, policies, procedures and business relationships, including their investments" and "[f]undamental to this responsibility is human rights due diligence in the area of toxic chemicals, pollution and waste. Businesses need to conduct such due diligence on toxics produced, used, released, stored and disposed of in the course of their activities, the life cycle of their products and their business relationships".[130]

In meeting their responsibility to respect the right to safe water, due diligence for the human rights implications of water contamination requires identifying potential adverse impacts from business activities and/or business relationships (including by suppliers in the supply chain); assessing impacts on the human right to safe water; taking active measure to prevent such impacts from occurring; and accounting for how adverse human rights impacts are addressed.[131] These are examined in the context of water quality below. Each discussion seeks to provide greater clarity on what "impacts" are to be identified by businesses to meet their responsibility to respect the right to safe water.

It is important to note that these responsibilities are not limited to the impacts a business directly causes. They also apply to activities to which they are linked or to which they contribute in some other manner.[132] In other words, businesses have responsibilities for the actions or inactions of their suppliers, contractors and downstream customers that may impact the right to safe water.

A limitation of the UN Guiding Principles is that considerable activity is conducted by the informal economy. Protecting human rights from the activities of the informal sector requires heightened efforts by states and formal business enterprises with links to it. This is of particular relevance to the ASEAN region.

Responsibility to identify and assess

When conducting due diligence, businesses should identify and assess actual and potential adverse human rights impacts with which they may be involved through their own activities or business relationships.[133] This requires businesses to have an accurate understanding of the actual and potential impact of their business – directly or indirectly – on water quality.[134]

In their responsibility to identify and assess impacts, businesses should apply health-based standards set by the WHO Guidelines, as they are the authoritative source for numerical guideline values.

Consensus has grown that greater responsibility should lie with businesses to make available information about the risks and impacts of hazardous substances. In 2006, a declaration by governments and the private sector stressed the responsibility of industry to make available to stakeholders data on the health and environmental effects of toxic chemicals.[135] Businesses should identify and assess:

- which hazardous substances are used, discharged or released as a direct or indirect result of their business activities
- which substances with missing information regarding intrinsic hazards (eg potential to cause cancer, harm reproduction or impede a child's development) are used, discharged or released as a direct or indirect result of their business activities
- potential risks of contamination due to failures of infrastructure and facilities, such as pipelines for transportation and tailings ponds for waste storage

- quantities of pollution that will or may contaminate water sources
- degree of human exposure, actual and potential, taking into account socio-economic determinants such as age, gender, income and ethnicity
- known and unknown health impacts, also taking into account socio-economic determinants
- any other conditions which may affect the right to safe drinking water

In identifying and assessing adverse impacts, ensuring the integrity of information about hazardous substances has been a reoccurring challenge.[136] In some cases, scientists may not have disclosed financial ties with chemical manufacturers and other possible conflicts of interest when making statements as "independent" scientific experts. In other cases, the integrity of pollution sampling and information monitoring has been of concern.

Businesses should have in place appropriate tracking mechanisms to ensure that actual and potential human rights impacts are addressed, whether they cause or contribute to these impacts.[137] When information is submitted to one state about the health and safety of any substance that may pose health risks through water contamination (as well as other routes of exposure), it should be in the public domain.[138]

Key sectors in private industry, for example large-scale agricultural producers, the chemical industry, energy providers and extractive industries, are significant consumers of freshwater resources that may deplete access to safe water. This is irrespective of their contribution to declining water quality via pollution and other sources of contamination. Currently, irrigation is the largest user of water and projections indicate that the industry will account for most new water use by 2025.[139] This poses a special threat to access to water for poor, rural communities as interests of large-scale agricultural producers and industry may overshadow their needs.

Responsibility to prevent and mitigate

Once potential or actual adverse human rights impacts have been identified, businesses have a responsibility to prevent and mitigate these impacts by applying their impact assessment findings to their operations.[140] Businesses should actively seek to prevent hazardous substances and wastes from contaminating water sources. Preventing exposure, especially with respect to polluting a water source, is a core responsibility. Only when prevention is not possible should businesses seek to mitigate.[141]

UN Guiding Principle 24 stipulates that where it is necessary to prioritise actions to address actual and potential adverse human rights impacts, business enterprises "should first seek to prevent and mitigate those that are most severe or where delayed response would make them irremediable". This involves considering under what circumstances the protection of water resources should take priority over efforts to respect other human rights.[142] Access to water is essential for the realisation of the right to health, and lack of sufficient access can also affect the right to life. This implies that businesses should exercise maximum precaution when their activities pose risks to water quality.[143]

As part of their responsibility to prevent and mitigate, businesses also have a responsibility to communicate information to individuals or groups at risk of adverse impacts from water contamination.[144] It is not sufficient to simply identify the name of the hazardous substance, especially not for children, communities in high-risk areas or others at risk of disproportionate impacts. It is essential to explain and create awareness about what harm may result.

The ongoing expansion of supply chains and business relationships around the world – resulting in increased hazardous substances and wastes in countries with limited capacity to ensure their safe use and disposal – heightens the responsibility of businesses to ensure their products do not cause or contribute to human rights violations because of hazardous substances, both at home and abroad.[145]

Account for efforts to address impacts on human rights

Businesses have a responsibility to provide any and all information necessary to protect health and safety, and otherwise respect human rights affected by hazardous substances. To this end, emissions to the environment or other water contamination risks should not be considered confidential.[146]

Businesses have a responsibility to publicly communicate information about the risks created by their activities and how they mitigate and address both actual and potential impacts on the right to water.[147] This includes all businesses that use, produce and release hazardous substances that may decrease water quality. As indicated by Guiding Principle 21, these communications should:

a. Be of a form and frequency that reflect a business's human rights impacts, including on the right to safe water, and that are accessible to its intended audiences

b. Provide information that is sufficient to evaluate the adequacy of an enterprise's response to the particular human rights impact involved.

As an example of such efforts, the Zero Discharge of Hazardous Chemicals (ZDHC) is working in the clothing and textiles industry towards a system of pollutant release and transfer registers to improve the apparel and footwear supply chain.[148]

Businesses involved in water services, including those that use, produce and dispose of hazardous substances with the involvement of water, have a responsibility to determine and publicly communicate information about the risks to water safety posed by their products.[149] Monitoring and accounting for this information provides an understanding for the current levels of access to water a population has by focusing on important issues like water quality, affordability, accessibility and ensuring that such processes are participatory and inclusive. Regulatory bodies should also maintain independence as far as possible. Activities should be monitored by separate entities such as national human rights institutes, parliamentary bodies and/or the judiciary, especially considering that water and sanitation regulation is unique in that regulated services are directly related to the fulfilment of human rights.[150]

Finally, businesses have a responsibility to help ensure access to effective remedies. UN Guiding Principles 25-31 set out the foundations that should underpin judicial and non-judicial mechanisms to provide remedies for human rights abuses involving businesses. These principles are directly relevant to businesses whose activities affect the access of individuals or communities to safe water. Principle 22 requires that where businesses have identified they are responsible for adverse impacts, they are expected to "provide for or cooperate in their remediation through legitimate processes".

Furthermore, UN General Assembly Resolution 72/178 calls upon non-state actors, including businesses, to comply with their responsibility to respect the human right to safe water by cooperating with state investigations to detect and remedy abuses to that right.

Figure 2 | **Summary of duties and responsibilities of businesses with respect to the right to safe water, in relation to water quality**

State duties	**Duty to respect the right to safe drinking water:** states must not unjustifiably interfere with the provision of the right to water; **Duty to protect the right to safe water:** states must enact and enforce protections of the right to water from abuses by third parties; Duty to fulfil the right to safe drinking water: the state must ensure conditions exist for individuals to realise their rights, for example, with economic regulation to ensure affordability.
Business responsibilities	**Responsibility to identify and assess:** businesses should identify and assess actual and potential adverse human rights impacts, by monitoring, for example, the discharge and release of hazardous substances; **Responsibility to prevent and mitigate:** businesses should apply their impact assessment findings to their operations to, for example, prevent exposure to hazardous substances. **Account for efforts to address impacts on human rights:** businesses should provide any and all information necessary to protect health and safety.

II

Realisation of the right to safe water: Experiences from ASEAN

Mekong delta, Vietnam (Alamy)

All ASEAN member states have ratified at least one international human rights instrument that enshrines the right to safe water, with several states party to both the ICESCR and Convention on the Rights of the Child (CRC) (see Figure 6). In 2012, the ASEAN Human Rights Declaration (AHRD) explicitly guaranteed "the right to safe drinking water and sanitation" in Article 28(e) as part of a person's right to an adequate standard of living.[151]

In efforts to further realise this right within the region, the ASEAN Intergovernmental Commission on Human Rights (AICHR) held a regional consultation on the right to safe water and sanitation where ASEAN countries agreed to a common approach and the baseline positions that underscore the right to safe water.[152] In the spirit of progressive realisation, and in further implementation of the right, the ASEAN Strategic Plan of Action on Water Resources Management states that water is both an economic good (it has economic value) and a public good (every citizen has the right to access it).[153] The newly adopted ASEAN Strategic Plan of Action on Water Resources Management aims to tackle problems related to water quality, good governance, supply allocation and capacity building in realising the right to safe water.

Work by the ASEAN group on water resources is not a recent development. In 2003, initiated by the ASEAN Working Group on Water Resources Management (AWGWRM), ASEAN adopted a "Strategic Plan of Action on Water Resources Management." In 2006, ASEAN adopted the ASEAN Socio-Cultural Community Blueprint 2025.[154] The blueprint, which is called the "guiding mandate" for the AWGWRM,[155] contains several commitments related to water:

- "adopting good management practices and strengthening policy to address the impact of international waters and transboundary environmental issues, including pollution, illegal movement and disposal of hazardous substances and waste…
- "enhance policy and capacity development and best practices to conserve, develop and sustainably manage marine, wetlands, peatlands, biodiversity, and land and water resources;
- "[…] promote coordination among relevant sectors to provide access to clean land, green public space, clean air, clean and safe water, and sanitation; and enhance cross-sectoral and cross-pillar coordination to ensure availability of clean water, sanitation facilities and electricity to households in times of crises."[156]

This section examines the realisation in practice of the right to safe water in ASEAN member states to date, and the challenges it faces. Safe water is essential for numerous other human rights, such as to life, health and a healthy environment, particularly for those most vulnerable to toxic exposures, such as children.

With growing pressure on water resources, protecting them from contamination and ensuring access is of considerable importance for all countries. This section begins with a description of the growing challenge of ensuring access to safe water for ASEAN member states. It follows with an overview of the recognition of the right to water in the region, and a comparison of water quality standards across the different countries.

The section is organised in terms of a triple threat to securing access to safe water supplies, as:

- water and sanitation services struggle to meet the challenge of growing and increasingly urbanised populations;

- pollution risks grow with expanded industry, particularly including extractives;
- and climate change poses new risks and uncertainties to water management, including regional cooperation and increased attention to the dynamics of large-scale water engineering, such as hydropower.

Water services

According to UN predictions, the population of the ASEAN region will grow from around 633 million in 2015, to 741 million in 2035, an annual rate of growth of 0.85%.[157] This population is also rapidly urbanising.

Urban populations in Indonesia, for example, are estimated to grow annually by 2.21% to 2021, as the rural population shrinks by 0.13%. The least urbanised countries in the region, such as Cambodia, Lao PDR, Myanmar and Vietnam, are some of the fastest urbanising countries in Asia, with urban growth rates of around 3%, and expected to continue to undergo rapid urbanisation.[158]

Urbanisation presents challenges for ensuring adequate water supply and protecting water resources, both in terms of avoiding scarcity and ensuring sufficient waste treatment infrastructure to prevent pollution and contamination.

Quality of provision of water services in urban and rural areas, and disparity in access between urban and rural areas, are therefore major challenges for ensuring the right to safe water. For example, in Cambodia the proportion of the population using safely managed drinking water services in urban areas is 55%. In rural areas it is just 16%, according to the Asian Development Bank.[159]

Water privatisation can result in poor outcomes for urban water provision. For example, in 1997 the British and French companies Thames Water and Suez signed a 25-year public-private partnership (PPP) contract to deliver the water supply for Indonesia's capital, Jakarta.

In 1997, only 42% of residents had access to piped water, and many of them still relied in part on groundwater or bottled water.[160] The project promised that by 2002, 70% of Jakarta's population would have piped water; by 2017, the target was 98% service coverage. Instead, coverage stood at around 50% by 2002, and water services coverage was at 59.4% last year.

Furthermore, the price of water is stubbornly high. Despite an extensive campaign to annul the PPP contract, it remains in force and adds to the public debt.

By contrast, public water provision in Surabaya, the second largest city in Indonesia, through a company owned and operated by the city government,[161] has been a success – with water supply reaching 95.5% of the population by 2016. The Amrta Institute has calculated that the average price of water in Surabaya is one-third that in Jakarta.

Singapore is also often cited as a best practice case for urban water services. Its entire water cycle is managed by the Public Utilities Board, including sewerage and drainage, allowing for more

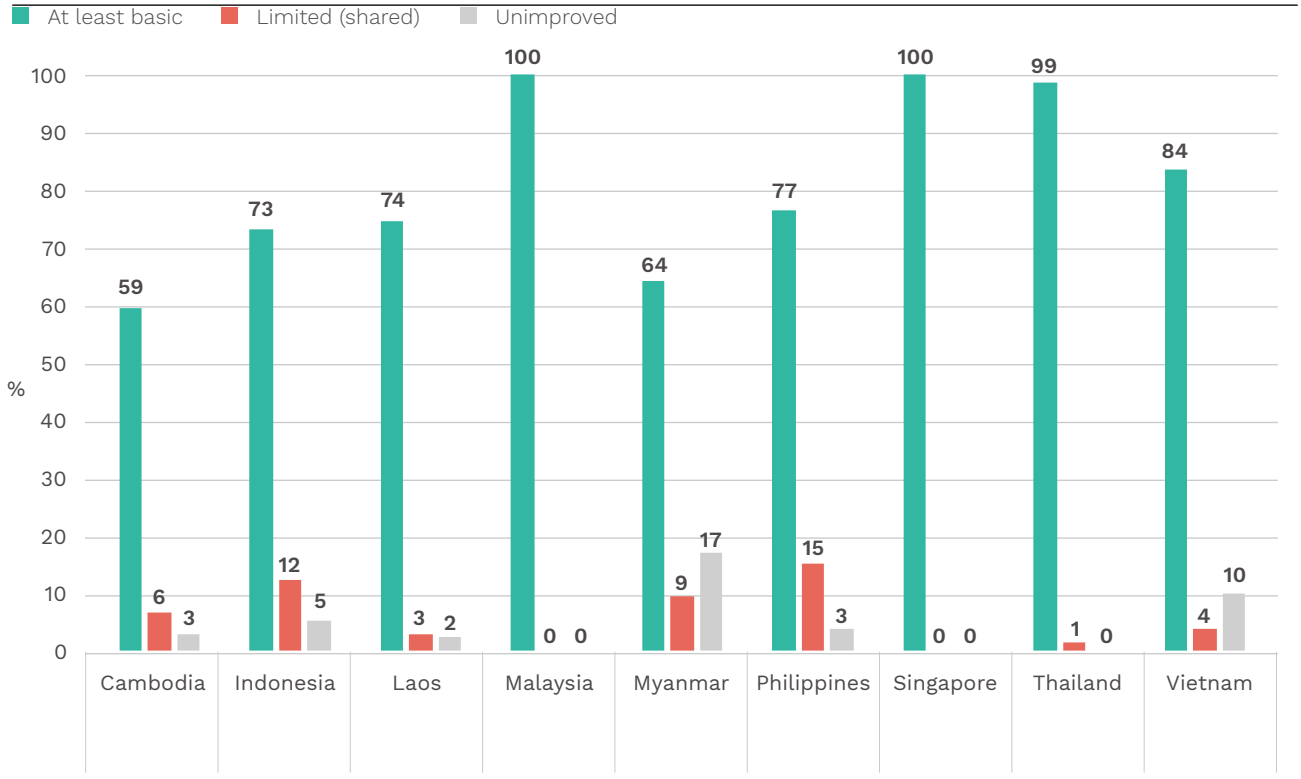
integrated water policymaking.

Today, 100% of Singapore's population have access to drinking water and sanitation; all wastewater is collected and treated; and the entire water supply system, from water works to consumers, is metered.

Sanitation

Sanitation is closely related, and integral to realising the right to safe and clean water, but is often overlooked in legal and policy reviews. According to ASEAN[162] statistics, in 1990, the share of the

Figure 3 | **Access to sanitation in ASEAN, 2017**



Source: World Health Organisation

population across ASEAN with access to "improved sanitation" (defined as facilities designed to hygienically separate excreta from human contact) was 37%. By 2015, this had risen to 78%.

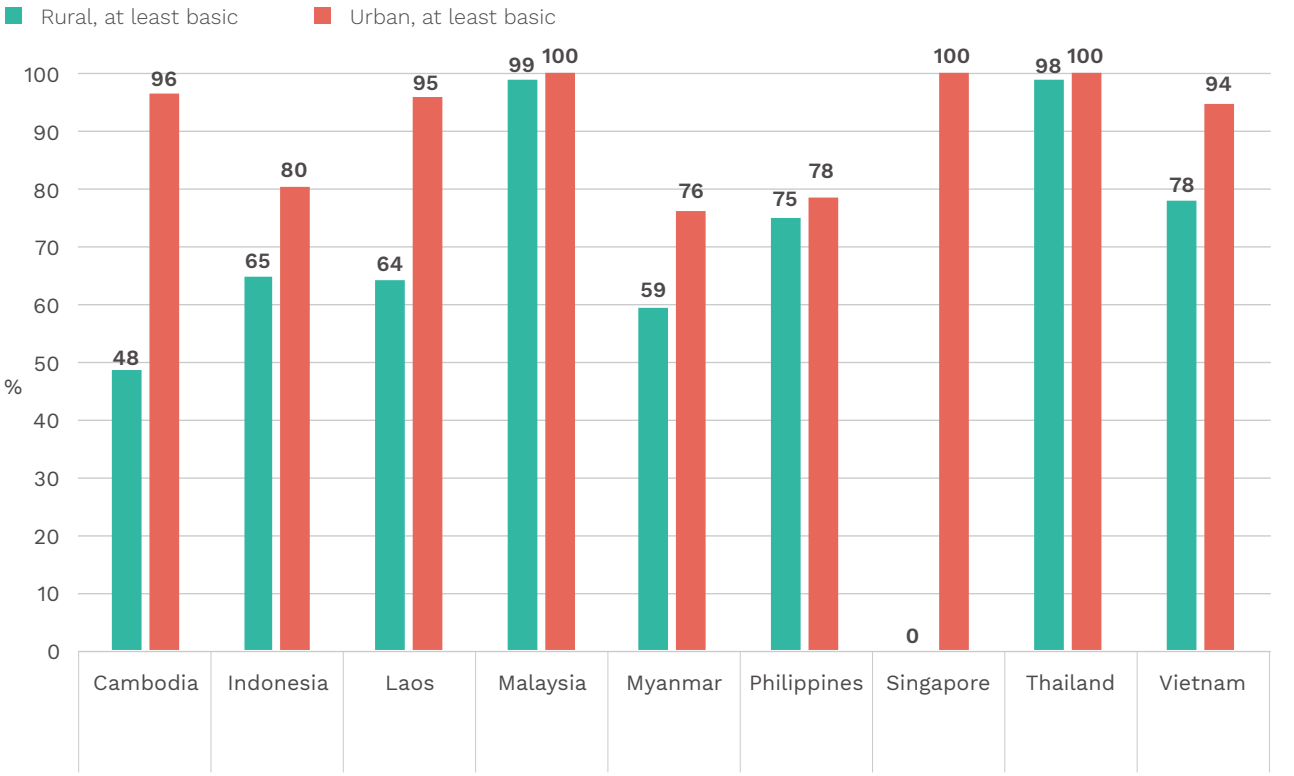
However, it remains a major issue in countries like Cambodia, due to under-financed sanitation services and rapid urbanisation. In 2015, the proportion of Cambodia's population with access to improved sanitation was only 42%.

This still represented a significant increase over time, from 16% in 2000, and civil society played an important role. Since the Paris Peace Agreement in 1991, many domestic and international NGOs

were established in Cambodia. Sanitation was a typical focus of their work, alongside issues like agriculture and rural development, reproductive and public health.

Since the 2013 elections in Cambodia, however, many of these NGOs have been monitored and harassed as the government tries to suppress advocacy and perceived political opposition.

Figure 4 | **Urban and rural sanitation in ASEAN, 2017 (WHO data)**



Source: World Health Organisation

Especially since the 2017 elections and dissolution, many NGOs have kept a much lower profile and are not able to perform their work.[163]

Cambodia also demonstrates the inequalities in sanitation in the region.[164] In urban areas, universal access to sanitation among the richest compares to only 53% of the poorest quintile having access to improved sanitation (36% to private toilets, 17% to shared facilities). In addition, while access to improved sanitation is estimated at 100% for Phnom Penh, it is only 75% in other cities.

It is estimated that less than 2% of the total urban population are currently served by sewer and treatment systems connected to a functioning wastewater treatment plant. One of the most pressing challenges in urban Cambodia, as in other areas, is to ensure that faecal matter is safely collected, transported out of the residential environment, treated and safely disposed of.

Key factors identified as best practice for rural water, sanitation and hygiene (rWASH) are regulatory

environment, community ownership, programme methodology, funding, technology and capacity.[165]

The Community-Led Total Sanitation (CLTS) approach[166] also provides a roadmap for best practice, but differs from some conventional approaches, in that it includes:

- A focus on stopping open defecation (rather than building toilets);
- The need for collective action (to stop open defecation across the community);
- An end to toilet subsidies (households should finance their own toilets); and,
- The promotion of low-cost home-made toilets, constructed using local materials (rather than standard toilet designs imposed by outsiders).

The approach is based on the assumption that the community has the strength and willingness to overcome their own sanitation problems. It recognises that outsiders may be needed to help a community identify their current situation and the need for improvement but that given support, a community that wants to change can plan and implement solutions that meet their own needs.

In Indonesia, CLTS has been implemented since 2008 through a national strategy,[167] built on five pillars:

1. Open-defecation free communities;
2. Hand washing with soap at critical moments;
3. Household water treatment and safe storage of water and food;
4. Solid waste management; and
5. Liquid waste management.

At central government level, a secretariat in the Ministry of Health has been set up to assist the implementation and acceleration of the programme, but requires continued assistance to build capacity and coordinate implementation.

Water pollution

Water quality in Southeast Asia is under threat. Toxic contaminants in water are linked to various cancers, behavioural and learning disabilities, birth defects and diabetes, among many other adverse health impacts.

A variety of sectors and economic activities pose risks to water quality, including: extractive industries, agriculture, manufacturing and waste management. There are multiple aggravating factors, including: insufficient, inadequate or non-existent wastewater treatment at industrial sites; failures in law enforcement; the absence, or inadequacy, of solid-waste management infrastructure; deforestation; and the overuse of agrochemicals.

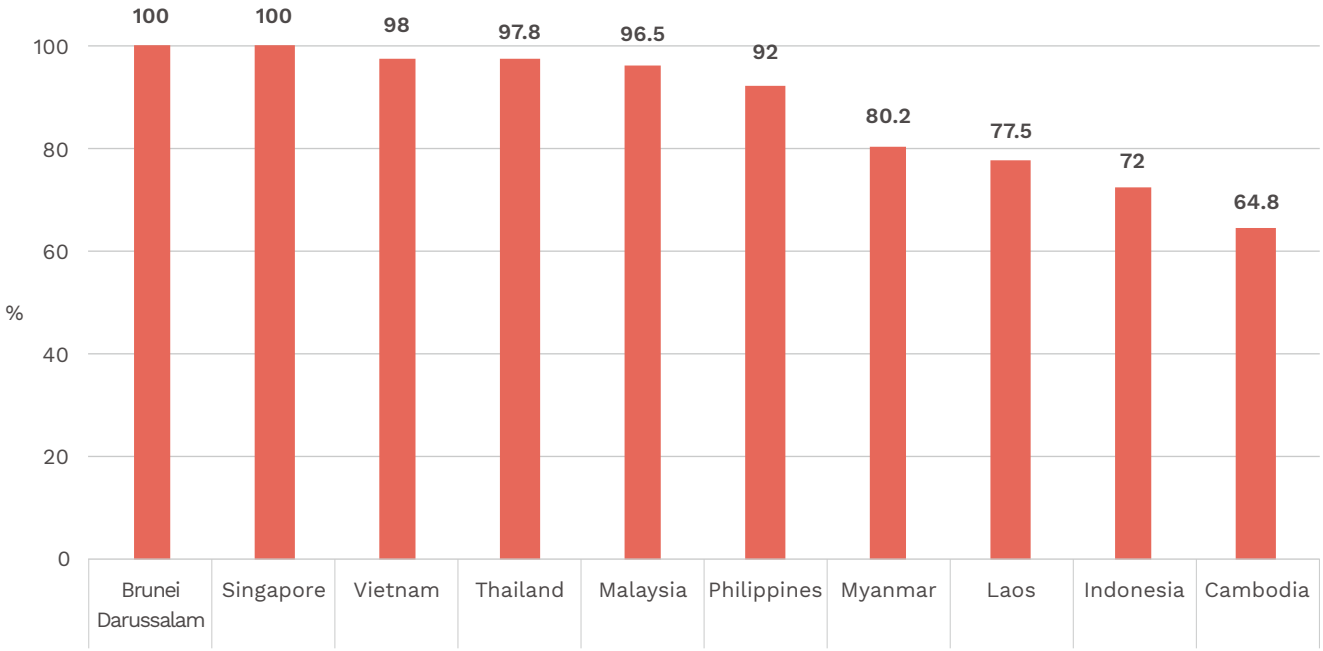
For example, the Citarum river, in West Java, Indonesia,[168] supplies 80% of the capital Jakarta's water needs.[169] Multiple factors have contributed to the deterioration of its water quality:

deforestation by upstream settlements; ineffective solid-waste management, leading to some 250,000 cubic metres of waste being dumped into the river each year; and up to 90% of industry in the Citarum river area being unequipped with wastewater treatment facilities, resulting in some 340,000 tons of liquid waste being dumped into the river, without pre-treatment, every day.

According to the World Bank,[170] urban wastewater is the largest contributor to water pollution in Vietnam's river systems, with only 12.5% of municipal wastewater treated before discharge into water bodies. Due to the prevalence of combined sewer systems (carrying both wastewater and storm water), domestic wastewater accounts for 30% of the discharge to lakes, canals and rivers.

Solid waste is often untreated, too. Although Vietnam has 660 operating landfills, only 203 are sanitary. The remainder do not collect and treat leachate – the liquid that drains from landfills and pollutes soil and water. Reliable municipal solid waste collection rates are difficult to track down,

Figure 5 | **Access to safe drinking water in ASEAN, 2018**



Source: ASEAN Statistical Leaflet 2018

but they were estimated to be 86% in urban areas in 2018, while 2004 figures suggest rates below 20% in rural areas and among the urban poor.

Agrochemicals also contribute to the problem: rice uses 65% of total fertiliser consumed in Vietnam and most rice farmers apply fertilisers well above recommended rates. Only about 45-50% of fertiliser is used effectively – the rest is washed out in runoff. A study in 2010 found that 69,238kg and 43,574 litres of pesticides and 69,640kg of chemical packages (including paper and

nylon bags) are released into the surrounding environment without proper treatment annually.

According to ASEAN statistics, the overall access to "safe" drinking water in 2018 stood at 82.7%, with the following rates of individual coverage:[171]

This suggests around 110 million people across ASEAN do not have access to safe drinking water. But unfortunately it is unclear what source, methodology and parameters ASEAN uses to measure "safe" water access, and "safe" water does not necessarily denote potable water. It can include, for example, protected wells and harvested rainwater.

Mining pollution

Water pollution from mining is a major problem across the region, and is worth particular attention here. The four main types of water pollution[172] from mining are:

6. acid mine drainage, where mining exacerbates the drainage of acidic water produced naturally by rocks;
7. heavy metal contamination and leaching, where metals like arsenic, cobalt, copper, cadmium and others come into contact with water;
8. processing chemicals pollution, when chemical agents like cyanide or sulphuric acid, used to separate a target mineral from an ore, spill, leak or leach from a mine into water supplies;
9. erosion and sedimentation, where erosion of exposed earth carries sediment into streams, rivers and lakes.

Such instances can threaten human rights. For example, in 2019, a UN Special Rapporteurs' Document[173] brought attention to allegations that the government of the Philippines has failed to protect the human rights of indigenous peoples and local communities around Didipio, Nueva Vizcaya province, in northeastern Luzon. According to the document, a gold and copper mine operated by the Canadian-Australian OceanaGold Corporation forcibly evicted 180 families in 2008 and another 133 families in 2017. It is further alleged the military has been used to protect the company and put environmental defenders at risk.

Studies show the mine has had negative environmental impacts, including heavy metal contamination in the Didipio river, on which communities rely for drinking and irrigation. The concentration of copper in the river exceeded the Severe-Effect Level: the highest level of contamination for irrigation and the survival of aquatic organisms, said a 2014 report[174]. This contamination meant residents were not able to access safe drinking water. The mine stands at the headwaters of the Addalam river, which flows into the Rio Grande de Cagayan, the longest river system in the country, emptying into the Pacific ocean. Therefore, contaminants from the mine could potentially put at risk numerous critical ecosystems and many livelihoods.

On 20 June 2019, the company's mining permit, known as a Financial and Technical Assistance Agreement (FTAA), expired. However, OceanaGold continued mining – claiming it had sought renewal of its permit – in contravention of local and provincial resolutions ordering the company to cease operations. Since 1 July, Didipio residents, led by indigenous peoples, have blockaded

the mine, forcing a suspension of mining activity, though the company continues to process ore. Activists emphasise that the company "seems to be unconcerned that it does not have the Free Prior and Informed Consent of the Indigenous peoples of Didipio."[175]

In 2019, another UN Special Rapporteur Document[176] brought attention to the failure to protect against human rights abuses linked to coal mining operations in East Kalimantan Province (EKP), Indonesia, and related harassment and attacks against JATAM (Mining Advocacy Network), an environmental NGO. More than 1,400 coal mining licenses have been granted in EKP, where 70% of the territory has been identified as eligible for coal mining. Indonesian law requires mining companies to carry out post-mining clean-up activities, but reports indicate that many mining companies do not abide by this law, and leave mining sites open, resulting in accidental deaths of children.

Further, acid mining drainage and waste pose serious long-term threats to water resources there, and have caused land and water to become useless for food production. Depletion of groundwater and surface water caused by coal mining also means local residents – and those further afield, as contaminants are absorbed in the water distribution system – have been forced to use water contaminated with heavy metals for washing, bathing, irrigation and fish farming. Similar problems have been recorded in Myanmar[177] and Vietnam.[178]

Best practices to avoid water pollution include measures in the exploration, construction, mining and decommissioning phases. A non-exhaustive list of these measures includes:

- ensuring safe transport of contaminants;
- mitigating environmental impacts from the construction of access roads and infrastructure;
- developing proper environmental management and auditing systems;
- ensuring financial provisions for rehabilitation of mine sites;
- minimising the strain on water resources used in construction, mining and decommissioning activities;
- storing potential sources of contamination in secure facilities with appropriate storm water management systems;
- integrating and combining waste streams to, for example, combine an acidic and alkaline waste to produce a circumneutral waste stream;
- rationalising and minimising the footprint size of the mine, its affected catchment areas and associated infrastructure;
- alternative process plant technologies, including cleaner production techniques and closed circuit water use;
- preventing or minimising the ingress of water into the mining operation; and,
- designing a waste deposit that keeps geochemically active material isolated as far as possible from water.

Climate change

Ensuring the right to safe and clean water in Southeast Asia will mean taking into account climate change and the need for adaptation. While there is a growing literature on Southeast Asia's vulnerability to climate change, such as increased risks associated with drought and flooding, the link is rarely made between adaptation and resilience measures and ensuring the right to safe and clean water.

Many countries in ASEAN are vulnerable to disaster risks. The World Risk Report ranks several as being particularly exposed, partly due to their exposure to sea-level rise and cyclone activity. The Philippines is ranked third, Brunei Darussalam is eighth, Cambodia is 12th, Vietnam is 25th and Indonesia 36th.[179] Climate change adds an extra level of variability and uncertainty to these risks. According to the Intergovernmental Panel on Climate Change, a changing climate "leads to changes in the frequency, intensity, spatial extent, duration, and timing of extreme weather and climate events, and can result in unprecedented extreme weather and climate events."[180]

In other words, the region will see higher variability in water supply, and increasing incidence of floods and droughts, as well as sea level rise. This requires effective local and national attention to resilience and adaptation, as changes in water availability and quality effect both agriculture and drinking water. Deltas are particularly vulnerable, since they are both intensively cultivated and highly populated,[181] as are islands and low-elevation cities, such as Jakarta. In the Mekong delta, in Vietnam, for example, where rice farming accounts for more than 65% of total freshwater demand, climate change and rising sea levels threaten freshwater availability and cause saline intrusion.[182]

Coastal and near-inland drinking water sources in ASEAN are also vulnerable to seawater contamination, most dramatically from tropical-cyclone-induced storm surges.[183] In coastal areas of Vietnam, for example, shallow groundwater is the dominant source of drinking water, with around 60% of household water coming from hand-dug wells, and a further 25% from drilled wells; the remaining 15% of the population rely on surface water and rainwater. In the Mekong and Red river delta regions, more than half of all households rely on surface water and harvested rainwater because shallow groundwater is unsuitable due to its high iron content and salinity.

Transboundary rivers

Climate change also poses a unique threat to Asia's cryosphere, the vast stores of frozen water in the high Himalayas that feed the rivers of mainland Southeast Asia, and are warming far faster than average.[184] Two-thirds of Himalayan glaciers could disappear by the end of the century. Many rivers that rise from the glaciers of the Tibetan plateau, like the Mekong, are international rivers, and thus effective transboundary water governance is a crucial component of ensuring the right to safe water, particularly in the era of climate change.

On the Mekong river, which rises in China and flows through Laos, Thailand and Cambodia, before

it drains into the South China Sea in Vietnam, it is often suggested that large engineering projects, such as hydropower dams, are ill-equipped to handle such variability and may reduce access to safe and clean water. A number of crucial issues can be distilled from this complex problem, all of which become more complex in the context of a changing climate – and when decisions need to be made across borders.

Thailand, Laos, Cambodia and Vietnam signed the "Agreement on Cooperation for the Sustainable Development of the Mekong River Basin" in 1995, making the Mekong River Commission (MRC) the only intergovernmental organisation tasked in law with handling transboundary disputes on the river. In April 2010, the ASEAN Secretariat announced that it would cooperate with the Mekong River Commission Secretariat (MRCS) in the development and management of the Mekong's water resources.[185]

In 2010, the MRC urged a 10-year moratorium on mainstream hydropower dams while further studies were undertaken. But this assessment proved unenforceable. In 2012, Laos started building the Xayaburi dam on the river's main stem.[186] In 2011, the National Human Rights Commission of Thailand accepted a complaint from "Network of Thai People in Eight Mekong Provinces on the Xayaburi Dam" that submitted the project, which was financed by Thailand, "lacked information disclosure and public participation, including an Environmental Impact Assessment and Health Impact Assessment". In response, it issued an opinion recommending the Thai Prime Minister review the implementation of the dam construction – a recommendation that suggested how extra-territorial obligations might shape the role of national human rights commissions as "arenas of transboundary water justice."[187]

Nevertheless, Laos plans to build nearly 100 dams by 2020, with a combined installed generation capacity of 28 gigawatts. Since then, a China-supported multilateral format known as the "Lancang-Mekong Cooperative Framework" (LMC) is widely seen to have undermined or even eclipsed the MRC.[188] Unlike the MRC, China and Myanmar are members of the LMC. The LMC is likely to further accelerate the development of downstream hydropower, much of it built with Chinese finance and technology.

China has also already built some 10 large dams on the mainstream of the Upper Mekong (and more on its tributaries), which have had negative impacts on downstream fisheries, river ecologies, riverbank gardens and agricultural systems that depend on the natural, sediment-filled flood pulse of the river.[189]

While Vietnam is the only Mekong country that is a signatory to the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses, its core concept of "reasonable and equitable utilisation" underpins the MRC's set of legal norms around water sharing. By contrast, the LMC has proposed instead that a principle of mutual "reciprocity" between upper and lower riparians be introduced.[190]

With the MRC confirming recently that record droughts on the Mekong have been worsened by upstream dams, and that climate change is also a likely contributor, it is clear that greater cooperation – particularly around data sharing – will be necessary to overcome international tensions and better underpin climate adaptation and resilience.[191]

Other potential avenues for regional cooperation around water might sit within the ASEAN Working Group on Water Resources Management, established in 2003, that adopted a "Strategic

Plan of Action on Water Resources Management" including on Integrated Water Resources Management, water supply, sanitation and pollution management.[192]

Adaptation

In 2010, UN Water classified five, broad types of climate adaptation measures for water:[193]

1. planning and applying *new* investments, such as reservoirs, irrigation systems, levees, wastewater treatment and ecosystem restoration;
2. adjusting "operation, monitoring and regulation practices of existing systems" to accommodate changing conditions;
3. working on maintenance, major rehabilitation and re-engineering of existing systems;
4. making modifications to processes and demands for existing systems and water users, such as rainwater harvesting, water conservation, pricing, regulation, legislation, basin planning, funding for ecosystem services, stakeholder participation, consumer education and awareness; and
5. introducing new efficient technologies, such as desalination, biotechnology, drip irrigation, wastewater reuse, recycling and solar panels.

The World Risk Report ranks Singapore as one of the most disaster-prepared countries, at 158. While climate change is expected to cause increased flooding, coastal land loss and water resource scarcity, Singapore[194] is, for example, using a nature-based solution – by preserving its mangroves for coastal resilience – as well as employing demand-management initiatives[195] in its municipal water management (see Water Services section above).

Novel adaptation approaches for protecting drinking water sources in the context of climate change include: aquifer storage and recovery (ASR), where a freshwater bubble is created in saline aquifers, which can later be recovered.[196] Desalination is an option to produce freshwater from saline or brackish water. While its financial and environmental cost has traditionally been a significant challenge, solar still distillation is one of a number of ways to achieve small-scale, low-cost desalination.[197]

The right to safe water in ASEAN member states

Most countries in ASEAN do not have constitutional provisions explicitly on the right to water. The closest to such a guarantee is Indonesia.[198] Article 33 of the Indonesian Constitution states that "land and water, and the natural resources found therein, shall be controlled by the state and shall be exploited for the maximum benefit of the people."

While the Constitution of Thailand does not specifically refer to the right to water, it calls for water to be "efficient, fair and sustainable with due regard given to every dimension of water demand."

The Thai constitution also grants participation rights, establishes the duty of the state to protect the quality of natural resources, to provide "quality water resources sufficient for consumption."[199]

The Constitution of Laos emphasises water protection, but places the burden on all organisations and citizens to protect water resources.[200]

Several ASEAN members states have constitutionally recognised some formulation of what may be called the right to a healthy environment, which includes by necessity the right to safe water. For example, Cambodia's constitution creates the duty to preserve and protect the environment, and explicitly mentions the establishment of a precise plan for water management.[201]

Myanmar,[202] Vietnam and the Philippines have in their constitutions the duty to protect the environment or the constitutional right to a healthy environment (or similar formulation), which implicitly necessitate rights, duties and obligations regarding safe water even though there is no explicit mention of a human right to safe water per se.[203]

Legislation is a source of recognition of the right to water for some ASEAN countries. In 1996, Laos recognised the right of individuals and legal entities, including businesses, to use water.[204] In 2009, the Lao Water Supply Law of 2009 included the provision of regular supply of clean and safe water as a principle of the law[205].

The Indonesian Water Law of 2004 (7/2004) is another example of legislative recognition. In Article 5, the law "...guarantees the right of everyone to obtain water for (their) primary daily basic needs, in order to fulfil a healthy, clean and productive life." Although this particular piece of legislation was repealed in 2015, the constitutional obligation to realise the right to water was the underlying basis for the repeal.[206] Forthcoming replacement legislation is expected to further strengthen the status of the right to water in Indonesia. In addition, Cambodia recognised the right to water in its water resources law of 2007.[207]

Regarding judicial interpretation and recognition of the right to water, there are a few cases of direct and indirect relevance. An interesting example is provided by the Philippine jurisprudence in advancing national recognition of the right to safe water, despite neither constitutional nor legislative recognition of such a right. The Philippine Supreme Court has also stated that "water is life and must be saved at all costs" in striking down presidential declaration that part of a watershed be used as a waste dump.[208]

The seminal case of Klity Creek in Thailand illustrates the important interrelationship between various human rights and the right to water. Court decisions found violations of the affected community's rights to participation and exploitation of natural resources, specifically water and food resources. The Central and Supreme Administrative Courts did not, however, address specifically whether the rights to safe water, health or life were violated, despite clear evidence of highly toxic lead pollution in water (and subsequently food sources) as well as grave health impacts among individual community members poisoned as a result.[209]

Indonesia's Supreme Court held that the right to water is a constitutionally protected right based on articles 33(3) and 28H in a 2004 judicial review. Notably, in later striking down the same law in 2015, the Supreme Court articulated that, among the basic principles of water management, "environmental sustainability is a part of human rights."[210]

Figure 6 | **Legal recognition of right to safe water**

	UN treaties ratified		National recognition of right to water			National recognition of water-related environmental rights
	International Covenant on Economic, Social and Cultural Rights (ICESCR)	Convention on the Rights of the Child (CRC)	Constitutional	Legislative	Judicial	
Indonesia	Yes	Yes	Yes	Yes	Yes	Yes
Malaysia	No	Yes	No	No	No	Yes
Philippines	Yes	Yes	No	No	Partial	Yes
Thailand	Yes	Yes	No	No	Partial	Yes
Vietnam	Yes	Yes	Partial	No	No	Yes
Cambodia	Yes	Yes	Partial	Yes	No	Yes
Singapore	No	Yes	No	No	No	No
Myanmar	Yes	Yes	No	No	No	Yes
Brunei	Yes	Yes	No	No	No	No
Laos	Yes	Yes	Partial	Yes	No	Yes

IV

Conclusions and recommendations

Dried-up irrigation canal near Lam Takong dam, Vietnam (Greenpeace)

The right to safe and clean water is indivisible from, and the foundation for, achieving many other internationally recognised human rights.[1] States are duty-bound to ensure this right, and businesses have a responsibility to respect it. The ASEAN Human Rights Declaration (AHRD) explicitly guaranteed the right to safe drinking water and sanitation and other ASEAN institutions have made related commitments.

However, the ASEAN region is facing numerous strains on already limited resources for ensuring access to safe drinking water, and has considerable work to do in improving implementation. Several states in ASEAN are lagging on the realisation of the right to safe water. Contributing social and political factors in the region include:

- poorly managed water privatisation, resulting in high water prices and poor coverage;
- under-financed and unequally provided access to sanitation;
- insufficient, inadequate or non-existent wastewater treatment at industrial sites;
- failures in law enforcement;
- absence, or inadequacy, of solid waste management infrastructure;
- failure to prevent deforestation, which contributes to run-off;
- overuse of agrochemicals;
- heavy urbanisation and cultivation in low-coastal elevation zones;
- weak, or undermined, transboundary water management institutions;
- hydropower development plans that are unresponsive to climatic changes; and
- poor and unsatisfactory consultation, risk mitigation, implementation and disclosure of environmental and health impact assessments.

In order to ensure access to safe, clean water, it is vital to for affected populations to exercise their procedural rights, including access to information. Respecting human rights and achieving positive environmental outcomes are mutually reinforcing. Recognising this, legal and policy and practical recommendations for various actors in the ASEAN region should include:

For ASEAN and regional institutions:

- Human rights institutions, such as the ASEAN Intergovernmental Commission on Human Rights (AICHR), must seek to protect the right to water, including:
- Stressing to individual ASEAN member states the need to protect and enable the defenders of the right to safe water;
- Emphasising the importance of transboundary water justice, the importance of information sharing on transboundary watercourses, particularly where national institutions may not have a clear mandate.

For national governments:

- Defending and advancing constitutional and legislative recognition of the right to water;

- Developing and implementing strong health protection standards in law for water contaminants, industrial chemicals and pesticide pollutants that threaten the right to safe water;
- Enabling full public participation and access to information regarding water pollution, sanitation and water services;
- Providing greater support for sanitation services and their universal coverage;
- Promoting best practices in sanitation for rural and under-served communities, such as the community-led total sanitation (CLTS system);
- Choosing public or municipal water provision, where it can help to provide lower cost and more integrated water policymaking;

For businesses

- Monitoring and publicly communicating all information necessary to protect health and safety, and how the business mitigates and addresses both its actual and potential impacts on the right to water
- Supporting the implementation of systems, such as pollutant release and transfer registers, to improve pollution monitoring and supply chain governance.
- Providing for or cooperating with investigations, and where the right to water is breached, with requests for legal remedy;
- Considering options for avoiding or substituting toxic chemicals with safer alternatives;
- Instituting best practices around water, including greater efficiency and circularity in environmental management around industry, such as mining – from exploration, to construction, mining and decommissioning stages;
- Proactively considering climate adaptation, including adjusting or modifying working practices and systems around water to accommodate changing conditions, maintaining and rehabilitating infrastructure;
- Supporting the introduction of appropriate and efficient technologies and innovation around water, such as solar still distillation for desalination in rural areas, wastewater reuse and drip irrigation.

For civil society organisations and citizens

- Effectively monitoring water quality, usage, decisions and investments around water management infrastructure and practices, and other activities of business or government that might affect the right to safe water;
- Promoting more efficient, safe and hygienic water use and sanitation options;
- Participating in the development of nature-based solutions, such as mangrove protection.

Glossary

AHRD ASEAN Human Rights Declaration

AICHR ASEAN Intergovernmental Commission on Human Rights

ASEAN Association of Southeast Asian Nations

AWGWRM ASEAN Working Group on Water Resources Management

CESCR Committee on Economic, Social and Cultural Rights

CLTS Community-Led Total Sanitation

CRC Convention on the Rights of the Child

EKP East Kalimantan Province

HRC Human Rights Council

ICESCR International Covenant on Economic, Social and Cultural Rights

LMC Lancang Mekong Cooperative Framework

MRC Mekong River Commission

PPP Public Private Partnership

RWASH Rural Water, Sanitation and Hygiene

SDG Sustainable Development Goal

UNDRIP United Nations Declaration on the Rights of Indigenous Peoples

UNGA United Nations General Assembly

WHO World Health Organisation

ZDHC Zero Discharge of Hazardous Chemicals

Endnotes

1. See eg UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant), (2003) E/C.12/2002/11. Available at: https://www.undocs.org/e/c.12/2002/11

2. Ibid, paras. 1 and 10.

3. WHO and UNICEF JMP, Progress on Drinking Water, Sanitation and Hygiene: Update and SDG Baselines (2017) at 3, available at https://washdata.org/sites/default/files/documents/reports/2018-01/JMP-2017-report-final.pdf.

4. Human Rights Council (HRC), Report of the United Nations High Commissioner for Human Rights on the scope and content of the relevant human rights obligations related to equitable access to safe drinking water and sanitation under international human rights instruments, (2007) (A/HRC/6/3) para. 17.

5. ICIMOD, Landmark Study: Two Degree Temperature Rise Could Melt Half of Glaciers in Hindu Kush Himalaya Region, Destabilizing Asia's Rivers, (ICIMOD, 2019) http://www.icimod.org/?q=33860

6. Kathryn S Boden and Chinmayee V. Subban, A Road Map for Small-Scale Desalination: An Overview of Existing and Emerging Technology Solutions for Cost-Efficient and Low-Energy Desalination in South and Southeast Asia. (Oxfam, 2018), https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620448/rr-roadmap-desalination-southeast-asia-070518-en.pdf?sequence=5&isAllowed=y

7. See eg CESCR, General Comment No.15, supra note 1.

8. Ibid, at para 2.

9. The Geneva Conventions for the protection of war victims (1949) and their Additional Protocols emphasise access to water for civilian populations for health and survival. For further discussion on whether the right to water is part of customary international law, see Inga Winkler, The Human Right To Water: Significance, Legal Status And Implication For Water Allocation (1st edn, Hart Publishing 2012).

10. See 'OHCHR | What Are Human Rights' (Ohchr.org, 2019) <http://www.ohchr.org/en/issues/pages/whatarehumanrights.aspx> accessed 14 October 2019.

11. CESCR, General Comment No. 15, supra note 1, paras. 1 and 10.

12. Ibid, para. 7; See also UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 12: The Right to Adequate Food, 1999 (E/C.12/1999/5) paras. 12 and 13.

13. Catarina De Albuquerque, 'Realising The Human Rights To Water And Sanitation: A Handbook By The UN Special Rapporteur Catarina De Albuquerque' (2014) <https://www.ohchr.org/Documents/Issues/Water/Handbook/Book1_intro_.pdf> accessed 14 October 2019. p. 38.

14. Human Rights Council (HRC), Report of the Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuqerque, 2014 (A/HRC/27/55) para. 6.

15. CESCR, General Comment No. 15, supra note 1, para. 8.

16. de Albuquerque, supra note 13, p. 37.

17. WHO, 'Lead Poisoning And Health' (Who.int, 2019) <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health> accessed 14 October 2019.

18. UN General Assembly, Universal Declaration of Human Rights, Resolution 217 A(III), 10 December 1948.

19. de Albuquerque, supra note 13, p. 23.

20. UN General Assembly, Convention on the Elimination of All Forms of Discrimination against Women, (1979), Resolution 34/180; United Nations, Treaty Series, vol. 1249, p. 13.

21. UN General Assembly, Convention on the Rights of the Child, (1989), Resolution 44/25, United Nations, Treaty Series, vol. 1577, p. 3.

22. UN General Assembly, Convention on the Rights of Persons with Disabilities, (2007), A/RES/61/106

23. UN General Assembly, United Nations Declaration on the Rights of Indigenous Peoples, (2007) A/RES/61/295,

24. See UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12 of the Covenant), (2000) E/C.12/2000/4, at paras. 4, 11, 12 (a), (b) and (d), and 15.

25. Ibid, at para 15.

26. UN Committee on the Elimination of Discrimination against Women, General Recommendation No. 24: Article 12 of the Convention (Women and Health), (1999) (A/54/38/Rev.1, chap. 1) para. 28.

27. CESCR, General Comment No. 15, supra note 1, para. 3.

28. Ibid

29. UN Committee on the Rights of the Child (CRC), General Comment No. 7 (2005): Implementing Child Rights in Early Childhood, (2006) (CRC/C/GC/7/Rev.1) para. 27.

30. UN General Assembly, The human right to water and sanitation, A/RES/64/292, 3 August 2010 and UN Human Rights Council, The human right to water and sanitation, A/HRC/RES/15/9, respectively. Note that while initially recognised as the 'right to water and sanitation', the rights to water and sanitation have now been recognized as distinctive, thus why this report focuses solely on the right to safe drinking water.

31. CESCR, General Comment No. 15, supra note 1, para. 11.

32. Ibid

33. Ibid, para. 2.

34. Ibid, at para. 11.

35. Ibid, at para. 12.

36. Ibid

37. Ibid

38. Ibid, para. 12

39. Ibid

40. Office of the High Commissioner for Human Rights (OHCHR), UN-Habitat, World Health Organisation (WHO), '(The) Right To Water, Fact Sheet No, 35' (2010) <https://www.ohchr.org/Documents/Publications/FactSheet35en.pdf> accessed 14 October 2019, at 14. See also UN Water, 'Eliminating Discrimination And Inequalities In Access To Water And Sanitation' (2015) <http://file:///

C:/Users/victo/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/Discrimination-policy%20(3).pdf> accessed 14 October 2019.).

41. Internationally prohibited grounds for discrimination include race, colour, sex, age, language, religion, political or other opinion, national or social origin, property, birth, physical or mental disability, health status (including HIV/AIDS), sexual orientation and civil, political, social or other status, which has the intention or effect of nullifying or impairing equal enjoyment or excise of the right to water., CESCR, General Comment No. 15, supra note 1, at para. 13.

42. OHCHR, Fact Sheet 35, supra note 40, at 15.

43. Ibid, at 17.

44. See IWA note 21 at 27, 29 and 39.

45. WHO, 'Guidelines for drinking water quality' (2006). https://www.who.int/water_sanitation_health/dwq/gdwq0506.pdf

46. HRC, supra note 4, para. 17.

47. WHO Guidelines, supra note 45, p. 2

48. HRC, supra note 4, para 17.

49. Ibid, p. 3.

50. Ibid, p. 4.

51. World Health Organization, "Guidelines for Drinking-water Quality: fourth edition incorporating the first addendum" (2017) at p. 219.

52. Ibid, at p. 89.

53. Ibid, at p. 195. See also Human Rights Council (HRC), Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Başkut Tuncak, 2015 (A/HRC/30/40).

54. Human Rights Council (HRC): Sub-Commission on the Promotion and Protection of Human Rights (SUBCOM), Draft report of the Sub-Commission on the Promotion and Protection of Human Rights, Resolution 2006/10: Promotion of the Realization of the Right to Drinking Water and Sanitation, 2006 (A/HRC/Sub.1/58/L.11) p. 41.

55. Human Rights Council: SUBCOM, Report of the Special Rapporteur on the Realization of the right to drinking water and sanitation, El Hadji Guissé, 2005 (E/CN.4/Sub.2/2005/25) "Introduction".

56. HRC Sub Com, supra note 54 at paras. 7.1-7.5.

57. UN General Assembly Resolution 70/1, "Transforming our world: the 2030 Agenda for Sustainable Development" 2015 (A/RES/70/1). Para 6.3

58. Ibid

59. UN Water, 'Integrated Monitoring Guide For Sustainable Development Goals On Water And Sanitation: Targets And Global Indicators' (2017) <http://file:///C:/Users/victo/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/EN_G2_SDG-6-targets-and-indicators_Version-2017-07-14%20(1).pdf> accessed 14 October 2019., p. 13.

60. Ibid

61. Ibid, p. 14-15.

62. Ibid, p. 15.

63. Ibid, p. 14.

64. Ibid, p. 15.

65. UN Human Rights Council, The human right to safe drinking water and sanitation, A/HRC/

RES/16/2, 8 April 2011.

66. UN General Assembly (UNGA), Right of everyone to the enjoyment of the highest attainable standard of physical and mental health: note by the Secretary-General, 2007 (A/62/214).

67. Ibid, para. 73; See also CESCR, General Comment No. 15, supra note 1, para. 12 (a).

68. Human Rights Council (HRC) Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes on his mission to the United Kingdom of Great Britain and Northern Ireland, Baskut Tuncak, 2017 (A/HRC/36/41/Add.1)

69. Baskut Tuncak, supra note 53.

70. Baskut, supra note 68, para. 39.

71. Human Rights Council (HRC) Report of the independent expert on the issue of human rights obligations related to access to safe drinking water and sanitation, Catarina de Albuquerque, 2010 (A/HRC/15/31) at para 16.

72. Ibid

73. de Albuquerque, supra note 13, p. 27.

74. General Comment No. 15, supra note 1, para. 37.

75. See also Baskut, supra note 69.

76. See e.g. International Human Rights Instrument, Compilation of Guidelines on the Form and Content of Reports to be Submitted by States Parties to the International Human Rights Treaties, 2009 (HRI/GEN/2/Rev.6); UNICEF and WHO, Joint Monitoring Programme, Working Group on Equity and Non-Discrimination Final Report (2012), at p. 1.

77. IWA Manual at 10. The right to safe water includes a strong presumption against retrogression or the 'backsliding' of right. CESCR even clarifies that any deliberately retrogressive measures require careful consideration and would need to be fully justified. E/C.12/2002/23, at para. 9.

78. IWA Manual, Box 5.2.

79. Catarina de Albuqerque, supra note 14, para. 13.

80. UNGA, Resolution 72/178: The human right to safe drinking water and sanitation, (A/RES/72/178).

81. See Article 2(1) ICESCR. Each State Party to the Covenant must undertake steps, individually and through international assistance and cooperation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized by all appropriate means, including particularly the adoption of legislative measures.

82. See Catarina de Albuqerque, supra note 71. Access to information is a precondition for the realization of several civil and political rights and is fundamental to ensuring that hazardous wastes and substances are kept out of water sources to the extent possible.

83. Baskut, supra note 69

84. Human Rights Council (HRC), Report of the Special Rapporteur on the human rights to safe drinking water and sanitation, 2017 (A/HRC/36/45). para 64

85. CESCR, General Comment No. 15, supra note 1, para. 21.

86. Ibid, para. 23

87. Ibid

88. Catarina de Albuqerque and Virginia Roaf, On the Right Track: Good Practices in realising the

rights to water and sanitation (Lisbon: ERSAR, 2012) p. 39.

89. CESCR, General Comment No. 15, supra note 1, para. 24.

90. For example, nitrate from agricultural activities is the most common chemical contaminant in the world's groundwater aquifers. See International Decade for Action 'Water for Life' 2005-2015, www.un.org/waterforlifedecade/quality.shtml.

91. This is significant considering that industrial water consumption is responsible for 22% of global water use. Id.

92. See UN Water, Water Quality and Wastewater, www.unwater.org/water-facts/quality-and-wastewater/

93. UN Human Rights Council, Protect, respect and remedy: a framework for business and human rights, 2011 (A/HRC/17/31). The Human Rights Council endorsed the Guiding Principles in HRC/RES/17/4, 16 June 2011.

94. Ibid

95. OHCHR, "Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework" (2011), Principle 1.

96. UN Committee on Economic, Social and Cultural Rights, General comment No. 24 (2017) on State obligations under the International Covenant on Economic, Social and Cultural Rights in the context of business activities*, 2017 (E/C.12/GC/24) at para 1.

97. UN Committee on the Rights of the Child (CRC), General Comment No. 16 (2013) on State obligations regarding the impact of the business sector on children's rights, (2013), CRC/C/GC/16.

98. Ibid. at para 20.

99. See Human Rights Council (HRC) Report of the Special Representative of the Secretary General on the issue of human rights and transnational corporations and other business enterprises, John Ruggie, 2011 (A/HRC/17/31), Guiding Principle 1, Commentary.

100. ESCR, General comment no.24, supra note 96 at 21.

101. Ibid para. 33.

102. Ibid paras.7-9.

103. Ibid para. 10.

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109. Ibid para. 14.

110. Ibid para. 20.

111. Ibid, para. 21.

112. Ibid para. 30.

113. Ibid para. 65.

114. See ESCR, General comment no.24, supra note 96 at 11, 18 and 21.

115. See e.g. An open letter to United nations Secretary-General Antonio Guterres and United Nations Private Sector Forum 2017 Participants, 13 September 2017, www.buiness-humanrights.org

116. This includes a business entity's supply chain and by subcontractors, suppliers, or other business partners. See ESCR, General comment no.24, supra note 96, at paras 15 and 16.

117. Ibid, para 18.

118. CESCR General Comment No. 15, supra note 1, at para. 26. Preference is given to legislative implementation.

119. See Human Rights Council (HRC), supra note 84, at 25.

120. IWA Manual, Box 5.2: Expert opinion of RegNet members on implementing human rights activities for water and sanitation.

121. CESCR General Comment No. 15, supra note 1, at para. 25.

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123. CESCR General Comment No. 15, supra note 1, at para. 25.

124. See HRC, supra note 84.

125. Ibid, para. 21.

126. It is also important to note that this responsibility applies to a business's own operations as well as to all their business relationships throughout the value chain. Id.

127. See United Nations, Guiding Principles on Business and Human Rights (2011).

128. Dubai Declaration on International Chemicals Management, 2006, para. 10.

129. Human Rights Council, supra note 71, para. 30. The list specifies that businesses in the water industry should: guarantee transparent and democratic decision-making; address power asymmetries in bidding and negotiation processes; provide essential services to groups of people who are poor and marginalised; ensure their services are affordable; avoid disconnection when users are unable to pay; ensure the quality of services; put in place a sound regulatory capacity and ensure its enforcement; monitor performance and follow-up monitoring; establish effective complaint mechanisms; and address corruption.

130. Baskut Tuncak, supra note 68.

131. UN, supra note 127

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134. See Institute for Human Rights and Business (IHRB), More Than a Resource: Water, Business and Human Rights, (London: IHRB, 2011) p. 24.

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137. UN, supra note 127, Principle 20.

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