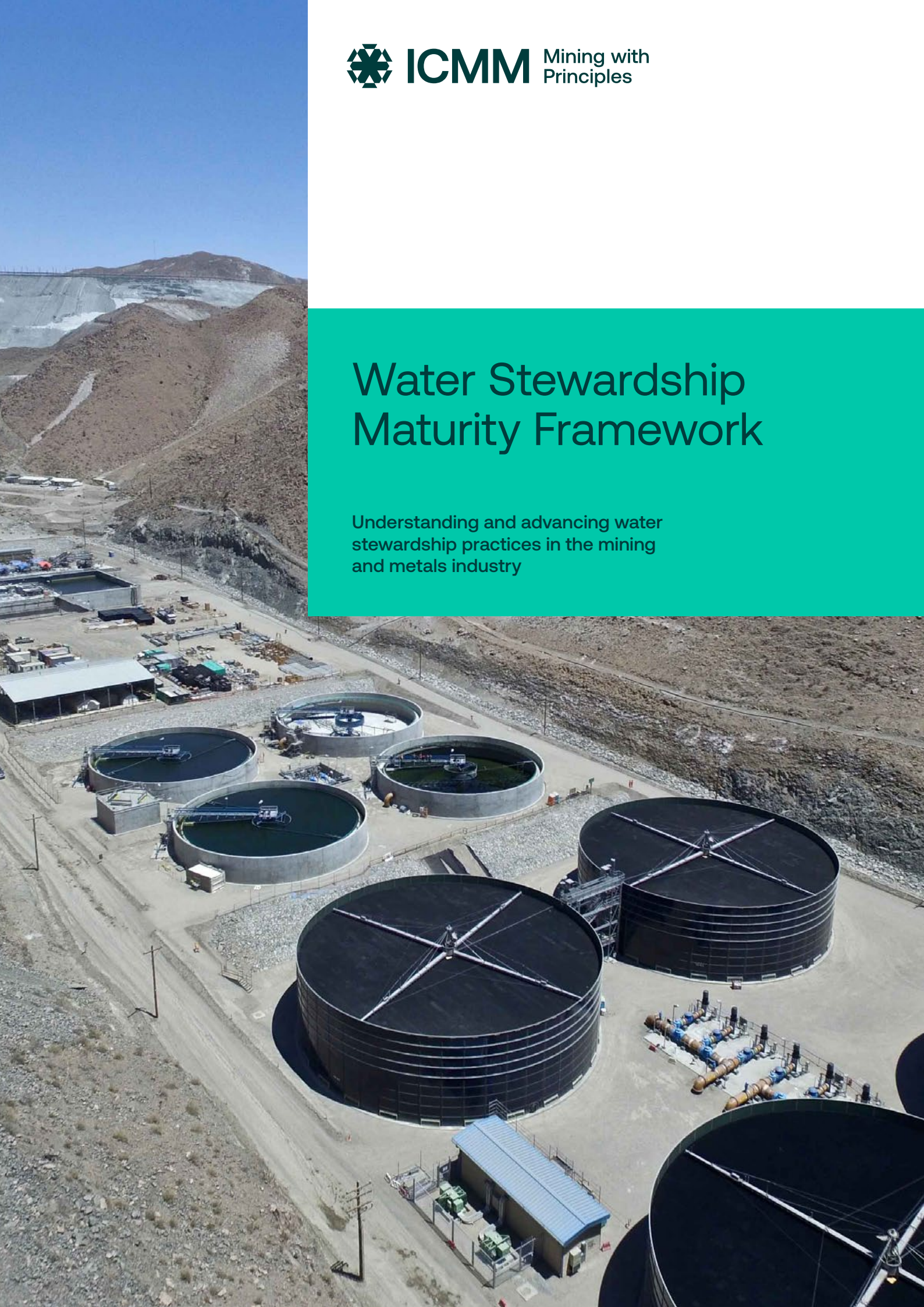


Water Stewardship Maturity Framework

Understanding and advancing water stewardship practices in the mining and metals industry



Contents

01	Introduction	3
02	Methodology	5
03	Practice Level Descriptions	7
	Element 1: Governance and Strategy	8
	Element 2: Understand Water Context, Risk and Opportunity	10
	Element 3: Integrate Water in Business Planning and Decision Making	16
	Element 4: Performance and Measurement	21
	Element 5: Transparency and Reporting	23
04	High-level Alignment Summary	25
05	Definitions and Abbreviations	27
06	Acknowledgements	29
07	References	30

List of Tables

Table 1	Practice Level Definitions	5
Table 2	Water Stewardship Maturity Framework Overview	6
Table 3	Critical Internal Cross-Functional Linkages and Icons in the Water Stewardship Maturity Framework Tool	6
Table 4	List of Key Terms and Definitions	27
Table 5	List of Common Abbreviations	29

Water is a precious, shared resource with high social, cultural, environmental and economic value. Access is a basic human right and a fundamental requirement for healthy, functional ecosystems. Water is also critical at all stages of mining and metals operations. The mining and metals sector's dependency and impact on this shared resource represents a material risk that requires effective management via a water stewardship approach.

Water stewardship is the use of water in ways that are socially equitable, environmentally sustainable and economically beneficial¹.

ICMM's *Water Stewardship Position Statement* (2017) underpins ICMM members' commitment to water stewardship by mandating strong and transparent water governance, effective water management at operations and collaboration to achieve responsible and sustainable water use.

ICMM has actively supported the efforts of members through capacity building, peer-to-peer learning and guidance development. ICMM's *A Practical guide to catchment-based water management for the mining and metals industry* (2015) outlines a comprehensive and systematic approach for identifying, evaluating and responding to catchment-based water-related risks and opportunities, while ICMM's *Water Reporting Good Practice Guide* (2021) provides guidance on minimum water reporting requirements including interactions with water, water risks and opportunities and management responses.

This *Water Stewardship Maturity Framework* (Framework) has been developed to further support leadership in water stewardship in the mining and metals sector via a practical tool that is applicable across asset and corporate levels. This Framework draws on a range of leading practice principles to help companies understand what water stewardship means in practice for our industry and to develop their own plans for advancing water stewardship, that are tailored to different operating contexts, risks and priorities. Ultimately, it is intended to support users to:

1. Effectively manage water as a shared resource with critical importance to the business, the local catchment and catchment stakeholders.
2. Integrate the critical role of water in many priority agendas (for example, climate resilience, cultural heritage protection, nature-positive approaches, social performance and inclusion, and operational excellence).
3. Navigate the complexities presented by a changing climate and increasing social expectations around water, to deliver the critical minerals required to support a more sustainable future.

1. Alliance for Water Stewardship: <https://a4ws.org/about/>

Layout

The Framework comprises two distinct components: a User Guide and a Framework Tool (Excel spreadsheet).

This User Guide describes key practices associated with three conceptual stages (basic, advanced and leading) along a typical journey towards implementing a mature water stewardship approach, with links to supporting guidance. Once the User Guide has been read and the practices understood, the Framework Tool can be used to assess the current level of practice for each sub-element of water stewardship in the operating context and determine if, or where, continual progress is possible. This information can then be used to communicate asset-level water stewardship practice maturity, set target practice level maturity (based on context and risk), and identify priority gaps as the basis for implementing specific actions and investments towards ongoing water stewardship improvements.

The Framework is structured to broadly align with mining and metals companies' business processes and terminologies, relevant water stewardship frameworks and guidance² and leading external reporting initiatives, for example the Task Force on Climate-related Financial Disclosures (TCFD). A high-level summary of the alignment between this Framework and other key mining and/or water stewardship frameworks [ie ICMM's Water Stewardship Position Statement (2017), Mining Association of Canada's (MAC) Towards Sustainable Mining (TSM) Water Stewardship Protocol (2018) and the Alliance for Water Stewardship (AWS) International Water Stewardship Standard version 2.0 (2019)] is provided in [Section 4](#) of this User Guide, and a more detailed indicative alignment guide is provided in the Framework Tool. Both summaries are intended to highlight thematic alignment between these documents for guidance purposes only.

Limitations

The Framework focuses on a company's direct operations and does not directly consider water stewardship actions related to broader supply or value chains. It also only includes operational water management activities that are directly relevant to water stewardship practices (ie it does not provide comprehensive coverage of operational water management practices). Finally, the Framework is not intended to be mandatory, prescriptive or to be used as an external auditing tool.

Framework Structure

Five water stewardship elements were identified during development of the Framework:

1. Governance and strategy
2. Understanding of water context, risks and opportunities
3. Integration in business planning and decision making
4. Performance and measurement
5. Transparency and reporting

The Framework describes a range of water stewardship practices for sub-elements of each of these five elements. This information is relevant for all asset types and to practitioners across disciplines and senior management alike.

Water practitioners will find the Framework valuable in guiding water strategy, activities and resourcing needs among others, while other functions will find it useful in guiding integration activities. Beyond these audiences, senior management can use the Framework to better understand risk and to benchmark and track water stewardship performance over time. Users are encouraged to work collaboratively with colleagues to maximise the value of the Framework towards a mature water stewardship approach, relevant to their organisation and operational requirements.

2. Examples of relevant water stewardship frameworks and guidance: Alliance for Water Stewardship (AWS) (2019) [International Water Stewardship Standard](#) (and accompanying Guidance, 2020); ABInBev, The Nature Conservancy and BlueRisk (2022) [A Recipe for Impact](#) (and references therein); ICMM (2015) [A practical guide to catchment-based water management for the mining and metals industry](#).

Definitions of Practice and Focus Levels

In the Framework, key practices that are commonly associated with a conceptual stage along a company’s typical journey towards implementing a mature water stewardship approach are identified as **practice levels** (see Table 1). The practices described for each level reflect a point in time and will continue to evolve as maturity builds and pressures from external drivers

increase (eg the impacts of climate change and societal expectations).

For each of the five elements of water stewardship in the Framework, the level within a company (ie corporate level and/or asset level) is referred to as a **focus level**. The focus level does not indicate the implementing team for the relevant practices, as this will depend on the company’s structure and approach.

Table 1. Practice Level Definitions

Practice Level	Definition
NA: Not applicable	The sub-element is not applicable for the given context – this is an option in the Framework Tool (with justification)
Not started/below basic	Key practices have not been started or current practices are below the level described for basic – this is an option in the Framework Tool
Basic practice	<p>Implementation of water stewardship practices that reflect the early stages of the transition towards taking a more holistic and integrated catchment-based approach to managing water (which extends beyond the traditional focus on “within the fence” operational water demands and risks).</p> <p>For some sub-elements, basic practices may be sufficient if the company/asset has a low dependency and impact on water resources and is located in catchments with minimal shared water challenges or sensitivities (current and/or future).</p>
Advanced practice	<p>Implementation of water stewardship practices that are holistic, future facing, integrated with broader business agendas, and embedded within business processes.</p> <p>Advanced practices may typically be implemented as part of a more holistic and integrated catchment-based approach to managing water, which is often driven by corporate ambition; and/or as a response to operating in catchment contexts with moderate to high (current and/or future) shared water challenges, sensitivities, or other regulatory and/or reputational risks to the business.</p>
Leading practice	<p>Implementation of water stewardship practices that are at the forefront of current global leadership.</p> <p>Leading practices may typically be implemented in catchment contexts with high to very high, and/or increasing (current and/or future) shared water challenges, sensitives, or other regulatory and/or reputational risks to the business – and may not currently be cost/effort effective to be implemented more broadly. Some Leading Practice requires all of the Advanced Practice to be completed too. This is indicated by the sentence “As advanced +”.</p>

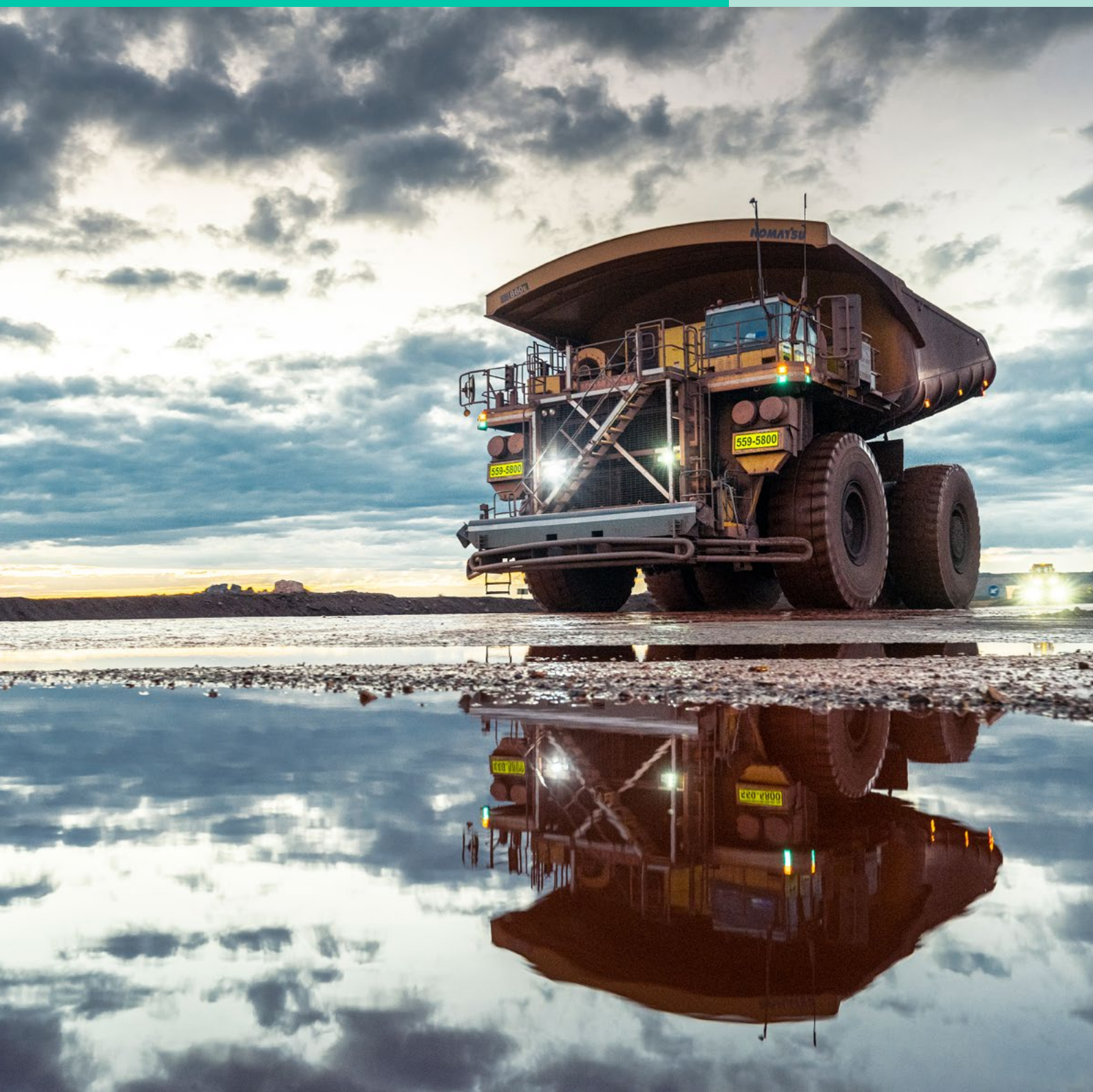
Framework Overview

Table 2. Water Stewardship Maturity Framework Overview

Element		Sub-element	Overview
Continual improvement	1. Governance and strategy		Building accountability and direction – describes key practices to consider, at the corporate and asset levels, for achieving: <ul style="list-style-type: none">— strong internal water governance, internal capacity levels and succession pipelines— a clear and effective direction for water that is integrated with broader agendas, eg climate resilience, nature-positive approaches, cultural heritage protection, social performance and operational excellence
	Water resilient operations	2. Understand water context, risks and opportunities	Building a robust understanding to support informed decision making – describes key practices to consider, largely at the asset level, for achieving a robust understanding of: <ul style="list-style-type: none">— the local water context, the implications of climate change, and the value of water as a critical shared resource to the business, the catchment and all of its stakeholders, now and in the future— current and future water-related impacts, dependencies, risks and opportunities (corporate and asset) that may impact the company’s value, reputation, or ability to operate to plan
		3. Integrate in business planning and decision making	Building an effective response – describes key practices to consider, at the asset level, for integrating water-related considerations in business planning processes, at all timescales (short to long-term), to: <ul style="list-style-type: none">— improve catchment outcomes for water, and for all integrated agendas to which water plays a critical role, eg protecting cultural heritage, building climate resilience, healthy ecosystems and sustainable livelihoods— protect business value and build long-term business resilience
		4. Performance and measurement	Building towards operational excellence – describes key practices to consider, at the asset level, for achieving water resilient operations that are: <ul style="list-style-type: none">— effectively managing water as a shared resource— working collaboratively with catchment stakeholders to improve catchment outcomes, and support predictable and effective regulation
	5. Transparency and reporting		Building credibility and trust – describes key practices to consider, at the corporate and asset levels, for: <ul style="list-style-type: none">— being transparent around the company’s water stewardship approach— demonstrating leadership and contributing towards a more sustainable future

Table 3. Critical Internal Cross-Functional Linkages and Icons in the Framework Tool

Icon key	Critical internal cross-functional linkages for effective water stewardship outcomes
	Business planning and risk management
	Climate change mitigation, adaptation and resilience
	Closure
	Energy and power
	Health and safety
	Indigenous peoples and cultural heritage
	Nature, biodiversity and land
	Operational efficiency
	Social inclusion and diversity
	Social performance
	Tailings and waste management
	Technology and innovation

























Element 1: Governance and Strategy

1.1 Internal water governance

1.2 Internal capacity

1.3 Company strategy and ambition


Element 1: Governance and Strategy				Focus: corporate and asset levels
Sub-element	Basic practice	Advanced practice	Leading practice	
<div>1.1 Internal water governance</div> <div></div>	1.1a Board oversight (corporate): The board has oversight of the company’s water management practices, including ensuring that material water-related risks are identified, and appropriate risk mitigation and controls are in place.	1.1a Board oversight (corporate): Accountabilities for water-related matters are explicitly defined within the board or board sub-committee charter (eg Sustainability sub-committee charter); and the board: <ul style="list-style-type: none">— is regularly briefed on water-related risks, opportunities, strategies, commitments and performance— monitors and oversees progress against goals and targets for addressing water-related risks and opportunities.	1.1a Board oversight (corporate): <i>As advanced practice +</i> <ul style="list-style-type: none">— one or more board member has competence on water-related issues— water-related issues are regularly discussed at board meetings— the board and/or board subcommittee considers water-related issues when reviewing and guiding relevant strategy, high-level business and action plans, risk management policies, annual budgets, major capital expenditures, acquisitions etc.	
	1.1b Accountability (corporate and asset): Responsibilities and accountabilities are clearly defined and documented for water (operational and water stewardship) at the corporate and site levels.	1.1b Accountability (corporate and asset): Roles, responsibilities and accountabilities are clearly and consistently defined, and documented for: <ul style="list-style-type: none">— water (operational and water stewardship)— water inputs to relevant cross-functional areas and initiatives (eg those relating to business planning, health and safety, climate resilience, cultural heritage protection, social performance, nature-positive approaches and operational efficiency)— at all levels across the business, from executive leadership to site operatives (including consultants and contractors, as required).	1.1b Accountability (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none">— performance-based compensation or remuneration schemes in place for roles with business-critical water-related accountabilities and/or responsibilities.	
	1.1c Procedures (corporate): Water stewardship procedures in place that are typically generic and/or not fully tailored to the company’s water dependencies, catchment contexts, impacts, risks and opportunities (eg reflect a top-down approach).	1.1c Procedures (corporate): Clear and comprehensive water stewardship procedures in place that: <ul style="list-style-type: none">— describe how to operationalise the company’s water stewardship strategy and ambition in a consistent manner— are aligned with the company’s water dependencies, catchment contexts, impacts, risks and opportunities— are regularly updated (3-5 years).	1.1c Procedures (corporate): <i>As advanced practice +</i> <ul style="list-style-type: none">— water considerations are integrated in broader relevant cross-functional policies and procedures (e.g. climate, nature, social performance and inclusion, and operational optimisation).	
<div>1.2 Internal capacity</div> <div></div>	1.2a Internal capacity (corporate and asset): Minimum level of internal capacity and capability in place, with limited strategy or planning.	1.2a Internal capacity (corporate and asset): Costed resourcing plans in place that: <ul style="list-style-type: none">— define the internal capacity and capabilities required to achieve the company’s water stewardship strategy and ambition (1.3)— are regularly reviewed and updated (every 1-3 years).	1.2a Internal capacity (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none">— contingency and succession plans also in place that document embedded processes to develop, retain and replenish the internal capacity pipeline.	
	1.2b Internal engagement (corporate and asset): Ad hoc approaches used to undertake engagement and collaboration: <ul style="list-style-type: none">— within the company’s community of water practitioners; and/or— between water practitioners and key internal stakeholders in cross-functional disciplines (<i>see key terms</i>).	1.2b Internal engagement (corporate and asset): Structured processes in place to promote and maintain open dialogue, engagement and collaboration within and between the company’s community of water practitioners and key internal stakeholders in cross-functional disciplines (<i>see key terms</i>) to: <ul style="list-style-type: none">— review operational performance— build knowledge and promote peer-to-peer support— integrate water considerations in cross-functional initiatives— identify common alignment and improvement opportunities.	1.2b Internal engagement (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none">— water practitioners and key internal stakeholders in cross-functional disciplines routinely collaborate to develop an integrated response and achieve integrated outcomes.	


Element 1: Governance and Strategy		Focus: corporate and asset levels	
Sub-element	Basic practice	Advanced practice	Leading practice
1.3 Company strategy and ambition 	1.3a Water strategy (corporate): Water strategy in place that: <ul style="list-style-type: none"> — is compliance driven; and/or — is developed in isolation of the company’s broader corporate and sustainability strategies and commitments, operational targets and growth ambitions; and/or — has a top-down or one-size-fits-all approach; and/or — has no or limited consideration of future trends or relevant external water-related drivers (eg the implications of climate change (<i>see 2.1b</i>) and/or cumulative water demand forecasts for other catchment stakeholders (<i>see 2.5a</i>). 	1.3a Water strategy (corporate): Comprehensive water strategy in place that: <ul style="list-style-type: none"> — is fully aligned with the company’s broader corporate and sustainability strategies and commitments, operational targets and growth ambitions — recognises water as a critical shared resource with social, cultural, environmental and economic value, and aligns with recognised global agendas (eg UN Sustainable Development Goals, including SDG6) — reflects the company’s water dependencies, catchment contexts, impacts, risks and opportunities across its operational portfolio (<i>see 2.1 – 2.7</i>) — reflects the values, priorities and concerns of key stakeholder groups (eg investors, local communities, indigenous peoples and cultural heritage and other catchment stakeholders) — recognises the critical role of water in achieving broader cross-functional objectives, including climate resilience, social performance, cultural heritage protection and preservation, nature-positive approaches and operational optimisation — includes consideration of mid-term and long-term future trends and scenarios (eg to 2050). — is externally visible. 	1.3a Water strategy (corporate): <i>As advanced practice +</i> <ul style="list-style-type: none"> — water strategy is board and CEO endorsed — proactively updated following any material external changes (in addition to the scheduled review and update cycle).
	1.3b Water ambition (corporate): The company’s water stewardship ambition is: <ul style="list-style-type: none"> — clearly defined (eg as position statement or policy) — generic and/or high-level; and/or — not supported by specific, measurable and timebound goals, targets or commitments. 	1.3b Water ambition (corporate): The company’s water stewardship ambition is: <ul style="list-style-type: none"> — clearly defined (eg as position statement or policy) and aligned with its water strategy — supported by specific, measurable and timebound goals, targets or commitments — externally visible. 	1.3b Water ambition (corporate): <i>As advanced practice +</i> <ul style="list-style-type: none"> — water stewardship ambition and commitments are approved by the board and championed by the CEO or other senior leaders — formally commit to contributing to the water-related UN Sustainable Development Goals (SDGs).
	1.3c Internal business case (corporate and asset): Senior leadership and site management are informed of the importance of water to the business, managing material water risks, and achieving regulatory compliance.	1.3c Internal business case (corporate and asset): Senior leadership and site management are regularly updated on the importance of water to: <ul style="list-style-type: none"> — business performance, value, reputation and resilience — local communities, cultural heritage protection, climate resilience, ecosystem health and social performance. 	1.3c Internal business case (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — the holistic value of water to the business (eg protection of value at risk; also <i>see key terms</i>) is understood and informs decision making — senior leadership and site management are proactively briefed following any material changes in external expectations or risks associated with water stewardship and/or the integration of water in climate, nature and social agendas (in addition to the scheduled updates).
References and further guidance: Reig et al. (2021) Setting Enterprise Water Targets: A Guide for Companies			


Element 2: Understand Water Context, Risk and Opportunity

- 2.1 Catchment biophysical context (climate, water resources and nature)
2.2 Catchment social, cultural and economic context
2.3 Catchment public water governance context


2.4 Operational water requirements
2.5 Catchment long-term water balance
2.6 Shared water challenges and opportunities
2.7 Business water risks and opportunities


Element 2: Understand Water Context, Risk and Opportunity				Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice	
<div>2.1 Catchment biophysical context</div> <div> <div>— climate</div> <div>— water resources</div> <div>— nature</div> </div> <div>  </div>	<div>2.1a Catchment mapping (asset):</div> <div>Key catchments associated with the asset (<i>see supporting notes</i>) have been identified, with basic understanding of their surface water and groundwater boundaries (eg with significant uncertainties and/or estimated based on circumstantial evidence).</div>	<div>2.1a Catchment mapping (asset):</div> <div>All relevant catchments associated with the asset (<i>see supporting notes</i>) have been identified, their surface water and groundwater boundaries are understood with a reasonable level of confidence (eg supported by reliable monitoring data).</div>	<div>2.1a Catchment mapping (asset):</div> <div><i>As advanced practice +</i></div> <div> <div>— development and use of integrated and calibrated surface water and groundwater (hydrogeological) models, which:</div> <div> <div>- include surface water and groundwater catchment boundaries and support better understanding of water flows and dynamics; and/or</div> <div>- may be developed collaboratively with one or more relevant stakeholders (e. as part of a multi-stakeholder initiative and/or with regulators, communities or NGOs)</div> </div> <div>— results are validated through engagement with relevant catchment stakeholders.</div> </div>	
	<div>2.1b Climate (asset):</div> <div>Basic or limited understanding of the climatic conditions and dynamics (<i>see supporting notes</i>), which:</div> <div> <div>— has significant uncertainties; and/or</div> <div>— is a generic regional prediction.</div> </div>	<div>2.1b Climate (asset):</div> <div>Comprehensive understanding of the climatic conditions and dynamics (<i>see supporting notes</i>), which:</div> <div> <div>— is based on reliable monitoring data</div> <div>— considers future climatic projections and implications, supported by climate scenario analysis</div> <div>— is regularly reviewed and updated (3-5 years).</div> </div>	<div>2.1b Climate (asset):</div> <div><i>As advanced practice +</i></div> <div> <div>— future climatic projections under different scenarios are downscaled or adapted to the asset’s specific geographical setting and context.</div> </div>	
	<div>2.1c Water resources (asset):</div> <div>Basic or limited understanding of key surface water and groundwater resource characteristics and dynamics (<i>see supporting notes</i>), which:</div> <div> <div>— has significant uncertainties; and/or</div> <div>— is generic (eg based on regional understanding) with limited verification (e.g. reliable exploration and/or monitoring data).</div> </div>	<div>2.1c Water resources (asset):</div> <div>Comprehensive understanding of the surface water and groundwater resource characteristics and dynamics (<i>see supporting notes</i>) of all relevant catchments, which:</div> <div> <div>— is based on reliable exploration and monitoring data</div> <div>— considers how changing climate dynamics (2.1b) will impact catchment water resources (quantity and quality) over the medium to long term (eg 20 – 50 years)</div> <div>— is regularly reviewed and updated (3-5 years).</div> </div>	<div>2.1c Water resources (asset):</div> <div><i>As advanced practice +</i></div> <div> <div>— development and use of integrated and calibrated surface water and groundwater (hydrogeological) models, which:</div> <div> <div>- support better understanding and predictions of surface water and groundwater resource dynamics (quantities and qualities) and sustainable yields; and inform water balance work (<i>see 2.5a, 3.1a and 3.1b</i>); and/or</div> <div>- may be developed collaboratively with one or more relevant stakeholders (eg as part of a multi-stakeholder initiative and/or with regulators, communities or NGOs); and/or</div> <div>- are made available for external review and/or use by credible external stakeholders (<i>see 5.3a</i>)</div> </div> <div>— results are validated through engagement with relevant catchment stakeholders.</div> </div>	

Element 2: Understand Water Context, Risk and Opportunity			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<p>2.1 Catchment biophysical context</p> <ul style="list-style-type: none"> — climate — water resources — nature 	<p>2.1d Nature (asset): Basic or limited mapping of key natural water assets, water-related ecosystems and species of significance (<i>see supporting notes</i>), which:</p> <ul style="list-style-type: none"> — has significant uncertainties; and/or — is generic (eg based on external datasets) with limited verification (eg field survey data). 	<p>2.1d Nature (asset): Comprehensive mapping of key natural water assets, water-related ecosystems and species of significance (<i>see supporting notes</i>) within all relevant catchments, which:</p> <ul style="list-style-type: none"> — identifies key natural water assets and water-related ecosystems — demonstrates understanding of their key characteristics and safeguarding requirements with a reasonable level of confidence (eg supported by reliable monitoring data) — considers how changing climate dynamics (2.1b) will impact the health of natural systems and their ability to provide ecosystem services over the medium to long term (eg 20 – 50 years) — is regularly reviewed and updated. 	<p>2.1d Nature (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — mapping of all natural assets, water-related ecosystems and species of significance — includes understanding of conditions required to restore degraded natural water assets, water-related ecosystems and species of significance — includes use of integrated and calibrated surface water and groundwater (hydrogeological) models to better understand potential impacts on natural water assets, water-related ecosystems and species of significance — results are validated through engagement with relevant catchment stakeholders.
<p>Supporting notes</p> <p>2.1a: Relevant catchments to consider include those:</p> <ul style="list-style-type: none"> — that may potentially be affected by the asset’s operational activities (eg local and downstream); or — where changing conditions in the catchment (eg local and upstream) may impact the asset’s water context (e.g. quantity, quality, reputation or regulation). <p>2.1b–2.1d: Relevant biophysical characteristic to understand for each relevant catchment include:</p> <ul style="list-style-type: none"> — Current climatic conditions and future climate change projections, including: <ul style="list-style-type: none"> - changing precipitation and run-off patterns, and the occurrence and severity of extreme weather events (eg floods and droughts) - the implications for catchment water resources, flood risk, water-related infrastructure (eg dams, stormwater drains), ecosystem services and/or broader physical risks. — Surface water resources (including oceans, lakes, rivers) and their key dynamics – for example baseline water quality and contamination (including natural, pollution, legacy challenges and/or climate change related impacts to water quality), baseflow, seasonality, runoff coefficients, and the relationship with groundwater (recharge and discharge). — Groundwater water resources (eg aquifers) and their key dynamics – for example hydraulic characteristics, potential yields, baseline water quality (including natural, pollution, legacy challenges and/or climate change related impacts on water quality), recharge mechanisms, and the relationship with surface water (recharge and discharge). — Key natural water assets and water-related ecosystems and their main characteristics, designation status (if any), sensitivities, and management safeguarding thresholds (if available)– including water features (e.g. ponds, springs and waterfalls), wetlands, mangroves, forests, flood plain, coastal zones, groundwater fauna, aquifer recharge zones, and/or other areas with material water-related recreational, cultural, spiritual, biodiversity or geological significance – note: also called Important water-related Areas (IWRA)). — Catchment monitoring systems (climate, surface water and groundwater), including coverage data availability and reliability. — Physical water risk indicators (from publicly available global datasets and tools) to assess risk, understand the view-point of external stakeholders and cross-check against local understanding (eg baseline water stress, water depletion, water scarcity, seasonal/ interannual variability, flood risk, water quality, etc.). 		<p>References and further guidance</p> <ul style="list-style-type: none"> — AWS (2020) AWS Standard 2.0 Guidance — ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition — Tools to understand physical water risk indicators and climate change projections <ul style="list-style-type: none"> - IBAT Alliance Integrated Biodiversity Assessment Tool (IBAT) — ICMM (2015) A practical guide to catchment-based water management for the mining and metals industry <ul style="list-style-type: none"> - Ramsar Sites Information Service - CEO Water Mandate (2023) Water Resilience Assessment Framework - WRI Aqueduct Water Risk Atlas (<i>Future predictions function</i>) and Aqueduct Floods - WWF Water & Biodiversity Risk Filter 	

Element 2: Understand Water Context, Risk and Opportunity			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<p>2.2 Catchment context</p> <ul style="list-style-type: none"> — Social — Cultural — Economic 	<p>2.2a Community stakeholders (asset): Key community stakeholders have been identified in key catchments, with:</p> <ul style="list-style-type: none"> — basic or limited understanding of their water values, needs, concerns and priorities (<i>see supporting notes</i>), for example, developed with limited or no engagement; and/or — limited or no assessment and prioritisation of the relevance of each group to the asset. 	<p>2.2a Community stakeholders (asset): Comprehensive mapping of community stakeholders within all relevant catchments in place, which:</p> <ul style="list-style-type: none"> — identifies all relevant community groups; — demonstrates a detailed understanding of each group’s water values, needs, concerns (both real and perceived) and priorities (<i>see supporting notes</i>), now and in the future; — is developed through on-going, active and inclusive engagement (e.g. via community meetings, workshops and place-based events); — assesses and prioritises the relevance of each group to the asset; and — is regularly reviewed and updated (3-5 years). 	<p>2.2a Community stakeholders (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — engagement approach consistently incorporates the views of vulnerable and minority groups (including women) — societal value of water (<i>see key terms</i>) is understood — proactively reviewed and updated following any material external changes (in addition to the scheduled review and update cycle).
	<p>2.2b Cultural stakeholders (asset): Key Indigenous Groups and First Nation Peoples have been identified in key catchments, with:</p> <ul style="list-style-type: none"> — basic or limited understanding of the nature of each group’s connection with the landscape, nature and water-related features, and/or their broader water values, needs, concerns and priorities (<i>see supporting notes</i>); and/or — an engagement approach that is: <ul style="list-style-type: none"> - limited in scope or inclusivity, and/or - conducted with a standard business-as-usual approach that lacks understanding and awareness of their culture and values, and the appropriate amount of time required; and/or — limited or no assessment and/or prioritisation of the relevance of each group to the asset. 	<p>2.2b Cultural stakeholders (asset): Comprehensive mapping of Indigenous Groups and First Nation Peoples with cultural and/or spiritual connections to the catchment(s) in place for all relevant catchments, which:</p> <ul style="list-style-type: none"> — identifies all relevant Indigenous and First Nation communities; — demonstrates a detailed understanding of: <ul style="list-style-type: none"> - the nature of each group’s connection with the landscape, nature and water-related features, and - their broader water values, needs, concerns (both real and perceived) and priorities (<i>see supporting notes</i>), now and in the future; — recognises the potential sensitivity of information to cultural owners and ensures all information are appropriately shared; — is developed through active and inclusive engagement processes that are conducted in a manner (approach and timeframes) that is respectful of their culture and values; — assesses and prioritises the relevance of each group to the asset; and — is regularly reviewed and updated (3-5 years). 	<p>2.2b Cultural stakeholders (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — preferred engagement approach and timeframe of each group is understood (e.g. the group was initially asked), and the engagement process is tailored accordingly — cultural value of water (<i>see key terms</i>) is understood — proactively reviewed and updated following any material external changes (in addition to the scheduled review and update cycle).
	<p>2.2c Economic stakeholders (asset): Key industry, agricultural and municipal stakeholders have been identified in key catchments, with:</p> <ul style="list-style-type: none"> — basic or limited understanding of their water needs and priorities (<i>see supporting notes</i>), for example developed with limited or no engagement; and/or — limited or no assessment and prioritisation of the relevance of each group to the asset. 	<p>2.2c Economic stakeholders (asset): Comprehensive mapping of industry, agricultural and municipal stakeholders within all relevant catchments in place, which:</p> <ul style="list-style-type: none"> — identifies all relevant stakeholders — demonstrates a detailed understanding of their water values, needs, concerns (both real and perceived) and priorities (<i>see supporting notes</i>), now and in the future (including growth plans and potential cumulative impacts) — is developed through active and inclusive engagement (eg industry forums, roundtable events or bilateral meetings) — assesses and prioritises the relevance of each group to the asset — is regularly reviewed and updated (3-5 years). 	<p>2.2c Economic stakeholders (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — actively participates in regular engagement forums with local industry stakeholders (including other mining assets), to consolidate a common understanding and articulated position — economic value of water (<i>see key terms</i>) is understood — proactively reviewed and updated following any material external changes (in addition to the scheduled review and update cycle).
<p>Supporting notes</p> <p>2.2 Examples of stakeholders’ water values, needs, concerns and priorities to consider when understanding the socio-economic dimensions of catchment context include their:</p> <ul style="list-style-type: none"> — water requirements, including current and future water demand and/or surplus (wastewater) quantities and qualities, and access to sanitation and hygiene services (WASH) — water assets, including water resources and water-related infrastructure (and how these relate to water demand/surplus forecasts) — water values, including cultural, spiritual, environmental, economic and/or recreational — water concerns and challenges (both real and perceived), including physical, regulatory and/or reputational — water initiatives, including community, industrial and/or agricultural led efforts to improve catchment conditions or outcomes. 		<p>References and further guidance</p> <ul style="list-style-type: none"> — ICMM (2015) A practical guide to catchment-based water management for the mining and metals industry — AWS (2020) AWS Standard 2.0 Guidance — Australian National University et al. (2023) National First Nations Water Roundtable: securing water rights for First Nations’ self determination — NatuReS (2023) The Natural Resources Risk and Action Framework (NRAF) user guide — Global Commission on the Economics of Water (2023) Indigenous and Western Knowledge: Bringing Diverse Understandings of Water Together in Practice 	

Element 2: Understand Water Context, Risk and Opportunity		Focus: water resilient operations (asset level)	
Sub-element	Basic practice	Advanced practice	Leading practice
2.3 Catchment public water governance context 	2.3a Public water governance (asset): Key public water governance policies, processes and initiatives (<i>see supporting notes</i>) have been identified and the effectiveness, limitations and risks of current governance approaches are understood, with: <ul style="list-style-type: none"> — basic or limited understanding of future reform potential and the implications to achieving the asset’s life of asset (LOA) plans (including growth); and/or — limited or no engagement with public bodies and regulatory authorities. 	2.3a Public water governance (asset): Comprehensive mapping of key public water governance policies, processes and initiatives (<i>see supporting notes</i>) in place, which: <ul style="list-style-type: none"> — identifies all public water governance policies, processes and initiatives relevant to the asset (<i>see supporting notes</i>) — demonstrates a good understanding of the effectiveness, limitations and risks of current governance and/or Integrated Water Resources Management (IWRM) approaches — demonstrates a good understanding of future reform potential and the implications to achieving the asset’s LOA plans (including growth) — prioritises key policies, processes and initiatives to engage (<i>see 4.4</i>) — is developed through regular and active engagement with public bodies and regulatory authorities — is regularly reviewed and updated (3-5 years). 	2.3a Public water governance (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — results are validated through engagement with relevant catchment stakeholders — proactively reviewed and updated following any material external changes (in addition to the scheduled review and update cycle).
Supporting notes 2.3 Examples of public water governance policies, processes and initiatives to consider include those relating to: <ul style="list-style-type: none"> — legal, regulatory and permitting — access to information on water quantity and quality — the state of infrastructure (eg catchment requirements and current/future status) — local water, sanitation and hygiene (WASH) conditions (eg in the workplace and/or local communities) existence and enforcement of allocations and caps — local water pricing systems, markets and financing vehicles. 		References and further guidance <ul style="list-style-type: none"> — AWS (2020) AWS Standard 2.0 Guidance — Logg et al. (2020) Mapping public water management: proof of concept — UNEP (2021). Progress on Integrated Water Resources Management global indicator 6.5.1 updates and acceleration needs — Tools for tracking global progress on implementation of IWRM and SDG indicator 6.5.1 – IWRM data portal (http://iwrmdataportal.unepdhi.org/) 	
2.4 Operational water requirements 	2.4a Water requirements (asset): Basic or limited understanding of operational water requirements (<i>see key terms and supporting notes</i>) that: <ul style="list-style-type: none"> — is focused on quantities (with no or limited consideration of water qualities); and/or — does not consider all relevant stages of the LOA plan (including closure and post-closure); and/or — is based on empirical or estimated values, and/or has other significant assumptions or uncertainties. 	2.4a Water requirements (asset): Comprehensive understanding of the LOA water requirements (<i>see key terms and supporting notes</i>) in place, which: <ul style="list-style-type: none"> — includes all relevant stages of development and operation for the LOA plan (including closure and post-closure) — is understood with a reasonable level of confidence (eg based on measured values or calibrated model outputs) — considers the implications of climate change (especially during closure and post-closure) — is developed with input from relevant cross-functional teams (eg business planners, resource planners, mine planners, closure planners and/or process engineers) — is regularly reviewed and updated (1-3 years). 	2.4a Water requirements (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — developed collaboratively with relevant cross-functional teams (eg business planners, resource planners, mine planners, closure planners and/or process engineers) — LOA plans are tailored to water-related considerations and constraints.
Supporting notes 2.4a Relevant LOA water requirements to understand include: <ul style="list-style-type: none"> — LOA water demand, including the volume of water (quantity and quality) required to support operations and any relevant water-dependent ecosystems – for example to maintain environmental flow volumes and/or qualities during development, operations, closure and post-closure — LOA dewatering/depressurisation requirements (where applicable), including any control and/or withdrawal of water (quantity and quality) from the orebody, adjacent aquifers, water courses and/or flooded legacy workings required to allow the safe extraction of ore — LOA water diversions (where applicable), including the physical channeling and/or re-routing of material water courses around active workings 		<ul style="list-style-type: none"> — LOA surplus management requirements, including any excess water (quantity and quality) generated or captured – for example via dewatering or capture of precipitation/runoff) within the operational footprint that requires management (eg pumping, storage or treatment), disposal or discharge (eg discharge to the environment, a third party/external off taker, and/or recharge to the sub-surface) — LOA flood management requirements, including the magnitude of potential water quantities and the range of water qualities that may be associated with extreme weather events, and associated management controls LOA water quality contamination sources, including low quality wastewater and brines, the use and storage of chemicals for mineral processing, and/or the potential to encounter or expose materials that are potentially acid forming (PAF), may leach heavy metals, or lead to erosion and sedimentation, and associated management controls. — LOA water quality contamination sources, including low quality wastewater and brines, the use and storage of chemicals for mineral processing, and/or the potential to encounter or expose materials that are potentially acid forming (PAF), may leach heavy metals, or lead to erosion and sedimentation, and associated management controls. 	

Element 2: Understand Water Context, Risk and Opportunity			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<div>2.5 Catchment long-term water balance</div> <div></div>	<div>2.5a Catchment water balance (asset): A high-level long-term (eg LOA) catchment water balance (<i>see supporting notes</i>) in place for key catchments, which:</div> <div><div>— is focused on quantities (with no or limited consideration of water qualities); and/or</div><div>— is estimated based on likely socio-economic trends (developed with limited or no engagement with key stakeholders)</div></div>	<div>2.5a Catchment water balance (asset): Long-term (eg LOA) catchment water balance (<i>see supporting notes</i>) in place, for all relevant catchments, that systemically includes:</div> <div><div>— water quantities <u>and</u> qualities</div><div>— a reasonable level of understanding of stakeholder water demand and surplus discharge projections developed through engagement (<i>see 2.2</i>); and</div><div>— the implications of climate change, including changing precipitation and run-off patterns</div></div>	<div>2.5a Catchment water balance (asset): <i>As advanced practice +</i></div> <div><div>— results are validated through engagement with relevant catchment stakeholders and/or developed collaboratively with one or more relevant stakeholders (eg as part of a multi-stakeholder initiative and/or with regulators, communities or NGOs)</div><div>— includes estimate of the environmental water demand (required to restore, protect and enhance the health of natural systems).</div></div>
<div>Supporting notes</div> <div>2.5a A catchment water balance quantifies the overall water budget of the catchment for a given period (usually broken down into annual steps). Importantly, it combines the following key information to provide critical context for assessing current and future business water risks (physical, regulatory and reputational) and opportunities (<i>as detailed in 2.7</i>).</div> <div><div>— Annual estimate of the catchment’s total water budget, allowing for climate change, including:<div><div>- total water inputs to the catchment (quantities and qualities) – for example, associated with precipitation, surface water or groundwater flows from upstream catchments, and/or water transfers into the catchment</div><div>- total water outputs from the catchment (quantities and qualities) – for example, associated with surface water or groundwater discharges to downstream catchments, losses due to evaporation, and/or water transfers from the catchment</div><div>- and the overall change in catchment storage (surface and groundwater).</div></div></div></div>		<div><div>— Annual estimates of water demands and surplus discharges associated with:<div><div>- key community stakeholders, including Indigenous Peoples and First Nations communities (as identified in 2.2)</div><div>- key industrial, agricultural and municipal stakeholders (as identified in 2.2)</div><div>- the asset’s operational water requirements (as identified in 2.4).</div></div></div></div>	<div>Notes</div> <div>The catchment water balance may be developed in different ways, including by:</div> <div><div>— a third party (eg the regulator)</div><div>— the company (eg as own and/or consultant supported project); and/or</div><div>— a multi-stakeholder collaboration initiative</div></div> <div>References and further guidance</div> <div><div>— AWS (2023) Understanding Water Balance, on-line learning module</div><div>— FAO (2017) Water accounting and auditing: a sourcebook, FAO Report 43</div><div>— European Commission, Directorate-General for Environment (2015) Guidance document on the application of water balances for supporting the implementation of the WFD</div></div>
<div>2.6 Shared water challenges and opportunities</div> <div></div>	<div>2.6a Shared challenges and opportunities (asset): Basic or limited understanding of shared water challenges and opportunities (<i>see key terms, and supporting notes</i>) in place, for key catchments, which is:</div> <div><div>— focussed on current water challenges and opportunities</div><div>— developed with limited or no engagement with key catchment stakeholders</div><div>— limited in scope to the area of direct impact rather than the area of influence.</div></div>	<div>2.6a Shared challenges and opportunities (asset): Comprehensive assessment of shared water challenges and opportunities (<i>see key terms, and supporting notes</i>) in place, for all relevant catchments, which:</div> <div><div>— identifies all shared water challenges and opportunities based on the catchment context (as identified in 2.1 – 2.5)</div><div>— identifies linkages with broader catchment challenges and opportunities (eg relating to climate resilience, ecosystem health and restoration, cultural heritage protection and social performance)</div><div>— considers future trends (including the implications of climate change)</div><div>— prioritises key shared water challenges and opportunities to address</div><div>— is developed with input from relevant cross-functional teams (eg nature and social performance)</div><div>— is used to inform water strategy development (<i>see 1.3a</i>), water assessment of business water risk and opportunities (<i>see 2.7</i>) and water targets (<i>see 3.6</i>)</div><div>— is regularly reviewed and updated (3-5 years).</div></div>	<div>2.6a Shared challenges and opportunities (asset): <i>As advanced practice +</i></div> <div><div>— results are validated through engagement with relevant catchment stakeholders and/or developed collaboratively with one or more relevant stakeholders (eg as part of a multi-stakeholder initiative and/or with regulators, communities or NGOs)</div><div>— proactively reviewed and updated following any material external changes (in addition to the scheduled review and update cycle).</div></div>
<div>Supporting notes:</div> <div>2.6a-i Examples of shared water challenges to consider include:</div> <div><div>— physical and environmental challenges – for example relating, but not limited, to water scarcity, water quality, extreme weather events and flood risk, infrastructure constraints (water and/or power), environmental degradation and loss of ecosystem services, climate change and changing precipitation patterns, and any associated cumulative impacts.</div><div>— reputational and social challenges (including any community or stakeholder water-related concerns or opposition) – for example those relating, but not limited, to:<div><div>- the asset’s water access for withdrawal and/or discharge purposes</div><div>- real or perceived impacts to cultural, environmental, recreational or economic interests or assets</div><div>- lack of trust due to limited availability or transparency of robust data for water-related decision making</div><div>- community access to sustainable and safe water sanitation and hygiene (WASH) services.</div></div></div><div>— regulatory challenges – for example relating to weak or uncertain regulatory and/or public water governance systems.</div></div>		<div>2.6a-ii Key elements to consider when assessing and prioritising shared water challenges and opportunities include:</div> <div><div>— the magnitude, implication, timescale and future trends of each challenge</div><div>— the root cause(s) of each challenge and the asset’s contribution to it</div><div>— the desired outcome of addressing each challenge, and the asset’s ability to influence or achieve it</div><div>— potential mitigating actions and improvement opportunities (and associated resources, budgets and timelines) for each challenge (including those that are common to multiple challenges)</div><div>— relevant stakeholders and potential collective action partners (including those that are common to multiple challenges).</div></div> <div>References and further guidance</div> <div><div>— BHP and Bluerisk. 2022. Setting Site Water Targets Informed by Catchment Context: BHP’s Approach</div><div>— AWS (2020) AWS Standard 2.0 Guidance</div></div>	

Element 2: Understand Water Context, Risk and Opportunity			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<p>2.7 Business water risks and opportunities</p> 	<p>2.7a Risk and opportunity assessment (corporate): Water risks and opportunities assessments in place that:</p> <ul style="list-style-type: none"> — consider the company’s overall exposure to water risk (physical, regulatory and reputation) and opportunities based largely on current asset level water risks and opportunities (<i>see 2.7a asset</i>) across its operational portfolio — identify appropriate mitigation measures and critical controls. 	<p>2.7a Risk and opportunity assessment (corporate): Comprehensive assessment of current and future water risks and opportunities are undertaken that:</p> <ul style="list-style-type: none"> — consider how broader/global conditions may impact the company’s reputation, ability to access finance, operate to plan or realise growth ambitions, allowing for changing societal values and expectations — consider the company’s overall exposure to water risk and opportunities based on asset level water risks and opportunities (<i>see 2.7a asset</i>) across its operational portfolio — are aligned with assessment of broader related cross-functional risks and opportunities (eg associated with climate change adaptation and resilience, cultural heritage protection, ecosystem health, social performance, operational excellence, waste management) — identify appropriate mitigation measures and critical controls (which are regularly reviewed to ensure effectiveness); — are developed within input from relevant cross-functional teams — are used to inform water governance development (1.1), internal capacity requirements (1.2) company strategy development (1.3) — are systematically incorporated into broader risk management systems and budgeting processes — are reviewed and updated at least annually. 	<p>2.7a Risk and opportunity assessment (corporate): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — integrated with broader cross-functional risk assessments (eg relating to climate change, social performance, biodiversity and nature, energy, waste management) to identify: <ul style="list-style-type: none"> - common risks and opportunities - potential trade-offs between water and related decision making (eg water versus power and greenhouse gas (GHG) emissions) - develop holistic management and mitigation strategies — re-evaluated following any material internal or external changes (in addition to the scheduled review and update cycle).
	<p>2.7a Risk and opportunity assessment (asset): Water risks and opportunities assessments in place that:</p> <ul style="list-style-type: none"> — focus on how the asset’s actions or operations may physically impact the water catchment(s) and stakeholders in which it operates (often compliance driven) — identify appropriate mitigation measures and critical controls; but — have limited consideration of how physical, regulatory and reputational conditions within the local catchment(s) may impact the asset’s ability to operate to plan and realise growth ambitions. 	<p>2.7a Risk and opportunity assessment (asset): Comprehensive assessment of current and future water risks and opportunities that:</p> <ul style="list-style-type: none"> — consider how the asset’s actions or operations may physically impact the water catchment(s) and stakeholders in which it operates — include how biophysical, regulatory and reputational conditions within the local catchment(s) (as identified in 2.1 – 2.6) may impact the asset’s ability to operate to plan and realise growth ambitions, allowing for changing climatic conditions, social demographics, and societal values and expectations — identify appropriate mitigation measures and critical controls (which are regularly reviewed to ensure effectiveness); — are developed within input from relevant cross-functional teams — are used to inform internal capacity requirements (1.2) — are systematically incorporated into broader risk management systems, and asset planning and budgeting (3.1 – 3.6) processes — are reviewed and updated at least annually. 	<p>2.7a Risk and opportunity assessment (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — integrated with broader cross-functional risk assessments (eg relating to climate change, social performance, biodiversity and nature, energy, waste management) to identify: <ul style="list-style-type: none"> - common risks and opportunities - potential trade-offs between water and related decision making (eg water versus power and greenhouse gas (GHG) emissions) - develop holistic management and mitigation strategies — re-evaluated following any material internal or external changes (in addition to the scheduled review and update cycle).
<p>References and further guidance</p> <ul style="list-style-type: none"> — ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition — ICMM (2015) A practical guide to catchment-based water management for the mining and metals industry 			

Element 3: Integrate Water in Business Planning and Decision Making

3.1 Operational water security (quantity and quality)


3.2 Operational water efficiency and circularity


3.3 Resilient infrastructure


3.4 Closure and rehabilitation



3.5 Water stewardship actions


3.6 Water targets

Element 3: Integrate Water in Business Planning and Decision Making			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<div>3.1 Operational water security</div> <div><div><div>— Quantity</div><div>— Quality</div></div><div></div></div>	<div>3.1a Water sources (asset): Basic or limited understanding of the water withdrawal sources (<i>see supporting notes</i>) that will be used to meet the LOA water demand (<i>see 2.4 supporting notes</i>) in place, which:</div> <div><div>— is typically focussed on the short- to medium-term, and incorporated into associated asset planning and budgeting processes</div><div>— is typically based on review of biophysical catchment and operational context and risks (as identified in 2.1, 2.2 and 2.7)</div><div>— may not consider all relevant stages of the LOA plan (including closure and post-closure); and/or</div><div>— has limited consideration of the implications of climate change.</div></div>	<div>3.1a Water sources (asset): Comprehensive assessment of the water withdrawal sources (<i>see supporting notes</i>) that will be used to meet the LOA water demand (<i>see 2.4 supporting notes</i>) in place, which:</div> <div><div>— identifies all current, future and potential/contingency water withdrawal sources, and their key characteristics, potential impacts, risks and opportunities – based on catchment and operational context, risks and opportunities, including the implications of climate change (as identified in 2.1 – 2.7);</div><div>— prioritises withdrawal sources to develop and use, with supporting infrastructure requirements (eg for treatment, pumping, storage etc.) and contingency options</div><div>— is systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes</div><div>— is regularly reviewed and updated (each planning cycle).</div></div>	<div>3.1a Water sources (asset): <i>As advanced practice +</i></div> <div><div>— in high-risk contexts, the LOA plan (and associated water demand) is optimised to water source availability</div><div>— principles are in place to systemically and consistently prioritise water source selection based on catchment and operational context, risks and priorities (eg focus on enhancing water efficiency and circularity to reduce withdrawals from environmental sources (<i>see 3.2</i>), safe-guarding sensitive cultural and/or environmental assets, mitigating water allocation and access risks)</div><div>— cost benefit analysis (CBA) type assessments undertaken to inform source selection that consider the holistic value to the business (e. protection of value at risk) and/or to society now and in the future, (and extend beyond simple estimates of infrastructure costs versus volumes delivered).</div></div>
	<div>3.1b Water discharges (asset): Basic or limited assessment of the water discharge options (<i>see supporting notes</i>) that will be used to manage LOA surplus water quantities and qualities in place, which:</div> <div><div>— is typically focussed on the short- to medium-term, and incorporated into associated asset planning and budgeting processes</div><div>— is typically based on discharge characteristics (eg quantities and qualities) and compliance with local regulatory limits</div><div>— has limited consideration of biophysical characteristics of the receiving environment, and/or the implications of climate change.</div></div>	<div>3.1b Water discharges (asset): Comprehensive assessment of the water discharge options (<i>see supporting notes</i>) that will be used to manage LOA surplus water quantities and qualities in place, which:</div> <div><div>— identifies all current, future and potential water discharge options, and their key characteristics, potential impacts, risks and opportunities – based on catchment and operational context, risks and opportunities, including the implications of climate change (as identified in 2.1 – 2.7)</div><div>— prioritises which discharge options to use, with supporting infrastructure requirements (e.g. for treatment, pumping, storage etc) and contingency options</div><div>— is systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes</div><div>— is regularly reviewed and updated (each planning cycle).</div></div>	<div>3.1b Water discharges (asset): <i>As advanced practice +</i></div> <div><div>— in high-risk contexts, the LOA plan (and associated water surplus volumes and qualities) is optimised to align with preferred water discharge options and opportunities for additional beneficial use (eg by the environment or a third party)</div><div>— principles are in place to systemically prioritise water discharge destinations based on catchment and operational context, risks and priorities (eg focus on enhancing water efficiency and circularity to reduce withdrawals from environmental sources (<i>see 3.2</i>), safe-guarding sensitive cultural and/or environmental assets)</div><div>— CBA type assessments undertaken to inform discharge destination selection that consider the holistic value to the business (eg protection of value at risk) and/or to society now and in the future, (and extend beyond simple estimates of infrastructure costs versus volumes discharged).</div></div>
	<div>3.1c Contamination sources (asset): Basic or limited assessment of potential water quality contamination sources (<i>see supporting notes</i>) that may arise during LOA operations in place, which is:</div> <div><div>— typically focussed on the short- to medium-term; and</div><div>— incorporated into associated asset planning and budgeting processes.</div></div>	<div>3.1c Contamination sources (asset): Comprehensive assessment of potential water quality contamination sources (<i>see supporting notes</i>) that may arise during LOA operations in place, which:</div> <div><div>— identifies all current, future and potential water quality contamination sources, and their key characteristics, risks and potential impacts – based on catchment and operational context, risks and opportunities, including the implications of climate change (as identified in 2.1 – 2.7)</div><div>— specifies preferred source control measures and mitigation controls (including new technologies and innovative approaches), and contingency options</div><div>— is systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes</div><div>— is regularly reviewed and updated (3-5 years).</div></div>	<div>3.1c Contamination sources (asset): <i>As advanced practice +</i></div> <div><div>— mine/operational plans optimised to manage and reduce the exposure and rehandling of metal leaching (ML) and/or acid rock drainage (ARD) materials (<i>see supporting notes</i>) and/or other potentially contaminating materials (eg explosives and/or leaching reagents)</div><div>— actively supports and promotes research and development of new and improved technologies and innovative approaches (eg use of microbes).</div></div>

Element 3: Integrate Water in Business Planning and Decision Making		Focus: water resilient operations (asset level)	
Sub-element	Basic practice	Advanced practice	Leading practice
<p>Supporting notes</p> <p>3.1a Relevant key withdrawal source types and characteristics to consider include:</p> <ul style="list-style-type: none"> — source type, including surface water (eg rivers, dam), groundwater (eg borefields, sumps), seawater and/or third party water (eg municipal, service agreement, or wastewater provider) — source characteristics, eg sustainable withdrawal quantities (yields), qualities, and associated seasonal and/or long-term variabilities — potential impacts (eg to ecosystems and/or community, cultural or societal values), risks (biophysical including climate, reputational and/or regulatory), opportunities (operational and catchment), and associated management controls <p>3.1b Relevant key discharge destination types and characteristics to consider include:</p> <ul style="list-style-type: none"> — destination type, including surface water (eg to rivers, dams, seawater), groundwater (eg managed aquifer recharge, infiltration pits), evaporation ponds, and/or third party water (eg external off-takers) — destination characteristics, eg sustainable discharge quantities and qualities, social-cultural- environmental sensitivities, and associated seasonal and/or long-term variabilities — potential impacts (eg to ecosystems and/or community, cultural or societal values), risks and controls.opportunities (operational and catchment), and associated management controls — destination characteristics, eg sustainable discharge quantities and qualities, social-cultural-environmental sensitivities, and associated seasonal and/or long-term variabilities — potential impacts (eg to ecosystems and/or community, cultural or societal values), risks and opportunities (operational and catchment), and associated management controls. 		<p>3.1c Relevant potential water quality contamination sources and risks to consider include:</p> <ul style="list-style-type: none"> — contaminations sources, including: <ul style="list-style-type: none"> - low quality wastewater and brines - the use and storage of explosives, chemicals for mineral processing (including leaching) and/or fuels - materials that are potentially acid forming and/or may leach heavy metals (may also be known as metal leaching and acid rock drainage (ML/ARD), acid mine drainage (AMD), acid and metalliferous drainage (AMD) or potentially acid forming (PAF) materials - the exposure of materials or ground which leads to erosion and sedimentation. — potential impacts via identified pathways (eg to ecosystems and/or community, cultural or societal values) risks, (biophysical including climate, reputational and/or regulatory), opportunities (operational and catchment) and associated mitigation <p>References and further guidance</p> <ul style="list-style-type: none"> — ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition — MCA (2022) Minerals Industry Water Accounting Framework User Guide Version 2.0 — INAP (2009) Global Acid Rock Drainage (GARD) Guide 	
<p>3.2 Operational water efficiency and circularity</p> 	<p>3.2a Efficiency and circularity (asset): Options to optimise internal water efficiency (<i>see supporting notes</i>) have been identified, assessed, and are incorporated into short- to medium-term asset planning and budgeting cycles.</p>	<p>3.2a Efficiency and circularity (asset): Options to optimise internal water efficiency and external water circularity (<i>see supporting notes</i>) have been identified, which:</p> <ul style="list-style-type: none"> — routinely considers new technologies and innovative approaches — are assessed and prioritised (eg based on a CBA type assessment) — are systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes; and — are regularly reviewed and updated (each planning cycle) 	<p>3.2a Efficiency and circularity (asset): <i>As advanced practice +</i></p> <ul style="list-style-type: none"> — actively supports and promotes research and development of new and improved technologies and innovative approaches — principles are in place to systemically assess, and where feasible, prioritise use of low quality water (including seawater for desalination) and/or third party surplus/wastewater to minimise withdrawal of high quality water from environmental sources (e.g. surface water and/or groundwater) — broader co-benefits of improved internal water efficiency and external water circularity (eg social, cultural, environmental and reputational) are included in CBA type assessments.
<p>Supporting notes</p> <p>3.2a-i Examples of approaches to improve internal water efficiency (within the asset) to reduce the demand for new water (and withdrawal from external sources) include:</p> <ul style="list-style-type: none"> — reduce consumptive water losses associated with evaporation, entrainment in product and waste and other losses – for example by installing tailings thickening plants, dry-stacked tailings, covering open water stores, using dust suppressants, and capturing and condensing cooling water — prioritise use of water captured within the operational footprint – for example preferential use of precipitation and run-off captured in open pits, tailings storage facilities, or on roofs and areas of hard-standing/tarmac, and/or use of water abstracted for dewatering purposes — enhance the recovery and reuse of water within closed-cycle processing and refining loops or tasks (i.e. operational activities that require water) – for example through improved practices, use of more modern/efficient technologies and/or regular maintenance of equipment — optimise the recovery and reuse (without treatment) or recycling (with treatment) of water between on-site tasks – for example, use of water recovered from Tailings Storage Facility (TSF) collection drains for dust suppression, environmental rehabilitation or fire-fighting, or use of grey water from amenities blocks for irrigation. 		<p>3.2a-ii Examples of approaches to improve external water circularity (within the catchment) to reduce the overall withdrawal of water from environmental sources and/or enhance catchment outcomes include:</p> <ul style="list-style-type: none"> — preferential use of water captured within the operational footprint – for example preferential use of precipitation and run-off captured in open pits, tailings storage facilities, or roofs and areas of hard-standing/tarmac, and/or use of water abstracted for dewatering purposes; — preferential use of wastewater from third parties (with or without treatment) – for example, industrial or municipal wastewater — preferential discharge of wastewater and discharges to third party off-takers (with or without treatment) for further beneficial use – for example, assets with (waste) water surplus actively seek opportunities to provide water to third party off-takers (eg agricultural stakeholders) for further beneficial use (and value creation) — preferential management of surplus water (of suitable qualities) to support nature or augment catchment resources – for example, aquifer recharge to augment groundwater resources or use of surplus to support environmental rehabilitation. <p>References and further guidance</p> <ul style="list-style-type: none"> — Beverage Industry Environmental Roundtable (BiER) (2023) Water Circularity Good Practices Guide — BiER (2020) Context-Based Decision Guide for Water Reuse and Recycling — ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition — Tools to aid assessment of baseline water stress: <ul style="list-style-type: none"> - WRI Aqueduct Water Risk Atlas - WWF Water Risk Filter 	





Element 3: Integrate Water in Business Planning and Decision Making			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
3.3 Resilient infrastructure 	3.3a WASH services (asset): On-site access to safe water, sanitation and hygiene (WASH) facilities is provided for some workforce groups	3.3a WASH services (asset): On-site access to safe water, sanitation and hygiene (WASH) facilities is provided for all workforce groups and members, including: <ul style="list-style-type: none"> — facilities (eg drinking water supplies, toilets and wash blocks) that allow safe access for minority and vulnerable groups (including women) and promote good menstrual hygiene 	3.3a WASH services (asset): <i>as advanced practice + asset:</i> <ul style="list-style-type: none"> — actively supports (directly or indirectly) the provision of WASH facilities for local communities, including Indigenous and First Nation communities — integrated with social performance and inclusion initiatives to address gender inequality and menstrual poverty in the workforce and local communities.
	3.3b Water treatment, pipes and pumps (asset): Basic or limited understanding of the water treatment facilities (and associated pipes and pumps) required to support the LOA plan in place, which is typically focussed on meeting operational requirements (eg desalination of saline water for supply, and/or meeting regulatory limits for discharge water quality)	3.3b Water treatment, pipes and pumps (asset): Comprehensive understanding of the water treatment facilities (and associated pipes and pumps) required to support the LOA plan, minimise potential environmental impacts and promote the use of low quality water, which: <ul style="list-style-type: none"> — allows for contingency and redundancy — routinely considers new technologies and innovative approaches — is systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes — is regularly reviewed and updated (each planning cycle). 	3.3b Water treatment, pipes and pumps (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — actively supports and promotes research and development of new and improved technologies and innovative approaches — integrated with broader cross-functional assessment and planning to identify common opportunities and evaluate potential trade-offs (eg energy consumption).
	3.3c Flood and extreme event mitigation (asset): Flood and extreme event mitigation measures and contingencies in place for critical infrastructure	3.3c Flood and extreme event mitigation (asset): Flood and extreme event risk (eg inrush) mitigation measures and contingencies, that consider the implications of climate change, are integrated in infrastructure design criteria for all key infrastructure, and are: <ul style="list-style-type: none"> — integrated in emergency response plans and/or rapid response systems (which include induction, training and emergency response drills for all site operatives including any contractors) — systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes — are regularly reviewed (each planning cycle) and updated (3-5 years). 	3.3c Flood and extreme event mitigation (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — upstream and downstream monitoring and alert systems in place — emergency response plans shared and integrated with local government authority approach — second- or third-party assurance of emergency response plans undertaken.
	3.3d Green infrastructure and nature-based solutions (NbS) (asset): Ad hoc or limited approach to considering opportunities to install green infrastructure and nature-based solutions (NbS) (<i>see key terms</i>)	3.3d Green infrastructure and NbS (asset): Opportunities to install green infrastructure and nature-based solutions (NbS) are: <ul style="list-style-type: none"> — systemically considered to enhance catchment resilience (climate, environmental, social and cultural) — assessed and prioritised, based on catchment and operational context, risk, opportunities and priorities (as identified in 2.1 – 2.7) — aligned with broader climate, nature and social closure objectives — systemically incorporated into asset planning (short-, medium- and long-term or LOA), budgeting cycles, risk management systems and change management processes — regularly reviewed (each planning cycle) and updated (3-5 years). 	3.3d Green infrastructure and NbS (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — integrated with broader climate, nature and social initiatives and objectives — broader co-benefits of green infrastructure and NbS solutions (eg climate, social, cultural, environmental and reputational) are understood (eg via CBA type assessments).
References and further guidance <ul style="list-style-type: none"> — Diageo et al. (2018) Strengthening the Business Case for Water, Sanitation and Hygiene: How to measure value for your business — Conservation International (2018) Corporate Water Stewardship and the Case for Green Infrastructure — IUCN (2020) Global Standard for Nature-based Solutions — UNEP (2014) Green Infrastructure: Guide for Water Management — Shiao et al. (2020) Benefit Accounting of Nature-Based Solutions for Watersheds Landscape Assessment 		<ul style="list-style-type: none"> — Brill et al. (2021) Benefit Accounting of Nature-Based Solutions for Watersheds: Guide — Brill et al. (2022) Stakeholder Engagement Guide For Nature-Based Solutions — WASH4Work (2022) New expectations and game-changing ambitions for the water action decade: insights report — Tool to assess flood risk: WRI Aqueduct Floods — Tool to assess NbS benefits: CEO Water Mandate NbS Benefits Explorer 	








Element 3: Integrate Water in Business Planning and Decision Making		Focus: water resilient operations (asset level)	
Sub-element	Basic practice	Advanced practice	Leading practice
3.4 Closure and rehabilitation <div>  </div>	3.4a Closure requirements (asset): Basic or limited understanding of post-closure water impacts, closure design criteria and any long-term management controls, which is typically focused on catchment biophysical context and sensitive natural assets.	3.4a Closure requirements (asset): Comprehensive understanding of closure design criteria, post-closure water impacts and long-term management controls in place, which: <ul style="list-style-type: none"> — is integrated into asset closure designs and plans to reduce water-related long-term and legacy impacts on the catchment and its stakeholders, aligned with catchment context, risks and priorities, and include the implications of climate change (as identified in 2.1 – 2.7) — identifies appropriate reference standards for key catchment criteria (eg water quality) — is aligned with broader climate, nature and social closure objectives (and developed with input from relevant cross-functional teams, eg closure planners, climate, nature and/or social performance) — includes progressive rehabilitation and closure activities during operational life — is incorporated in relevant long-term/LOA planning), budgeting cycles, risk management systems and change management processes — is regularly reviewed and updated (3-5 years). 	3.4a Closure requirements (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — closure plans are optimised to minimise long-term impacts on catchment water resources, sensitive natural assets and catchment stakeholders — sets self-defined context-specific criteria (eg for quantity and/or quality) to safeguard and/or restore sensitive catchment water assets where reference standards are not available or not sufficient — developed collaboratively with relevant internal cross-functional teams (eg closure planners, climate, nature and/or social performance) and/or key catchment stakeholders.
References and further guidance <ul style="list-style-type: none"> — ICMM (2019) Integrated Mine Closure: Good Practice Guide, 2nd edition — ICMM (2022) Closure Maturity Framework 			
3.5 Water stewardship actions <div>  </div>	3.5a Water stewardship actions (asset): Water stewardship plan in place which identifies priority water stewardship actions, which are typically focussed on reducing operational risk (rather than improving catchment outcomes more generally).	3.5a Water stewardship actions (asset): Comprehensive water stewardship plan in place that: <ul style="list-style-type: none"> — identifies potential water stewardship actions which may be undertaken, now and in the future, to improve the collective management of water as a shared resource and improve catchment outcomes — assesses potential water actions to be undertaken (<i>see supporting notes</i>), based on catchment and operational context and risks (developed with stakeholder engagement), including consideration of the implications of climate change (as identified in 2.1 – 2.7) — documents supporting engagement with key stakeholders (eg approach, roles and responsibilities, frequency and desired outcome) — identifies priority actions that are systemically incorporated into asset planning (short-, medium- and long-term or LOA) and budgeting cycles — is regularly reviewed and updated (each planning cycle). 	3.5a Water stewardship actions (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — developed collaboratively with one or more relevant stakeholders (eg as part of a multi-stakeholder initiative and/or with regulators, communities or NGOs) — simple understanding of likely return on investment (ROI) (<i>see support notes</i>) for key water stewardship actions and/or investments — performance tracked on site management scorecards and/or linked to performance-based compensation or remuneration.
Supporting notes <p>3.5a-i Key element to consider when assessing potential water stewardship actions include:</p> <ul style="list-style-type: none"> — desired outcome for the catchment — value and priority level to the asset (eg how does it reduce risk or create value) — asset’s ambition and contribution (eg if addressing part of a broader challenge, what level of contribution can the asset reasonably make) — partnering stakeholders and facilitators — appropriate context-based water targets to measure progress and evaluate performance (<i>see 3.6</i>) — required resources (people, time and budget) — internal roles, accountabilities and responsibilities. 		<p>3.5a-ii Understanding the return on investment (ROI) of water stewardship actions and investments can be challenging and may be undertaken in different ways depending on the context, objective, and action or investment type. Some approaches to consider include:</p> <ul style="list-style-type: none"> — reducing or protecting business value at risk – for example by reducing the magnitude of production (tonnage or revenue) losses associated with not being able to operate to plan due to water-related constraints — conducting cost-benefit and scenario analysis (CBA) to understand opportunities for value creation relating to water for the business and/or society (including social, cultural, environmental and/or economic). <p>References and further guidance</p> <ul style="list-style-type: none"> — AWS (2020) AWS Standard 2.0 Guidance — ABInBev et al. (2022) A Recipe for Impact (and references therein) — Vionnet et al. (2022) Beyond Volumes: Exploring the Societal Value of corporate water stewardship projects — WWF and IFC (2015) The Value of Water 	

Element 3: Integrate Water in Business Planning and Decision Making			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
3.6 Water targets 	3.6a Water targets (asset): Asset level water targets in place that are compliance driven and/or non-contextual (eg driven by top-down corporate strategy).	3.6a Water targets (asset): Asset level water targets in place that: <ul style="list-style-type: none"> — are context-based, measurable, actionable and time-bound (<i>see supporting notes</i>) — are informed by catchment and operational context, risks and opportunities, and priority water stewardship actions (<i>see 2.1 – 2.7</i>) — have a water stewardship focus (ie water as a shared resource with improved water-related catchment outcomes – e.g. improving climate, natural system and/or cultural resilience) — align with corporate strategy and ambition (<i>see 1.3</i>) — are used to measure progress and evaluate performance, which are regularly communicated with relevant site management and operational teams (3-12 months) — are systemically incorporated into asset planning (short-, medium- and long-term or LOA) and budgeting cycles — are regularly reviewed (each planning cycle) and updated (5-10 years) — may or may not be accompanied by broader water targets focused on operational water management performance (eg relating to ore moisture or dewatering levels). 	3.6a Water targets (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — targets are validated through engagement with relevant catchment stakeholders and/or developed collaboratively with key catchment stakeholders — interim milestones used to communicate progress and assess the effectiveness of current approaches — performance tracked on site management scorecards and/or linked to performance-based compensation or remuneration.
	3.6b Ambition level (asset): Asset level context-based water targets are in place that: <ul style="list-style-type: none"> — reduce (but do not fully mitigate) the asset’s exposure to water risk associated with operating in the catchment; and/or — reduce the asset’s negative impacts (environmental, social, cultural or economic) in the catchment, but do fully compensate or restore all negative impacts. 	3.6b Ambition level (asset): Asset level context-based water targets are in place that: <ul style="list-style-type: none"> — minimise (eg mitigate as fully as possible) the asset’s exposure to water risk associated with operating in the catchment. — minimise or compensate the asset’s negative impacts (environmental, social, cultural or economic) in the catchment, in line with agreed catchment sustainability and/or safeguarding thresholds for sensitive natural water assets. 	3.6b Ambition level (asset): Asset level context-based water targets are in place that: <ul style="list-style-type: none"> — both minimise the asset’s exposure to water risk associated with operating in the catchment <u>and</u> create additional long-term business resilience; and/or — contribute positive impacts (environmental, social, cultural or economic) and/or create additional value.
Supporting notes 3.6a Types of context-based water targets to consider include: <ul style="list-style-type: none"> — process-oriented: targets that drive a process that can contribute to achieving an asset’s strategic objective within the catchment (eg target to fund collaborative basin model to define sectoral water allocation caps on an annual basis informed by seasonal climate forecasts) — outcome-oriented (quantitative): targets that quantify how they contribute to achieving an asset’s strategic objective within the catchment in a quantitative manner (eg a target to support external organisations to reduce 220 tones of nutrients from being released to the environment) — outcome-oriented (qualitative): targets that describe how they contribute to achieving an asset’s strategic objective within the catchment in a qualitative manner (eg target to eliminate site groundwater abstraction by 2030). 3.6b Points to consider assessing the ambition level of context-based water targets include: <ul style="list-style-type: none"> — ambition levels will varying depending on the: <ul style="list-style-type: none"> - catchment and operational context, risks opportunities and priorities (as identified in 2.1 – 2.7), and - company’s water strategy and ambition (<i>see 1.3</i>) — ambition levels should strive to be proportional to: <ul style="list-style-type: none"> - the asset’s scale, impact and sphere of influence in the catchment; and/or - the magnitude of the shared water challenges and water risk to the business associated with the catchment. 		References and further guidance <ul style="list-style-type: none"> — CEO Water Mandate et al. (2019) Setting Site Water Targets Informed by Catchment Context: A Guide for Companies — Reig et al. (2021) Setting Enterprise Water Targets: A Guide for Companies — BHP and Bluerisk (2022) Setting Site Water Targets Informed by Catchment Context: BHP’s Approach — Science-Based Targets Network (SBTN) (2023) Freshwater Guide 	

Element 4: Performance and Measurement



- 4.1 Regulatory compliance
- 4.2 Operational monitoring and adaptive management
- 4.3 Collective action (for improved catchment outcomes)
- 4.4 Public policy reform


Element 4: Performance and Measurement			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
4.1 Regulatory compliance <div>  </div>	4.1a Compliance (asset): Is generally in compliance with local water-related regulatory requirements.	4.1a Compliance (asset): Is typically in full compliance with local water-related regulatory requirements.	4.1a Compliance (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> sets self-defined context-specific thresholds (eg for quantity and/or quality) to safeguard and/or restore sensitive catchment water assets where regulatory requirements are lacking or not sufficient.
	4.1b Corrective action (asset): Ad hoc approach to tracking compliance responding to any incidents of non-compliance.	4.1b Corrective action (asset): Processes in place to: <ul style="list-style-type: none"> monitor water-related regulatory permit requirements, conditions and renewals systemically track compliance immediately respond to any incidents of non-compliance regularly review and discuss performance with site management and operational teams, and share learnings from incidents across the company (every 3-6 months). 	4.1b Corrective action (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> processes in place to ensure transparent communication with senior leadership and relevant external stakeholders around any incidents of non-compliance.
4.2 Operational monitoring and adaptive management <div>    </div>	4.2a Monitoring (asset): Basic water-related monitoring regime in place, which is typically focussed on data collection to support operations and compliance reporting.	4.2a Monitoring (asset): Water-related monitoring regime in place, which includes a comprehensive network of monitoring installations (eg climate, surface water, groundwater and/or soil moisture) that: <ul style="list-style-type: none"> are regularly monitored on a frequency that is sufficient to understand catchment and operational context, and support robust decision making (including adaptative management approaches – <i>see 4.2c</i>) are regularly maintained and calibrated (eg meters) generate reliable data that are regularly reviewed/reconciled (at least every 3-6 months), curated in a managed database, and communicated with relevant site management and operational teams. 	4.2a Monitoring (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> external stakeholders (eg community, Indigenous and First Nation groups) regularly participate in data collection (participatory monitoring) to build trust and a common understanding telemetry systems are in place to enhance data quality and reconciliation, and reduce health and safety risks associated with data collection.
	4.2b Water balance (asset): High-level operational water balance model in place, which: <ul style="list-style-type: none"> is focused on water quantities with no or limited water quality information has significant assumptions and/or uncertainties. 	4.2b Water balance (asset): A fit-for-purpose operational water balance model in place, which: <ul style="list-style-type: none"> includes water quantities <u>and</u> qualities; can be used predictively to optimise operational water management and set operational limits for adaptative management strategies (<i>see 4.2c</i>) is reconciled and updated on a regular basis (1-3 months), and the results are communicated with relevant site management and operational teams is used to generate reliable metrics for public reporting (<i>see 5.1</i>). 	4.2b Water balance (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> proactively updated following any material internal changes (in addition to the scheduled review and update cycle) – eg reconfiguration of the site water circuit.
	4.2c Adaptive management (asset): Limited adaptive management processes are in place, which are typically focussed on operational water management and/or compliance.	4.2c Adaptive management (asset): Adaptive management processes (<i>see key terms</i>) are in place to: <ul style="list-style-type: none"> regularly review monitoring data (on a frequency commensurate with associated risk levels) and any water-related impacts to sensitive catchment water assets, which are communicated with relevant site management and operational teams trigger an appropriate management response, and/or instigate contingency measures if safeguarding thresholds are breached iteratively refine technical understanding, update safeguarding thresholds (as necessary), and review the effectiveness of critical controls and revise if necessary. 	4.2c Adaptive management (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> processes in place to ensure transparent communication with senior leadership if safeguarding thresholds are breached adaptive management thresholds consider both safeguarding and restoration of sensitive catchment water assets (where necessary) developed collaboratively with relevant internal cross-functional teams (eg nature, cultural heritage and/or social performance).

Element 4: Performance and Measurement		Focus: water resilient operations (asset level)	
Sub-element	Basic practice	Advanced practice	Leading practice
4.3 Collective action (for improved catchment outcomes) <div>       </div>	4.3a Collective action (asset): Participation in relevant collective action initiatives where present (<i>see key terms and supporting notes</i>), with: <ul style="list-style-type: none"> — an unclear role in the initiative — poorly defined goals, objectives and desired outcomes for how the initiative will: <ul style="list-style-type: none"> - address shared water challenges and opportunities in the catchment (as identified in 2.6) - reduce business risk or realise opportunities (as identified in 2.7). 	4.3a Collective action (asset): Active participation in relevant collective action initiatives (<i>see key terms and supporting notes</i>), with: <ul style="list-style-type: none"> — a clearly defined role in the initiative — timebound and measurable goals, objectives, and desired outcomes for how the initiative will: <ul style="list-style-type: none"> - address shared water challenges and opportunities in the catchment (as identified in 2.6) - reduce business risk or realise opportunities (as identified in 2.7). 	4.3a Collective action (asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — proactively initiates and/or (co-)convenes collective action initiatives and puts processes in place to ensure the collaborative effort is self-sustaining.
Supporting notes 4.3a There are many types of collective action , a few examples include input or support (time, resources or technical knowledge) to initiatives that: <ul style="list-style-type: none"> — build trust – for example, participatory monitoring programs, or data sharing platforms — improve catchment outcomes or resilience (water, climate, social, cultural or environmental) – e.g improving access to WASH services for community stakeholders, or improving menstrual hygiene facilities for women and girls in local communities, or undertaking landscape restoration to reduce runoff and erosion — create water-related training, accreditation and employment opportunities for local communities, including Indigenous and First Nation Peoples. 		References and further guidance: <ul style="list-style-type: none"> — ABInBev (2022) A Recipe for Impact Water Mandate (2013) Guide to Water-Related Collective Action — NatuReS (2023) The Natural Resources Risk and Action Framework (NRAF) user guide — Diageo (2021) Water Collective Action Implementation Guide — CEO Water Mandate Water Action Hub (https://wateractionhub.org/) 	
4.4 Public policy reform <div>  </div>	4.4a Public policy reform (corporate and asset): Passive involvement (eg participation with limited inputs) in public policy reform initiatives with governments and local authorities (if present).	4.4a Public policy reform (corporate and asset): Active involvement, with documented inputs, in public policy reform initiatives (<i>see key terms</i>) with governments and local authorities to: <ul style="list-style-type: none"> — address identified external water governance risks and broader shared water challenges (as identified in 2.3, 2.6 and 2.7); and — support predictable, consistent and effective regulation. 	4.4a Public policy reform (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — in high risk contexts, proactively initiates and/or (co-) convenes relevant public policy reform initiatives, and puts processes in place to ensure the collaborative effort is self-sustaining — inspires other companies and/or assets to join.
References and further guidance: <ul style="list-style-type: none"> — CEO Water Mandate (2010) Guide to Responsible Business Engagement with Water Policy 			

Element 5: Transparency and Reporting

- 5.1 Public reporting
- 5.2 Data sharing
- 5.3 Thought leadership

Element 5: Transparency and Reporting			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
<div>5.1 Public reporting</div> <div></div>	<div>5.1a Public disclosure (corporate): Basic or limited disclosure of the company’s interactions with water, risks and opportunities, commitment and response, which:</div> <ul style="list-style-type: none">— is publicly accessible – for example on the company’s website, in company reports, or via publicly available disclosures to recognised reporting platforms (<i>see supporting notes</i>); and— includes consistent water reporting metrics for operational water withdrawal, discharge and consumption, which conform with ICMM definitions¹ and/or the definitions of a recognised standard or reporting platform. <div>5.1a Public disclosure (asset): Provides consistent water reporting metrics for operational water withdrawal, discharge and consumption that conform with ICMM definitions¹ and/or the definitions of the reporting platform(s) used.</div>	<div>5.1a Public disclosure (corporate): Comprehensive disclosure of the company’s interactions with water, risks and opportunities, commitment and response, which:</div> <ul style="list-style-type: none">— aligns or fully conforms¹ with the ICMM’s minimum water reporting commitments and water metrics²— is easily accessible on the company’s website, in company reporting; and/or— is consistently integrated in broader environmental, social and governance (ESG) disclosures to other recognised reporting platforms (<i>see supporting notes</i>)— ensures all relevant data have been verified and assured by an accredited external auditor. <div>5.1a Public disclosure (asset): Provides water reporting metrics that are fully aligned or conformant¹ with ICMM definitions (including operational water and other managed water).</div>	<div>5.1a Public disclosure (corporate): <i>As advanced practice</i> + public disclosures go beyond the ICMM’s minimum water reporting commitments² – for example, many include:</div> <ul style="list-style-type: none">— legacy and/or post-closure assets— asset level data— more detailed transparency of other managed water withdrawal volumes, total discharge and total consumption volumes (by sub-type and/or water quality category)³— databooks with reporting metrics tailored to different reporting platform requirements and/or definitions— linkages to broader relevant cross-functional disciplines (eg climate resilience, cultural heritage, social performance, nature-positive approaches and operational efficiency). <div>5.1a Public disclosure (asset): <i>As advanced practice</i> +</div> <ul style="list-style-type: none">— are actively engaged in the preparation and review process
<div>Supporting notes</div> <div>5.1a Examples of recognised reporting platforms for ESG and water-related information include:</div> <ul style="list-style-type: none">— CDP— Dow Jones Sustainability Index (DJSI)— Global Reporting Initiative (GRI)— Sustainability Accounting Standards Board (SASB)— Task Force on Climate-related Financial Disclosures (TCFD)— Task Force on Nature-related Financial Disclosures (TNFD)		<div>Footnotes, references and further guidance</div> <ul style="list-style-type: none">— CEO Water Mandate (2014b) Corporate Water Disclosure Guidelines: Towards a Common Approach to Reporting Water Issues <div>1. Requirement for ICMM member companies</div> <div>2. ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition (and references therein)</div> <div>3. ICMM (2021) Water Reporting: Good Practice Guide, 2nd edition, Table 5, page 26</div>	
<div>5.2 Data sharing</div> <div></div>	<div>5.2a Data sharing (corporate and asset): Limited sharing of data beyond that required to meet regulatory requirements (eg to achieve regulatory compliance).</div>	<div>5.2a Data sharing (corporate and asset): Actively shares relevant water data (eg monitoring data and/or modelling results) with:</div> <ul style="list-style-type: none">— relevant catchment stakeholders and/or credible external stakeholder-lead collaborative efforts (eg via forums or digital platforms)— a detail level and format that is accessible to the stakeholder and/or tailored to the purpose.	<div>5.2a Data sharing (corporate and asset): <i>As advanced practice</i> +</div> <ul style="list-style-type: none">— actively convenes collaborative efforts to share relevant water data (eg via forums or digital platforms) where relevant.

Element 5: Transparency and Reporting			Focus: water resilient operations (asset level)
Sub-element	Basic practice	Advanced practice	Leading practice
5.3 Thought leadership 	5.3a Thought leadership (corporate and asset): Participates (with limited contributions) in thought leadership and peer-support forums relating to water stewardship (<i>see supporting notes</i>).	5.3a Thought leadership (corporate and asset): Actively participates, and makes clear contributions to thought leadership and peer-support forums relating to water stewardship and/or the integration of water in climate and nature action (<i>see supporting notes</i>) at local, industry and/or global levels, to: <ul style="list-style-type: none"> — showcase learnings and promote action — engage with peers and build support networks — support improved outcomes over time. 	5.3a Thought leadership (corporate and asset): <i>As advanced practice +</i> <ul style="list-style-type: none"> — actively publishes and shares insights, innovations and thought leadership — actively convenes roundtable events with external stakeholders to share and/or peer review internal thinking and developments.
Supporting notes 5.3a Examples of thought leadership platforms and participation opportunities include: <ul style="list-style-type: none"> — Industry bodies and leadership platforms – for example: <ul style="list-style-type: none"> - ICMM - commodity focused organisations, eg World Gold Council (WGC), International Copper Association (ICA) etc. - country focused organisations, eg Minerals Council of Australia (MCA), Mining Association of Canada (MAC), Minerals Council of South Africa (MCSA) etc. 		<ul style="list-style-type: none"> — NGO-led initiatives – for example UN Global Compact CEO Water Mandate, Water Resilience Coalition (WRC), World Business Council for Sustainable Development (WBCSD) — Investor groups and forums – for example UN Principles for Responsible Investment (UNPRI), Ceres — Conferences – for example Stockholm World Water Week, Water in Mining, Mine Water Solutions — Internal forums and networks — Local catchment-based initiatives 	

ICMM Water Stewardship Maturity Framework			ICMM Water Stewardship Position Statement (2017)	Mining Association of Canada (MAC) TSM Water Stewardship Protocol (2018)	Alliance for Water Stewardship (AWS) International Water Stewardship Standard 2.0 (2019)
Element	Sub-element	Component			
Element 1: Governance and strategy	1.1 Internal water governance	1.1a Board oversight (corporate)	✓	✓	
		1.1b Accountability (corporate and asset)	✓	✓	✓
		1.1c Procedures (corporate and asset)		✓	✓
	1.2 Internal capacity	1.2a Internal capacity (corporate and asset)		✓	
		1.2b Internal engagement (corporate and asset)			
	1.3 Company strategy and ambition	1.3a Water strategy (corporate)	✓	✓	✓
		1.3b Water ambition (corporate)	✓	✓	✓
		1.3c Internal business case (corporate and asset)		✓	
Element 2: Understand water context, risks and opportunities	2.1 Catchment biophysical context (climate, water resources, nature)	2.1a Catchment mapping (asset)		✓	✓
		2.1b Climate (asset)		✓	✓
		2.1c Water resources (asset)		✓	✓
		2.1d Nature (asset)			✓
	2.2 Catchment context (social, cultural, economic)	2.2a Community stakeholders (asset)	✓	✓	✓
		2.2b Cultural stakeholders (asset)	✓	✓	✓
		2.2c Economic stakeholders (asset)	✓	✓	✓
	2.3 Catchment public water governance context	2.3a Public water governance (asset)	✓	✓	✓
	2.4 Operational water requirements	2.4a Water requirements (asset)		✓	✓
	2.5 Catchment long-term water balance	2.5a Catchment water balance (asset)	✓	✓	✓
	2.6 Shared water challenges and opportunities	2.6a Shared challenges and opportunities (asset)		✓	✓
	2.7 Business water risks and opportunities	2.7a Assessment (corporate and asset)	✓	✓	✓

Note: Indicative Alignment Guide also provided in WSMF tool

ICMM Water Stewardship Maturity Framework			ICMM Water Stewardship Position Statement (2017)	Mining Association of Canada (MAC) TSM Water Stewardship Protocol (2018)	Alliance for Water Stewardship (AWS) International Water Stewardship Standard 2.0 (2019)
Element	Sub-element	Component			
Element 3: Integrate in business planning and decision making	3.1 Operational water security (quantity, quality)	3.1a Water sources (asset	✓	✓	✓
		3.1b Water discharges (asset)	✓	✓	✓
		3.1c Contamination sources (asset)	✓	✓	✓
	3.2 Operational water efficiency and circularity	3.2a Efficiency and circularity (asset)	✓		✓
	3.3 Resilient infrastructure	3.3a WASH services (asset)	✓		✓
		3.3b Water treatment, pipes and pumps (asset)	✓		✓
		3.3c Flood and extreme event mitigation (asset)	✓	✓	✓
		3.3e Green infrastructure and NbS (asset)	✓		✓
	3.4 Closure and rehabilitation	3.4a Closure requirements (asset)	✓	✓	
	3.5 Water stewardship actions	3.5a Water stewardship actions (asset)	✓	✓	✓
	3.6 Water targets	3.6a Water targets (asset)	✓	✓	✓
		3.6b Ambition level (asset)		✓	✓
Element 4: Performance and measurement	4.1 Regulatory compliance	4.1a Compliance (asset)			✓
		4.1b Corrective action (asset)		✓	✓
	4.2 Operational monitoring and adaptive management	4.2a Monitoring (asset)		✓	✓
		4.2b Water balance (asset)		✓	✓
		4.2c Adaptive management (asset)		✓	✓
	4.3 Collective action	4.3a Collective action (asset)	✓	✓	✓
	4.4 Public policy reform	4.4a Public policy reform (corporate and asset)	✓	✓	✓
Element 5: Transparency and reporting	5.1 Public reporting	5.1a Public disclosure (corporate and asset)	✓	✓	✓
	5.2 Data sharing	5.2a Data sharing (corporate and asset)		✓	✓
	5.3 Thought leadership	5.3a Thought leadership (corporate and asset)			

Note: Indicative Alignment Guide also provided in WSMF tool

Table 4. List of Key Terms and Definitions

Ad hoc	An approach that is non-strategic, unstructured, reactive and/or needs driven.
Asset	One or more sites with water-relevant activities which are managed as an integrated operating unit and operated by the company. (BHP & Bluerisk, 2022)
Baseline water stress	<p>The ability, or lack thereof, to meet the human and ecological demand for freshwater. Water stress comprises three primary components: availability, quality and accessibility.</p> <p>Water stress is based on subjective elements and is assessed differently depending on societal values, such as the suitability of water for drinking or the requirements to be afforded to ecosystems. CEO Water Mandate (2014a)</p>
Adaptive management	The iterative process of robust decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring and improved understanding.
Basic	An approach that provides a starting point for further development.
Collective action	<p>Coordinated engagement among interested parties within an agreed-upon process in support of common objectives.</p> <p>Collective action can take a variety of forms, ranging from a relatively informal exchange of perspectives to highly structured processes of joint decision making, implementation and accountability.</p> <p>A successful collective action will typically build from a shared sense of risk, responsibility, and benefit among interested parties, and the collective action process will emphasise joint, two-way dialogue that leads to stronger outcomes than those achievable through unilateral action. (CEO Water Mandate, 2013)</p>
Comprehensive	An approach which is complete and provides everything that is necessary to inform robust decision making for the context and associated risk level.
Context-based water targets (CBWT)	<p>Water targets that describe an asset's contributions to achieving a strategic objective for one or more priority shared water challenges within the catchment.</p> <p>CBWTs are typically developed, implemented and reviewed using a multi-step process, and enable assets to: define the key action(s) required to reduce risk, and address shared challenges and stakeholder priorities; and measure progress towards achieving the desired catchment outcome or improved condition.</p> <p>Any type of target that meets the above definition can be considered to be a context-based target, however most focus on reducing risk and/or impact within the catchment. CBWTs may also be known as site water targets informed by catchment context or contextual water targets. (CEO Water Mandate et al. (2019); BHP and Bluerisk, 2022)</p>
Cost-benefit analysis (CBA)	<p>The process of comparing the costs involved in doing something (eg an action or investment) to the benefits that it may bring.</p> <p>CBA approaches may be used to understand the relative value of undertaking the action, build the business case and/or support robust decision making – especially for water stewardship actions that deliver a range of water-related benefits and broader co-benefits (eg social, cultural, environmental, reputational etc).</p>
Green infrastructure	Natural or semi-natural ecosystems that provide water utility services that complement, augment or replace those provided by grey infrastructure. (UNEP, 2014)
Key	The main, priority or most important part of achieving or explaining something.

Life of Asset (LOA)	The length of time an asset (including but not limited to mine, processing facilities, refineries, smelters, rail, port, utilities, towns and associated infrastructure) is owned, operated and closed by the mining company up until divestment or relinquishment. This LOA period includes exploration, development, operations, closure and post-closure. (ICMM, 2019)
Limited	An approach that is strategic and structured, but not comprehensive.
Nature-based solutions (NbS)	Actions to protect, sustainably manage, and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, simultaneously benefiting people and nature. (IUCN, 2020)
Nature-positive	A future state of nature that is more abundant, more diverse and more resilient than what we have today.
Operational water efficiency	Efforts internal to the site which reduce the demand for new (or make-up) water, and the resulting withdrawal of water from external sources. For example, reducing consumptive water losses associated with evaporation, entrainment in product and waste, and other losses; preferential use of water captured within the operational footprint; and/or enhancing the recovery and reuse/recycle of water within the site (both within and between operational tasks). Also see water circularity.
Public policy reform	Opportunities for engagement and interaction with government entities and regulatory authorities to advance the effective, sustainable, inclusive and equitable management of water resources in a catchment; and support the development of predictable, consistent and effective water policy and regulation. (CEO Water Mandate, 2010)
Reasonable level of confidence	Understood with a level of confidence that is sufficient to inform robust decision making for the context and associated risk level.
Relevant cross-functions	Internal cross-functional disciplines where the integration of water-related considerations (and vice versa) is critical to achieving both water and broader cross-functional objectives. For example, climate change adaption and resilience, social performance and inclusion, cultural heritage protection, nature-positive approaches and operational efficiency optimisation (including power and waste management).
Return on investment (ROI)	The process of comparing the benefits from an activity for a particular period compared with the amount invested in it.
Shared water challenges	A water-related issue, concern, or threat shared by the asset and one or more stakeholders within the catchment(s). Shared challenges provide an opportunity for collective action towards achieving a desired catchment outcome or improved condition. (AWS, 2019)
Value of water	A measure of the holistic importance, worth or usefulness of water to a given entity or stakeholder group, which extends beyond market prices and water-related costs and may be challenging to quantify in monetary terms. For example, the social, cultural, environmental and/or economic value of water.
Water circularity	Efforts to enhance the reuse of water between different entities within the catchment (ie external to the site) to reduce the overall withdrawal of water from environmental sources (eg rivers, dams or borefields), enhance catchment outcomes, and shift away from the traditional linear model of withdrawal-use-discharge. For example, the use of third-party wastewater to meet the site water demand; and/or the provision of surplus water to a third-party for further beneficial use. Also see operational water efficiency.

Table 5. List of Common Abbreviations

Abbreviation	Definition
AMD	Acid mine drainage or acid and metalliferous drainage
AWS	Alliance for Water Stewardship
CBA	Cost benefit analysis
CBWT	Context-based water targets
ESG	Environmental, social and governance
GHG	Greenhouse gas
ICMM	International Council on Mining and Metals
LOA	Life of asset
MAC	The Mining Association of Canada
MCA	Minerals Council of Australia
ML/ARD	Metal leaching and acid rock drainage
NbS	Nature-based solutions
PAF	Potentially acid forming
ROI	Return on investment
SBTN	Science-based Targets Network
SDG	(United Nations) Sustainable Development Goal
TCFD	Task Force on Climate-related Financial Disclosures
TNFD	Task Force on Nature-related Financial Disclosures
TSM	Towards Sustainable Mining



The development of this publication would not have been possible without the input and support of the individuals below. ICMM gratefully acknowledges the following contributions:

External expertise

This Framework was developed by a team at Bluerisk led by Amy Herod, Ross Hamilton and Paul Reig.

ICMM team

Emma Gagen and Hayley Zipp led the process to develop the framework, with input and support from India Snelling, Jordan Willis, Kira Scharwey, Sarah Omar, Nic Benton and Kristen Dodd. Special thank you to the ICMM Water Working Group members who were key contributors to this document. The group provided direction, input and expert review to the development of the Framework and the Framework Tool. Specialist sub-working group members included:

Patrick Mullen (Anglo American)
Henrietta Salter (Anglo American)
Pule Soaisa (African Rainbow Minerals)
Jed Youngs (BHP)
Blair Douglas (BHP)
Seth Mueller (Boliden)
Kai Nykänen (Boliden)
Nicolás Starck F. (Codelco)
Chad Fretz (Freeport McMoran)
Rene Braeunig (Glencore)
Nosimo Macatsha (Gold Fields)
Kristin Pouw (Newmont)
Scott Diggles (Rio Tinto)
Simone Liefferink (Sibanye Stillwater)
Katrina Burke (South32)
Chris Kennedy (Teck)
Renata Andries (Vale)
David Soares (Vale)

- ABInBev, The Nature Conservancy and BlueRisk (2022) *A recipe for impact: key ingredients for companies to drive measurable impact in watershed health*, accessed 19 October 2023. https://www.ab-inbev.com/assets/pdfs/Recipe%20for%20Impact_March%202022_Final.pdf
- Alliance for Water Stewardship (2019) *International water stewardship standard version 2.0*, accessed 19 October 2023. https://a4ws.org/wp-content/uploads/2019/03/AWS_Standard_2.0_2019_Final.pdf
- Alliance for Water Stewardship (2020) *AWS standard 2.0 guidance*, accessed 19 October 2023. <https://a4ws.org/wp-content/uploads/2020/01/AWS-Standard-2.0-Guidance-Final-January-2020.pdf>
- Alliance for Water Stewardship (2023) *Understanding water balance*, on-line learning module, accessed 19 October 2023. <https://tools.a4ws.org/products/understanding-water-balance/>
- Australian National University, National Native Title Council and Indigenous Land and Sea Corporation (2023) *National First Nations water roundtable: securing water rights for First Nations' self determination*, accessed 19 October 2023. <https://anufirstnations.com.au/wp-content/uploads/2023/06/Background-Paper-National-First-Nations-Water-Roundtable-16-17-May-2023.pdf>
- Beverage Industry Environmental Roundtable (BIER) (2020) *Context-based decision guide for water reuse and recycling*, accessed 19 October 2023. <https://www.bieroundtable.com/wp-content/uploads/Context-Based-Decision-Guide-for-Water-Reuse-and-Recycling.pdf>
- Beverage Industry Environmental Roundtable (BIER) (2023) *Water circularity good practices guide*, accessed 19 October 2023. <https://www.bieroundtable.com/publication/water-circularity-good-practices-guide/>
- BHP and BlueRisk (2022) *Setting site water targets informed by catchment context: BHP's approach*, accessed 19 October 2023. https://www.bhp.com/-/media/documents/environment/2022/220726_cbwt_bhpapproach.pdf
- Brill G, Carlin D, McNeeley S and Griswold D (2022) *Stakeholder engagement guide for nature-based solutions*, United Nations CEO Water Mandate and Pacific Institute, Oakland, California. https://pacinst.org/wp-content/uploads/2022/11/CEOWater_SEG_Final.pdf
- Brill G, Shiao T, Kammeyer C, Diringer S, Vigerstol K, Ofosu-Amaah N, Matosich M, Müller-Zantop C, Larson W and Dekker T (2021) *Benefit accounting of nature-based solutions for watersheds: guide*, United Nations CEO Water Mandate and Pacific Institute, Oakland, California. https://www.nature.org/content/dam/tnc/nature/en/documents/BenefitAccounting_NBSforWatersheds.pdf
- CEO Water Mandate (2010) *Guide to responsible business engagement with water policy*, accessed 19 October 2023. https://ceowatermandate.org/files/Guide_Responsible_Business_Engagement_Water_Policy.pdf
- CEO Water Mandate (2013) *Guide to water-related collective action*, accessed 19 October 2023. https://ceowatermandate.org/wp-content/uploads/2019/07/Water_Guide_Collective_Action.pdf
- CEO Water Mandate (2014a) *Driving harmonization of water-related terminology*, accessed 19 October 2023. <https://ceowatermandate.org/wp-content/uploads/2019/11/terminology.pdf>
- CEO Water Mandate (2014b) *Corporate water disclosure guidelines: towards a common approach to reporting water issues*, accessed 19 October 2023. <https://ceowatermandate.org/files/Disclosure2014.pdf>
- CEO Water Mandate, CDP, TNC, Pacific Institute, WRI and WWF (2019) *Setting site water targets informed by catchment context: a guide for companies*, accessed 19 October 2023. <https://ceowatermandate.org/watertargets/wp-content/uploads/sites/30/2019/08/CEOWaterMandateSiteWaterTargetsGuide.pdf>

CEO Water Mandate (no date) *Water action hub*, accessed 19 October 2023. <https://wateractionhub.org/>

Conservation International (2018) *Corporate water stewardship and the case for green infrastructure*, accessed 19 October 2023. https://www.conservation.org/docs/default-source/publication-pdfs/corporate-water-stewardship-and-the-case-for-green-infrastructure_august_23_18369b6a7b2b8c467e9b33cccd2f5037ae.pdf?sfvrsn=18519194_2

Diageo (2021) *Water collective action implementation guide*, accessed 19 October 2023. <https://ceowatermandate.org/wp-content/uploads/2021/09/Diageo-Water-Collective-Action-Implementation-Guide-May-2021-ext.pdf>

Diageo, Gap Inc, Unilever and WaterAid (2018) *Strengthening the business case for water, sanitation and hygiene: how to measure value for your business*, accessed 19 October 2023. <https://washmatters.wateraid.org/sites/g/files/jkxoof256/files/Strengthening%20the%20business%20case%20for%20water%2C%20sanitation%20and%20hygiene%20-%20how%20to%20measure%20value%20for%20your%20business.pdf>

European Commission, Directorate-General for Environment (2015) *Guidance document on the application of water balances for supporting the implementation of the WFD – Final – Version 6.1 – 18/05/2015*, Publications Office. <https://data.europa.eu/doi/10.2779/352735>

Food and Agriculture Organization of the United Nations (FAO) (2017) *Water accounting and auditing: a sourcebook*, *FAO Water Reports 43*, accessed 19 October 2023 <https://www.fao.org/3/i5923e/i5923e.pdf>

Global Commission on the Economics of Water (2023) *Indigenous and western knowledge: bringing diverse understandings of water together in practice*, accessed 19 October 2023. <https://watercommission.org/wp-content/uploads/2023/03/Mehltretter.pdf>

ICMM (2015) *A practical guide to catchment-based water management for the mining and metals industry*, accessed 19 October 2023. <https://www.icmm.com/en-gb/guidance/environmental-stewardship/2015/catchment-based-water-management>

ICMM (2017) *Water stewardship: position statement*, accessed 19 October 2023. <https://www.icmm.com/en-gb/our-principles/position-statements/water-stewardship>

ICMM (2019) *Integrated mine closure: good practice guide, 2nd edition*, accessed 19 October 2023. <https://www.icmm.com/en-gb/guidance/environmental-stewardship/2019/integrated-mine-closure>

ICMM (2021) *Water reporting: good practice guide, 2nd edition*, accessed 19 October 2023. <https://www.icmm.com/en-gb/guidance/environmental-stewardship/2021/water-reporting>

ICMM (2022) *Closure maturity framework*, accessed 19 October 2023. <https://www.icmm.com/en-gb/guidance/environmental-stewardship/2020/closure-maturity-framework>

INAP (2009) *Global acid rock drainage (GARD) guide*, accessed 19 October 2023. <http://www.gardguide.com/>

IUCN (2020) *Global standard for nature-based solutions*, accessed 19 October 2023. <https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf>

Logg C, Kölbel J, Strong C, Reig P and Hamilton R (2020) *Mapping public water management: proof of concept*, World Resources Institute and Pacific Institute. <https://files.wri.org/d8/s3fs-public/mapping-public-water-management-proof-of-concept.pdf>

Minerals Council of Australia (MCA) (2022) *Minerals industry water accounting framework user guide version 2.0*, accessed 19 October 2023. <https://minerals.org.au/wp-content/uploads/2022/12/MCA-Water-Accounting-Framework-User-Guide-2.0-2022.pdf>

Mining Association of Canada (MAC) (2018) *Towards sustainable mining: water stewardship protocol*, accessed 19 October 2023. <https://mining.ca/towards-sustainable-mining/protocols-guides/water-stewardship/>

NatuReS (2023) *The natural resources risk and action framework (NRAF): user manual*, accessed 19 October 2023. https://nature-stewardship.org/wp-content/uploads/NRAF_User-Manual_compressed.pdf

Reig P, Shiao T, Vigerstol K, Copeland C, Morgan A, Strong C, Hamilton R, Dobson R and Walker S (2021) *Setting enterprise water targets: a guide for companies*, UN Global Compact CEO Water Mandate, Pacific Institute, CDP, The Nature Conservancy, World Resources Institute, and WWF. <https://www.wri.org/research/setting-enterprise-water-targets-guide-companies>

Science-Based Targets Network (SBTN) (2023)

Freshwater technical guidance, accessed 19 October 2023. <https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/Technical-Guidance-2023-Step3-Freshwater-v1.pdf>

Shiao T, Kammeyer C, Brill G, Feinstein L, Matosich M, Vigerstol K and Müller-Zantop C (2020) *Benefit account of nature-based solutions for watersheds landscape assessment*, UN Global Compact CEO Water Mandate and Pacific Institute, Oakland, California. <https://www.ceowatermandate.org/nbs/landscape>

UNEP (2014) *Green infrastructure guide for water management: ecosystem-based management approaches for water-related infrastructure projects*, accessed 19 October 2023. <https://www.unep.org/resources/publication/green-infrastructure-guide-water-management>

UNEP (2021) *Progress on integrated water resources management: global indicator 6.5.1 updates and acceleration needs*, accessed 19 October 2023. https://www.unwater.org/sites/default/files/app/uploads/2021/09/SDG6_Indicator_Report_651_Progress-on-Integrated-Water-Resources-Management_2021_EN.pdf

Vionnet S, Stewart J, Reig P and Reeve T (2022) *Beyond volumes: exploring the societal value of corporate water stewardship projects*, accessed 19 October 2023. <https://blueriskintel.com/beyond-volumes-exploring-the-societal-value-of-corporate-water-stewardship-projects/>

WASH4Work (2022) *New expectations and game-changing ambitions for the water action decade: accelerating progress on water access, sanitation and hygiene in the workplace*, accessed 19 October 2023. <https://wash4work.org/wash4work-insights-report-2022/>

WWF and IFC (2015) *The value of water: a framework for understanding water valuation, risk and stewardship*, accessed 19 October 2023. https://d2ouvy59p0dg6k.cloudfront.net/downloads/the_value_of_water_discussion_draft_final_august_2015.pdf

Tools to understand physical water risk indicators and climate change projections:

- IBAT Alliance Integrated Biodiversity Assessment Tool (IBAT) <https://www.ibat-alliance.org/>
- Ramsar Sites Information Service <https://rsis.ramsar.org/>
- CEO Water Mandate (2023) Water Resilience Assessment Framework <https://ceowatermandate.org/resilience-assessment-framework/#1672771583720-02b94945-4b2c>
- WRI Aqueduct Water Risk Atlas (Future predictions function) and Aqueduct Floods <https://www.wri.org/data/aqueduct-water-risk-atlas>
- WWF Water & Biodiversity Risk Filter <https://riskfilter.org/water/home>

Tools for tracking global progress on implementation of IWRM and SDG indicator 6.5.1:

- IWRM data portal (<http://iwrmdataportal.unepdhi.org/>)

Tools to aid assessment of baseline water stress:

- WRI Aqueduct Water Risk Atlas <https://www.wri.org/data/aqueduct-water-risk-atlas>
- WWF Water Risk Filter <https://riskfilter.org/water/home>

Tool to assess flood risk:

- WRI Aqueduct Floods <https://www.wri.org/applications/aqueduct/floods/>

Tool to assess NBS benefits:

- CEO Water Mandate NbS Benefits Explorer <https://nbsbenefitsexplorer.net/>

ICMM stands for mining with principles.

We bring together a third of the global metals and mining industry, along with key partners to drive leadership, action and innovation for sustainable development, ultimately delivering a positive contribution to society.

Through collaboration, ICMM member companies set the standard for responsibly produced minerals and metals in a safe, just and sustainable world.

Disclaimer

This publication contains general guidance only and should not be relied upon as a substitute for appropriate technical expertise. Although reasonable precautions have been taken to verify the information contained in this publication as of the date of publication, it is being distributed without warranty of any kind, either express or implied. This document has been prepared with the input of various ICMM members and other parties. However, the responsibility for its adoption and application rests solely with each individual member company. At no stage does ICMM or any individual company accept responsibility for the failures or liabilities of any other member company, and expressly disclaims the same. Each ICMM member company is responsible for determining and implementing management practices at its facility, and ICMM expressly disclaims any responsibility related to determination or implementation of any management practice.

Each ICMM member company is responsible for determining and implementing management practices at its facility, and ICMM expressly disclaims any responsibility related to determination or implementation of any management practice. Moreover, although ICMM and its members are committed to an aspirational goal of zero fatalities at any mine site or facility, mining is an inherently hazardous industry, and this goal unfortunately has yet to be achieved.

In no event shall ICMM (including its officers, directors, and affiliates, as well as its contributors, reviewers, or editors to this publication) be liable for damages or losses of any kind, however arising, from the use of or reliance on this document, or implementation of any plan, policy, guidance, or decision, or the like, based on this general guidance. ICMM, its officers, and its directors expressly disclaim any liability of any nature whatsoever, whether under equity, common law, tort, contract, estoppel, negligence, strict liability, or any other theory, for any direct, incidental, special, punitive, consequential, or indirect damages arising from or related to the use of or reliance on this document.

The responsibility for the interpretation and use of this publication lies with the user (who should not assume that it is error-free or that it will be suitable for the user's purpose) and ICMM. ICMM's officers and directors assume no responsibility whatsoever for errors or omissions in this publication or in other source materials that are referenced by this publication, and expressly disclaim the same.

Except where explicitly stated otherwise, the views expressed do not necessarily represent the decisions or the stated policy of ICMM, its officers, or its directors, and this document does not constitute a position statement or other mandatory commitment that members of ICMM are obliged to adopt.

ICMM, its officers, and its directors are not responsible for, and make no representation(s) about, the content or reliability of linked websites, and linking should not be taken as endorsement of any kind. We have no control over the availability of linked pages and accept no responsibility for them.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ICMM, its officers, or its directors concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of any frontiers or boundaries. In addition, the mention of specific entities, individuals, source materials, trade names, or commercial processes in this publication does not constitute endorsement by ICMM, its officers, or its directors.

This disclaimer should be construed in accordance with the laws of England.

ICMM
34–37 Liverpool Street
London EC2M 7PP
United Kingdom
+44 [0]20 7467 5070
info@icmm.com
icmm.com

October 2023

