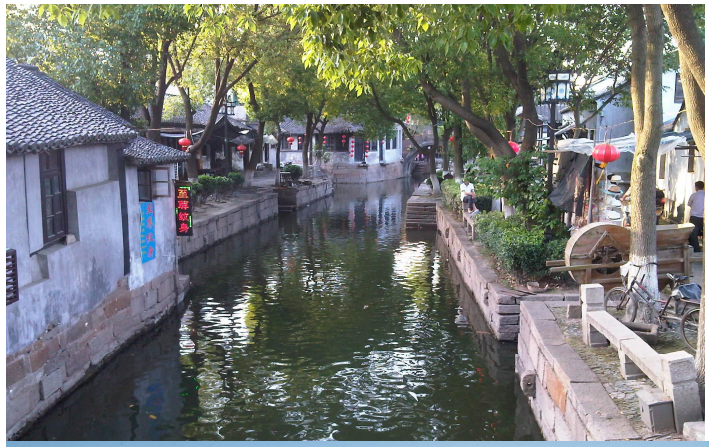

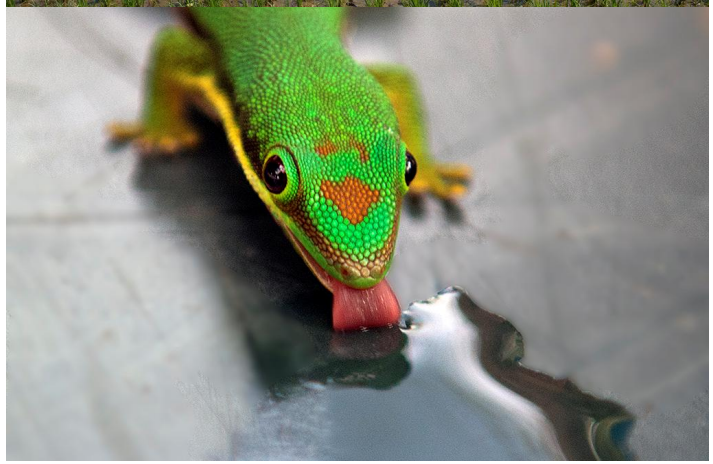

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The AWS International Water Stewardship Standard

Version 1.0
Date: April 8th, 2014

International Standard Development Committee (ISDC): Imane Abdel Al, Shahid Ahmad, Maureen Ballestero, Sanjib Bezbaroa, Peter Cookey, Axel Dourojeanni, Carlo Galli, John Langford, Marco Mensink, Gerphas Opondo, Jiseon Matilda Park, Ed Pinero, Peter Ruffier, Lesha Witmer, Hao Xin
Former members: Ma Jun and Chaudry Riaz Khan

ALLIANCE FOR WATER STEWARDSHIP™

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Preamble

Growing populations and economies, changing lifestyles, and global climate change are all increasing the pressure on the planet's water resources. People and nature alike are threatened by a lack of responsible water management.

The world's water users, from agriculture, energy and industry to cities and citizens, recognize the acute need to manage more sustainably the water resources on which they depend. In parts of the world, water scarcity is threatening social, environmental and economic health. By 2030, 47 per cent of the world's population will be living in areas of high water stress.[1] Decision-making processes around water-related policy are leaving millions without access to safe water and sanitation. At the same time, the viability of business operations and economic activity is threatened. Shareholders, governments and consumers are increasingly demanding that companies use natural resources in ways that are environmentally and socially sustainable. Water users also are realizing that improving water quality and reducing water consumption can result in significant savings and increased profits.

Our globalized world demands an international approach to water that can be applied consistently across regions and sectors, yet recognizes the local nature of water. To address the major water challenges in a sustainable way, collective approaches, through which water users work together to identify common goals for sustainable water management, must be developed.

To this end, in 2008, three organizations (The Nature Conservancy, The Pacific Institute and Water Stewardship Australia) came together to form the Alliance for Water Stewardship (AWS), whose mission is to promote water stewardship. Over time, these three organizations were joined by CDP, European Water Partnership, Water Environment Federation, Water Witness International, WWF, United Nations Global Compact's CEO Water Mandate and the United Nations Environment Programme to form a board.

In 2009, AWS was formally launched as a legal entity, and by 2010 it had initiated the development of the first International Water Stewardship Standard ("AWS Standard" or "the Standard") via the Water Roundtable (WRT) process (*http://www.allianceforwaterstewardship.org/what-we-do.html - water-roundtable*).

AWS is committed to an equitable, open and transparent approach to setting and maintaining its standard and is an ISEAL member. Accordingly, the AWS Standard system uses ISEAL's Standard Setting, Assurance and Impacts Codes.

At the centre of the development of the Standard was a 15-member group called the International Standard Development Committee (ISDC). The ISDC had representatives from three stakeholder groups (businesses and water service providers, civil society, and public-sector agencies) across eight regions (Africa, Asia

[1] United Nations (2012) World Water Development Report. Available online (April 2014): *http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr*

Pacific, Europe, Latin America and the Caribbean, North America, Northern Asia, South Asia, and Western and Central Asia). The ISDC was also tasked with filtering stakeholder input and deciding what to include or omit from the Standard.

The ISDC was informed by substantial input from around the world including comments to the draft posted on the website, at numerous international meetings and during the testing of the beta version. In addition to focused regional outreach in the Americas, regional water stewardship standards from Australia[2] and Europe,[3] along with their development processes, also provided invaluable material for the ISDC.

Between March 2012 and January 2014, two drafts solicited feedback from more than 500 respondents from 30 countries, comprising several hundred pages of comments for the ISDC to review. This 1.0 version of the AWS Standard is the result of their deliberations.

Launched in April 2014, the AWS Standard will be revised after an initial two-year period and thereafter on a three-year basis to ensure that it continues to reflect stakeholder perspectives and the best global thinking and practices in water stewardship.

[2] *http://waterstewardship.org.au*

[3] *http://www.ewp.eu*

Introduction to the AWS Standard

The AWS Standard ("the Standard") is intended to drive water stewardship, which is defined as *the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions.* Good water stewards understand their own water use, catchment context and shared concerns in terms of water governance, water balance, water quality and Important Water-Related Areas, then engage in meaningful individual and collective actions that benefit people and nature.[4]

The Standard outlines a series of actions, criteria and indicators for how one should manage water at the site level and how water management should be stewarded beyond the boundaries of a site. In this Standard, the "site" refers to the implementing entity that is responsible for fulfilling the criteria. The site includes the facility and the property over which the implementer that is using or managing water (i.e., withdrawing, consuming, diverting, managing, treating and/or discharging water or effluent into the environment) has control.

Applicability

The working assumption is that the Standard can be implemented by all entities in all sectors (public and private) anywhere in the world. In cases where entities are too small to easily undertake the Standard by themselves (e.g., very small businesses or farms), if they are co-located sites with similar operations (e.g., a group of small citrus farmers in the same area of a catchment), then they are encouraged to explore implementation as a group, because group certification is permissible under the AWS Certification Scheme (see AWS Certification Scheme for more details).

This Standard applies to any site that interacts with water (i.e., uses, consumes, withdraws, sources, treats, supplies, diverts or discharges water into water bodies). The Standard is intended to apply to all types of water. This includes the following: fresh water, effluent (contaminated) water, recycled water, salt water affected by fresh water (including brackish water and desalination), drinking water, groundwater (including renewable aquifers, water in the vadose and hyporheic zones, and deeper, so-called fossil water), water in the atmosphere (including precipitation), and solid forms of water (snow, ice, glaciers, etc.).

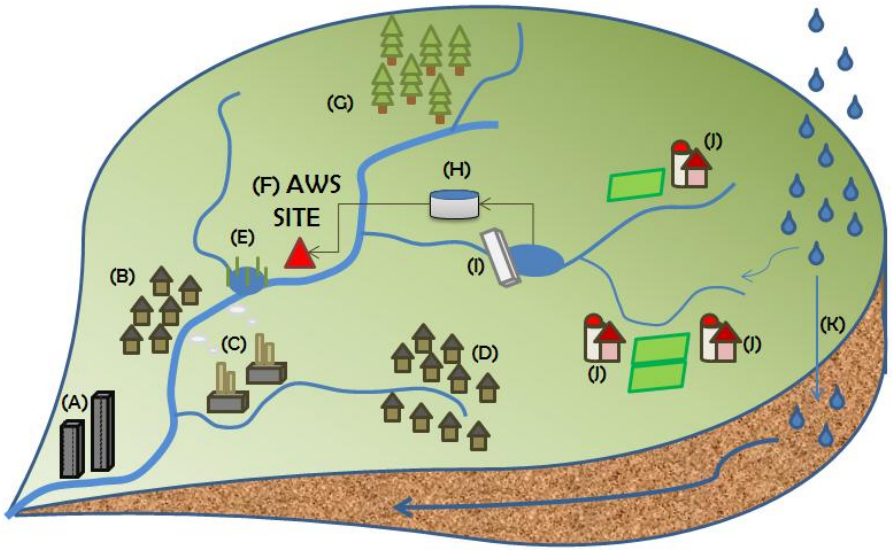


Figure 1: Scope – the site and its catchment

The site (F) may be drawing from service provider (H), who is drawing from a reservoir (I); returning flow to a nearby stream, thereby affecting downstream water quality and quantity for (B) and (A); and relying on a wetland purification services (E) (= an Important Water-Related Area). The upstream forest's (G) erosion control may be important to the catchment management agency (i.e., water governance). The site needs to take actions within the site and act upon prioritized shared water challenges within the catchment (e.g., pollution from J) to mitigate its water risks and create shared value.

[4] Socially equitable water use recognizes and fulfils the human right to safe water and sanitation and helps ensure human well-being and equity; Environmentally sustainable water use maintains or improves biodiversity and ecological and hydrological processes at the catchment level; Economically beneficial water use contributes to long-term sustainable economic growth, development and poverty alleviation for water users, local communities and society at large.

The site-level focus is intended to keep efforts manageable. It allows for impacts to be traced back to actions. However, water stewardship is centred on the recognition that water is a shared resource and requires collaborative solutions. Therefore, the Standard requires the site to work *beyond* its boundaries through engagement with stakeholders and within the catchment (Figure 1).

It is important to stress that *water stewardship is intended to support and contribute to catchment management, not replace such efforts*. For a site, answering the question, "How far does my stewardship responsibility reach?" is critical and is influenced by a number of factors, including where a site draws its water from, how large the site is (both in terms of water use and other resources) and its catchment context (e.g., the number of stakeholders, catchment size, surrounding socio-economic characteristics).

Theory of Change Underlying the Standard

The Standard is based upon a logical sequence of how water stewardship can be driven from site-level actions to result in catchment-level impacts. This so-called Theory of Change is illustrated below (Figure 2):

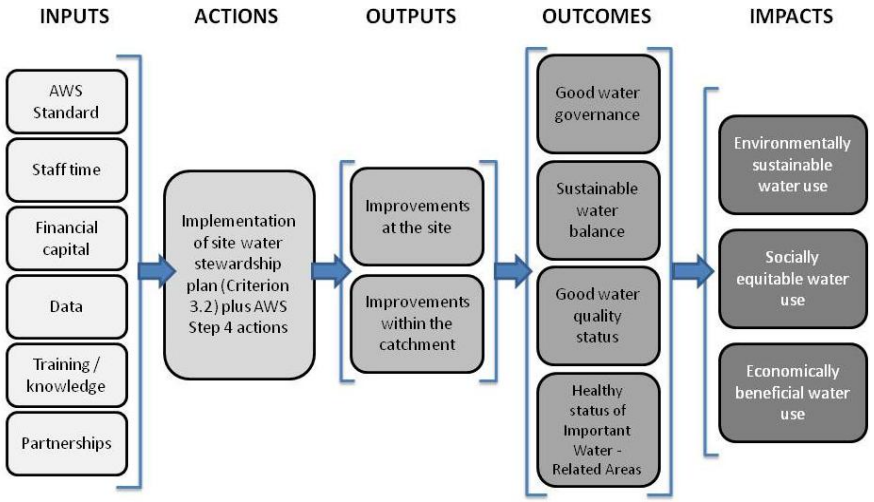


Figure 2: The AWS Standard Theory of Change

Structure of the Standard

The Standard is organized around six steps (Table 1), each of which contains a set of criteria written to contribute to the ultimate set of water stewardship outcomes. Each criterion also has corresponding indicators that help verify that the site is adequately fulfilling each criterion. The six steps are also supported by two key appendices:

1) Appendix A – Glossary of Terms: A glossary of key terms intended to clarify terminology as used by and understood in the Standard.
2) Appendix B – AWS Standard Guidance: Organized by step and criterion, the guidance is an integral part of the Standard and is intended to provide greater clarification and detail about how the criteria should be interpreted and implemented and the intent of the step. The guidance is also helpful for providing recommended sources of information and examples of practices.

The Standard is intended to encourage continuous improvement and does not need to be implemented beginning at Step 1 and proceeding through Step 6. Rather, it should be implemented as suitable for the site's purposes and may indeed require adaptive, iterative and non-sequential use of the steps and criteria.

The Standard's structure allows for increasing levels of performance in water

Figure 3: The AWS Standard's steps and continuous improvement

stewardship, which are recognized by Core, Gold and Platinum levels. At the Core level, all criteria are required. At the advanced levels, criteria have points attached to them, which reflect both the degree of effort required and the anticipated impact. The aggregation of points results in Gold- or Platinum-level performance. It is important to note that higher levels will also require compliance with all core criteria plus a select number of points from the

optional criteria (Figure 3). More details may be found in the AWS Certification Scheme.

Outcomes of Water Stewardship

The Standard provides a consistent global framework for sites to undertake responsible water stewardship in a manner that is transparent and stakeholder-inclusive. Specifically, the Standard is designed to achieve four water stewardship outcomes: (1) good water governance, (2) sustainable water balance, (3) good water quality status and (4) healthy status of Important Water-Related Areas. Across these outcomes, higher levels of performance (AWS Gold and AWS Platinum) show that the site is achieving best practice results and demonstrating leadership within its industry and catchment.

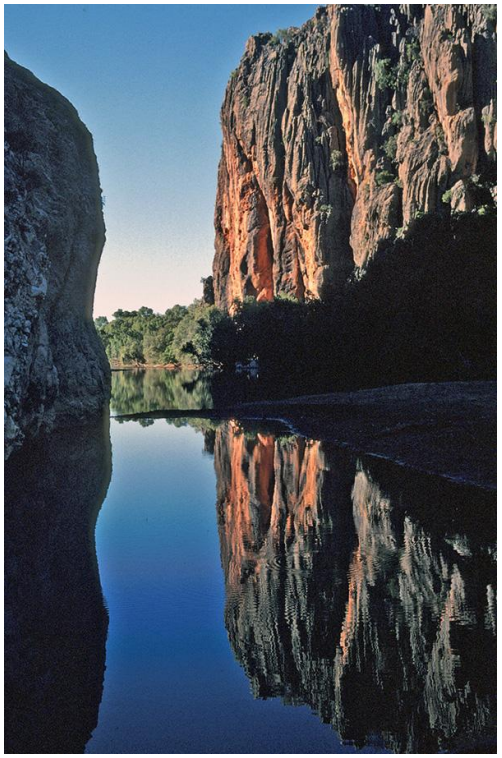
It is important to note that these four outcomes are most sustainable when achieved collectively. The site is expected to contribute to these outcomes via a combination of on-site management and collective action with others.

Outcomes are not intended to be auditable per se; rather, they are broad, basic and fundamental principles of water stewardship.

1) *Good water governance*

The state when the political, social, economic and administrative systems that are in place, which directly or indirectly affect the use, development and management of water resources and the delivery of water services at all levels of society, promote stakeholder participation, transparency, accountability, rule of law, and equity in a manner that is effective, efficient and enduring, and leads to the desired state of the water resource(s).

This outcome addresses both site and catchment aspects of water governance. Site water governance relates to the procedures and rules established when implementing the Standard, respecting local customary rights and complying with the applicable regulatory frameworks. The applicable regulatory frameworks may include international agreements, laws, regulations, permits, licenses, plans and policies that determine how water is governed and must be managed by the site and may include policy instruments at various levels, from local to global, as appropriate. Catchment governance relates to the formal and/or informal mechanisms in place to ensure that water is managed equitably as a resource for all users within the catchment. All these elements can be referred to collectively, in the context of the Standard, as the "good water governance requirements." This outcome also encourages engagement and collaboration with authorities to strengthen and streamline applicable regulatory frameworks and to facilitate adequate enforcement. Lastly, governance also links to engaging others on the subjects of access to safe drinking water, sanitation and hygiene (WASH), reasonable use, and doing "no harm". Good water governance helps sites to mitigate their water risks and plays an important role in addressing shared water challenges through collective action and inclusive stakeholder involvement.



2) *Sustainable water balance*

The state when the amount and timing of water use, including whether the volumes withdrawn, consumed, diverted and returned at the site and in the catchment are sustainable relative to renewable water supplies and are maintaining environmental flow regimes and renewable aquifer levels.

This outcome helps ensure that water uses are compatible with naturally occurring volumes through the mitigation of physical water risk and adverse impacts on water availability. Of particular note with sustainable water balance is that both the timing of the flows and volumes of the flows are balanced in terms of incoming and outgoing waters. Sustainability is determined by the long-term ability of the system to meet the all of the water needs of users in the catchment, including ecosystems, bearing in mind climatic shifts.

3) *Good water quality status*

The state when the physical, chemical and biological properties of water, including whether water quality at the site and within the catchment(s) meets local (and, where applicable, international) regulatory requirements and is fit for the requirements of the range of biotic species present and for any human need or purpose.

This outcome helps ensure that water quality is sufficient to support all uses through the mitigation of physical water risk and reduction of adverse impacts of poor water quality in terms of the impact on the economic, environmental and social benefits derived from the use of water. Assessment of quality (i.e., 'good') is typically based on the extent of deviation from reference conditions. 'Good status' means 'slight' deviation, 'moderate status' means 'moderate' deviation, and so on.

4) *Healthy status of Important Water-Related Areas*

The state when the specific, environmentally, socially, culturally, or economically water-related areas of a catchment, which contribute disproportionately to human wellbeing, are in a healthy state.

This outcome addresses the specific water-related areas of a catchment that, if impaired or lost, would adversely impact the environmental, social, cultural or economic benefits derived from the catchment in a significant or disproportionate manner and whether those areas are in a state of good health. These areas, which typically provide important attributes to water quantity, quality and uses, at the site and within the catchment(s) can include the water body as well as the adjacent land features tied to the water, such as floodplains, delta/wetland areas, and aquifer recharge or discharge zones. Also included are areas of importance for religious, spiritual, social or cultural purposes, sources of drinking water and areas that provide other important ecosystem services. Achieving this outcome restores or protects these Important Water-Related Areas and addresses all aspects of water risk and the adverse impacts on areas with cultural and ecological importance. Assessment of the health of such an area (i.e., 'healthy') is typically based on the extent of deviation from reference conditions. 'Good status' means 'slight' deviation, 'moderate status' means 'moderate' deviation, and so on.

Points and Levels within the AWS Standard

As noted earlier, the Standard has three achievement levels: Core, Gold and Platinum. The Core AWS level is achieved by conforming with all of the core criteria and up to 40 points, while AWS Gold requires 40-79 points and AWS Platinum requires 80+ points. There are a total of 155 points available throughout the entire AWS Standard.

Level	Conformity with Core Criteria	Cumulative Advanced-Level Criteria Points
AWS Core	Required	0-39
AWS Gold	Required	40-79
AWS Platinum	Required	80+

Criteria, Indicators and Certification

The Standard is rooted in criteria and indicators. The various criteria reflect actions that a site must undertake if it is to be recognized as a responsible water steward under the AWS Standard system. The indicators, in turn, provide evidence of conformance against any given criterion. Ultimately, conformance with the criteria and indicators provides the basis for certification. For full details on the AWS Certification Scheme, please visit the AWS website: *www.allianceforwaterstewardship.org*.

Table 1: Summary table of the AWS Standard (v.1.0)

STEP	AWS Core Criteria	AWS Advanced-Level Criteria	Pts. (max)
COMMIT	1.1 Establish a leadership commitment on water stewardship 1.2 Develop a water stewardship policy	1.3 Further the Alliance for Water Stewardship 1.4 Commit to other initiatives that advance effective water stewardship 1.5 Secure a water stewardship commitment from the organization's senior-most executive or the organization's governance body 1.6 Prioritize communities' rights to water	3 (9) 3 1 8
GATHER & UNDERSTAND	2.1 Define the physical scope 2.2 Identify stakeholders, their water-related challenges and the site's sphere of influence 2.3 Gather water-related data for the catchment 2.4 Gather water-related data for the site 2.5 Improve the site's understanding of its indirect water use 2.6 Understand shared water-related challenges in the catchment 2.7 Understand and prioritize the site's water risks and opportunities	2.8 Support and undertake joint water-related data collection 2.9 Gather additional, detailed water-related data 2.10 Review a formal study on future water resources scenarios 2.11 Conduct a detailed, indirect water use evaluation 2.12 Understand groundwater status or environmental flows and the site's potential contributions 2.13 Complete a voluntary Social Impact Assessment	4 3 3 7 10 3
PLAN	3.1 Develop a system that promotes and evaluates water-related legal compliance 3.2 Create a site water stewardship strategy and plan 3.3 Demonstrate responsiveness and resilience to water-related risks into the site's incident response plan 3.4 Notify the relevant (catchment) authority of the site's water stewardship plans	3.5 Gain stakeholder consensus on the site's water stewardship targets 3.6 Develop a formal plan for climate change adaptation	7 6
IMPLEMENT	4.1 Comply with water-related legal and regulatory requirements 4.2 Maintain or improve site water balance 4.3 Maintain or improve site water quality 4.4 Maintain or improve the status of the site's Important Water-Related Areas 4.5 Participate positively in catchment governance 4.6 Maintain or improve indirect water use within the catchment 4.7 Provide access to safe drinking water, adequate sanitation and hygiene awareness (WASH) for workers on-site 4.8 Notify the owners of shared water-related infrastructure of any concerns	4.9 Achieve best practice results on site water balance 4.10 Achieve best practice results on site water quality 4.11 Achieve best practice results on Important Water-Related Areas through restoration 4.12 Achieve best practice results and strengthen capacity in water governance 4.13 Advance regionally specific industrial water-related benchmarking 4.14 Re-allocate saved water for social or environmental needs 4.15 Engage in collective action to address shared water challenges 4.16 Drive reduced indirect water use throughout the site's supply chain and outsourced water-related service providers 4.17 Complete implementation of water-related initiatives 4.18 Provide access to safe drinking water, adequate sanitation and hygiene awareness off-site	8 8 8 8 3 6 8 (14) 5 (7) 3 5

Table 1 – Continued

STEP	AWS Core Criteria	AWS Advanced-Level Criteria	Pts.
EVALUATE	5.1 Evaluate the site's water stewardship performance, risks and benefits in the catchment context 5.2 Evaluate water-related emergency incidents and extreme events 5.3 Consult stakeholders on water-related performance 5.4 Update water stewardship and incident response plans	5.5 Conduct executive or governance body-level review of water stewardship efforts 5.6 Conduct a formal stakeholder evaluation	3 6
COMMUNICATE & DISCLOSE	6.1 Disclose water-related internal governance 6.2 Disclose annual site water stewardship performance 6.3 Disclose efforts to address shared water challenges 6.4 Drive transparency in water-related compliance 6.5 Increase awareness of water issues within the site	6.6 Disclose water risks to owners (in alignment with recognized disclosure frameworks) 6.7 Implement a programme for water education 6.8 Discuss site-level water stewardship in the organization's annual report	4 (6) 4 2

Step 1: COMMIT – Commit to being a responsible water steward

Step 1 ensures that there is sufficient leadership support to enact the rest of the criteria within the Standard. This step also relates to commitments to legal/regulatory compliance and rights-related issues, which underpin water stewardship.

AWS Core Criteria	Indicator(s)	Core/Points
1.1 Establish a leadership commitment on water stewardship: Have the senior-most manager at the site, and if necessary a suitable individual within the corporate head office, sign and publicly disclose a commitment to: • Uphold the AWS water stewardship outcomes (good water governance, sustainable water balance, good water quality status and healthy status of Important Water-Related Areas); • Engage stakeholders in an open and transparent manner; • Strive to comply with legal and regulatory requirements • Respect water-related rights, including ensuring appropriate access to safe water, sanitation and hygiene for all workers in all premises under the site's control; • Support and coordinate with public sector agencies in the implementation of plans and policies, including working together towards meeting the human right to water and sanitation. • Continually improve and adapt the site's water stewardship actions and plans; • Maintain the organizational capacity necessary to successfully implement the AWS Standard, including ensuring that staff have the time and resources necessary to undertake the implementation; • Support water-related national and international treaties; • Disclose material on water-related information to relevant audiences.	1.1.1 Signed and publicly disclosed statement that explicitly covers all requirements (see details in Criterion 1.1)	Core
1.2 Develop a water stewardship policy: Develop an internally agreed-upon and communicated and-publicly available water stewardship policy that references the concept of water stewardship (as informed by the AWS Standard, outcomes and criteria).	1.2.1 Publicly available policy that meets all requirements (see Guidance)	Core

AWS Advanced-Level Criteria	Indicator(s)	Core/Points
1.3 Further the Alliance for Water Stewardship: Commit to an AWS training programme or commit to AWS membership or get a commitment from one or more other sites to implement an AWS programme (membership, standard & certification or training).	1.3.1 Official registration with AWS	3 per programme (max. 9)
1.4 Commit to other initiatives that advance effective water stewardship: Commit to additional, voluntary and complementary water-related initiatives. Qualifying initiatives must: • Be voluntary in nature; • Be commonly accepted as best practices or processes for effective water management; • Explicitly contain references to water (even if this is not their primary purpose); • Contain a time-bounded commitment for taking action to improve use of water resources; • Not be redundant with existing requirements from the AWS Standard (i.e., the site cannot get credit for commitments that would have been already required by the AWS Standard); • Intend to deliver additional social or environmental benefits, keeping with the definition of water stewardship.	1.4.1 Formal commitment to qualifying initiative(s), including a timeline for completion	3
1.5 Secure a water stewardship commitment from the organization's senior-most executive or the organization's governance body: The site's commitment in 1.1 is also signed off by the senior-most executive in the organization or the overarching governance body that oversees the site's organization.	1.5.1 Appropriately signed and publicly available statement that explicitly covers all requirements (see details in Criterion 1.1)	1
1.6 Commit to directly assisting with community water needs in times of stress: The site publicly commits that if the human right to water and sanitation is unmet, and if requested by the community, the site will provide direct assistance from its own allocations of 20L per person to assist communities for their water-related needs.	1.6.1 Signed and publicly disclosed statement that explicitly covers all requirements	8

Step 2: GATHER & UNDERSTAND – Gather data to understand shared water challenges and water-related risks, impacts and opportunities

Step 2 ensures that the site gathers data on its water use and its catchment context and that the site employs these data to understand its shared water challenges as well as its contributions (both negative and positive) to these challenges and to water-related risks, impacts and opportunities. This information also informs the development of the site's water stewardship plan (Step 3) and guides the actions (Step 4) necessary to deliver upon the commitments (Step 1).

AWS Core Criteria	Indicator(s)	Core / Points
2.1 Define the physical scope: Identify the site's operational boundaries, the sources the site draws its water from, the locations where the site returns its discharge to, and the catchment(s) that the site affect(s) and is reliant upon.	2.1.1 Documentation or map of the site's boundaries 2.1.2 Names and location of water sources, including both water service provider (if applicable) and ultimate source water 2.1.3 Names and location of effluent discharge points, including both water service provider (if applicable) and ultimate receiving water body 2.1.4 Geographical description or map of the catchment(s)	Core
2.2 Identify stakeholders, their water-related challenges and the site's sphere of influence: Identify stakeholders, document their water-related challenges and explain how the stakeholders are within the site's sphere of influence.	2.2.1 List of stakeholders, descriptions of prior engagements and summaries of their water-related challenges 2.2.2 Description of the site's sphere of influence	Core
2.3 Gather water-related data for the catchment: Gather credible and temporally relevant data on the site's catchment: • Water governance, including catchment plan(s), water-related public policies, major publicly led initiatives under way, relevant goals, and all water-related legal, regulatory requirements; • Water balance for all sources while considering future supply and demand trends; • Water quality for all sources while considering future physical, chemical and biological quality trends; • Important Water-Related Areas, including their identification and current status, while considering future trends; • Infrastructure's current status and exposure to extreme events while considering expected future needs.	2.3.1 List of relevant aspects of catchment plan(s), significant publicly led initiatives and/or relevant water-related public policy goals for the site 2.3.2 List, and description of relevance, of all applicable water-related legal and regulatory requirements, including legally defined and customary water rights and water-use rights 2.3.3 Catchment water balance by temporally relevant time unit and commentary on future supply and demand trends 2.3.4 Appropriate and credibly measured data to represent the physical, chemical and biological status of the site's water source(s) by temporally relevant time unit, and commentary on any anticipated future changes in water quality	Core

	2.3.5 Documentation identifying Important Water-Related Areas, including a description of their current status and commentary on future trends 2.3.6 Existing, publicly available reports or plans that assess water-related infrastructure, preferably with content exploring current and projected sufficiency to meet the needs of water uses in the catchment, and exposure to extreme events	
2.4 Gather water-related data for the site: Gather credible and temporally relevant data on the site's: • Governance (including water stewardship and incident response plan); • Water balance (volumetric balance of water inputs and outputs); • Water quality (physical, chemical and biological quality of influent and effluent) and possible sources of water pollution; • Important Water-Related Areas (identification and status); • Water-related costs (including capital investment expenditures, water procurement, water treatment, outsourced water-related services, water-related R&D and water-related energy costs), revenues and shared value creation (including economic value distribution, environmental value and social value).	2.4.1 Copies of existing water stewardship and incident response plans 2.4.2 Site water balance (in Mm3 or m3) by temporally relevant time unit and water-use intensity metric (Mm3 or m3 per unit of production or service) 2.4.3 Appropriate and credibly measured data to represent the physical, chemical and biological status of the site's direct and outsourced water effluent by temporally relevant time unit, and possible pollution sources (if noted) 2.4.4 Inventory of all material water-related chemicals used or stored on-site that are possible causes of water pollution 2.4.5 Documentation identifying existing, or historic, on-site Important Water-Related Areas, including a description of their status 2.4.6 List of annual water-related costs, revenues and description/quantification of social, environmental or economic value generated by the site to the catchment	Core
2.5 Improve the site's understanding of its indirect water use: Identify and continually improve the site's understanding of: • Its primary inputs, the water use embedded in the production of those primary inputs and, where their origin can be identified, the status of the waters at the origin of the inputs; • Water used in outsourced water-related services within the catchment.	2.5.1 List of primary inputs with their associated embedded annual (or better) water use and (where known) their country/region/or catchment of origin with its level of water stress 2.5.2 List of outsourced services that consume water or affect water quality and both (A) estimated annual (or better) water withdrawals listed by outsourced services (Mm3 or m3) and (B) appropriate and credibly measured	Core

	data to represent the physical, chemical and biological status of the outsourced annual (or better) water effluent	
2.6 Understand shared water-related challenges in the catchment: Based upon the status of the catchment and stakeholder input, identify and prioritize the shared water-related challenges that affect the site and that affect the social, environmental and/or economic status of the catchment(s). In considering the challenges, the drivers of future trends and how these issues are currently being addressed by public-sector agencies must all be noted.	2.6.1 Prioritized and justified list of shared water challenges that also considers drivers and notes related to public-sector agency efforts	Core
2.7 Understand and prioritize the site's water risks and opportunities: Based upon the status of the site, existing risk management plans and/or the issues identified in 2.6, assess and prioritize the water risks and opportunities affecting the site.	2.7.1 Prioritized list of water risks facing the site, noting severity of impact and likelihood within a given time frame 2.7.2 Prioritized list of water-related opportunities for the site 2.7.3 Estimate of potential savings/value creation	Core

AWS Advanced-Level Criteria	Indicator(s)	Core/Points
2.8 Support and undertake joint water-related data collection: Engage in data gathering with two or more other organizations in the catchment or join a public-sector-led effort to gather the information required in Criterion 2.3.	2.8.1 Evidence of water-related data that was jointly gathered	4
2.9 Gather additional, detailed water-related data: Gather additional data that goes beyond the core requirements with respect to the site or the catchment, or generate core data in highly data-deficient environments, to further refine the site's understanding of its water stewardship context.	2.9.1 Water-related data sets that go beyond core requirements – See Guidance for details	3
2.10 Review a formal study on future water resources scenarios: Gather detailed information that explores water usability (quantity and quality) under future scenarios (including extreme events, population and urbanization changes, economic development, possible climate change impact scenarios, and anticipated infrastructure needs) within the catchment and comment on the scenarios' impacts upon the site's growth strategy.	2.10.1 Copy of a study that details projected future state conditions relative to current quantity and quality parameters and a comment on potential impacts upon the site's growth strategy	3
2.11 Conduct a detailed, indirect water use evaluation: Complete an advanced evaluation of indirect water use related to the site's primary products/services (including outsourced, downstream services) that identifies the location of water use within the site's supply chain and clarifies the site's ability to influence the management of its suppliers' water use.	2.11.1 Detailed description of the site's water-related supply chain with indirect water use amounts (for water quantity and quality) and the site's engagement efforts to date for each	7

2.12 Understand groundwater status or environmental flows and the site's potential contributions: Gather data on either groundwater status or environmental flows and identify the site's potential contribution. In all cases, coordination with relevant government agencies is required.	2.12.1 Conclusions about the site's potential contributions to groundwater recharge or environmental flows restoration	10
2.13 Complete a voluntary Social Impact Assessment: Complete a voluntary Social Impact Assessment for the site, with a particular focus on water.	2.13.1 Social impact assessment report	3

Step 3: PLAN – Develop a water stewardship plan

Step 3 focuses on how a site will improve its performance and the status of its catchment in terms of the AWS water stewardship outcomes. Step 3 needs to explicitly link the information gathered in Step 2 to the performance noted in Step 4 by describing who will be doing what and when. The monitoring methods in Step 5 should also reflect the plan.

AWS Core Criteria	Indicator(s)	Core/Points
3.1 Develop a system that promotes and evaluates water-related legal compliance: Develop, or refer to, a system that promotes and periodically evaluates compliance with the legal and regulatory requirements identified in Criterion 2.3.	3.1.1 Documented description of system, including the processes to evaluate compliance and the names of those responsible and accountable for legal compliance	Core
3.2 Create a site water stewardship strategy and plan: Develop an internally available water stewardship strategy and plan for the site that addresses its shared water challenges, risks and opportunities identified in Step 2 and that contains the following components (see Guidance for plan template): • a strategy that considers the shared water challenges within the catchment, water risks for the site (noting in particular where these are connected to existing public-sector agency catchment goals) and the site's general response (from Criteria 2.6 and 2.7) • a plan that contains: o A list of targets (based upon Criterion 2.7) to be achieved, including how these will be measured and monitored. Note: where identified as a shared water challenge, these targets must be continually improving for the four water stewardship outcomes until such time as best practice is achieved; o A list of annual actions that links to the list of targets; o A budget for the proposed actions with cost/benefit financial information (based, in part, upon financial data from 2.7); o An associated list indicating who will undertake the actions (i.e., who is responsible for carrying out the work) and who will ensure that the work is completed (i.e., who is accountable for achieving the target), including actions of other actors in the catchment; o A brief explanation that speaks to how the proposed actions will affect: (A) water-risk mitigation, (B) water stewardship outcomes and (C) shared water challenges.	3.2.1 Available water stewardship strategy 3.2.2 Available plan that meets all component requirements and addresses site risks, opportunities and stakeholder shared water challenges	Core
3.3 Demonstrate responsiveness and resilience to water-related risks into the site's incident response plan: Add to or modify the site's incident response plan to be both responsive and resilient to the water-related risks facing the site.	3.3.1 A description of the site's efforts to be responsive and resilient to water-related issues and/or risks in an appropriate plan	Core

3.4 Notify the relevant (catchment) authority of the site's water stewardship plans: Contact the appropriate catchment authority/agency (if any) and inform them of the site's plans to contribute to the water stewardship objectives of their catchment plan as identified in Criterion 2.3.	3.4.1 Documented evidence of communicating the site's plan to the relevant catchment authority/agency	Core

AWS Advanced-Level Criteria	Indicator(s)	Core/Points
3.5 Gain stakeholder consensus on the site's water stewardship targets: Achieve a consensus amongst stakeholders around at least one of the site's targets to address shared water challenges.	3.5.1 A list that indicates which targets achieved consensus along with a list of stakeholders involved	7
3.6 Develop a formal plan for climate change adaptation: In coordination with relevant public sector agencies and infrastructure management entities, develop a plan with detailed and explicit water-related adaptation strategies to mitigate risks of projected climate change impacts, including for shared water infrastructure.	3.6.1 A set of plans that speak to the site's risk mitigation with respect to projected climate change impacts including for shared water infrastructure	6

Step 4: IMPLEMENT – Implement the site's stewardship plan and improve impacts

Step 4 is intended to ensure that the site is executing the plan outlined in Step 3, mitigating risks and driving actual improvements in performance.

AWS Core Criteria	Indicator(s)	Core / Points
4.1 Comply with water-related legal and regulatory requirements and respect water rights: Meet all applicable legal and regulatory requirements related to water balance, water management and Important Water-Related Areas as well as water-related rights. As noted in Criteria 1.1 and 3.2, where, through its water use, the site is contributing to an inability to meet the human right to safe drinking water and sanitation, the site must also continually work with relevant public sector agencies until this basic human right to water and sanitation is fulfilled.	4.1.1 Documentation demonstrating compliance 4.1.2 (Catchments with stakeholders who have an unmet human right to safe drinking water and sanitation) Documentation of efforts to work with relevant public sector agencies to fulfil human right to safe drinking water and sanitation.	Core
4.2 Maintain or improve site water balance: Meet the site's water balance targets. As noted in Criterion 3.2., where water scarcity is a shared water challenge, the site must also continually decrease its water withdrawals until best practices are met and work with relevant public sector agencies to address the imbalance and shared water challenge. Note: if a site wishes to increase its water use in a water scarce context, the site must cause no overall increase in water scarcity in the catchment and depletion of the site's water source(s) and encourage relevant public sector agencies to address the unlawful water use contributing to the imbalance in the catchment.	4.2.1 Measurement-based evidence showing that targets have been met 4.2.2 (Water scarce catchments only) Evidence of continual decrease or best practice 4.2.3 (Sites wishing to increase withdrawals in water scarce catchments only) Evidence of no net increase in water scarcity	Core
4.3 Maintain or improve site water quality: Meet the site's water quality targets. As noted in Criterion 3.2., where water quality stress is a shared water challenge, the site must also continually improve its effluent for the parameters of concern until best practices are met and work with relevant public sector agencies to address the imbalance and shared water challenge. Note: if a site wishes to increase its water use in a water stressed context, the site must cause no overall increase in the degradation of water quality in the catchment and degradation of the site's water source(s) and encourage relevant public sector agencies to address the unlawful water use contributing to the degradation in the catchment.	4.3.1 Measurement-based evidence showing that targets have been met 4.3.2 (Water quality-stressed catchments only) Evidence of continual improvement or best practice 4.3.3 (Sites wishing to increase effluent levels of water quality parameters of concern in water quality-stressed catchments only) Evidence of no net degradation in water quality in the catchment	Core
4.4 Maintain or improve the status of the site's Important Water-Related Areas: Meet the site's targets for Important Water-Related Areas at the site. As noted in Criterion 3.2., where Important Water-Related Area degradation is a shared water challenge, the site must also continually improve its Important Water-Related efforts until best practices are met, and the site must not knowingly cause any further degradation of such areas on site.	4.4.1 Documented evidence showing that targets have been met 4.4.2 (Degraded Important Water-Related Area catchments only) Evidence of continual improvement or best practice	Core

4.5 Participate positively in catchment governance: Continually coordinate and cooperate with any relevant catchment management authorities' efforts. As noted in Criterion 3.2, where water governance is a shared water challenge, the site must also continually improve its efforts until best practices are met.	4.5.1 Documented evidence of the site's ongoing efforts to contribute to good catchment governance 4.5.2 (Weak water governance catchments only) Evidence of continual improvement or best practice	Core
4.6 Maintain or improve indirect water use within the catchment: Contact the site's primary product suppliers and water-related service providers located in the catchment and request that they take actions to help contribute to the desired water stewardship outcomes.	4.6.1 List of suppliers and service providers, along with the actions they have taken as a result of the site's engagement relating to indirect water use	Core
4.7 Provide access to safe drinking water, adequate sanitation and hygiene awareness (WASH) for workers on-site: Ensure appropriate access to safe water, effective sanitation and protective hygiene for all workers in all premises under the site's control.	4.7.1 List of actions taken to provide workers access to safe water, effective sanitation and protective hygiene (WASH) on-site	Core
4.8 Notify the owners of shared water-related infrastructure of any concerns: Contact the owners of shared water-related infrastructure and actively highlight any concerns the site may have in light of its risks and shared water challenges.	4.8.1 List of individuals contacted and key messages relayed	Core

AWS Advanced-Level Criteria	Indicator(s)	Core/Points
4.9 Achieve best practice results on site water balance: Achieve best practice results with respect to the site's water balance targets as informed by stakeholder consensus or industry-specific benchmarks.	4.9.1 Quantified improvement in water balance from site-set baseline date 4.9.2 Evidence showing that actions meet best practice expectations	8
4.10 Achieve best practice results on site water quality: Achieve best practice results with respect to the site's water quality targets as informed by stakeholder consensus or industry-specific benchmarks.	4.10.1 Quantified improvement in water balance from site-set baseline date 4.10.2 Evidence showing that actions meet best practice expectations	8
4.11 Achieve best practice results on Important Water-Related Areas through restoration: Achieve best practice results with respect to the site's Important Water-Related targets and complete restoration of non-functioning or severely degraded Important Water-Related Areas as informed by stakeholder consensus or credible expert opinion.	4.11.1 Evidence of completed restoration of non-functioning or severely degraded Important Water-Related Areas 4.11.2 Evidence showing that actions meet best practice expectations	8
4.12 Achieve best practice results and strengthen capacity in water governance: Achieve best practice results with respect to the site's water governance targets, including transparently	4.12.1 List of efforts to positively engage and strengthen water governance capacity from a site-set baseline date	8

strengthening governance capacity, as informed by stakeholder consensus and public-sector leadership recognition.	4.12.2 Evidence showing that actions meet best practice expectations	
4.13 Advance regionally specific industrial water-related benchmarking: Contribute to or participate in the development of regionally specific industrial water-related benchmarking and spreading best practices.	4.13.1 List of efforts to contribute to regionally specific benchmarking and spread best practices	3
4.14 Re-allocate saved water for social or environmental needs: Ensure that any water saved by the site's actions under 4.2 is voluntarily re-allocated for social or environmental purposes that are recognized needs in the catchment.	4.14.1 Total volume of water officially re-allocated for social and environmental needs (in m3 or Mm3) 4.14.2 Documentation of legal contracts for the reallocation of water to social or environmental needs	6
4.15 Engage in collective action to address shared water challenges: Work with other interested entities in the catchment to advance or improve water stewardship outcomes. For the additional recognition (6 points), quantifiably improve the shared water challenge and be recognized by stakeholders as having played a material role in the improvement.	4.15.1 List of collective action efforts, including a description of the role played by the site 4.15.2 Quantified improvement in outcome(s) or shared water challenge(s) from site-set baseline date 4.15.3 (For extra points only) Stakeholder-based evidence recognizing that the site played a material role in the improvement	8 or 14
4.16 Drive reduced indirect water use throughout the site's supply chain and outsourced water-related service providers: Contact the site's primary product suppliers and water-related service providers located outside the site's catchment and request they take actions to help contribute to the desired water stewardship outcomes in their catchments. For the additional recognition (2 points), quantify the improvements that the site's intervention generated and be recognized by the site's supplier as having played a material role in prompting that improvement.	4.16.1 List of suppliers with details on engagement efforts 4.16.2 Quantified improvement by the supplier as a result of this engagement 4.16.3 (For extra points only) Supplier-based evidence recognizing that the site played a material role in prompting the change	5 or 7
4.17 Complete implementation of water-related initiatives: Complete implementation of one or more of the initiatives committed to in 1.4.	4.17.1 Appropriate documentation or evidence of completion of initiative	3
4.18 Provide access to safe drinking water, adequate sanitation and hygiene awareness off-site: In coordination with relevant public authorities, directly assist in the provision of appropriate access to safe drinking water, adequate sanitation and hygiene awareness for individuals off-site within the catchment.	4.18.1 List of actions taken to provide catchment stakeholders with access to off-site access to safe drinking water, adequate sanitation and hygiene awareness.	5

Step 5: EVALUATE – Evaluate the site's performance

Step 5 is intended to review performance against the actions taken in Step 4, learn from the outcomes – both intended and unintended – and inform the next iteration of the site's water stewardship plan. The expectation is that such an evaluation takes place at least annually, with more frequent evaluation encouraged as feasible.

AWS Core Criteria	Indicator(s)	Core / Points
5.1 Evaluate the site's water stewardship performance, risks and benefits in the catchment context: Periodically review the site's performance in light of its actions and targets from its water stewardship plan to evaluate: • General performance in terms of the water stewardship outcomes (considering context and water risks), positive contributions to the catchment, and water-related costs and benefits to the site.	5.1.1 Post-implementation data and narrative discussion of performance and context (including water risk) 5.1.2 Total amount of water-related costs, cost savings and value creation for the site based upon the actions outlined in 3.2 (drawn from data gathered in 2.4.6) 5.1.3 Updated data for indicator 2.4.7 on catchment shared value creation based upon the actions outlined in 3.2	Core
5.2 Evaluate water-related emergency incidents and extreme events: Evaluate impacts of water-related emergency incidents (including extreme events), if any occurred, and determine effectiveness of corrective and preventive measures. Factor lessons learned into updated plan.	5.2.1 Documented evidence (e.g., annual review and proposed measures)	Core
5.3 Consult stakeholders on water-related performance: Request input from the site's stakeholders on the site's water stewardship performance and factor the feedback/lessons learned into the updated plan.	5.3.1 Commentary by the identified stakeholders	Core
5.4 Update water stewardship and incident response plans: Incorporate the information obtained into the next iteration of the site's water stewardship plan. Note: updating does not apply for initial round of Standard implementation.	5.4.1 Modifications to water stewardship and incident response plans incorporating relevant information	Core

AWS Advanced-Level Criteria	Indicator(s)	Core / Points
5.5 Conduct an executive or governance body-level review of water stewardship efforts: Review the site's water stewardship performance, impacts and risks with either the organization's executive team (CEO/CFO or equivalent) or board (or equivalent).	5.5.1 Agenda and minutes of executive team or governance body meeting noting water stewardship discussion	3
5.6 Conduct a formal stakeholder evaluation: Undertake a formal review with the site's stakeholders on the site's efforts to address shared water challenges. This includes reviewing the site's contributions to maintaining good governance, adequate flows for all needs, good water quality status and functioning Important Water-Related Areas, and soliciting suggestions for continuous improvement.	5.6.1 Documentation of formal stakeholder evaluation with recommendations for updated Criterion 3.5	6

Step 6: COMMUNICATE & DISCLOSE – Communicate about water stewardship and disclose the site's stewardship efforts

Step 6 is intended to encourage transparency and accountability through communication of performance relative to commitments, policies and plans. Disclosure allows others to make informed decisions on a site's operations and tailor their involvement to suit.

AWS Core Criteria	Indicator(s)	Points / Core
6.1 Disclose water-related internal governance: Publicly disclose the general governance structure of the site's management, including the names of those accountable for legal compliance with water-related laws and regulations.	6.1.1 Disclosed and publicly available summary of governance at the site, including those accountable for compliance with water-related laws and regulations	Core
6.2 Disclose annual site water stewardship performance: Disclose the relevant information about the site's annual water stewardship performance, including results against the site's targets.	6.2.1 Disclosed summary of site's water stewardship results	Core
6.3 Disclose efforts to address shared water challenges: Publicly disclose the site's shared water challenges and report on the site's efforts to help address these challenges, including all efforts to engage stakeholders and coordinate and support public-sector agencies.	6.3.1 Disclosed and publicly available description of shared challenges and summary of actions taken to engage stakeholders (including public-sector agencies)	Core
6.4 Drive transparency in water-related compliance: Make any site water-related compliance violations available upon request as well as any corrective actions the site has taken to prevent future occurrences. Note: any site-based violation that can pose an immediate material threat to human or ecosystem health from use of or exposure to site-related water must be reported immediately to relevant public agencies.	6.4.1 Available list of water-related compliance violations with corresponding corrective actions	Core
6.5 Increase awareness of water issues within the site: Strive to raise the understanding of the importance of water issues at the site through active communications.	6.5.1 Record of awareness efforts (dates and communication) and, if possible, level of awareness	Core
AWS Advanced-Level Criteria	**Indicator(s)**	**Points / Core**
6.6 Disclose water risks to owners (in alignment with recognized disclosure frameworks): Disclose the site's material water risks to owners with additional recognition if it is done according to a recognized global disclosure framework.	6.6.1 Written evidence of site-based material water risk information conveyed to owners 6.6.2 (For extra points only) Disclosure to owners in a format that is consistent with the requirements of a recognized disclosure framework	4 or 6

6.7 Implement a programme for water education: Implement a water education programme within the catchment to raise awareness and understanding of water stewardship issues and practices.	6.7.1 Description of water-related education programme	4
6.8 Discuss site-level water stewardship in the organization's annual report: Explicitly mention the site's efforts to implement AWS in its organization's annual report, including referencing the benefits to the site and stakeholders.	6.8.1 Page number of annual report containing site-based AWS reference	2

Appendix A: Glossary of Terms

Note: All sources that are not referenced have been developed by the Alliance for Water Stewardship.

Accountability: The readiness or preparedness to give an explanation or justification to relevant others (stakeholders) for one's judgments, intentions, acts and omissions when appropriately called upon to do so. It is [also] a readiness to have one's actions judged by others and, where appropriate, accept responsibility for errors, misjudgements and negligence and recognition for competence, conscientiousness, excellence and wisdom. In the context of the Standard, the implementer has to identify individuals to be accountable internally for certain actions. In all circumstances, however, the implementer remains ultimately accountable before the competent authorities.
Source: Geoff Hunt, "Accountability," http://www.freedomtocare.org.

Activities: The actions that are undertaken, using inputs, to deliver outputs.

Adjacent properties: Properties that directly abut, or are contiguous with, the site.

Alliance for Water Stewardship (AWS): An independently registered, global non-profit organization, founded by some of the world's leading water entities and dedicated to advancing water stewardship. Its vision is that water users and managers are responsible water stewards, who protect and enhance freshwater resources for people and nature. Its mission is to promote responsible use of fresh water that is socially and economically beneficial as well as environmentally sustainable.

Allocation: The quantity of water available to be taken under a water access license, as shown in the license's water allocation account.
Source: Australian Government National Water Commission.

Available water: Includes the network of water resources (rivers, lakes, groundwater and others) used to supply human activities (e.g., irrigation and industrial applications).
Source: European Water Partnership, Draft Standard version 4.6, 2010.

Baseline: The beginning point at which an enterprise or activity will be monitored and against which progress can be assessed or comparisons made.
Source: ISEAL Alliance (2010) Impacts Code.

Basin: See catchment.

Best practice: A method or technique that has consistently shown results superior to those achieved with other means and that can be used as a benchmark. In the Standard, best practices describe actions undertaken by a site that are acknowledged by a consensus of stakeholders as positively contributing to the achievement of the four water stewardship outcomes in the catchment AND recognized as a specific industry's best practice through benchmarking OR through credible and relevant public-sector agency representatives.

Source: Adapted from BusinessDictionary.com.

Biodiversity: See biological diversity.

Biological diversity: The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.
Source: Convention on Biological Diversity, 1992.

Board organization: An organization that is invited by and formally sits upon the AWS Board of Directors.

Capacity: The ability to perform functions, solve problems, and set and achieve objectives. Capacity needs exist at three inter-related levels: individual, institutional and societal. Capacity-building encompasses the site's human, scientific, technological, organizational, institutional and resource capabilities. It may also refer to support to strengthening the capacities of the competent authorities.
Source: Adapted from the Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992 (United Nations publication, Sales No. E.93.I.18 and corrigenda), vol. I: Resolutions adopted by the Conference, resolution 1, annex II.

Catchment: The area of land from which all surface runoff and subsurface waters flow through a sequence of streams, rivers, aquifers and lakes into the sea or another outlet at a single river mouth, estuary or delta; and the area of water downstream affected by the site's discharge. Catchments, as defined here, include associated groundwater areas and may include portions of water bodies (such as lakes or rivers). In different parts of the world, catchments are also referred to as watersheds, basins (or sub-basins), but note that AWS-defined catchments differ slightly in that they include groundwater areas and affected downstream water areas as well.

Catchment governance: The water-related aspects of governance that are relevant to the site's catchment.

Certification: A voluntary procedure that assesses, monitors and gives written assurance that a business, product, process, service, supply chain or management system conforms to specific requirements.
Source: ISEAL Impacts Code 2010 (from Center for Responsible Tourism [CREST]).

Challenges: The water-related issues that are of interest or concern to a given entity, which, if addressed, will provide positive impacts or prevent negative impacts. Unlike water risks, water challenges may or may not be unique and may or may not be shared. Also see shared water challenges.

Competency: The combination of the knowledge, skills and attributes required to fulfil the responsibilities outlined by a job role.
Source: ISEAL Alliance, Impacts Code 2010.

Consensus: General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties ~~concerned and to reconcile any conflicting argumen~~ts. Consensus need not imply unanimity. Under consensus, one or more parties may not fully agree with a decision but are able to accept it.
Source: International Organization for Standardization, ISO/IEC Guide 2: 2004.

Core (as in core criterion): The most basic of required elements of the Standard that must be complied with in order to achieve the AWS Certified level.

Criterion (pl. Criteria): A means of judging whether or not a specific water stewardship component has been fulfilled. Criteria are the conditions that need to be met in order to achieve a water stewardship component. Criteria add meaning and operationality to a water stewardship component without themselves being direct measures of performance.
Source: Adapted from Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Critically Endangered species: A species facing a very high risk of extinction in the wild in the near future, as defined by IUCN.
Source: Adapted from IUCN Red List, http://www.iucnredlist.org/static/categories_criteria_2_3.

Customary rights: Rights granted from customary (unwritten) law, which is considered to be established by consistent repetition of a given conduct by many members of the community and/or the conviction of the community that such conduct corresponds to a "legal rule".
Source: Adapted from The World Bank's Global Water Partnership Associate Program "Groundwater Legislation & Regulatory Provision: from customary rules to integrated catchment planning" 2004.

Directly affected: Includes those whose lives or livelihoods would be altered by the proposed decision or standard, financially or otherwise, as well as the affected public.

Discharge: The volume rate of abstracted water, including suspended solids (e.g., sediment), dissolved chemicals (e.g., $CaCO_{3[aq]}$), and/or biologic material (e.g., diatoms), that is returned back to either a water service provider or directly into the catchment's freshwater resources. Discharge is typically expressed in the unit of m^3/s (cubic meters per second). Discharge may or may not include effluent. Also see effluent.
Source: Adapted from a combination of Buchanan, T.J. and Somers, W.P., 1969, Discharge Measurements at Gaging Stations: US Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A8, 1p and European Water Partnership, Draft Standard version 4.6, 2010.

Disclosure: The act of making known all material water-related information of a site and its catchment to target audience(s). Disclosure is most commonly directed at investors or regulators to help inform investment and enforcement of regulations, and its format must be suitable for the given target audience(s). The effectiveness of this disclosure depends on many factors, including developing effective avenues of communication, targeting the right audiences and providing meaningful information.
Source: Adapted from Merriam-Webster and CEO Water Mandate (2010) Guide to Responsible Business Engagement with Water Policy.

Disseminate: To spread or disperse something (especially information, plans or policies) widely (primarily within one's facility, site or organization).
Source: Adapted from Oxford Dictionary.

Drainage water: Water withdrawn but not consumed and returned. It can be recovered and reused, and thus it is considered to be a secondary source of water. Like desalinated water and wastewater, it is also considered a type of non-conventional water.
Source: Adapted from FAO AquaSTAT Glossary.

Ecological integrity: The degree to which all ecosystem components and their interactions are represented, functioning and able to renew themselves.
Source: US Forest Service, http://www.fs.fed.us/pnw/pubs/summary/gtr_385f.pdf.

Ecosystem: A community of all plants and animals and their physical environment, functioning together as an interdependent unit.
Source: Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Ecosystem services: The benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.
Source: Millennium Ecosystem Assessment, Ecosystems and Human Well-being: Multiscale Assessments, Volume 4, 2005.

Effluent: A subset of discharge, effluent is the wastewater (treated or untreated) from a production process that is discharged. Also see wastewater or discharge.
Source: Adapted from European Water Partnership, Draft Standard version 4.6, 2010.

Emergency incidents: Incidents that are the result of negligence or occur outside the control of the implementer, which will have an impact on the site or catchment(s) and, therefore, should be planned for. Spills or extreme weather events such as floods and droughts, hazards and unforeseen events all fall into this description.

Endangered species: A species that is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by IUCN.
Source: Adapted from IUCN Red List, http://www.iucnredlist.org/static/categories_criteria_2_3.

Environmental and Social Impact Assessment
An Environmental and Social Impact Assessment (ESIA) is a voluntary assessment conducted to identify, evaluate and develop management measures for environmental and social impacts associated with the construction and operation of a project.
Source: Water Secure http://www.watersecure.com.au/pub/resources/glossary

Environmental flow (or e-flow): Describes the quantity, quality and timing of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems.
Source: The Brisbane Declaration (2007), http://www.eflownet.org/downloads/documents/WorldBank_EF2009.pdf

Environmental impact: Any alteration of environmental conditions or creation of a new set of environmental conditions, adverse or beneficial, caused or induced by the action or set of actions under consideration.
Source: European Water Partnership, Draft Standard version 4.6, 2010.

Evaporation: The transformation of liquid water into vapour as a result of heating.
Source: European Water Partnership, Draft Standard version 4.6, 2010.

Extreme event: An extreme weather or climate event. An extreme weather event is an event that is rare within its statistical reference distribution at a particular place. Definitions of "rare" vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile (e.g., a heavy, single rainfall event). By definition, the characteristics of what constitutes extreme weather may vary from place to place. An extreme climate event is an average of a number of weather events over a certain period of time, an average which is itself extreme (e.g., cumulatively very low rainfall over a season). Extreme events may or may not pose water risks for sites.
Source: Adapted from IPCCC http://www.ipcc.ch/ipccreports/tar/wg1/518.htm.

Facility: The physical infrastructure that the site controls, which is located within a site.

Flow regime (environmental): The pattern of variation in water flows and levels through rivers, wetlands, lakes and groundwater within a catchment over time.
Source: Water Stewardship Standard Draft 00, Water Stewardship Initiative, June 2009.

Fossil water: A form of groundwater that infiltrated an aquifer millennia ago and has been stored underground since that time and is frequently denominated as old water and non-renewable. Fossil water is a subset of groundwater. Also see groundwater.
Source: Adapted from UNESCO "Non-renewable groundwater resources: A Guidebook on socially-sustainable management for water-policy makers" IHP –VI, series on groundwater, no. 10 (Eds.) Stephen Foster and Daniel P. Loucks.

Framework: The set of content areas that organize the basis of the Standard.

Future trends: A set of expected water-relevant conditions that are expected to manifest in the catchment (or specifically at the site) based on extrapolated trends, expert opinion, local or indigenous knowledge, or some other credible means. Most often trends will relate to expected changes in precipitation and temperature (climate change), invasive species, land use, population, or economic growth/contraction (and potential associated pollution).

Global Reporting Initiative (GRI): A standardized framework that sets forth the outcomes and indicators by which organizations can measure and report their economic, environmental and social performance.
Source: Global Reporting Initiative, 2011, http://www.globalreporting.org.

Good water quality status: The state when the physical, chemical and biological properties of water, including whether water quality at the site and within the catchment(s) meets local (and, where applicable, international) regulatory requirements and is fit for the requirements of the range of biotic species present and for any human need or purpose. Assessment of quality (i.e., "good") is typically based on the extent of deviation from reference conditions. 'Good status' means 'slight' deviation, 'moderate status' means 'moderate' deviation, and so on.
Source: Adapted from the European Union Water Framework Directive and Johnson, D.L., S.H. Ambrose, T.J. Bassett, M.L. Bowen, D.E. Crummey, J.S. Isaacson, D.N. Johnson, P. Lamb, M. Saul, and A.E. Winter-Nelson (1997). "Meanings of environmental terms." Journal of Environmental Quality. 26: 581-589.doi:10.2134/jeq1997.00472425002600030002x

Good water governance: The state when the political, social, economic and administrative systems that are in place, which directly or indirectly affect the use, development and management of water resources and the delivery of water services at all levels of society, promote stakeholder participation, transparency, accountability, rule of law, and equity in a manner that is effective, efficient and enduring, and leads to the desired state of the water resource(s).
Governance: See water governance.
Government: The group of people with the authority to govern a country or state; a particular ministry in office.
Source: Oxford Dictionary.

Groundwater: Water that occurs below the surface of the Earth, where it occupies spaces in soils or geologic strata. Most groundwater comes from precipitation, which gradually percolates into the Earth, often via aquifers. Fossil water is a subset of groundwater. Also see fossil water.

Source: Adapted from Merriam-Webster.

Health: A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
Source: World Health Organization.

Healthy Important Water-Related Aareas: The state when the specific, environmentally, socially, culturally, or economically water-related areas of a catchment, which provide important contributions to human wellbeing, are in a healthy state.

High Conservation Value Areas (HCVAs): Water areas (including tidally influenced estuaries or brackish waters) that are critically influenced by or whose management has a critical influence on:

- globally, regionally or nationally significant large landscape-level areas where viable populations of most, if not all, naturally occurring species exist in natural patterns of distribution and abundance;
- globally, regionally or nationally significant concentrations of biodiversity values;
- rare, threatened or endangered ecosystems;
- basic ecosystem services in critical situations (e.g., water purification, erosion control, groundwater recharge);

- the basic needs of local communities;
- local communities' traditional cultural identity;
- climate change adaptation.

HCVAs are a form of Important Water-Related Areas that have specific conservation value. Also see Important Water-Related Areas.
Source: Adapted from High Conservation Value Network Resource Network, Common Guidance on HCV Identification http://www.hcvnetwork.org/resources/folder.2006-09-29.6584228415/2013_commonguidancev5

Impact(s): The positive or negative long-term social, economic and environmental effects resulting from the implementation of a standards system, either directly or indirectly, intended or unintended. Impacts, which are the ultimate result, derive from outcomes. Impacts, which may be positive (those impacts which directly or indirectly, intended or unintended, generally benefit stakeholders) or negative (those impacts which directly or indirectly, intended or unintended, are generally harmful to stakeholders).
Source: ISEAL Alliance (adapted from OECD Glossary).

Important Water-Related Areas: The specific water-related areas of a catchment that, if impaired or lost, would adversely impact the environmental, social, cultural or economic benefits derived from the catchment in a significant or disproportionate manner. Important Water-Related Areas are deemed "important" either by local stakeholders or by key stakeholders at regional or international levels. Important Water-Related Areas include areas that are legally protected or under a conservation agreement; areas that have been identified by local or indigenous communities as having significance for cultural, spiritual, religious or recreational values; and areas that are recognized as providing important ecosystem services, such as riparian areas, vernal pools critical for breeding of important aquatic species, aquifer recharge zones, wetlands that provide purification services, etc. A High Conservation Value Area (HCVA) is one form of Important Water-Related Area.

Incident: An unexpected, and often deleterious, water-related event. Examples of incidents include water-related worker safety events, floods, droughts, chemical spills and water-related infrastructure failures.

Source: Adapted from Merriam-Webster.

Indicator: A quantitative or qualitative factor or variable that provides a simple and reliable means to measure the achievement of outcomes, to reflect the changes connected to a standards system or to help assess the performance of an organization. An indicator can be considered a "yardstick", while a target is where one expects to progress to along that yardstick in a given period of time. Indicators convey a single, meaningful message or piece of information.
Source: ISEAL Alliance (adapted from OECD Glossary).

Indigenous peoples: An official definition of "indigenous" has not been adopted by the UN system due to the diversity of the world's indigenous peoples. Instead, a modern and inclusive understanding of "indigenous" has been developed and includes peoples who:

- identify themselves and are recognized and accepted by their community as indigenous;
- demonstrate historical continuity with pre-colonial and/or pre-settler societies;
- have strong links to territories and surrounding natural resources;
- have distinct social, economic or political systems;
- maintain distinct languages, cultures and beliefs;
- form non-dominant groups of society;
- resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities.

In some regions, there may be a preference to use other terms such as: tribes, first peoples/nations, aboriginals, ethnic groups, *adivasi* and *janajati*. All such terms fall within this modern understanding of "indigenous".
Source: United Nations Permanent Forum on Indigenous Issues, Fifth Session, Fact Sheet 1: Indigenous Peoples and Identity.

Indirect water: Total water use (i.e., net consumption and pollution) in the production or supply of inputs used at a site. Indirect use includes water used (both directly and indirectly) to produce raw materials or parts and supplies as inputs for a manufacturing process as well as water used in the generation of energy for a process. It does not include water used in the transport, use or disposal of a product. Also see supply chain.
Source: Adapted from Water Stewardship Standard Draft 00, Water Stewardship Initiative, June 2009.

Infrastructure: The basic equipment and structures, both human-built and natural, that are needed for a country, region or organization to function properly. Examples of water-related infrastructure include water pipes, wetlands, reverse osmosis machinery, aquifers and dykes.

Source: Adapted from Merriam-Webster.

Input: The physical, human, financial and capital resources applied to a project and to its component activities. Inputs are intended to lead to activities.

Source: ISEAL Alliance (2010) Impacts Code.

Integrated water resource management (IWRM): a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Source: Global Water Parntership http://www.gwp.org/en/Press-Room/A-Water-Secure-World/

Interested parties: Any person or group concerned with or directly affected by a standard and/or the roundtable process.

International Standard Development Committee (ISDC): Serves as the decision-making body and comprises 15 people. Members of the ISDC will agree upon and document its decision-making process.

Job role (job duties): The specific, primary duties (or tasks) that a job was established to perform that if not performed would severely impact the nature of the job. These duties typically are outlined in writing in a job role or via an annual statement that clarifies expected job duties.

Source: Adapted from University of Indiana's performance management, 2012, http://www.indiana.edu/~uhrs/training/performance_management/determine.htm.

Local laws: Includes all legal norms given by sub-national units of government, such as state and provincial governments, departments, municipalities and local customary rights.

Source: Adapted from Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Materiality (relating to material primary inputs or information for disclosure): That, which if missing or compromised, could influence the financial outcomes of a site. In the case of information disclosure, it is material if the information's omission or misstatement could influence either the *financial outcomes* and therefore *decisions of investors/owners* taken on the basis of the statements OR the *stewardship outcomes* and therefore *decisions of other stakeholders.* In the case of primary inputs, it is material if the input's loss or disruption could influence the operations of a site to the point that it affected the site's financial outcomes.

Source: Adapted from Generally Accepted Accounting Principles.

Monitoring: A continuing function that uses systematic collection of data on specified indicators to provide indications of the extent to which outcomes are being achieved.

Source: ISEAL Alliance (adapted from OECD Glossary).

Native species: A species that occurs naturally in the region; endemic to the area.

Source: Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Natural cycles: Nutrient and mineral cycling as a result of interactions between soils, water, plants and animals in forest environments that affect the ecological productivity of a given site.

Source: Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Natural infrastructure: The sub-component of infrastructure that is the interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains the flows and quality of water, and provides a wide array of benefits to people and wildlife. Also referred to as "green infrastructure". Also see infrastructure.

Source: Adapted from United States Environmental Protection Agency.

Nature: The collective phenomena of the physical world, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations.

Source: Oxford Dictionary.

Negative impact(s): Deleterious long-term effects resulting from the implementation of a standards system, either directly or indirectly, intended or unintended. Also see impacts.

Nexus: A connected group of ideas: climate change, water, energy, biodiversity and food are interconnected in important ways, and actions in one sector may either help or harm the others.

Objective: A general description of a desired end result that is the function of one or more activities undertaken by the site. Objectives generally link to outputs and outcomes and are often synonymous with the notion of "goals" and always describe the desired end state. Objectives are distinguished from targets in that targets are annual and specific, while objectives may be multi-year and may sometimes be general (though it is encouraged that they are specific). An example of an objective would be: "Improve the site's water intensity by 50 per cent by 2020 from 2010 levels." A less desirable example (less specific) would be "Improve the site's water intensity." Also see target.

Origin(s): A term used in the Standard to reference a general geography. The origin could be a country, sub-national region such as a state or a province, or catchment.

Outcome(s): The primary aim(s) of the Standard. The Standard contains four outcomes: (1) good water governance, (2) sustainable water balance, (3) good water quality status and (4) healthy status of Important Water-Related Areas. Outcomes derive from outputs and are intended to lead to impacts.

Output: The studies, products, capital goods and services that result directly from the activities of a standards system and are sometimes used as indicators of measuring criteria. Outputs, which derive from activities, are intended to lead to outcomes and ultimately impacts.
Source: ISEAL Alliance (adapted from OECD Glossary).

Physical water risk: The costs imposed on an implementer due to a lack of water or a lack of water of adequate quality at a given time and location.
Source: Adapted from Marc Levinson et al., "Watching water: A guide to evaluating corporate risks in a thirsty world," JPMorgan Global Equity Research, 31 March 2008.

Point source (of pollution): Primarily discharges from fixed sources, such as municipal wastewater treatment plants, associated with population centres or effluent discharges from industry.
Source: Adapted from European Water Partnership, Draft Standard version 4.6, 2010.

Primary input(s): The materially important product(s) or service(s) that a site consumes to generate the product(s) or service(s) it provides as its primary function. This can be thought of as the "main ingredients" that a site needs to run (e.g., aluminium, sugar (cane), CO_2, water and oranges, as well as an outsourced "cleaning service" for a site producing a canned orange drink with bubbles). Note: primary inputs do not include infrastructure.

Primary inputs should include any externally procured goods or services that account for over 5 per cent of the total weight of the goods generated, or 5 per cent of the costs of a site. For example, lumber, energy and water likely would be some of the primary inputs for a pulp and paper facility. Aggregate, energy and water likely would be the primary inputs for a mineral smelter. Fertilizer, seeds and water likely would be the primary inputs for a vegetable grower.

Note: In the case that there is an input that does not meet this generic threshold (e.g., it is only 3 per cent by cost) but is significant in its water use these should be included (if known). Also see Guidance under 2.5 for more details.

Provided water: The water provided to a site by a water service provider.

Publicly available: Obtainable by any person, without unreasonable barriers of access. Information that is published on an organization's website is considered to be publicly available.
Source: ISEAL Alliance (2010) Impacts Code.

Receiving water body: The water body that ultimately receives a site's discharge.

Regulatory water risk: The costs imposed on an implementer due to the applicable regulatory framework or prices, or both, to control consumption and discharge of water.
Source: Adapted from Marc Levinson et al., "Watching water: A guide to evaluating corporate risks in a thirsty world," JPMorgan Global Equity Research, 31 March 2008.

Reputational water risk: The costs imposed on an implementer due to damage to a firm's image, brand or reputation via public outcry.
Source: Adapted from Marc Levinson et al., "Watching water: A guide to evaluating corporate risks in a thirsty world," JPMorgan Global Equity Research, 31 March 2008.

Resilience: The ability of a site to quickly adapt (become productive or successful again) after an incident (something bad happening) and continue operations. *Source: Adapted from Merriam-Webster.*

Responsibility: A sphere of duty or obligation assigned to a person by the nature of that person's position, function or work, within the implementer.
Source: Adapted from Vincent E. Barry, Moral Issues in Business (Belmont, CA: Wadsworth, 1979).

Risk: The effect of uncertainty on a site's objectives. Risk often involves both a likelihood (or probability) and a consequence (or severity of impact) and may arise due to changes in physical, regulatory or reputational circumstances. Risk is site-specific and unique. Also see water risk.
Source: Adapted from ISO 31000 and CDP, Glossary of Terms, https://www.cdproject.net/Documents/Guidance/2012/Technical/glossary-of-terms.pdf.

Risk assessment: See water risk assessment.

Risk profile: See water risk assessment.

River basin: See catchment.

Sanitation: The process of keeping places (e.g., sites, communities, catchments) free from dirt, infection, disease, etc., by removing waste and pollution that is contaminating water bodies.

Source: Adapted from Merriam-Webster.

Saved water: Allocated water that is not used as intended and is set aside, not for operational use.

Scope: The area over which the implementer intends to apply the requirements of the Standard. This likely will be one or more sites and include the relevant catchment(s) but may include aspects of the implementer's supply chain.
Source: Adapted from ISO.

Services: See water-related services.

Shared water challenges: The water-related issues that are of interest or concern to both the site and to other stakeholders in the catchment and which, if addressed, will provide positive impacts or prevent negative impacts. Shared water challenges are not necessarily unique and may be the same for multiple sites or stakeholders.

Site: A single location, including the building(s) and the property over which the implementer has control, that is using or managing water (i.e., withdrawing, consuming, diverting, managing, treating and/or discharging water or effluent into the environment).

If the site is broken into multiple, discontiguous areas, to be considered as one site, in addition to the above, the areas under control must be: (A) located within the same catchment, (B) under the same management, (C) homogenous (or mutually dependent) regarding their main production systems, their water management, their product/service range and their primary impacts. This means that a site (say a farm), which had two fields but straddled two catchments would not be considered a single site (as it violates "A" above). A site's supply chain would also not be considered as part of a single site (as it violates "B" above), but would also qualify for group assurance if it met the requirements outlined in 4.2. Lastly, a company that had two operations in the same catchment, under the same management, but serving two different purposes (e.g., one was a dairy operation, the other was producing pineapples – i.e., heterogeneous production systems), would not be considered a single site (as it violates "C" above), nor would it be eligible for group assurance. In this case it would need to independently assure two different sites.

Examples of sites would include such things as: a factory (including its property) even if it produced multiple goods, a water service provider (including its distributed infrastructure and the land upon which that infrastructure rests), a forestry operation (including the lands that it harvests from whether leased or owned), a farm (including the lands it farms whether leased or owned).

For the purposes of certification, sites may also request an exception if there are extenuating circumstances. This includes a heterogeneous group of SMEs looking for group certification. For details of handling such circumstances, please see the AWS Certification Scheme. Any exceptions will be tracked and accounted for in future definitions of a 'site.'

SMEs (small and medium enterprises): Formal enterprises with annual turnover, in US-dollar terms, of between 10 and 1,000 times the mean per capita gross national income, at purchasing power parity, of the country in which they operate.

Source: Gibson, T. and van der Vaart, H.J. (2008) Defining SMEs: A Less Imperfect Way of Defining Small and Medium Enterprises in Developing Countries, Brookings, http://www.brookings.edu/research/papers/2008/09/development-gibson.

Source water (water source): The water body from which a site obtains its water supply. This could be from any single water body or a combination of water bodies. Source water includes both the ultimate water body (or bodies) and the water from treatment facilities and/or water service providers.

Species: A group of organisms that differ from all other groups of organisms and that are capable of breeding and producing offspring.

Sphere of influence: The degree to which a site and the site's management have the capacity or power to be a compelling force on or produce effects on the actions, behaviours, opinions, etc., of others, formally or informally, and to move or impel stakeholders to some action through non-hierarchical means (e.g., expertise, sanctions, positive reinforcement, persuasion, coaching, relationship building, capacity-building, charisma).
Source: Adapted from UN Global Compact.

Standard: A document that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.
Source: ISEAL Alliance (2004) Standard-Setting Code (based on Annex 1 of the WTO TBT Agreement).

Stakeholders: Individuals, groups of individuals, organizations or other species that affect and/or could be affected by a standards system's activities, products, services or associated performance. There are several main categories of stakeholders: (A) Those who have an impact on you (e.g., regulators, protest groups, news media), (B) those upon whom you have (or are perceived to have) an impact (e.g., nearby water users, neighbours, the natural environment), (C) those who have a common interest (e.g., another AWS site), and (D) those neutral parties with no specific link, but with whom it is beneficial to maintain a positive impression and relationship (e.g., national government).
Source: Adapted from ISEAL Alliance (2010) Impacts Code (adapted from AA 1000).

Steps: Six broad action areas defined with the AWS Standard as an iterative, adaptive management loop. Note that steps need not be followed in a sequential order.

Sub-catchment: A subset of a catchment. Sub-catchments, when aggregated, make up the full catchment. Also see catchment.

Supplier: A distinct entity that provides goods or services to a site. Also see supply chain.

Supply chain: A system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. General supply chains are organized as follows: producer, processor, manufacturer, distributer, retailer and customer. Not to be confused with indirect water use: the use of water by the supply chain (including embedded/virtual water).

Sustainable water balance: The state when the amount and timing of water use, including whether the volumes withdrawn, consumed, diverted and returned at the site and in the catchment are sustainable relative to renewable water supplies and are maintaining environmental flow regimes and renewable aquifer levels.

Targets: A specific description of a desired interim result that is the function of one or more activities undertaken by the site in the coming year. Another way to think about targets is that they often describe the site's contributions to the water stewardship outcomes. They are linked to objectives but are distinguished in that they are annual and often interim. An example of a target would be: "Improve the site's water intensity by 10 per cent in 2014 from 2013 levels."

Target audience: A specific group of people within the *broader* set of stakeholders at which a communications message is aimed. This is most relevant for the issue of disclosure.

Transparency: The decision-making process and the justification for a decision on a membership application or on certification made available to the applicant and based on clear criteria and application procedures.
Source: Adapted from ISEAL Alliance (2004) Standard-Setting Code.

Use rights: Rights for the use of water resources that can be granted by the competent authorities, in accordance with the applicable regulatory framework or defined by local customary norms or agreements. These rights may restrict the use of particular resources to specific levels of consumption, use or particular harvesting techniques of water resources. Use rights may refer to the rights to withdraw, abstract or divert water, to discharge effluent into water bodies, or otherwise to affect the flow regime of the source.
Source: Adapted from Forest Stewardship Council, FSC International Standard, FSC-STD-01-001.

Virtual water (embedded water): The fresh water "embodied" in a product, not in a real sense but in a virtual sense. It refers to the volume of water consumed or polluted for producing the product, measured over its full production chain.
Source: Water Footprint Network, Glossary.

Vulnerable groups: A population that has some specific characteristics that put it at higher risk of inadequate access to water and sanitation than others living in areas targeted by a project. Vulnerable groups include the elderly, the mentally and physically disabled, at-risk children and youth, ex-combatants, internally displaced people and returning refugees, HIV/AIDS-affected individuals and households, religious and ethnic minorities, and, in some societies, women.
Source: Adapted from World Bank's Social Funds, Vulnerable Groups, http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALPROTECTION/EXTSF/0,,contentMDK:20663797~menuPK:6344572~pagePK:148956~piPK:216618~theSitePK:396378,00.html.

Vulnerable species: A species not Critically Endangered or Endangered but facing a high risk of extinction in the wild in the medium-term future, as defined by IUCN.
Source: Adapted from IUCN Red List: http://www.iucnredlist.org/static/categories_criteria_2_3.

WASH (water, sanitation and hygiene): An acronym used in the international development landscape to refer to the combined area of effort to address basic human water needs and rights related to accessible, safe water. WASH includes the provision of safe drinking water, adequate sanitation and hygiene education and is primarily sought after to combat water-related illnesses and diseases.

Wastewater: Water that is of no further immediate value to the purpose for which it was used or in the pursuit of which it was produced because of its quality, quantity or time of occurrence. However, wastewater from one user can be a potential supply to a user elsewhere. Cooling water is not considered to be wastewater.
Source: Water Stewardship Standard Draft 00, Water Stewardship Initiative, June 2009.

Water abstraction (withdrawal): Water removed from any sources, either permanently or temporarily. Mine water and drainage are included. Similar to water withdrawal.
Source: European Water Partnership, Draft Standard version 4.6, 2010.

Water balance: The change in water supply at a site level, or at a catchment level, determined by the difference between average intake, precipitation, evapotranspiration and water discharge (typically taken at the main drain of the site or catchment).
Source: Adapted from Berezovskaya, S., D. Yang and L. Hinzman, 2005. Long-term annual water balance analysis of the Lena River. Global Planetary Change, 48: 84-95.

Water benefit scheme: A financing mechanism for enabling additional water efficiency, supply and quality improvement projects, especially in water-stressed areas where additional finance is needed to enable change. *Source: Adapted from The Gold Standard Foundation.*

Water body: A physical accumulation of water. Typically this occurs either on the surface of the Earth or in specific stratigraphies of the ground (groundwater). Examples of water bodies include streams, rivers, lakes, oceans, wetlands, estuaries, ponds, canals, reservoirs or groundwaters.
Source: Adapted from Merriam-Webster.

Water consumption: Represents water that was used by the operation but not returned to its proximate source. It involves evaporated water; transpired water; water that is incorporated into products, crops or waste; water consumed by man or livestock; or water otherwise removed from the local resource. Water that is polluted to an extent prohibiting its use by others wishing access is termed "consumption". Water consumption = water lost + water in products, crops or waste + water otherwise removed from the system (e.g., by heavy pollution). Also referred to as consumptive water use.
Source: European Water Partnership, Draft Standard version 4.6, 2010 (from World Business Council on Sustainable Development).

Water flow regime (natural flow regime): The magnitude, frequency, duration, timing and rate of change of flowing water systems.
Source: Poff, N.L., Allan, J.D., Bain, M.B., Karr, J.R., Prestegaard, K.L., Richter, B.D., Sparks, R.E., and Stromberg, J.C. (1997) The Natural Flow Regime. BioScience, Vol. 47, No. 11. (Dec., 1997), pp 769-784.

Water governance: The political, social, economic and administrative systems that are in place, and which directly or indirectly affect the use, development and management of water resources and the delivery of water service at all levels of society.
Source: Adapted from Water Governance Facility
http://www.watergovernance.org/whatiswatergovernance

Water loss: A conceptual term referring to water that escapes from a system due to either natural or anthropogenic causes. Also see water consumption.
Source: World Business Council on Sustainable Development Source: European Water Partnership, Draft Standard version 4.6, 2010.

Water quality: A term used to describe the chemical, physical and biological characteristics of water, usually with respect to its suitability for a particular purpose. Put another way, it is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose.
Source: Adapted from US Geological Survey, http://ga.water.usgs.gov/edu/dictionary.html and Johnson, D.L., S.H. Ambrose, T.J. Bassett, M.L. Bowen, D.E. Crummey, J.S. Isaacson, D.N. Johnson, P. Lamb, M. Saul, and A.E. Winter-Nelson (1997). "Meanings of environmental terms." Journal of Environmental Quality. 26: 581-589.doi:10.2134/jeq1997.00472425002600030002x

Water recycling: The act of processing used water/wastewater through another cycle before discharge to final treatment and/or discharge to the environment. In general, there are three types of water recycling/reuse:

- wastewater recycled back in the same process or higher use of recycled water in the process cycle;
- wastewater recycled/reused in a different process, but within the same site;
- wastewater reused at another of the reporting organization's facilities.

Also referred to as water reuse.
Source: Global Reporting Initiative (version 3.0).

Water-related: All issues that relate to water such as activities that involve water, processes that require water, actions or undertakings that may affect water quantities or qualities, freshwater species or species, etc. The term is typically used throughout the Standard to restrict the scope of effort to water (as opposed to a broader range of all issues).

Water-related diseases: These include:

- those due to micro-organisms and chemicals in water people drink;
- diseases like schistosomiasis, which have part of their life cycle in water;
- diseases like malaria with water-related vectors;
- drowning and some injuries;
- others such as legionellosis carried by aerosols containing certain micro-organisms.

Source: World Health Organization.

Water-related service: A service employed by the site, which withdraws, consumes, discharges or affects the water quality of waters in, or for, the site.

Water risk: The effect of water-related uncertainty on a site's objectives.

Note: Water risk in the Standard considers the severity and probability of physical, regulatory and reputational water-related risks. Water risk is site-specific and unique.

It is important to note that water risk is felt differently by every sector of society and the organizations within them and thus is defined and interpreted differently (even when they experience the same degree of water scarcity or water stress). That notwithstanding, many water-related conditions, such as water scarcity, pollution, poor governance, inadequate infrastructure and extreme weather events create risk for many different sectors and organizations simultaneously.

"Water risk for businesses" typically refers to the ways in which water-related issues potentially undermine business viability. It is commonly categorized into three inter-related types:

- Physical – Having too little water, too much water, water that is unfit for use or inaccessible water;
- Regulatory – Changing, ineffective or poorly implemented public water policy and/or regulations;
- Reputational – Stakeholder perceptions that a company does not conduct business in a sustainable or responsible fashion with respect to water.

Also see risk.

Sources: Risk - Adapted from ISO 31000. Water risk for business - Adapted from Marc Levinson et al., "Watching water: A guide to evaluating corporate risks in a thirsty world," JPMorgan Global Equity Research, 31 March 2008.

Water risk assessment: A formal or informal evaluation that considers the water risks that a site faces, and that its suppliers and service providers potentially face, through its reliance on water in the production of its goods and services.

Water Roundtable: The AWS-led, multi-year, multi-stakeholder, ISEAL-compliant process of developing the AWS Standard (version 1.0).

Water scarcity: The volumetric abundance, or lack thereof, of water supply. Water scarcity is typically calculated as a ratio of human water consumption to available water supply in a given area. Water scarcity is a physical, objective reality that can be measured consistently across regions and over time. Water scarcity reflects the physical abundance of fresh water, rather than its availability for specific needs. For instance, a region may have abundant water supplies (and thus not be considered water scarce), but have such severe pollution that those supplies are unfit for human or ecological uses.

Source: UN Global Compact, CEO Water Mandate "Driving Harmonization of Water Stress, Scarcity, and Risk Terminology".

Water source: See source water.

Water stress: The ability, or lack thereof, to meet human and ecological demand for water. Compared to scarcity, "water stress" is a more inclusive and broader concept. It considers several physical aspects related to water resources, including water scarcity, but also water quality, environmental flows and the accessibility of water (i.e., whether people are able to make use of physically available water supplies), which is often a function of the sufficiency of infrastructure and the affordability of water, among other things. Both water consumption and water withdrawals provide useful information that offers insight into relative water stress. There are a variety of physical pressures related to water, such as flooding and aquatic habitat degradation, that are not included in the notion of water stress. Water stress has subjective elements and is assessed differently depending on societal values. For example, societies may have different thresholds for what constitutes sufficiently clean drinking water or the appropriate level of environmental flows to be afforded to freshwater ecosystems, and thus assess stress differently.

Source: UN Global Compact, CEO Water Mandate "Driving Harmonization of Water Stress, Scarcity, and Risk Terminology".

Water stewardship: The use of fresh water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and Important Water-Related Areas, then engage in meaningful individual and collective actions that benefit people and nature.

- Socially equitable water use recognizes and implements the human right to water and sanitation and helps ensure human well-being and equity.
- Environmentally sustainable water use maintains or improves biodiversity and ecological and hydrological processes at the catchment level.
- Economically beneficial water use contributes to long-term efficiency and development and poverty alleviation for water users, local communities and society at large.

- Water stewardship is intended to support and contribute to integrated water resource management by all actors.

Water stewardship plan: A site-specific written set of intended actions related to water stewardship, including inputs, outputs and expected outcomes/impacts.

Water steward(s): The individual(s) responsible for the operational management of the water resource and of the enterprise, as well as the management system, structure, planning and field operations in a manner consistent with the definition of water stewardship. Water stewards may be implementers and/or promoters of the AWS Standard.

Water use (used water): The total amount of water withdrawn or diverted by an operation to produce products or provide a service. Water use includes the sum of total water consumption, withdrawals and water pollution, regardless of whether the water is returned to the local resource or not.
Source: Adapted from European Water Partnership, Draft Standard version 4.6, 2010.

Water withdrawal(s): Refers to the removal of any form of water from the catchment, groundwater aquifer or adjacent seawater, including surface water (both fresh and salty), groundwater (vadose zone and fossil water), snow, ice and atmospheric water (precipitation, air moisture).
Source: Adapted from Water Stewardship Standard Draft 00, Water Stewardship Initiative, June 2009.

Watershed: See catchment.

Appendix B: Guidance

INTRODUCTION TO GUIDANCE

The Alliance for Water Stewardship (AWS) Standard Guidance ("the Guidance") has two primary purposes:

(1) To help the implementer gain a better understanding of how to implement the AWS's International Water Stewardship Standard ("AWS Standard" or "the Standard"). It provides detailed guidance on how to interpret the various criteria and indicators listed in the Standard; provides examples of actions to assist in compliance; and provides additional references that can guide sites if more detailed information is required.

(2) To help auditors ensure consistency and rigour in the interpretation and application of the AWS Standard and thereby maintain consistency between sites. The Guidance by itself is not intended to serve as the basis for certification. Rather, in combination with the AWS Certification Scheme and auditor training, it is a key reference document intended to help auditors interpret the Standard in a consistent manner.

Two important notes:

(A) The Guidance is designed to supplement the Standard and is not intended as a stand-alone document. AWS recognizes that the current document is time-limited and not comprehensive. Therefore, like the AWS Standard, the Guidance will undergo periodic review and updating to reflect experience and current best practice.

(B) It is anticipated that through time, the Guidance will be expanded to include both regional and sectoral supplements. Some regional and sectoral guidance is included in this version but is currently integrated into the Guidance document. Until such time, AWS will seek to generate and make available specific regional and sectoral supplements. For more details on whether such a regional or sectoral supplement exists for your region/sector, please speak with AWS or visit the AWS website: *www.allianceforwaterstewardship.org*. Note: for Europe, please see the European Water Stewardship Standard for additional guidance.

The Guidance is structured around the AWS Standard. Most areas will begin with general guidance under the step and then provide additional details, examples and references under the specific criteria and indicators.

The Guidance was developed with the input of the International Standard Development Committee (ISDC) and is directly tied to the AWS Standard as required in the Water Roundtable Terms of Reference set out by the AWS Board in April 2011.

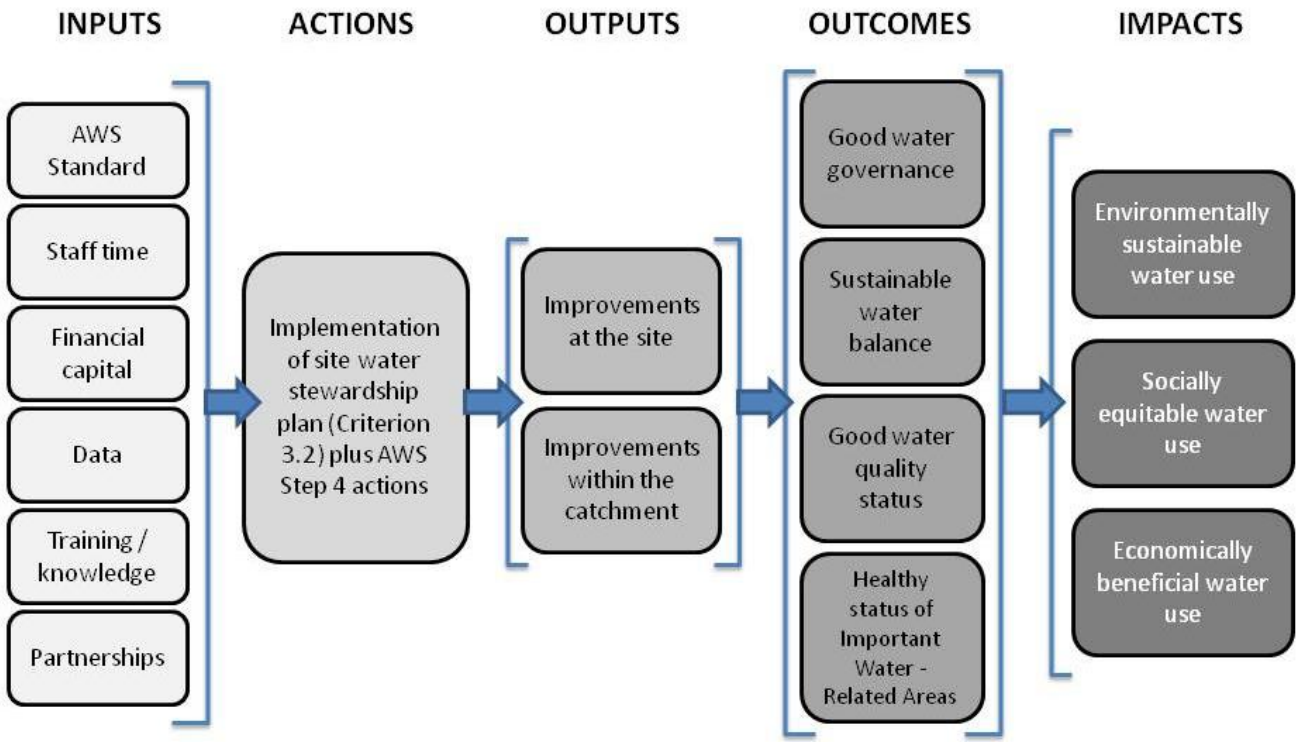
For more details on the process used to develop the AWS Standard, please see the AWS Water Roundtable Process document found on the AWS website: *www.allianceforwaterstewardship.org*.

If you have comments or suggestions about how the Guidance can be improved, please write to: info@allianceforwaterstewardship.org.

OVERARCHING GUIDANCE

The AWS Standard is based around a theory of change that argues that if a series of inputs is combined with a set of good water stewardship practices (or actions), then improved outcomes (in water governance, water balance, water quality and Important Water-Related Areas) will provide social, environmental and economic benefits (or impacts) to various stakeholders (Figure A1). This change model underpins the logic of the AWS Standard and impacts monitoring system.

Figure A1: AWS Theory of Change



As noted above, the Standard has four outcomes, which are defined in the glossary. The intent of these outcomes is to act as fundamental "pillars" of water stewardship – or themes that run through all water stewardship efforts. They represent fundamental aspects of water: how humans are responsible and accountable for water (governance); the quantities and timing of water (water balance); the properties of the water (water quality); and the spatial aspects of areas that may or may not contain water at a given time, but that are critical to maintaining the human-derived benefits of water including the ecosystem services from such areas (Important Water-Related Areas).

While the Standard is structured around 6 steps, it is important to note that a site need not follow the order laid out in the Standard. Indeed, the Standard is intended to be iterative and non-linear, meaning that a site may need to jump between steps and is expected to repeat many (if not most) of them through time. Certification is only determined by conformance with the criteria and indicators, not the process followed. In other words, a site may implement any given criterion within a step and then jump to another criterion (and step) if it wishes.

Several areas of the Standard require knowledge that may be beyond that of a given site. In these instances, sites are encouraged to speak to AWS for suggested partners who can assist with specific, technical work if necessary. In all cases, AWS will endeavour to connect sites to service providers and assist in identifying opportunities for collaboration. The Water Action Hub is another key resource that, in time, AWS intends to build out to support implementation of the AWS Standard.

Wherever possible, examples of tools, initiatives and other resources have been provided in the Guidance. These are not meant to be exclusive or comprehensive, but rather illustrative of the sorts of efforts that are in keeping with the intent of the given criterion. It is AWS's hope that these examples will be built out through time and updated as initiatives emerge and evolve.

Note for multi-site corporations/water service providers: Since the Standard is site-focused, *AWS encourages companies or water service providers with multiple sites to perform a water risk analysis for all of their sites before selecting specific sites* at which to implement the Standard. This water risk "portfolio review" will allow an implementer to be much more strategic in the application of the Standard. AWS would suggest exploring emergent approaches to water risk assessments (see Guidance References under Criterion 2.7), but it does not specify any one tool as proprietary. Where multiple sites are co-located within a catchment, group certification may also be a possibility.

Generally speaking, advanced-level criteria are mostly mutually exclusive. However, any effort that happens to qualify for multiple advanced-level criteria can be credited for only one criterion. In other words, if an action had been undertaken and it met the requirements for three different advanced-level criteria, only one criterion's points would be gained.

IMPORTANT NOTE on water data availability and certification:
AWS recognizes that there are many parts of the planet where water data are not readily available. Accordingly, if data are not available for a given criterion in the Standard, *evidence documenting the reasonable effort undertaken by the site to procure the data may be used as a proxy*. The acceptability of this alternate indicator data is ultimately at the discretion of the auditor. Furthermore, it should be noted that data for indicator requirements need not be directly gathered or re-gathered. Rather, the Standard requires that data can be accessed, and thus, if gathered through other efforts, providing a location where it may be accessed will suffice. More details on certification may be found in the AWS Certification Scheme.

Stakeholder engagement:
At the heart of the concept of water stewardship is the concept of engaging others (i.e., stakeholders) beyond your typical site boundaries. Due to the importance of stakeholder engagement in various sections of the Standard, we have opted to place a number of consolidated references and guidance up front here rather than in the various sections where it appears throughout the Standard (the notable exception being under Criterion 2.2, which is specific to stakeholder identification/understanding of water-related concerns).

Terminology:
From the outset, it is important to understand the concept of "stakeholders". THE stakeholder does not exist. Stakeholders include any organizations, groups or individuals that have some interest or "stake" in the activities because they are, or feel they are, impacted. There are several main categories: (A) Those who have an impact on you (e.g., regulators, protest groups, news media), (B) those upon whom you have (or are perceived to have) an impact (e.g., nearby water users, neighbours, natural environment), (C) those who have a common interest (e.g., another AWS site), and (D) neutral parties – those with no specific link, but with whom it is beneficial to maintain a positive impression and relationship (e.g., national government).

Stakeholder identification is connected to the water issues facing the site: does a group feel it has a stake/interest in this issue? For example, some women (e.g., certain business women) may feel they are stakeholders because of their use of water; others may not. Stakeholders can be represented by one of the major groups or organizations mentioned below. The stakeholders ultimately decide themselves whether they are, or are not, stakeholders.

Furthermore, since much of the concept of stakeholder engagement is perceived to revolve around the notion of engaging "civil society", we felt it would be helpful to provide some nuance on this concept.

Within Agenda 21 (RIO 1992) and RIO+20, it is noted that society is in fact made up of nine "major groups". The nine major groups – all non-state actors – are: (1) Women, (2) Children and Youth, (3) Indigenous Peoples and their communities (these first three groups, based on WHO they are, are all part of civil society), (4) Farmers, (5) Workers and Trade Unions, (6) Business and Industry, (7) Local Authorities, (8) the Scientific and Technological Community (out of groups 4 through 9, based on WHAT they do; only the Farmers fall under the phrase "civil society"), and (9) Non-Governmental Organizations (NGOs) (based on their thematic interest and organizational status, they typically fall under "civil society"). It is important to stress that "civil society" as a term cannot replace the major groups as defined above. Because there are those that consistently replace "major groups" with "civil society", the Rio Outcome Document, decided by a UN summit, has renewed the existence of the Major Groups (MG) concept. So, while "civil society" does not encompass four of the nine MGs (i.e., the Scientific and Technological Community, Workers and Trade Unions, Local Authorities, and Business and Industry), they are just as crucial as (potential) stakeholders.

Civil society organizations can also be broken into three main groups (explored below):

i. Member-based organizations (MBOs)
ii. Non-governmental organizations (NGOs)
iii. Social movements (SMs) or community-based organizations (CBOs)

i. Member-based organizations (MBOs)

Member-based organizations are locally based organizations made up of stakeholders (e.g., small farmers, women, youth, fishers or forest dwellers) who want to work toward a variety of common goals, such as managing common resources, lobbying their government (local and/or national) on certain issues, or helping satisfy local needs by providing goods or services. Their primary objective as an organization is to improve their livelihoods and those of their members. MBOs work to be self-sustainable, requiring members to contribute in some way (e.g., through paying an annual fee or providing services).

MBOs are democratic in structure and are subject to local laws and regulations. This provides internal accountability to their members and enhances the legitimacy of these organizations. MBO leaders are elected democratically by their members and often come from the most vulnerable communities. MBO activities are aimed at impacting policies or providing public (not private) goods or service where there may be a gap in services provided by the state or the private sector. These can range from training their members on topics of organizational interest to advocacy and lobbying.

ii. Non-governmental organizations (NGOs) (as defined in Agenda 21)

NGOs and public-benefit organizations (PBOs – Kenya) are thematic, usually expertise-based organizations that facilitate advocacy, empowerment and expertise, and knowledge-sharing in a specific area; disperse or use funding to create enabling environments; and may have a mandate to act on behalf of Civil Society. They have a legal status and mainly consist of paid professionals.

NGOs are formally constituted, legally registered and free from commercial interests. They are non-profit organizations that provide services, information and expertise; sensitize public opinion; and conduct advocacy activities. NGOs contribute to policy discussions, normative work and field initiatives (e.g., collaborating in assessments and exchanging technical support and knowledge). Governments and international organizations have capitalized on their capacities when implementing field programmes.

In many cases, however, "NGO" is used in reference to all non-governmental organizations. The term "non-state actor" might be more appropriate in the case where the organization does not meet the criteria listed above.

iii. Social movements (SMs) or CBOs

This category includes platforms, committees, mechanisms, federations, and networks of advocacy-based and policy-oriented organizations, which promote claims or rights of specific constituencies (e.g., fishers and fish workers, Small and Medium Enterprise [SME] farmers, pastoralists and herders, forest dwellers, urban poor, indigenous peoples, women and youth).

They share similar goals, promote awareness and attempt to influence policymakers in development and in social and/or political issues. While their legal status and characteristics may vary, their common trait is that they work to strengthen the capacities of the organizations under their coordination umbrella to advocate for the common interests, concerns, views and goals of their constituencies and/or communities. Member-based organizations are different from social movements in that they respond directly to their members. Social movements coordinate different organizations, which may include MBOs as well as NGOs.

The concept of community also gets used as a term in this space. A community can (A) be a constituency, (B) live in the same defined geographical area, or (C) share common interests (i.e., people feeling that they belong to the same "interest" group [e.g., farmers]). A community can be represented by local authorities (as geographical communities are) or by an MBO/CBO organization.

THE community does not exist; there is high diversity within communities, and this diversity (youth, women, visible minorities, disadvantaged groups, etc.)has to be addressed as well. In general, most of the time community implies that people living in the area of impact have "a say", and there is a form of consultation, participation and membership (formally or informally) defined.

All of the above distinctions should be considered when engaging stakeholders throughout the Standard.

Below are two specific references to assist in the engagement with indigenous communities:

- Busse, R. (2014) "Best practices in indigenous and community engagement." International Resource Journal, online at: *http://www.internationalresourcejournal.com/features/jan14_features/best_practices_in_indigenous_and_community_engagement.html*.
- First Peoples Worldwide's report on "Investors and Indigenous Peoples" has several sections on the business case for engagement with indigenous peoples. *http://www.firstpeoples.org/images/uploads/Investors and IPs.pdf*

General stakeholder engagement guidance:
Overall, the degree of engagement necessary is a function of the local situation in which the site is located. Different degrees of stakeholder engagement will be necessary, depending on the condition and outcomes that are sought by the entity. In general, the greater the number of other users of water and the greater the water stress, the greater the amount of stakeholder engagement that will be necessary. Stakeholder engagement may take on many different forms – both formal and informal (the latter of which may often be more productive than the former).

Rather than trying to comprehensively provide guidance on how to engage stakeholders, we have endeavoured to provide some references below, many of which were compiled by an NGO that specializes in stakeholder engagement called Future 500.

General stakeholder engagement references and guides:

- World Resources Institute (2007) Development without Conflict: The Business Case for Community Consent. This is a 2007 report that seeks to build the 'business case' for sponsors of large-scale, high-impact projects to treat the consent of the host community as a requirement of project development. It also provides a positive case study that demonstrates how early attention to free, prior and informed consent (FPIC) issues can avoid significant costs during implementation. *http://www.wri.org/publication/development-without-conflict*
- ISEAL Alliance (2007) "Module 6: Engaging Stakeholders," *http://www.isealalliance.org/sites/default/files/EI_Module_6_Stakeholders_Nov07.pdf*
- AccountAbility (2011) "Stakeholder Engagement Standard 2011," *http://www.accountability.org/images/content/3/6/362/AA1000SES%202010%20PRINT.PDF*.
- IFC (2007) Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets. *http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_stakeholderengagement__wci__1319577185063*.
- United Nations Economic and Social Council (2005) "Module Four: Stakeholders and Conflict Resolution in IWRM," Workshop on "Training of the Trainers on the Application of IWRM Guidelines in the Arab Region," Kuwait, 14-18 May 2005, *http://cap-net.org/sites/cap-net.org/files/training_materials/Module_4_-Stakeholders_and_conflict_resolution_in_IWRM.pdf*.

- Future 500 (2013) Engaging Outraged Stakeholders. Chapter 5 (pp 89-97) details "Best Practices in Stakeholder Engagement." Although the chapter focuses on engagement with larger NGOs and activist stakeholders, the principles and tactics are still relevant for more local/regional engagement efforts. *http://www.future500.org/engaging-outraged-stakeholders*.
- Ceres (2007) Facility Reporting Project: Guide to Stakeholder Engagement, *http://www.ceres.org/resources/reports/facility-reporting-project-guide-to-stakeholder-engagement/view*.
- US Environmental Protection Agency (2013) Getting in step: engaging stakeholders in your watershed, 2nd Edition. EPA 841-B-11-001, *http://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf*.
- Louisa Gosling "Equity and inclusion: a rights-based approach," WaterAid, 2010, *http://www.wateraid.org/documents/plugin_documents/equity_and_inclusion_english.pdf*.
- General tips on stakeholder engagement:
  - "*10 Tips for Stakeholder Engagement with Activists*," *http://www.future500.org/10-tips-for-stakeholder-engagement-with-activists*
  - "*Partnering with NGOs: The 4 Keys to Success*," *http://www.future500.org/partnering-with-ngos-the-4-keys-to-success*.
  - Podcast: "*Aligning Corporations with NGO Stakeholders*," *http://www.future500.org/aligning-corporations-ngo-stakeholders*.
  - Video: "*Corporate-NGO Engagement in Times of Rising Activism*," *http://www.future500.org/corporate-ngo-engagement-times-rising-activism*.
- United Nations Foundation (2002) "Understanding Public-Private Partnerships," *http://www.globalproblems-globalsolutions-files.org/unf_website/PDF/understand_public_private_partner.pdf*.
- Jens Martens (2007) "Multistakeholder Partnerships-Future Models of Multilateralism?," Friedrich-Ebert-Stiftung, No 29, January 2007, *http://library.fes.de/pdf-files/iez/04244.pdf*.

Tools for stakeholder engagement:

- One of the easiest ways to develop a stakeholder evaluation is to use a basic spreadsheet (e.g., Microsoft Excel). A basic table can then be created to provide general information about stakeholders; their leadership, networks and priorities; and a rough rating (e.g., low, medium, high) of each organization or opinion leader based on his or her:
  - Willingness (or level of interest) to engage
  - Level of influence
  - Risk of engagement
  - Opportunity for benefit

  This rating system helps an organization rank stakeholders and establish engagement strategies that make best use of a company's/engagement manager's limited time and resources.
- BSR offers a four-page guide on ranking and mapping organizational stakeholders, *http://www.bsr.org/reports/BSR_Stakeholder_Engagement_Stakeholder_Mapping.final.pdf*.
- Mind Tools also provides an *interactive screen map tool* for plotting stakeholders onto an Influence/Interest matrix. While this matrix takes more of a "risk management" approach to engagement rather than an "added value" approach, it is another useful framework for prioritizing stakeholder outreach, *http://www.mindtools.com/pages/article/newPPM_07.htm*.
- For organizations interested in more comprehensive stakeholder management software, *StakeWare* is a popular platform used by many major companies and government organizations, *http://www.stakeware.com*.

Case studies of successful engagement:

- In addition to the *case studies* detailed on Future 500's website, *Engaging Outraged Stakeholders* also provides several examples of successful engagement between global brands and community/NGO stakeholders on issues such as:
    - Deforestation (Greenpeace, RAN, Disney, Asia Pulp & Paper; pp 71-79)
    - Packaging Waste (RFK Jr. and Nestlé Waters; pp 46-50)
- Article on Nestlé Waters North America engaging with stakeholders via Twitter: Future 500 (2013) "*Measuring the Value of Stakeholder Engagement via Twitter,*" *http://www.future500.org/measuring-the-value-of-stakeholder-engagement-via-twitter.*

GUIDANCE FOR STEP 1: COMMIT TO BEING A RESPONSIBLE WATER STEWARD

General guidance: In general, all of the criteria for Step 1 are about documenting, in written form, and driving commitments. These commitments are intended to support the other steps within the Standard and should be revisited throughout implementation of the Standard to ensure that they are representative of the actions and performance of the site. The AWS Standard is intended to continually advance and drive leadership and commitments in the space of water stewardship, and accordingly, through time, more and more examples from AWS-involved companies are likely to represent some of the best examples of the criteria below.

1.1 Establish a leadership commitment on water stewardship

Intent: *To ensure that senior management are publicly accountable. It also helps empower and enable site-level staff to undertake water stewardship actions on an ongoing basis. This support helps ensure that staff members have the necessary resources and time to implement the Standard.*

Guidance:

- The signed leadership commitment must explicitly commit the site to:
    - Uphold the AWS water stewardship outcomes (good water governance, sustainable water balance, good water quality status and healthy status of Important Water-Related Areas);
    - Engage stakeholders in an open and transparent manner;
    - Strive to comply with legal and regulatory requirements
    - Respect water-related rights, including ensuring appropriate access to safe water, sanitation and hygiene for all workers in all premises under the site's control;
    - Support and coordinate with public sector agencies in the implementation of plans and policies, including working together towards meeting the human right to water and sanitation.
    - Continually improve and adapt the site's water stewardship actions and plans;
    - Maintain the organizational capacity necessary to successfully implement the AWS Standard, including ensuring that staff have the time and resources necessary to undertake the implementation;
    - Support water-related national and international treaties;
    - Disclose material on water-related information to relevant audiences.
- An acceptable commitment may take one of several forms:
    a) use of the following text: "I commit to supporting the site's pursuit of responsible water stewardship. I will support the site's efforts to achieve the outcomes of water stewardship, namely good water governance, good water balance, good water quality and healthy Important Water-Related Areas. I will respect the right of workers on-site to have access to safe water, adequate sanitation and hygiene. I commit that the site will attempt to engage stakeholders throughout its efforts in an open and transparent manner and that the site will comply with all legal and regulatory requirements as well as respect legal and water-related rights and relevant water-related national and international treaties. I will coordinate with and support public-sector agencies in their efforts to encourage water-related planning and implement water-related policies. I will support the site's efforts to continually improve and adapt its water stewardship actions and plans and ensure that there is sufficient organizational capacity to successfully implement the AWS Standard. Lastly, I commit to disclosing material water-related information to all relevant audiences in an appropriate format."

SIGNATURE:
NAME:
POSITION:

b) use of alternative text that conveys the ideas contained in the criterion: It is important to note that while the exact text need not be identical to the above, the intent of the criterion (including the concepts) should align very well. For example, it may reference "High Conservation Value Areas" rather than "Important Water-Related Areas". The words are different, but the concept and intent are quite similar. Note that the AWS does recognize the CEO Water Mandate commitment in this regard. In addition to the CEO Water Mandate commitment, a site/entity would also need to ensure that it had the commitment for the necessary capacity to undertake the Standard.

c) broader sustainability or corporate social responsibility commitment(s), which has been previously signed by a senior-level individual within the entity, will suffice IF such a commitment (A) has an explicit water component and (B) the water component references the need to improve water use internally and play a role in improving water use externally, beyond the entity's sphere of direct control. Note that general sustainability/CSR commitments are not acceptable, nor are general commitments to address water impacts. The commitment must link to the concept of water stewardship, which, critically, has aspects of quantity, quality, governance and sites, and requires action both internally and externally within the watershed. For example, the WBCSD WASH pledge (outlined below), if signed, would cover the WASH-related statement in the commitment, meaning that the site would not need to explicitly add this if it were covered elsewhere, but it would not, unto itself, provide conformance with this criterion.
WBCSD WASH Pledge: By signing this pledge [Company Names] commit to: implementing access to safe water, sanitation and hygiene at the workplace at an appropriate level of standard for all employees in all premises under their control within three years after signature. They also commit to championing such access among their peer industry group. Source: *http://www.wbcsd.org/work-program/sector-projects/water/WASHatworkplace.aspx.*

- The commitment must be undertaken by the senior-most management staff member at the site, with ultimate responsibility for ensuring that water and/or water risk is properly managed. In most cases this will be the overall site manager and not simply the staff member in charge of water/environment. In all cases, the selected individual *must be in a position to be able to grant the resources necessary to undertake the implementation of the Standard*. Where the site deems it should be a different individual, this individual should be more senior than the senior-most manager at the site, and the site must justify this rationale.
- Note: In no case shall the leadership commitment be signed by an individual who cannot grant the resources necessary to pursue the AWS Standard.
- If an implementing site is its own distinct and complete entity, then the site leader is also likely to be the entity leader, i.e., there is only one person. In this case, the individual, be it a CEO, executive director, president, etc., would be the individual to sign the commitment. If the entity is run by a partnership or group of individuals, then the signature of one of these individuals is sufficient. Alternatively, a member of the senior management team (typically denoted by departmental control, often a vice-president or managing director) with water-related responsibilities could sign the commitment. In all cases, AWS encourages the senior-most individual to sign the leadership commitment with recognition given for securing the commitment of the senior-most officer from the organization (e.g., the CEO or equivalent) or governance body (e.g., board). Securing the organization's senior-most signature would also meet the requirements of the advanced Criterion 1.5. See Criterion 1.5 for more details.

- If an implementing entity is not its own distinct and complete entity – in other words, if it is one of a number of sites making up a larger organization – then the leadership commitment may be a two-fold exercise:
    a) First, a member of the senior management team from the controlling entity (which oversees the site and/or its water-related matters), who is in a position to be able to grant the resources necessary to undertake the implementation of the Standard, may need to provide a signed leadership commitment (e.g., from corporate headquarters). Note: signing the CEO Water Mandate is adequate for this purpose (and qualifies for Criterion 1.5 but must still be accompanied with the site-level management commitment, B, below). Examples of suitable sorts of positions within a head office might include: chief sustainability officer, environment director, VP of operations, etc.
    b) Second, an additional commitment must also be provided by the senior-most site-level manager. This is done to ensure that there is both organizational (high-level) support and site-level support for the water stewardship efforts being undertaken for implementation at the site level.
- Output from this criterion should be a signed leadership commitment and may be in digital or hard copy format(s).
- Note: The guidance on how to "respect" water-related rights should be drawn from the UN's work on human rights, specifically John Rugge's thinking, framed around the UN "Protect, Respect and Remedy" framework:
    a) the state duty to protect against human rights abuses by third parties, including businesses, through appropriate policies, regulation and adjudication;
    b) the corporate responsibility to respect human rights, which means to avoid infringing on the rights of others and to address adverse impacts with which a business is involved;
    c) the need for greater access by victims to effective remedy, both judicial and non-judicial.

For more details, please see: *http://pacinst.org/reports/corporate_water_human_rights_lens/final_report.pdf.*

Useful references and resources:

- CEO Water Mandate (2013) How companies can endorse the Mandate, *http://ceowatermandate.org/about/join-us/how-companies-can-endorse*.
- CEO Water Mandate (2014) The CEO Water Mandate, *http://ceowatermandate.org/files/Ceo_water_mandate.pdf*:

  "Therefore, we pledge to undertake the following actions, where appropriate, over time:
    - Conduct a comprehensive water-use assessment to understand the extent to which the company uses water in the direct production of goods and services;
    - Set targets for our operations related to water conservation and waste-water treatment, framed in a corporate cleaner production and consumption strategy;
    - Seek to invest in and use new technologies to achieve these goals;
    - Raise awareness of water sustainability within corporate culture;
    - Include water sustainability considerations in business decision-making – e.g., facility-siting, due diligence and production processes;
    - Encourage suppliers to improve their water conservation, quality monitoring, waste-water treatment and recycling practices;
    - Build capacities to analyze and respond to catchment risk;
    - Encourage and facilitate suppliers in conducting assessments of water usage and impacts;
    - Share water sustainability practices – established and emerging – with suppliers;
    - Encourage major suppliers to report regularly on progress achieved related to goals;
    - Build closer ties with civil society organizations, especially at the regional and local levels;

- Work with national, regional and local governments and public authorities to address water sustainability issues and policies, as well as with relevant international institutions – e.g., the UNEP Global Programme of Action;
- Encourage development and use of new technologies, including efficient irrigation methods, new plant varieties, drought resistance, water efficiency and salt tolerance;
- Be actively involved in the UN Global Compact's Country Networks;
- Support the work of existing water initiatives involving the private sector – e.g., the Global Water Challenge; UNICEF's Water, Environment and Sanitation."

Examples: See sample text above in CEO Water Mandate pledge.

1.2 Develop a water stewardship policy

Intent: *To provide overarching guidance for the site on your organization's approach to stewarding water resources. Such a policy helps ensure consistency between sites, and, unlike an annual stewardship plan, the policy is less likely to change from year to year. Such a policy can be used in public communications as a means of describing the entity's approach to water stewardship.*

Guidance:

- Corporate policies are a fairly routine aspect of most corporate operations. Policies guide typical operating expectations and, unlike a water stewardship plan, should not vary from year to year. Targets, metrics, specific task responsibilities, etc., do not belong in the policy document, but rather in the water stewardship plan (under Criterion 3.2).
- An acceptable water stewardship policy:
  - Should be specific to (and explicitly reference) water;
  - Need not explicitly mention the word stewardship, so long as the sentiment of stewardship is captured (i.e., references the notions contained in the outcomes and/or water stewardship definition); most notably, it must reference *working with others*;
  - Is typically more than a single sentence, as it must speak to not only the "what" of water stewardship (i.e., outcomes), but the "how" of water stewardship (i.e., the approach, which is reflected in the steps and criteria of the Standard, as well as within the notions contained in the leadership commitment, Criterion 1.1);

  Note that broad environmental policies are <u>not</u> sufficient to meet this criterion (e.g., "Our environmental policy is to treat the planet with respect" would be insufficient as it does not mention water explicitly, nor does it speak to water stewardship outcomes or an approach other than "respect").
- Policies can be either site-specific or corporate-wide. In the case of an entity with multiple sites, it is likely that the water stewardship policy will cover all sites.
- In the case where an environmental or water-specific policy already exists but is insufficient and cannot be changed (a request would be expected), the site should develop an extension of the policy that meets the requirements and is site-specific. In such cases, sites are encouraged to advocate for modifications to the broader corporate policy, but undertaking such an internal advocacy effort is <u>not</u> required to conform with this criterion.
- Policies should be made available and accessible, and staff should be aware of their existence. This can be done in print format or online (Internet/intranet) as the entity sees fit.

Useful references and resources:

- Pacific Institute & Business for Social Responsibility (2007) "At the Crest of a Wave: A Proactive Approach to Corporate Water Strategy," *http://www.pacinst.org/reports/crest_of_a_wave/crest_of_a_wave.pdf.*
- US Environmental Protection Agency (2000) "Integrated Environmental Management System - Module 2: Creating an environmental policy," *http://www.epa.gov/dfe/pubs/iems/iems_guide/module2-rev.pdf*.
- Network for Business Sustainability (2011) "Building effective environmental policy: a guide for decision-makers," *http://nbs.net/wp-content/uploads/NBS-Executive-Report-Policy.pdf*.
- Extension (2012) "Developing an environmental policy statement for a farm or ranch curriculum materials," *http://www.extension.org/pages/33198/developing-an-environmental-policy-statement-for-a-farm-or-ranch-curriculum-materials.*

Examples:

- Coca-Cola Hellenic Bottling company, S.A., "Water Stewardship Policy," 2012, *http://www.coca-colahellenic.com/~/media/Files/C/CCHBC/content/cchbc-2012-coca-cola-hellenic-water-stewardship-policy.pdf*
- Another example of a relatively simple water policy statement:
  The Theoretical Wastewater Company is committed to continual improvement of its water performance, and to provide sound stewardship of water consistent with the Division's mission. To achieve the policy goal, we will:
  - Communicate and reinforce this policy to all persons working for or on behalf of the Division;
  - Comply with applicable legal and other requirements;
  - Consider environmental consequences and sustainability concepts in planning and decision-making;
  - Provide leadership in environmental protection, including areas of high conservation value;
  - Strive to use water efficiently and minimize water loss;
  - Strive to prevent pollution and promote reduction, reuse, recycle and proper disposal of waste;
  - Strive to engage stakeholders in our efforts and communicate regularly with relevant parties.

1.3 Further the Alliance for Water Stewardship

Intent: *To encourage expansion of the AWS's efforts to drive implementation of water stewardship through a referral system.*

Points: 3 points per programme (maximum 9 points)

Guidance:

- The AWS runs three core programmes related to (A) membership, (B) certification and (C) training. When an entity registers to undertake any one of these three programmes, it is given the opportunity to provide referral details.

- Conformance with this criterion can come through one of two ways: (1) Additional site-level AWS engagement or (2) working with another party to implement AWS.
    1. For an implementing site undertaking additional site-level AWS engagement, a commitment to (A) or (C) would qualify as it has already committed to (B) by virtue of implementation and seeking advanced-level points.
    2. For an implementing site working with another party to implement AWS programmes, the site must secure a referral from the other party through a formal AWS registration to undertake any one of (A), (B) or (C) above. If, however, the other party has already registered to undertake (A), (B),or (C) and has not provided a referral, the implementing site would not gain credit for furthering AWS.
- An acceptable referral must be:
    - Confirmed with AWS through formal registration and acknowledged by both parties (i.e., the implementing site requesting conformance with this criterion and, through AWS records, the other party who referenced the implementing site upon registration).
- Note that a site can only gain a maximum of nine points regardless of the number of other AWS commitments it secures (e.g., an implementing site that secured referrals from seven other sites would still only gain a maximum of nine points).
- The referral can be another site within the same company. Furthermore, sites whose parent companies are members do gain credit for this criterion (3 points).

Useful references:

- AWS (2014) The Alliance for Water Stewardship – What we do, *http://www.allianceforwaterstewardship.org/what-we-do.html.*

Example:

- If a site were to undertake a training course AND get another site within its company to implement and verify the AWS Standard, it would get 6 points. If its parent company were also to become an AWS member, it would get an additional 3 points for a total of 9 points. If it were to also get another site to commit to an AWS course, it would not gain an additional 3 points as it would have hit its maximum total of 9 points.
- Examples of "other parties" could include other sites within the same company, as well as suppliers, service providers, clients and industry-related peer entities.
- In 2013, General Mills committed to the following: "We also will work with others to pursue Alliance for Water Stewardship certification". Pending registration with AWS (and associated referrals), this would conform with this criterion.

1.4 Commit to other initiatives that advance effective water stewardship

Intent: *To mutually reinforce other water initiatives, including standards and sector- or regionally specific initiatives that support sustainability and thereby minimize overlap, redundancy and confusion. These may include local programmes, international commitments or other standards with water aspects (e.g., Water Footprint Network footprinting, ISEAL standards, ISO standards).*

Points: 3

Guidance:

- Qualifying initiatives must:
  - Be voluntary in nature (i.e., not regulatory requirements). While corporate commitments tend to be voluntary in nature, if something is required by a government agency it is mandatory and does not qualify as voluntary;
  - Be commonly accepted as best practices or processes for effective water management;
  - Explicitly contain references to water;
  - Be actionable by the site (i.e., the site must be able to affect, or contribute to, change through implementation);
  - Contain a time-bounded commitment for taking action to improve use of water resources;
  - Not be redundant with existing requirements from the Standard (i.e., sites cannot get credit for commitments that already would have been required by the AWS Standard);
  - Be intended to deliver additional social or environmental benefits in keeping with the definition of water stewardship.
- To conform with this criterion, the site must:
  - Provide evidence of a commitment that can be substantiated;
  - Provide a timeline for implementation of the initiative.
- Note: the initiative must be able to be substantiated with the owner of the initiative scheme, or via evidence of resources expended (e.g., allocation of staff) along with a public statement that includes a timeline.
- The implementer cannot secure multiple sets of points for the same commitment in another advanced criterion (e.g., CEO Water Mandate would be counted either here or under 1.5).
- The implementer cannot secure multiple sets of points for multiple commitments.
- Note: The site should contact AWS for a current list of qualifying initiatives.
- The following is an initial list of examples of qualifying initiatives. Through time, AWS will evaluate and accept or reject additional proposals. Future qualifying initiatives will be incorporated through later revisions of the Standard.
  - United Nations Global Compact (*http://www.unglobalcompact.org/HowToParticipate/index.html*).
  - ISEAL Standards (*www.isealalliance.org*):
    - *Full members*: 4C, Bonsucro, Fairtrade, Forest Stewardship Council (FSC), Goodweave, Marine Stewardship Council (MSC), Responsible Jewelery Council (RJC), Roundtable on Sustainable Biofules, Sustainable Agriculture Network (SAN)/Rainforest Alliance, Union for Ethical Biotrade, UTZ Certified.
    - *Associate members*: Aquaculture Stewardship Council (ASC), Equitable Origin, Global Sustainable Tourism Council (GSTC), Golf Environment Organization (GEO), Linking Environment and Farmers (LEAF), Roundtable on Sustainable Palm Oil (RSPO).
  - ISO Standards (*www.iso.org*):
    - 14001 (Environmental Management System), 26000 (Social Responsibility). Note: must contain explicit water reference
    - 14046 (Water footprinting),

- Note: Disclosure initiatives (e.g., CDP Water, GRI) do not qualify as they are counted under 6.6. A formal water footprinting exercise (e.g., with the Water Footprint Network) would be captured under 2.11.

Useful references and resources:

- Pacific Institute (2013) Sustainability Standards 101, *http://www.sustainabilitystandards101.org.*
- ISEAL Alliance (2013)
  - Full members: *http://www.isealalliance.org/our-members/full-members*.
  - Associate members: *http://www.isealalliance.org/our-members/associate-members.*
- International Trade Centre, "Standards Map: comparative analysis and review of voluntary standards," 2013, *http://www.standardsmap.org.*
- Ecolabel Index, *www.ecolabelindex.com.*

Examples:

- Marks & Spencer (2012) "How We Do Business Report 2012," *http://corporate.marksandspencer.com/file.axd?pointerid=24f35ecfc08e4eb1992603107c4ec51a*. Note: This is a good example of commitments to other water-related standards, including Organic, Global GAP, Aquaculture Stewardship Council, Forest Stewardship Council, Roundtable on Responsible Soy, Roundtable on Sustainable Palm Oil and Better Cotton Initiative.
- ISO 14001 (applicable only if water is listed as a "significant aspect").

1.5 Secure a water stewardship commitment from the organization's senior-most executive or the organization's governance body

Intent: *To drive water stewardship awareness and engagement into the highest levels of decision-making within an organization.*

Points: 1

Guidance:

- In general, this criterion follows the same requirements as 1.1 but requires a higher level of decision-making (organizational level vs. site level).
- This criterion is intended to apply to the organization that controls the site. In certain cases the site may be its own complete organization, while in other cases it may be one of many sites that an organization controls. The key issue is that the senior-most individual within the controlling organization OR the governance body that oversees the organization be the one to sign off on the commitment.
- Note: for publicly controlled sites, some lenience should be granted around the nature of the governance body to accommodate local conditions.
- Suitable officers would include such individuals as the chief executive officer, executive director, president, etc., while the governance bodies could include such bodies as the board (of directors, trustees, etc.), council, etc.
- If a site secures the signature of the CEO or board under 1.1, it is still eligible for points here, but conformance with 1.1 is a pre-requisite for this criterion.
- Like 1.1, the acceptable form of evidence requires a signed commitment.

- Signing the CEO Water Mandate qualifies for this criterion.

Useful references and resources:

- See 1.1

Example:

- Ecolab Chairman and CEO Douglas M. Baker's leadership commitment to the CEO Water Mandate (2012) (*http://www.ecolab.com/media-center/news-releases/news-release?id=83A457F23B55435B88EBB7D2348D6E7C*) and Ecolab's commitment as stated on its website (*http://www.uk.ecolab.eu/our-commitment.html*).
    - "Promote stewardship of natural resources and protect the environment, [including to] respect and support the human right to water by conserving, reusing and recycling water and renewing water quality" and "Conduct business fairly and ethically, respecting human rights, complying with laws and regulations, and following a rigorous Code of Conduct" cover several aspects of the required commitment. In addition, it would need to reference engagement in water governance and Important Water-Related Areas.
    - Note: In addition to the above, the commitment would also need to be supplemented by a commitment at a site level by the senior-most manager to comply with 1.1.

1.6 Commit to directly assisting with community water needs in times of scarcity

Intent: *To ensure that under periods of extreme water scarcity, the site plays an active role in helping to address community water needs. To ensure that the human right to water and sanitation is maintained in the event that public sector agency efforts should fail. In no cases is the intent to fully replace the role of the public sector in providing such services, but rather to assist such agencies and provide the services in the short term (during times of stress) until such time as the appropriate public sector agency is able to provide these services.This is fundamentally about assisting in the human right to safe water and sanitation and recognizing that in certain contexts companies can play a key role in bridging the provision of such services.*

Points: 8

Guidance:

- The commitment would need to be publicly stated and signed by all necessary and relevant parties.
- To be eligible for this criterion, the commitment should:
    - Prioritize the use of water for communities' personal and domestic use over and above the needs of the site during periods in which basic water needs cannot be met;
    - Agree to cease, or significantly reduce, water use (both quantity and quality) during such periods in an effort to ensure that affected communities' basic water needs are met.
    - Agree to be willing to provide a minimum of 20 litres per person per day to any stakeholder within the catchment up to the total allocation of the site during periods in which basic water needs cannot be met.

- Basic water needs are defined as the availability of at least 20 litres per person per day.
- The commitment need not be for all of the time, but rather need only apply during periods of water scarcity when basic water needs are unmet.
- According to the International Covenant on Economic, Social and Cultural Rights, "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, and personal and domestic hygienic requirements." (ICESCR, GC 15, 2002, para 2. The full text is available at: *http://www.unhchr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94?Opendocument*.)

Useful references and resources:

- WaterAid, Freshwater Action Network, Rights and Humanity, WASH United, and End Water Poverty (2014) The Rights to Water and Sanitation *http://www.righttowater.info*.

Example:

- "We, [Site Name], recognize the human right to water and the importance of an adequate amount of safe water for our communities. Accordingly, during periods in which local communities' basic personal and domestic water needs cannot be met, we commit to modifying our water use to prioritize the needs of the community above our business needs for water and are willing, if we have access to water, to provide 20 litres each day to any stakeholder until basic water needs are restored."

GUIDANCE FOR STEP 2: GATHER DATA TO UNDERSTAND WATER RISKS, IMPACTS AND OPPORTUNITIES

General guidance: For all of the criteria within Step 2, it is recognized that some environments are data-rich and others are data-poor (or entirely data deficient). Accordingly, in cases where catchment/context data are difficult or impossible to obtain, there is an expectation that reasonable efforts will be made to obtain or generate data. If it is cost-prohibitive or not feasible due to data access issues, expert opinion should be employed as a proxy to generate a reasonable quantitative estimate or qualitative description. If, however, a site chooses to generate data in data-deficient environments, it will be recognized for such effort (see Criterion 2.9). Note that this data deficiency allowance relates to external (catchment or context) data; it does not apply for internal data in Step 2 (which should be collected in all environments). Lastly, in general, it is the expectation that the more data are available in a given catchment, the more comprehensive the data gathering will be.

The concept of "gathering" may not require physically obtaining data (either digital or analogue) – it could involve referencing shared data or previously gathered data or, in general, pointing to where data is already available. It is important, however, that the data (wherever they are located) are "accessible", and this, combined with a means of locating the data, should be used as the test of whether data have been successfully "gathered".

In general, AWS encourages sites to employ credible third parties for data collection where feasible, as this will help provide independent, reliable data. This is particularly the case in situations where data are controversial and/or disputed.

It is also worth noting that for sites already in conformance with ISO 14001 (or even some aspects of ISO 9001), data for Step 2 of AWS may be readily available. Where such systems are in place, they should be taken advantage of and/or referenced. Similarly, where already gathered, site-level data required for disclosure/reporting efforts like CDP or GRI may complete aspects of the requirements in Step 2 (and beyond). These are worth investigating before proceeding. See Step 6 for more details on the alignment with these initiatives throughout the Standard.

Several areas of Step 2 reference credible and temporally relevant data. The qualifier "credible" is intended to ensure that a level of professionalism is employed in the water quality testing methods. "Credible" could mean that the individual has the correct qualifications to undertake such activities, or that the individual is following some established and scientifically robust methodology such as one of the ISO water quality testing standards. Credible measurements should withstand scrutiny from other water quality professionals. The monitoring design and statistical analysis should both be appropriate for the context and able to withstand relevant and credible professional scrutiny.

The qualifier "by temporally relevant time unit" is intended to ensure that the temporal aspect of the measurement provides a sufficient temporal resolution to be meaningful. In other words, if there is a high degree of temporal variability in terms of the values, the time unit should be more disaggregated (i.e., finer temporal resolution, e.g., daily/weekly), while low degrees of variability may have a more aggregated time unit (i.e., low temporal resolution, e.g., annual or monthly). If the site cannot access monthly data, then it should work from whatever level it has with an expectation of working with public-sector agencies to develop monthly (or better) data sets before the next three-year assessment.

References on credible methods for data gathering:

- For more information on designs and statistical approaches for monitoring, see:
  - Cottingham, P., et al. (2005). Environmental Flows Monitoring and Assessment Framework. Technical report. CRC for Freshwater Ecology, Canberra, *http://freshwater.canberra.edu.au/Publications.nsf/0/b217ed362dcbc90bca256fc7001cf693?OpenDocument*.
  - Hurlburt, S.H. (1984). Pseudoreplication and the design of ecological field experiments. Ecological Monographs, 54(2), pp 187-211.
  - Quinn, G.P., & Keough, M.J. (2002). Experimental design and analysis for biologists. Cambridge, U.K.: Cambridge University Press.
  - Sokal, R.R., & Rohlf, F.J. (1995). Biometry: The principles and practice of statistics in biological research (3rd ed.). New York: W.H. Freeman.
  - US Environmental Protection Agency Guidance for Choosing a Sampling Design for Environmental Data Collection, *http://www.epa.gov/quality/qs-docs/g5s-~~final.pdf~~*.
  - World Bank – Modeling for Watershed Management: A Practitioner's Guide, *http://water.worldbank.org/publications/modeling-watershed-management-practitioners-~~guide~~*.

2.1 Define the physical scope

Intent: *To establish the area over which you have direct control (the site) as well as develop an understanding of the water sources and catchments that you affect and are reliant upon. This understanding is critical to guide your stewardship outreach.*

Guidance:

- There are four components to this criterion:
  1. Defining the site's boundaries;
  2. Identifying the site's water sources – both the immediate source (i.e., the proximate water source, such as a municipal water service provider) as well as the ultimate water source (i.e., the physical body or bodies of water from which the site gains its water, whether they be surface waters, groundwater, saltwater, etc.);
  3. Identifying the receiving water bodies of the site's discharge – both immediate receiving water bodies and ultimate receiving water bodies – and including outsourced water effluent;
  4. Defining the catchment(s) that the site affects and is reliant upon.
- To be compliant with this criterion, each of these components should be available in list or map format and explicitly named.
- Site's boundaries:
  - The site's boundaries should include the entire area over which a site has control (through ownership, rental, lease, management mandate, etc.). It includes not only the facilities (i.e., built area), but also the lands associated with the facility/facilities. Site boundary data can be drawn from legal ownership, land survey information or informal sources.
    Note: The preferable form of site boundary information is in mapped format (spatial data) with a description of boundaries and points of withdrawal and discharge.

- In cases where site boundaries are distributed and not contiguous (e.g., infrastructure that is spread throughout an urban area), the boundaries extend to those areas under influence by the site). Note that such distributed sites must still fall under the same management and perform the same purpose within the catchment to be considered a single site. If the sites are under different management and/or perform different purposes (i.e., the primary reason for existence of the site differs), such sites should be considered two separate sites and must implement the standard independently. Also note that if the sites are both located within the same catchment, they may be eligible for group certification. See the AWS Certification Scheme for more details.

- Site's water sources:
  - Water sources include both the immediate or proximate water sources from which the site is drawing directly and the ultimate water source. In other words, for sites that are drawing directly from a water body (for example a lake, river, stream, groundwater well) this would be their only water source. However, in cases where a site was drawing its water from a water service provider, the water service provider AND its water source (i.e., the water source that the water service provider is drawing from) would be required. For example, if a site sources its water from a local utility, then the site would be responsible for listing the name of that utility AND finding out which water source(s) the utility employs for its water. Water sources can be fresh, brackish or salty. They can also be greywater (including recycled or polluted waters).
  - If water derives from a variety of sources, the actual (or estimated) percentage of water by source should be indicated. For example, 75 per cent from Lake A, 15 per cent from River B and 10 per cent from Aquifer C. If such data cannot be obtained, the site should document the request and refusal from the relevant parties.
  - Water sources should be referred to by their nationally recognized official names.
  - The full range of water sources includes water service providers (including water utilities), groundwater, lakes/ponds, streams/creeks, rivers, wetlands, snow, glaciers and any form of captured precipitation, including dew and seawater or other brackish forms of water.
  - National and sub-national topographic survey maps should provide a site with source locations.
- Site's receiving water bodies:
  - The same process for identifying source water bodies applies to identifying receiving water bodies. It is insufficient to only indicate that the discharge is received by a water service provider. The site must also determine where the water service provider returns the water to the environment and note this receiving water body.
- Site's catchment(s):
  - All sites must define their catchment(s) and should include both the catchment in which their site is located and those catchments their site is reliant upon for water sources. The guidance on delineating a catchment is as follows: it is the smallest catchment that contains the upstream land area or aquifer body contributing to its source(s) and that contains the downstream areas affected by the site's water withdrawals or effluent. When a site is sourcing water from multiple sources – either surface or groundwater or both – different catchments for each source will need to be identified.
  - Note that catchments, as defined by AWS, may extend into water bodies if such water bodies are employed as source areas or are receiving water bodies. For example, if a site is located beside a lake and both withdraws and discharges effluent to the lake, the affected area of the lake should be included in the catchment.
    - The distance downstream that a site is responsible for can reasonably be determined by the distance at which the site's actions can still be determined from baseline conditions. In other words, at a given location, if a discharged effluent from a site is detectable above baseline levels, then that location is within the site's catchment. Similarly, in terms of water withdrawals, if the amount withdrawn affects downstream users at a given location (both human and other species) either through the total volume or the timing of water withdrawal, then that location is within the site's catchment.

- The limits of detectable influence downstream or down-gradient from a point of origin (water withdrawal or wastewater discharge points) can be determined in one of three suggested ways:
  - In the best-case approach, the limits of detectable influence can be identified using a hydrologic simulation model. This can be a time-consuming and expensive exercise, but it provides the most technically credible and defensible means for delineating where a site's influence begins and ends. This level of technical analysis might be warranted once a site determines that significant ecological or social impacts exist or can be expected (Step 4 below).
  - A next-best approach is to apply some default "general rules". For example, one might conservatively assume that water consumption or water quality effects (depending on magnitude of use/impact) in small rivers (<10 m^3/s annual average flow) might extend for as much as 50km downstream, or until the small river is joined by a larger river (>10 m^3/s). For larger rivers, the area of influence could be assumed to extend for 100km downstream. For aquifers, the area of influence could be assumed to extend to a radius of 50km from the point of extraction or wastewater discharge. Such rules of thumb will be discussed during stakeholder outreach to see whether reasonable guides can be developed.
  - A least-desirable approach is to use preset watershed or river basin boundaries, such as standardized watersheds or river basins mapped by government agencies or research institutions. If the predetermined watershed boundaries are considerably larger than the site's actual area of influence, any estimation of the site's influence or impacts will be diminished. If this approach is applied, the smallest-possible watershed containing the site's points of water extraction or return/discharge should be used.
  - These methods, in general, will generate a conservative estimate for the catchment (i.e., an estimate that would include all major impacts that need to be considered.
- Regardless of the method chosen, the catchment identified must be reasonably justified by the site, and ultimately what constitutes a "sufficiently large" catchment should be determined by affected stakeholders.
- Another method of thinking about catchment would be to think about the following: if a water-related incident (drought, flood, spill, etc.) were to occur in a given location upstream or downstream, would it materially affect your operations?
- As a general rule, catchments would rarely be less than 10km^2 or more than 10,000km^2. A fairly typical AWS catchment would likely be around 250 to 1,000km^2 (see Figure A2).
  - Generally water-abundant areas, or sites in close proximity to water sources, will likely have smaller catchments, while the opposite will be true in water-scarce areas. Furthermore, sites with a large amount of water use/discharge may have larger catchments, while smaller sites may have smaller catchments.
- For transboundary water sources, the site may have more than one catchment. If the site is reliant upon water from more than one catchment, all such catchments should be included in the "catchment" scope.

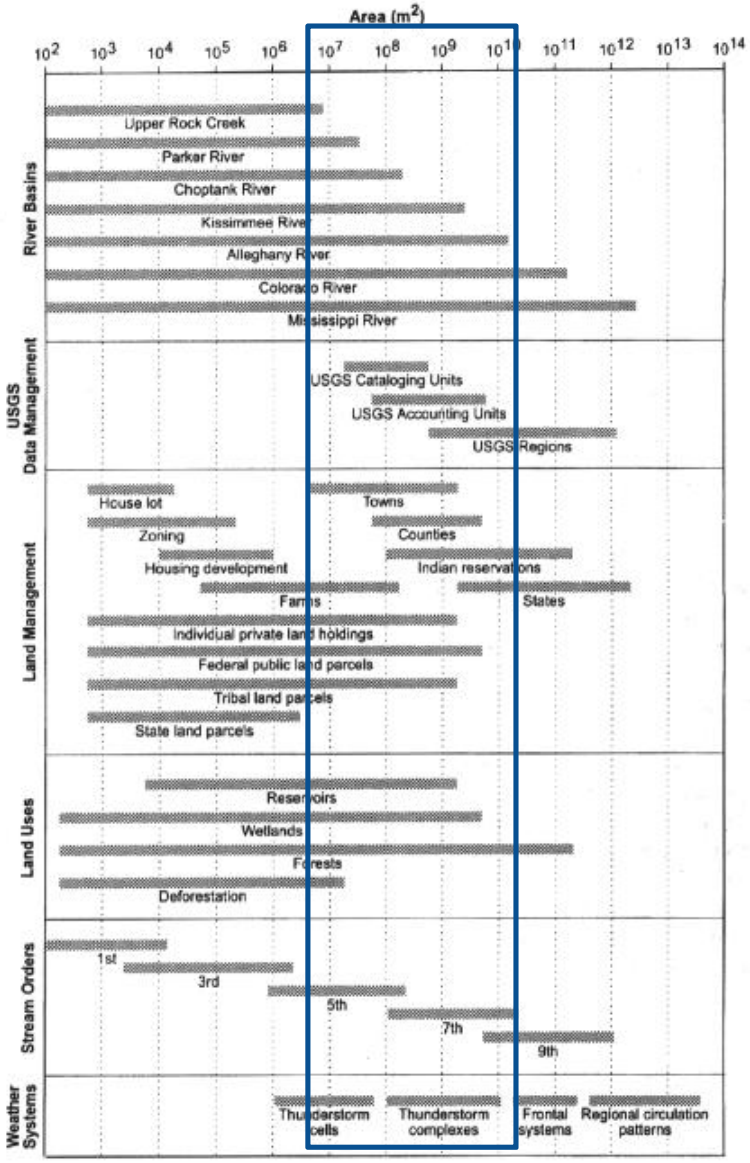


Figure A2: Approximate scale of catchments

Useful references and resources:

- NASA and WWF (2010) HydroSHEDS website, *http://hydrosheds.cr.usgs.gov*. [useful resource for catchment delineation; must be used in conjunction with ArcGIS Explorer, which is free to download].
- US EPA Surf Your Watershed (2014), *http://cfpub.epa.gov/surf/locate/index.cfm*. [useful automated system for locating and providing a map and other resources of watersheds in the US].
- US Geological Survey (2014) Flow-Based Method for Stream Generation in a GIS, *http://md.water.usgs.gov/posters/flowGIS/index.html*.
- Ammann, A. and Stone, A.L. (1991) Appendix E: Method for the Comparative Evaluation of Nontidal Wetlands in New Hampshire, "How to Read a Topographic Map and Delineate a Watershed: the New Hampshire Method," as cited in US Department of Agriculture, *http://www.nycswcd.net/files/NRCS%20Reading%20Topo%20Maps%20to%20Delineate%20Watersheds1.pdf*.

Examples (from beta testing):

- NewPage Pulp and Paper Facility, Escanaba, MI: As part of the AWS beta testing completed by the Council of Great Lakes Industries, the NewPage Pulp and Paper Mill in Escanaba, Michigan, USA, was tasked with identifying its catchment. Using the "Surf Your Watershed" tool, it provides the local catchment of the Escanaba River (beside which the NewPage site is located).

Escanaba Watershed -- 04030110

Escanaba

Watershed Profile

Watershed Name: Escanaba
USGS Cataloging Unit: 04030110
MI 1st Congressional District

Citizen-based Groups at work in this watershed (Provided by Adopt your Watershed)

Water quality monitoring data from this watershed (Provided by STORET)

Environmental Websites Involving this Watershed

Assessments of Watershed Health

- Impaired Water for this watershed
- *Assessed Waters by Watershed*
  - Michigan

Information provided by the United States Geological Survey (USGS) EXIT Disclaimer

- Stream Flow (Source: USGS)
- Science in Your Watershed
- Water use data (1985-2000): Information about the amount of water used and how it is used.
- Selected USGS Abstracts

Figure A3: Escanaba watershed information from USGS

The site does not draw upon groundwater, but does draw upon municipal water supplies from the Escanaba Municipal Water Utility (a proximate water source that in turn draws its water from Little Bay de Noc, which is part of Lake Michigan, the ultimate water source). Furthermore, since the site is located near the outlet of the river and does discharge to the river after treatment, the catchment not only included the upstream area noted in the map above, but also some of the area within Little Bay de Noc. Since the NewPage site was using water from the Escanaba watershed as well as Little Bay de Noc, both were included in its defined "catchment". The selection of the entire Little Bay de Noc is somewhat arbitrary because it is ultimately connected to all of Lake Michigan, but it was felt that Little Bay de Noc would be most affected by issues and that it was the area local stakeholders would identify with. This "reasonable justification" was adequate to draw the boundaries.

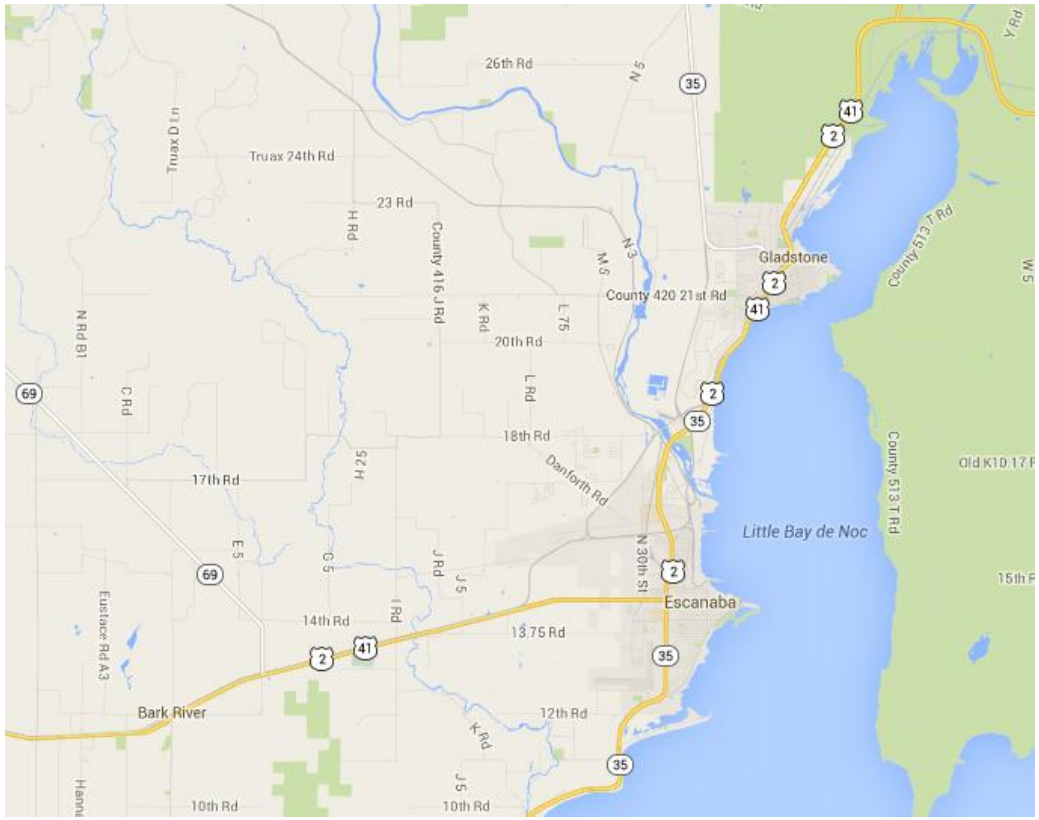


Figure A4: Escanaba Mill site's lower catchment. Note that the full catchment would include the combination of Figure A3 AND Figure A4.

2.2 Identify stakeholders, their water-related challenges and the site's sphere of influence:

Intent: *To ensure that you have an understanding of your stakeholders, including both how they can affect you and how you can affect them. In particular, the intent of this criterion is to understand your stakeholders' water-related concerns (because these may affect your water risk) as well as how you can influence positive change.*

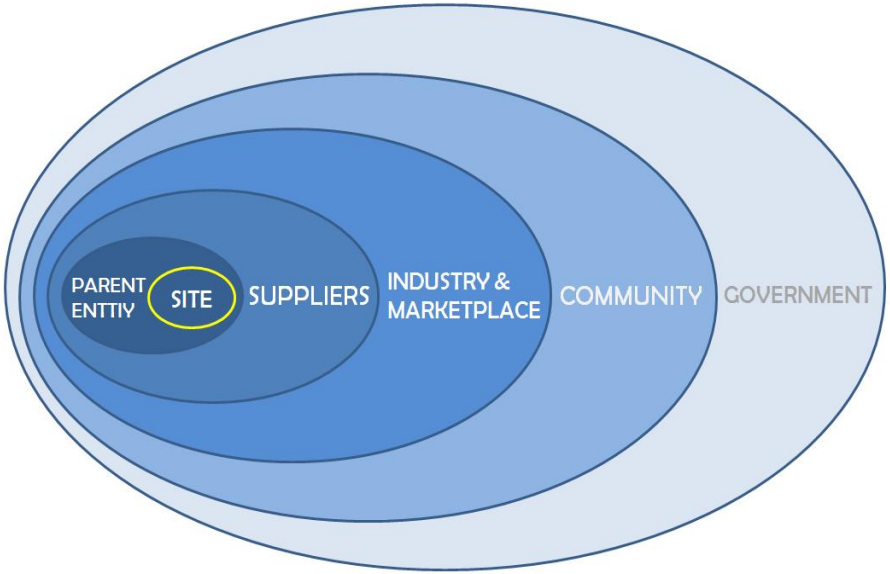
Guidance:

- Note: Please also see the section on stakeholders under General Guidance at the beginning of Appendix B.
- Understanding the catchment context in which a site operates is integral to successful water stewardship activities. Perhaps the most important part of understanding the context is understanding who else shares your water resources and, therefore, your shared water challenges. These stakeholders may be other entities and people that:
    - Also contribute (positively or negatively) to the status of the catchment due to their withdrawal and discharge;
    - Rely on the catchment for non-business purposes (e.g., health, sanitation, recreation, cultural measures);
    - Are directly or indirectly affected by your use (upstream or downstream effects);
    - Directly or indirectly affect you (upstream or downstream) and potentially contribute to your site's water risks.
- The focus of this criterion is to identify and consult in an appropriate manner rather than engage in an exhaustive, formal exercise that seeks a level of consensus. The latter would link to advanced level criteria (e.g., Criterion 2.13, Criterion 3.5, Criterion 5.6).
- For a general background on stakeholder analysis and engagement, please see: IUCN, Situation Analysis – an approach and method for analyzing the context of projects and programme, pages 1-14 to 1-19, *http://cmsdata.iucn.org/downloads/approach_and_method.pdf*.
- In identifying stakeholders, pay particular attention to traditionally disadvantaged groups, including indigenous communities, women, children and the elderly.
- When gathering stakeholder input, where possible, gather data on a gender-disaggregated basis to identify specific gender-related concerns.
- Issues that may arise in this criterion include concerns about water infrastructure; access to safe drinking water, adequate sanitation and hygiene awareness (WASH); groundwater levels; freshwater biodiversity; urban water issues; etc.
- The underlying assumption behind a "sphere of influence" (Figure A5) is that a site has influence over those around it, with a greater degree of influence on those with closer ties to the site (e.g., staff/supply chain) and a lesser degree of influence on those less connected to the site (e.g., government). "Influence" can come in the shape of providing benefits to these stakeholders (e.g., jobs/work, income, taxes, water services) as well as being affected by these stakeholders (e.g., labour/skill shortages, regulations, supply chain interruptions):
    - The Alliance for Water Stewardship has adopted the definition of "sphere of influence" used by the United Nations Global Compact (workplace, supply chain, marketplace, community, government). While designed for human rights, the sphere of influence concept applies equally to the responsibility of a water steward. *See: http://www.unhcr.org/refworld/pdfid/484d1fe12.pdf.*
    - Using this model as a basis for engagement, there is first the need to identify and engage stakeholders and to determine your influence over each of these groups.
    - Since the sphere of influence is a subjective evaluation, the easiest method for verifying a proposed sphere of influence is to reach out to stakeholders to see whether they feel they are influenced (either positively, negatively or not at all) by the site. If stakeholders deem they are influenced, then they are a part of the sphere of influence. If they do not think they are influenced, then they are outside the sphere of influence.

- To conform with this criterion, the site must:
  - Identify and list stakeholders;
  - List the type of stakeholder;
  - List the stakeholder's interests or concerns;
  - List the stakeholder's level of engagement to date;
  - And either list the stakeholder's ability to influence/be influenced by the site;
  - OR provide a general description of the site's sphere of influence referencing stakeholders and the groups noted in Figure A5.
- Cover the range of stakeholder types as defined by the glossary and informed by the stakeholder engagement section at the beginning of the guidance.
- If data are not available on a catchment basis, countrywide numbers may be used as a proxy in the meantime.
- Note: Free, prior and informed consent (FPIC) form the basis for the process to be followed during all consultation with indigenous communities, which should be gender-sensitive and result in consensus-driven negotiated agreements.
- Below is a list (drawn from CDP Water with some modifications) of potential stakeholder concerns:
  - Physical:
    - Extreme events (i.e., climate change) including flooding
    - Impaired or declining water quality
    - Ecosystem vulnerability (due to volume and quality of water)
    - Inadequate infrastructure
    - Increased water scarcity. This may include long-term drought (and effects upon energy production – especially where there is a hydropower dependency, food production and need for water for drinking and sanitation) as well as seasonal supply variability/interannual variability.
    - Projected water scarcity
    - Increased water stress (including pollution of water supply)
    - Projected water stress
  - Regulatory and governance:
    - Higher water prices
    - Increased difficulty in obtaining water permits/licenses/allocations and/or statutory water withdrawal limits/changes to water allocation
    - Lack of transparency of water rights
    - Limited or no catchment management agencies/plans/actions
    - Challenging mandatory water efficiency, conservation, recycling or process standards
    - Poor coordination between regulatory bodies
    - Poor enforcement of water regulations
    - Regulation of discharge quality/volumes leading to higher compliance costs or service charges
    - Regulatory uncertainty, including unclear and/or unstable regulations on water allocation and wastewater discharge
  - Other socio-cultural:
    - Infringement upon cultural and religious values

- Inadequate access to water, sanitation and hygiene
- Increased prevalence of water-borne diseases
- Infringement upon indigenous values

Figure A5: Illustration of Sphere of Influence (adapted from the United Nations Global Compact): The figure illustrates that the site has a greater degree of influence on its suppliers, followed by its peers and clients (industry & marketplace), followed by the community and, finally, by government, in which it has the least degree of influence. While there are certainly exceptions to this general sphere, the expectation is that sites should at a minimum describe their sphere of influence in relation to this figure.



Useful references and resources:

- United Nations General Assembly (2008) Clarifying the Concepts of "Sphere of Influence" and "Complicity": The Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and other Business Enterprises, John Ruggie*, *http://www.unhcr.org/refworld/pdfid/484d1fe12.pdf*.
- US Environmental Protection Agency, "Getting in Step: Engaging and involving stakeholders in your watershed," *http://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf*.
- United Nations Department of Economic and Social Affairs (2005) "An Overview of the Principle of Free, Prior and Informed Consent and Indigenous Peoples in International and Domestic Law and Practices," Workshop on free, prior and informed consent, New York, 17-19 January, 2005, *http://www.un.org/esa/socdev/unpfii/documents/workshop_FPIC_tamang.doc*.

Examples:

- Republic of South Africa Department of Water Affairs and Forestry (2004) "Integrated Water Management: Guidelines for stakeholder participation in integrated water resources management in water management areas in South Africa," *http://www.iwrm.co.za/resource%20doc/irwm%201/Stakeholder%20Participation/Guidelines/GUIDELINES%20FOR%20STAKEHOLDER%20PARTICIPATION%20LEVEL%203.pdf*.
- Clean Water Services (2006), *http://www.cleanwaterservices.org/AboutUs/News/2006Archive/IAP2.aspx*.
- Example of table for Criterion 2.2:

Table A1: Stakeholders & sphere of influence

Stakeholder (Name/Group)	Type of stakeholder	Water-related concerns (and level of interest)	Ability to influence/ be influenced	Engagement to date
Iko Nagoya	Farmer – Business	Water availability (water balance). Moderate interest	Moderate – Low	None
Concerned Citizens of Earth	Environmental – Civil Society	Impacts on local wetland habitats, including fish and birds	High – Low	Formal meeting held to hear about concerns; joint attendees at city hall meeting
Jennifer Morris	Mayor – Public Sector	Water-related jobs, cost of water, equitable access	High – Low	Informal discussions over golf
Speedy Clean	Laundry Service – Business	Cost of water and treatment, maintaining business via access to water. Low interest	Low – High	Services contract (annual meeting)

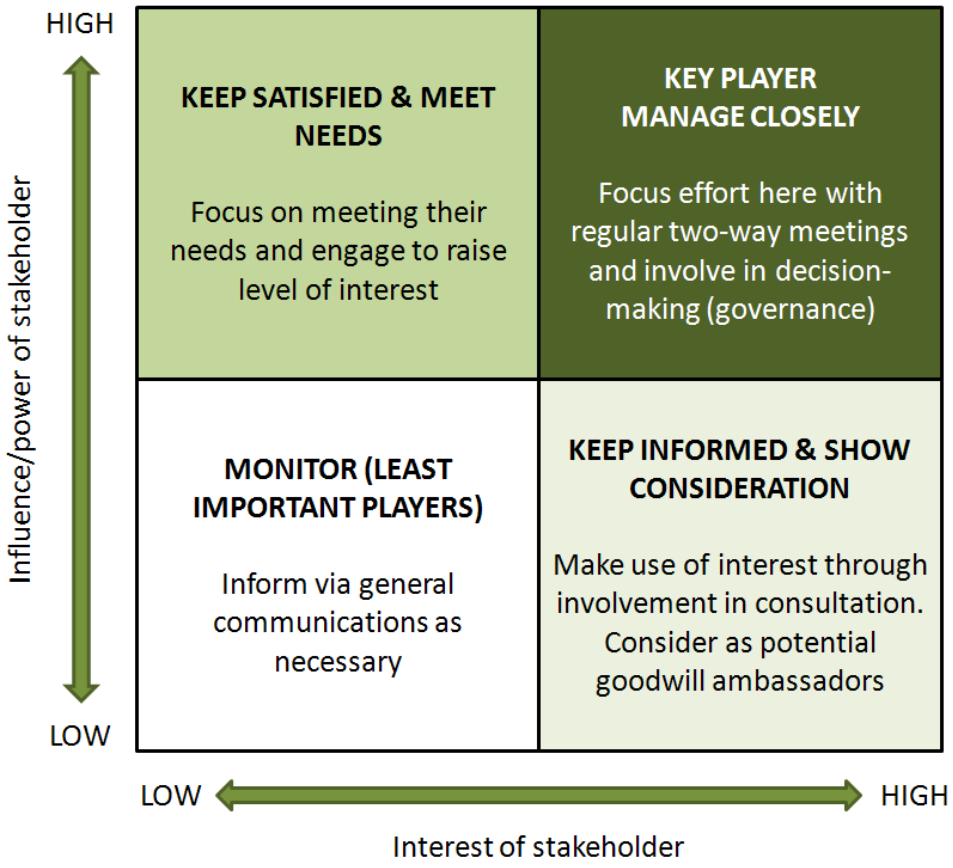


Figure A6 (LEFT): Stakeholder power, interest and engagement matrix

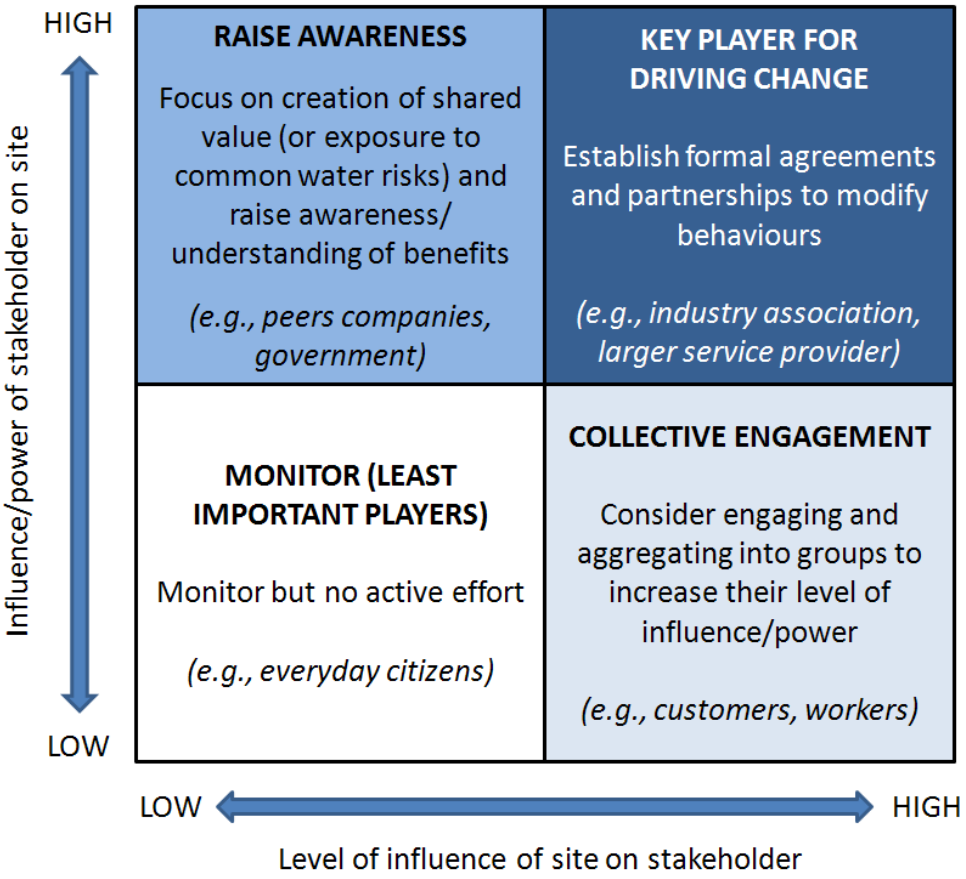


Figure A7 (RIGHT): Stakeholder influence and engagement matrix

2.3 Gather water-related data for the catchment

Intent: *To gather and understand critical water-related contextual information about the site's catchment. This information is critical to understanding stakeholders, water risks and opportunities, and suitable responses. Contextual information is at the heart of water stewardship and is a critical criterion. As part of this exercise, the intent is also to:*

- *Ensure that you are working in coordination with public-sector-led initiatives. Coordination with other efforts helps lower costs, increases effectiveness (especially of goals on shared water challenges), makes gathering and obtaining data more affordable, and ultimately makes efforts more effective and efficient.*
- *Gather information about what it means to comply with the law, which is a fundamental tenet of stewardship. This criterion ensures that the steward is aware of relevant legislation and that gathered data are indeed within legal requirements – a key factor in ensuring mitigation of regulatory water risk. It also speaks to respecting water rights, which affects reputational water risk.*
- *Understand the spatial and temporal availability of water at your site (which informs your site's physical water risk) currently and into the future. Furthermore, timing of water withdrawals is important to note here as it impacts flows and availability and, in turn, has implications for mitigating physical water risk.*
- *Understand the quality of water within the catchment (sources and receiving bodies). Understanding the catchment's water quality will give you insight on your contribution to shared water quality challenges and insight on whether it constitutes an important area to address as it could affect your risk and liability (present or future).*
- *Develop an awareness of the presence and status of Important Water-Related Areas in the catchment. These areas may be critically important in providing ecosystem services and other social and cultural benefits to stakeholders in the catchment as well as the site. Disruption to Important Water-Related Areas could also cause stakeholder concerns and result in site reputational water risk.*
- *Understand the status of water-related infrastructure since it forms part of your ultimate supply chain. Poor infrastructure, or infrastructure that is at risk due to extreme events or increased stress, is a liability for a site.*

Guidance: Guidance for this criterion is broken down by sub-aspect. However, it is worth noting up front that, in all cases, sites are encouraged to work with others to see where data already exist before gathering their own data. Public-sector agencies often possess much of the data required in Criterion 2.3, and this can be explicitly referenced so that the site does not have to directly gather the data. Furthermore, where they exist, other third-party initiatives such as the CEO Water Mandate's Water Action Hub (*www.wateractionhub.org*) and TNC's Water Funds *(http://www.watershedconnect.com/documents/water_funds_conserving_green_infrastructure_a_guide_for_design_creation_and_operation) may provide the site with valuable catchment-based data. AWS strongly encourages sites to work with others in gathering catchment data as it will be more effective and efficient for the site to do so.*

Governance and Catchment Plans

- Water stewardship, thought of another way, is integrated water resources management from a bottom-up direction. It is about working from the site to help deliver catchment-level aims. Accordingly, a site must be aware of the plans and catchment-wide initiatives designed to manage water and mitigate the risks in the catchment that will ultimately affect the site.
- Knowledge of catchment plans is helpful to inform the subsequent work (site stewardship plan) and ensure proper coordination.
- River basin and catchment management plans also can be a valuable source, providing a synthesis of available information and data, and setting out the challenges, risks and mitigation strategies. In other words, the plan may help compliance with criteria in Steps 2, 3 and 4. Recognizing that such plans might not be available in all situations, consultation with catchment authorities (or equivalent) can be a way to draw on their experience and empirical knowledge.
- If a catchment plan exists, it should be read, understood and available. It is helpful for sites to distil the aspects of the catchment plan that are relevant to their sites and provide this as a brief description.

- Should no catchment plan exist, the site must demonstrate that it has enquired with the appropriate agency and confirmed that no plan exists. In such cases, proven effort will suffice as compliance for this criterion.
- For transboundary water bodies (catchments), plans often will be coordinated at an international level. National agencies tend to be the starting point for finding domestic catchment-level plans (national-level plans can have different intentions – from IWRM to flood control only, etc.). The sites will need to contact their government agencies or ministries to find the appropriate contact.
- Significant initiatives that are under way should also be noted. In many cases these will be linked to catchment plans and/or the same public-sector agencies responsible for water management at the catchment level. However, there may be other initiatives under way that are worth noting, and there is an expectation that some effort should be made to identify the full array of major water-related initiatives under way in the catchment.
- To conform with this aspect of the criterion, the site must:
    - Provide a list of relevant aspects of catchment plan(s), significant publicly led initiatives and/or water-related public policy goals for the site (e.g., Table A2);
    - Provide a list and describe the relevance of all applicable water-related legal and regulatory requirements, including legally defined and customary water rights and water-use rights as they pertain to the site.

Useful references and resources:

- International River Basin Organizations, as compiled by Oregon State University, *http://www.transboundarywaters.orst.edu/research/RBO/index.html*.

Examples:

- Australia Murray-Darling Basin Authority's Basin Plan, *http://www.mdba.gov.au/basin-plan*.
- Great Lakes Commission (2004) Lakewide management, "An ecosystem approach to protecting the Great Lakes," *http://www.glc.org/advisor/04/lamps2004web.pdf*.
- Inkomati Catchment Management Agency (2013) Catchment Management Strategy Documents, *http://inkomaticma.co.za/publications/icma-documents.html*.

Table A2: Governance & site linkages

Governance issue	Site example
Relevant section of catchment plan	Section IV of catchment plan: Catchment planning (need for site to coordinate with upcoming meetings) Section VII of catchment plan: Catchment goals (need for site to reference these goals)
Significant publicly led initiatives	Department of Water Resources: programme on Water4People (infrastructure-building programme) Department of Water Resources: water quality monitoring programme Ministry of Economic Development: water efficiency in infrastructure financing programme
Water-related public policy goals	Ministry of the Environment: zero RAMSAR wetland loss goal for catchment Ministry of the Environment: catchment groundwater replenishment goal by 2040 Department of Water Resources: 100 per cent WASH access by 2020

Legal and regulatory requirements:

- When identifying the applicable legal and regulatory requirements for this criteria, the site should focus on those that are focused on water only. This criterion is meant to ensure that the site is not in violation of laws or regulations, to identify what data points are required for reporting, and to promote a stronger link to or promotion of catchment-level management.

- Applicable legal and regulatory requirements include any applicable international, national or sub-national laws/regulations.
- A list should be completed for the site, documenting applicable water-related laws and regulations. These may include (but are not limited to):
    - Water withdrawals, both surface and ground (including all forms of water, including saltwater), and consumptive use, water-use efficiency and reuse
    - Water-use rights
    - Water-related discharge or effluent (including pollution prevention, pollution treatment)
    - Water-related emissions
    - Water-related monitoring and reporting
    - Habitat (including wetlands and riparian areas)
    - Endangered species
    - Water-related land use regulations (including aquifer-related matters)
    - Water-related permitting
    - Water-related product safety
    - Safe drinking water
    - Sanitation
    - Hygiene
    - Wastewater treatment
    - Customary water rights and water-use rights (including indigenous rights)
    - Important Water-Related Areas (e.g., wetlands, High Conservation Value Areas, aquifers, water-related sites that are important for religious/spiritual reasons)
    - Water-related infrastructure

  Note: For water service providers, this should also include the quality of the drinking water provided and infrastructure maintenance.
- Where they exist, noting legal thresholds is valuable (e.g., minimum drinking water quality, minimum river water quality, maximum daily loads).
- These laws and regulations can be found in several places:
    - Regional or transnational basin agreements;
        - primarily in large river basins (e.g., White Nile, Danube) or large lakes bordering multiple countries (e.g., Great Lakes);
    - State- or federal-level regulations;
        - drinking water, species, permitting, sanitation, reporting, etc.;
    - Sub-state/province level;
    - Withdrawal, discharge, emissions, reporting, habitat, drinking water, sanitation, Important Water-Related Areas;
    - Industry-based regulations;
    - Product safety, reporting.
- The survey should also note how each regulation applies to the site.
- Lastly, once established, the site should consult with relevant stakeholders (e.g., public-sector agencies) to verify the survey results. This is particularly important for laws and regulations pertaining to Important Water-Related Areas and sanitation. While legal compliance should not require much guidance, respecting water rights can be a more challenging issue. Several references below have been included for more guidance.
- To conform with this aspect of the criterion, the site must:

- have a list of applicable legal and regulatory requirements, and water-related rights, with notes on how they apply to the site (e..g, as shown in Table A3).

Useful references and resources:

- US federal legislation (e.g., Clean Water Act) and/or state-level legislation.
- US NPDES permit requirements, *http://cfpub.epa.gov/npdes/home.cfm?program_id=45*.
- EU Water Framework Directive, *http://ec.europa.eu/environment/water/water-framework/index_en.html*.
- The CEO Water Mandate (2010) "The Human Right to Water: Emerging Corporate Practice and Stakeholder Expectations," *http://www.unglobalcompact.org/docs/issues_doc/Environment/ceo_water_mandate/Water_Mandate_Human_Rights_White_Paper.pdf*.
- The CEO Water Mandate (2012) "Bringing a Human Rights Lens to Corporate Water Stewardship," *http://pacinst.org/publication/bringing-a-human-rights-lens-to-corporate-water-stewardship/*.
- United Nations World Water Assessment Programme, "Water for People, Water for Life," *http://unesdoc.unesco.org/images/0012/001295/129556e.pdf*.
- The Rights to Water and Sanitation website, information portal on the human rights to water and sanitation, 2013, *http://www.righttowater.info*.
- US Environmental Protection Agency's Permit Compliance System, *http://www.epa.gov/enviro/facts/pcs-icis/index.html*.
- UN Human Rights, UN Habitat, World Health Organization's The Right to Water, Fact Sheet No.35, *http://www.ohchr.org/Documents/Publications/FactSheet35en.pdf*.
- WaterLex, *http://www.waterlex.org/waterlex/de/resources/recommendedpublications*.
- Institute for Human Rights and Business, "The Human Right to Water and Responsibilities of Businesses: An Analysis of Legal Issues," 2011, *http://www.ihrb.org/pdf/SOAS-The_Human_Right_to_Water.pdf*.

Examples:

- AWS, "Exploring the value of water stewardship standards in Africa: Kenya case study summary report," pp 19, 21, 23 and 25, 2010, *http://allianceforwaterstewardship.org/assets/documents/AWS-Exploring_the_Value_of_Water_Stewardship_Standards_in_Africa-Summary_Report.pdf*.

Table A3: Water-related legal, regulatory and rights issues with site linkages

Governance issue	Site example
Water-related legal and regulatory requirements	Water Act (Specifically, sections on water quality emissions; water permitting) Clean Environment Act Environmental Protection Act: wetlands and upland forest areas that are groundwater recharge zones
Customary water rights	Indigenous claims to water
Water-use rights	See data from Water Act and public utility board permitting.

Catchment Water Balance

- Catchment water balance = water withdrawn from the catchment(s) + water gathered within the catchment(s) - water consumed in the catchment - water discharged from the catchment.

- Determining water balance at the catchment level involves determining the rate of available water (volumes at a given period) and comparing these against rates of withdrawal. Hydrographs are the most typical means of displaying such information, as they can visualize both time and volumes.
- Developing hydrographs is done through stream gauging. As described by the US Geological Survey, "stream gauging generally involves 3 steps:
    1. Measuring stream stage – obtaining a continuous record of stage – the height of the water surface at a location along a stream or river;
    2. The flow discharge measurement – obtaining periodic measurements of flow discharge (the quantity of water passing a location along a stream). See: *http://pubs.usgs.gov/twri/twri3a8* for more details;
    3. The stage-discharge relation – defining the natural but often changing relation between the stage and discharge; using the stage-discharge relation to convert the continuously measured stage into estimates of streamflow or discharge". Source: United States Geological Survey: *http://water.usgs.gov/edu/measureflow.html*
- Installation of self-calibrating stream gauges can cost more than US$20,000, but less expensive options are available and are being developed. (e.g., *http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1046&context=water_rep*). Indeed, very inexpensive discharge gauges can be constructed for sites with no available data (*http://www.adopt-a-stream.org/pdf/monitoring_tools/stream_flow_meter.pdf*). Similarly, relatively inexpensive flow meters also can be purchased (e.g., *http://www.globalw.com/products/flowprobe.html*). At a minimum, the stream stage can be easily measured through the installation of a measuring stick and periodic measurements. The site may also outsource this exercise to an external agency, but no matter which route is chosen, the data must be credibly gathered, meaning that they must hold up to professional scrutiny.
- In addition to the water availability, water balance also considers the amount of water withdrawn by others. While sites are not expected to calculate detailed volumes in 2.4, general catchment withdrawals can be estimated from a combination of government data (e.g., permitted withdrawals), where available, and informal calculations.
- Note: If flow and/or withdrawal data are entirely unavailable or cost-prohibitive to gather for the catchment, scarcity data can be used as a proxy. Monthly scarcity data for larger catchments may be found here: *http://www.waterfootprint.org/?page=files/WaterStat-WaterScarcity*. In cases where no finer data can be found, larger-order catchment data (e.g., from WFN or WRI) may be employed until such time as higher-resolution data become more available.
- Data should be gathered on as high a temporal resolution as possible, with a preference for monthly or better. The key issue is that the temporal scale is meaningful, given the catchment's general hydrological patterns. The qualifier "by temporally relevant time unit" is intended to ensure that the temporal aspect of the measurement provides a sufficient temporal resolution to be meaningful. In other words, if there is a high degree of temporal variability in terms of the values, the time unit should be more disaggregated (i.e., finer temporal resolution, e.g., daily/weekly), while low degrees of variability may have a more aggregated time unit (i.e., low temporal resolution, e.g., annual or monthly). If the site cannot access monthly data, then it should work from whatever level it has with an expectation of working with public-sector agencies to develop monthly (or better) data sets before the next three-year assessment.
- Ideally, both historical and current flow and withdrawal data should be gathered as most water systems are dynamic, with considerable variation from season to season, and many have extreme events that occur from time to time (e.g., once every 10 years, once every 100 years). Gathering historical data will help provide insights into the range of water balance conditions that a site can potentially experience.
- Water supply and demand can be inferred from a combination of:
    - Water service provider data on capacity (current use versus total capacity; current demand and projected demand);
    - Historical annual precipitation data and long-term trends, combined with general increases in population, industries and agricultural production.
- AWS appreciates that current and future supply and demand information is not always readily available. Again, where local information is not readily available, limited information may be available from online tools (noted below).

- With specific respect to "future water balance", the expectation is that sites provide a general commentary upon overall trends, not a detailed evaluation. The focus is to *create a general awareness of future conditions*, not provide detailed, specific forecasts.
- To conform with this aspect of the criterion, the site must:
    - Provide a catchment water balance, or scarcity figures, on a temporally meaningful frequency and gathered in a credible manner;
    - Provide a general commentary upon current versus future changes in supply and demand.

Useful references and resources:

- Water Data Hub website, *http://www.waterdatahub.org.*
- WFN WaterStat website, *http://www.waterfootprint.org/?page=files/WaterStat-WaterScarcity.*
- WWF (2014) WWF-DEG Water Risk Filter, *http://waterriskfilter.panda.org.*
- World Resources Institute (WRI) (2014) Aqueduct water risk tool, *http://insights.wri.org/aqueduct*.
- WBCSD Global Water Tool, *http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx.*
- GEMSTAT website, *http://www.gemstat.org.*
- UNEP's Environmental Data Explorer, *http://geodata.grid.unep.ch.*
- Global Land Cover Facility website, *http://glcf.umd.edu/data/landcover.*
- Veolia's Water Impact Index, *http://growingblue.com/footprint-tools/water-impact-index.*
- National Ocean and Atmospheric Administration, "Unit Hydrograph Technical Manual," 2011, *http://www.nohrsc.noaa.gov/technology/gis/uhg_manual.html*.
- IWMI (2013) Water Data Portal, *http://waterdata.iwmi.org.*
- US EPA, the National Hydrography Dataset Plus – NHD Plus, *http://www.epa.gov/waters/doc/rad/nhdplus.html*.
- For developing hydrographs, might also give the USGS Current Water Data For The Nation website for sources of existing data, *http://waterdata.usgs.gov/usa/nwis/rt*
- USGS National Streamflow Information Program, *http://water.usgs.gov/nsip,* which has historical data as well.
- International Hydrologic Association software, *http://www.conservationgateway.org/ConservationPractices/Freshwater/EnvironmentalFlows/MethodsandTools/IndicatorsofHydrologicAlteration/Pages/IHA-Software-Download.aspx*, for analysing streamflow characteristics and changes over time.
- Fisher, M., Deboodt, T., Buckhouse, J. & Swanson, J. (2008). Lessons Learned in Calibrating and Monitoring a Paired Watershed Study in Oregon's High Desert. Third Interagency Conference on Research in the Watersheds, Estes Park, CO, *http://pubs.usgs.gov/sir/2009/5049/pdf/Fisher.pdf*.

Catchment Water Quality

- The water quality parameters of concern are intended to relate to chemical parameters related to water quality issues of shared concern OR water quality issues known to be of concern to the site (given known effluent).
- Water quality data should be gathered on as high a temporal resolution as possible, with a preference for monthly or better. The key issue is that the temporal scale is meaningful given the catchment's general hydrological patterns. The qualifier "by temporally relevant time unit" is intended to ensure that the temporal aspect of the

measurement provides a sufficient temporal resolution to be meaningful. In other words, if there is a high degree of temporal variability in terms of the values, the time unit should be more disaggregated (i.e., finer temporal resolution, e.g., daily/weekly), while low degrees of variability may have a more aggregated time unit (i.e., low temporal resolution, e.g., annual or monthly). If the site cannot access monthly data, then it should work from whatever level it has with an expectation of working with public-sector agencies to develop monthly (or better) data sets before the next three-year assessment.

- Water quality testing may be done by the site but must employ credible methods, meaning that they must hold up to professional scrutiny. The qualifier "credible" is intended to ensure that a level of professionalism is employed in the water quality testing methods. "Credible" could mean that the individual has the correct qualifications to undertake such activities, or that the individual is following some established and scientifically robust methodology such as one of the ISO water quality testing standards. Credible measurements should withstand scrutiny from other water quality professionals. The monitoring design and statistical analysis should both be appropriate for the context and able to withstand relevant and credible professional scrutiny.
- Water intakes for municipal use often calculate water quality parameters on a multiple-times-per-day basis. This may provide a resource for monthly, weekly, daily or even hourly water quality data.
- The site may also outsource this exercise to an external agency, but no matter which route is chosen, the data must be credibly gathered.
- Water quality samples should be taken from, at a minimum, source water bodies. Additional sampling in the catchment is recommended but not required.
- The data gathered should be used to determine the physical, chemical and biological status of water in the catchment in order to understand the quality status as a baseline and from which to develop targets.
- In some cases, these data points are available through the relevant regulatory agencies and are, therefore, associated with your current permit-reporting requirements.
- Parameters of concern can be drawn from:
    - The table of common water quality parameters of concern below (see Table A4);
    - Known sector-specific water quality pollutants.
- Currently, where identification of the main water quality parameters of concern is not specified in legal requirements or mandates, it is largely left to the discretion of the site, with local stakeholders being the arbiters. The importance of stakeholder engagement in this regard is critical. This approach ensures that local water quality issues can be taken into account, while providing some level of oversight.
- AWS appreciates that current and future water quality information is not always readily available. Again, where local information is not readily available, limited information may be available from online tools (noted below).
- With specific respect to the commentary upon "future water quality", the expectation is that sites provide a general commentary upon overall trends, not a detailed evaluation. The focus is to create a general awareness of future conditions, not provide detailed, specific forecasts. Historical data, expert knowledge and other reports may be referenced to indicate such trends.
- To conform with this aspect of the criterion, the site must:
    - Provide representative catchment water quality data on a temporally meaningful frequency and gathered in a credible manner;
    - Provide commentary upon current versus future trends in water quality.

Table A4: Sample list of water quality parameters of concern

Parameter		Indicator
1	Total Suspended Solids (TSS)	Average monthly and daily maximum total suspended solids (TSS) in effluent (mg/L)
2	Total Dissolved Solids (TDS)	Average monthly and daily maximum total dissolved solids (TDS) in effluent
3	Phosphorus	Average monthly and daily maximum total phosphorus in effluent
4	Nitrogen	Average monthly and daily maximum total nitrogen (nitrate/nitrite) in effluent
5	Ammonia	Average monthly and daily maximum total ammonia in effluent
6	Metals	Average monthly and daily maximum total metals and dissolved metals (including chromium, cadmium, copper, lead, nickel and zinc) in effluent
7	*Escherichia coli* (*E.coli*)	Average monthly and daily maximum *Escherichia coli* (*E.coli*) count in effluent
8	Faecal Coliform	Average monthly and daily maximum total faecal coliform count in effluent
9	Pesticides	Average monthly and daily maximum total pesticides in effluent
10	Temperature	Average monthly and maximum/minimum monthly effluent temperature and receiving water temperature
11	Potential Hydrogen (pH)	Average monthly and maximum/minimum monthly pH
12	Benthic macroinvertebrate abundance	Benthic macroinvertebrate assemblage at effluent outsource at low-flow time period (note flow rate)
13	Benthic macroinvertebrate diversity	Species diversity of benthic macroinvertebrate assemblage at effluent outsource at low-flow time period (note flow rate)
14	Other anthropogenic chemicals	Total monthly discharge (kg) of toxic anthropogenic chemicals (including PCBs, PAHs, dioxins/Tetrachlorodibenzofuran[5])
15	Chemical Oxygen Demand (COD)	Average monthly and daily maximum chemical oxygen demand (COD) in effluent (mg O_2 consumed/L over 5 days at 20°)
16	Biological Oxygen Demand (BOD)	Average monthly and daily maximum biological oxygen demand (BOD) in effluent (mg O_2 consumed/L over 5 days at 20°)
17	Alkalinity	Average monthly and daily maximum/minimum alkalinity

Useful references and resources:

- World Health Organization, "Guidelines for drinking water: water quality," 4th Ed., 2011, *http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en*.
- United Nations Environment Programme, "Clearing the waters: a focus on water quality solutions," 2010, *http://www.unep.org/PDF/Clearing_the_Waters.pdf.*
- United Nations Environment Programme GEMS – Water quality for ecosystem and human health, *http://www.unwater.org/wwd10/downloads/water_quality_human_health.pdf.*
- World Health Organization, "Safer water, better health," 2008, *http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf*.

- UNICEF, "UNICEF handbook on water quality," 2008, *http://www.unicef.org/wash/files/WQ_Handbook_final_signed_16_April_2008.pdf*.
- UNICEF Water, Sanitation and Hygiene (WASH) website, *http://www.unicef.org/wash*.
- World Bank, "IBNET water supply and sanitation performance blue book," *http://water.worldbank.org/water/publications/ibnet-water-supply-and-sanitation-performance-blue-book*.
- US Department of Agriculture – Natural Resources Conservation Service – National Water Quality Handbook, *http://www.wsi.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044775.pdf*.
- Zar, J.H. (2009). Biostatistical Analysis (5th ed.). Upper Saddle River, N.J.: Prentice Hall.
- US Geological Survey – National Field Manual for the Collection of Water-Quality Data, *http://water.usgs.gov/owq/FieldManual*.
- Water Data Hub website, *http://waterdatahub.org*.
- US Environmental Protection Agency's BASINS website, *http://water.epa.gov/scitech/datait/models/basins/index.cfm*.
- Food and Agricultural Organization, "Wastewater characteristics and effluent quality parameters," *http://www.fao.org/docrep/T0551E/t0551e03.htm*.
- Center for Ecology and Hydrology – RIVPACS (River Invertebrate Prediction and Classification System), *http://www.ceh.ac.uk/products/software/RIVPACS.html*.
- Initial development of a multi-metric index based on aquatic macroinvertebrates to assess streams condition in the Upper Isiboro-Sécure Basin, Bolivian Amazon, *http://link.springer.com/article/10.1007%2Fs10750-007-0725-3?LI=true*.
- US EPA – Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, *http://water.epa.gov/scitech/monitoring/rsl/bioassessment/index.cfm*.
- US EPA – Monitoring & Assessment: Streamside Biosurvey, *http://water.epa.gov/type/rsl/monitoring/vms42.cfm*.
- US EPA – Monitoring & Assessment: Fish Protocols, *http://water.epa.gov/scitech/monitoring/rsl/bioassessment/ch08b.cfm*.
- National Marine Fisheries Service – Streams and Rivers Monitoring, *http://www.habitat.noaa.gov/restoration/techniques/srmonitoring.html*.
- AGNPS: AGricultural Non-Point Source Pollution Model, *http://www.ars.usda.gov/Research/docs.htm?docid=5199*.
- BASINS: Better Assessment Science Integrating Point & Non-point Sources, *http://water.epa.gov/scitech/datait/models/basins/index.cfm*.
- FIESTA: Fog Interception for the Enhancement of Streamflow in Tropical Areas, *http://ambiotek.com/website/content/view/25/49/*.
- Note: For additional resources on water quality testing, please contact AWS directly.

Catchment Important Water-Related Areas

- In terms of gathering culturally Important Water-Related Area data, the site should strive to collect available data; note that in the case where data are not available or relevant stakeholders are not willing to share these data, the site will meet the criterion for the effort, even if data are not collected.
- The concept of "Important Water-Related Areas" is one that encompasses not only environmental areas with high conservation value, but also areas with high cultural and social value. While in some cases these are the actual water bodies (or portions of them), in other cases they are associated wetlands, riparian areas, floodplains, confluences, riverbanks, etc. They may or may not have water in them at any given point, but must have some connection to water in the catchment.

- "Important" is a determination that ultimately lies with stakeholders. Note that the site is not necessarily expected to engage stakeholders per se, but rather, stakeholders have to accept the Important Water-Related Areas that the site identifies. If stakeholders do not accept the identification and/or if sites are being missed, then stakeholder engagement is necessary.
- Stakeholder engagement is likely necessary in the case of identifying culturally significant Important Water-Related Areas (e.g., speaking with indigenous people to determine the location of Australian birthing trees along a riverbank or temporary wetlands in agricultural fields that are known only to local farmers.
- Identification also may involve outside experts as well as local stakeholders. Expert input can inform aspects related to the cultural, historical, ecological or geographical significance (e.g., archaeological importance, critical habitat for species at risk, important cultural gathering sites), while local input is important to ensure that current uses and values are taken into consideration (e.g., swimming areas, fishing spots).
- When working with indigenous groups, important water areas should be determined through a stakeholder engagement process based on the principles of free, prior and informed consent (FPIC) and should explicitly consider the role of women and local and indigenous communities.
- The concept of High Conservation Value Areas (HCVAs), derived from the world of forestry, works well for water areas and can assist in the provision of approaches and tools to help identify such areas. See: *http://www.hcvnetwork.org/about-hcvf/the-hcv-process-folder*.
- Environmentally Important Water-Related Areas should include globally, regionally and locally identified water-related areas that are disproportionately important in the values they provide. Areas that are important for aquifer recharge; critical breeding areas for freshwater species or species that rely upon water bodies for critical life stages; areas of high productivity (such as deltas, estuaries and wetlands); and temporary water bodies (e.g., vernal pools) are all examples of environmental Important Water-Related Areas. Some examples and sources of information are noted below:
    - World Database on Protected Areas website, *http://www.wdpa.org*.
    - Alliance for Zero Extinction website, *http://www.zeroextinction.org*.
    - Birdlife International's Important Bird Areas, *http://www.birdlife.org/action/science/sites*.
    - Ramsar Wetlands from Wetlands International, *http://ramsar.wetlands.org*.
    - UNESCO biosphere reserves, *http://www.unesco.org/mabdb/bios1-2.htm*.
    - Areas that provide key ecosystem services (see Table A5).
- Socially Important Water-Related Areas can include:
    - UNESCO World Heritage Sites, *http://whc.unesco.org/en/254*.
    - UNESCO, "Cultural Mapping and Indigenous Peoples," 2003, *http://www.landcoalition.org/sites/default/files/publication/704/03_UNESCO_cultural_mapping.pdf*.
- Economically Important Water-Related Areas typically revolve around areas that provide ecosystem services (i.e., natural infrastructure). Some sites that may prove helpful in identifying and quantifying such areas and their services include:
    - Natural Capital Business Hub, *http://www.naturalcapitalhub.org/web/natural-capital-business-hub.* (Site contains links to case studies, data, collaboration opportunities and more).
    - Natural Capital Project website, *http://www.naturalcapitalproject.org*.
    - InVEST Integrated Valuation of Environmental Services and Tradeoffs, *http://www.naturalcapitalproject.org/InVEST.html*. (A GIS-based tool for calculating ecosystem service values, including water-related services).
    - Katoomba Group (2014) Ecosystem Marketplace, *http://ecosystemmarketplace.com*, including 2013 report "Charting New Waters," *http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=9544&section=water_market&eod=1*.

- RIOS: Resource Investment Optimization System – A Tool for Water Funds Design, http://www.naturalcapitalproject.org/pubs/RIOS_brief.pdf .
- Locally and regionally identified areas that provide livelihoods or contribute disproportionally to the local economy (e.g., fishing, hunting, eco-tourism).
- IUCN, "Value: counting ecosystems as water infrastructure," 2004, http://data.iucn.org/dbtw-wpd/edocs/2004-046.pdf.

- Regardless of the method employed to identify Important Water-Related Areas, it is strongly suggested that the identified areas be reviewed by stakeholders since the term "important" is entirely subjective. While stakeholder consultation is not required in Important Water-Related Area identification, it is highly recommended since omitting some areas that are important to key stakeholders may result in significant reputational water risk for the site being ignored.
- AWS recommends looking to government and NGO resources (international, national and local) to help identify such areas.

Table A5: The Economics of Ecosystems and Biodiversity (TEEB) Classification of ecosystem services

DEFINITION	SERVICE TYPE					
Provisioning	Water	Food	Raw materials	Genetic resources	Medicinal resources	Ornamental resources
Regulating	Air quality regulation	Climate regulation (incl. carbon sequestration)	Moderation of extreme events	Regulation of water flows	Waste treatment	Erosion prevention
	Maintenance of soil fertility	Pollination	Biological control			
Habitat/Supporting	Maintenance of migratory species	Maintenance of genetic diversity				
Cultural	Aesthetic enjoyment	Recreation & Tourism	Inspiration for culture, art & design	Spiritual experience	Cognitive development	

Source: de Groot et al., 2009

For an associated list of indicators, please see: http://www.unep-wcmc.org/medialibrary/2010/10/31/2e08c7fd/EcosystemServiceIndicators_Workshop_Report_Final.pdf.

- In addition to identification of such areas, this criterion also involves understanding their condition or "status". The status is a measure of the quality of the current condition of the area relative to its normal or healthy status (e.g., is a site degraded or is it functioning as it should?).
- The current status of the Important Water-Related Area may be described in qualitative or quantitative terms. The general idea is to gain a sense of whether the area is in good condition, heavily impaired or somewhere in between.
  - At a minimum, sites should strive to describe the status of the Important Water-Related Area on a scale ranging from 0 to 5 using the following guidance:
    0. The site has been lost or is beyond a cost-feasible restoration effort.
    1. The site is in a severely degraded condition and will require considerable restoration.
    2. The site is in a somewhat degraded condition and will require some restoration.
    3. The site is in an acceptable condition, but its condition could be improved.
    4. The site is in good condition and will require little work.
    5. The site is in excellent condition, requires no work and is an example of a well-preserved site of that type.

- "Lost" Important Water-Related Areas are sites that used to exist and, in theory, should still exist but have been degraded by human activity (e.g., wetlands that were ploughed over; a river with religious significance that is not suitable for use due to poor water quality; a fish spawning site that was quarried for gravel).
- The concept of ecological integrity (Table A6) is tied to "ecological status" and is a more robust and applicable method for those sites that have ecological importance. Details on describing the ecological integrity of an area can be found here:
  - Unnasch et al., "The Ecological Integrity Assessment Framework: A Framework for Assessing the Ecological Integrity of Biological and Ecological Resources of the National Park System," 2009, http://www.sound-science.org/NPS_Ecological%20Integrity%20Framework.pdf
  - A similar approach tailored for wetland areas may be found here (and adapted for other locations): NatureServe, "Ecological Integrity Assessment and Performance Measures for Wetland Mitigation," 2006, *http://www.natureserve.org/conservation-tools/projects/ecological-integrity-assessment-wetlands* with examples of completed assessments found here: *http://www.natureserve.org/conservation-tools/standards-methods/ecological-integrity-assessment*.
- For cultural or social water-related sites, status determination likely will be through cultural experts, including elders, spiritual leaders, community councils, etc. The scale noted before should be employed and a consensus agreement obtained on the general condition of the area.

Table A6: Key ecological attributes that inform integrity

Component of Integrity		Indicator (examples; list is not comprehensive)
1	Size – area	Absolute or relative size of wetland, buffer areas, remaining culturally important area, etc. (ha.)
2	Size – abundance	Abundance of species (fish species, macroinvertebrates), # of cultural sizes (rarity), etc. (#s)
3	Condition – sub-catchment connectivity	(1) size and (2) degree. A river is composed of ≥1 sub-catchment, and each sub-catchment in the river system may be hydrologically connected to other sub-catchments via river segments or the addition of a canal; a network is this set of connected sub-catchments. The network size is the number of connected sub-catchments in the network.
4	Condition – abiotic processes	Surface water runoff index, soil organic carbon, etc.
5	Landscape context – composition	Adjacent land use, riparian buffer width, etc.
6	Landscape context – connectivity	Distance to nearest road, fragmentation of habitat within 1 km, etc.

- AWS appreciates that current and future Important Water-Related Area information is challenging to identify and not always readily available. Again, where local information is not readily available, limited information may be available from online tools (noted below). Auditors will be given a degree of license on this aspect, recognizing the challenges sites face in the early years of the AWS Standard. We anticipate that through time, additional guidance, data, etc. will become available to make this aspect simpler for sites.
- With specific respect to the commentary upon "Important Water-Related Area future trends", the expectation is that sites provide a general commentary upon overall trends, not a detailed evaluation. The focus is to create a general awareness of future conditions, not provide detailed, specific forecasts. Historical data, expert knowledge and other reports may be referenced to indicate such trends.
- To conform with this aspect of the criterion, the site must:
  - Provide a list of the Important Water-Related Areas in the catchment with a description of their general status;
  - Provide commentary upon future trends.

Useful references and resources:

- IWMI (2013) Global Wetlands Initiative, *http://www.iwmi.cgiar.org/wetlands.*
- UNEP-WCMC (2013) World Database on Protected areas, *http://www.wdpa.org.*
- WWF & TNC (2013) Freshwater Ecoregions of the World, *http://www.feow.org*. (Note: ecoregions are not Important Water-Related Areas – they are much too large, but this reference does contain considerations for specific freshwater regions in the world, which can help identify important ecological aspects that are present in these regions).
- Alliance for Zero Extinction Sites, *http://www.zeroextinction.org.* (Note: sites should only be concerned with water-related species which use their catchments).
- Birdlife International (2013) Important Bird Areas, *http://www.birdlife.org/action/science/sites*.
- Ramsar (2013) Ramsar Wetlands, *http://www.ramsar.org.*.
- UNESCO biosphere reserves, *http://www.unesco.org/mabdb/bios1-2.htm* and *http://whc.unesco.org/en/254.* (Note: may or may not be water-related)
- Conservation Measures Partnership (2007) Open Standards for the practice of Conservation, *http://www.conservationmeasures.org/wp-content/uploads/2010/04/CMP_Open_Standards_Version_2.0.pdf.* (A useful guide for thinking through how to describe the status of Important Water-Related Areas).
- HCV Resource Network, *http://www.hcvnetwork.org/about-hcvf/the-hcv-process-folder*. (A useful resource for identification of a sub-set of Important Water-Related Areas).
- A-Z Areas of biodiversity importance, *http://www.biodiversitya-z.org/areas/18.* (Note: sites should only be concerned with water-related species that use their catchments).
- Indigenous and Community Conserved Areas, *http://www.iccaregistry.org*. (Note: sites should only be concerned with Important Water-Related Areas in their catchments).
- Plantlife International (2013) Important Plant Areas, *http://www.plantlifeipa.org/reports.asp.* (Note: sites should only be concerned with water-related species present in their catchments).

Examples:

- Northern Lancaster Groundwater Study: Critical aquifer recharge areas, *http://www.srbc.net/atlas/downloads/LowerSusqProjects/NLCGWS/1144j_NLCGS_MapPlate.PDF.*
- Heiner, M., J.V. Higgins, X. Li and B. Baker. 2010. Identifying freshwater conservation priorities in the Upper Yangtze River Basin. Freshwater Biology. DOI:10.1111/j.1365-2427.2010.02466.x.
- Khoury, M., J. Higgins, and R. Weitzell. 2010. A Freshwater Conservation Assessment of the Upper Mississippi River Basin Using a Coarse- and Fine-Filter Approach. Freshwater Biology. DOI: 10.1111/j.1365-2427.2010.02468.x.
- CSIRO, "Water and Indigenous People in the Pilbara, Western Australia: A Preliminary Study," updated 2012, *http://www.csiro.au/Organisation-Structure/Flagships/Water-for-a-Healthy-Country-Flagship/Water-Resource-Assessment/Water-and-Indigenous-People-in-the-Pilbara-Summary.aspx*.
- Other examples of Important Water-Related Areas include:
    - Wetlands that perform important ecosystem services in the catchment
    - Upland areas (often headwaters) that gather precipitation or recharge aquifers
    - Riparian areas
    - Water-related areas of use by indigenous groups (meeting areas, traditional hunting grounds, areas important for rituals, etc.)
    - Springs and oases

- Deltas and estuaries that are important waterfowl or spawning areas
- Stretches of river that are important for religious purposes
- Spawning or breeding habitats for important freshwater-related species (often birds and fish, but also mammals and other species)
- Habitats for freshwater endangered species
- Swimming and water recreation areas of value to the catchment's communities

Water-Related Infrastructure

- Water-related infrastructure is all infrastructure related to storing, moving, delivering, and treating water and wastewater. While natural infrastructure should be captured under the evaluation of Important Water-Related Areas, it may be overlooked and thus should form a part of this aspect of the criterion. If it has been explicitly addressed above, then this may be referenced.
- Typically, water-related infrastructure is overseen by a public-sector agency (even if privately managed). Accordingly, there are often publicly accessible reports that speak to the status of water-related infrastructure, including its service area, capacity (present and future), technologies and performance. Such reports should be the primary source for this aspect of the criterion. If no such report is available, the suitable infrastructure-managing agency (or entity) should be contacted to request information.
- It is likely that natural infrastructure is less well-documented; however, a site should consider the current and future status of ecosystems – in particular, recharge areas, wetlands and the land used around so-called headwaters (or upper elevations) of the catchment. These areas are typically disproportionately important to the maintenance of water flows and quality.
- Similarly, reports or information on extreme events may not be readily available. Endeavour to seek out such reports, which may be found with appropriate public-sector agencies (typically those related to water, environment, atmosphere/weather or infrastructure). Alternatively, academic publications or civil society publications may also offer insight into expected impacts of extreme events.
- To conform with this aspect of the criterion, a site must:
    - Reference publicly available reports on water-related infrastructure OR, if no such reports are available, reference documentation of the request made to the suitable agency or entity;
    - If not covered above under Important Water-Related Areas, comment upon the status of natural infrastructure within the catchment;
    - For all types of infrastructure, comment upon its exposure to extreme events.
- Overall, given that much of this information may not be readily available, AWS expects a reasonable effort to be made, and conformity can be granted in such cases even if data are not available, as long as effort is demonstrated.

Useful references and resources:

- US Environmental Protection Agency (2014) "Natural Infrastructure and Green Communities: Linking Landscapes and Communities," *http://www.epa.gov/greenkit/natural_infrastructure.htm*.
- Natural England (2014) "Green Infrastructure Guidance," *http://publications.naturalengland.org.uk/publication/35033* .
- Natural Capital Business Hub, *http://www.naturalcapitalhub.org/web/natural-capital-business-hub.* (Site contains links to case studies, data, collaboration opportunities and more).

- Schwartz, A.J.G. and Scholl, J.R. (2006) "Addressing the challenges of identifying, defining and mapping natural infrastructure," *http://proceedings.esri.com/library/userconf/proc06/papers/papers/pap_2047.pdf.*
- US Environmental Protection Agency (2014) Capacity, Management, Maintenance, and Operations programme (CMOM), *http://cfpub.epa.gov/npdes/docs.cfm?document_type_id=3&view=Factsheets%20and%20Outreach%20Materials&program_id=4&sort=name.*

Examples:

Built infrastructure

- Reservoirs
- Dams
- Canals
- Water treatment facilities

Natural infrastructure

- Wetlands purifying water
- Groundwater storing water
- Riparian areas mitigating erosion and slowing runoff
- Rivers transporting water

2.4 Gather water-related data for the site

Intent: *To gather and understand critical water-related information about the site. This information is critical to understanding water-related business concerns, and informs both risks and opportunities and suitable responses. As part of this exercise, the intent is also to:*

- *Gather existing efforts to document water-related governance in stewardship or incident response plans;*
- *Establish a basic input-output water balance that will help generate an understanding of where water is entering and exiting a facility. Furthermore, the mass balance diagram with costs will assist in identifying opportunities and cost savings;*
- *Understand the water quality at your site. Your water quality, in turn, will inform your site's physical water risk as well as potential reputational and regulatory risk due to your site's effluent impact on water quality. Knowing water quality may also offer opportunities for cost savings;*
- *Develop an awareness of the presence and status of Important Water-Related Areas on-site. These areas may provide valuable ecosystem services for the site and may have the potential to be treated as assets. Furthermore, some sites may contain important water-related social and cultural areas valuable to stakeholders in the catchment.*

Guidance: Guidance for this criterion is broken down by sub-topic below. However, an overview of the many water accounting tools may be found here: CEO Water Mandate (2011) Corporate Water Accounting, *http://ceowatermandate.org/files/corporate_water_accounting_analysis.pdf.*

Site Water Governance Plans

- Since water governance is all about accountability and responsibility, these should be ultimately included in your water stewardship and incident response plans. If these plans already exist, then this step begins by gathering these documents in order to update them (this links back to Criterion 5.4 and would form the continual improvement loop).
- Sites may refer to these plans under different names (e.g., water management plans, emergency response strategies).
- To conform with this aspect of the criterion, the site must:
    - Provide copies of, or links to:
        - The current water stewardship plan;
        - The current incident response plan.
- For more details on water stewardship and incident response plans, please see the guidance under Criteria 3.2 and 3.3.

Site Water Balance

- Water balance = water withdrawn from source(s) + water gathered on-site - site water consumption - water discharged from site (per meaningful time unit).
- Typically, a water balance exercise involves a mass-balance accounting calculation for the input water (direct from water bodies, gathered on-site and/or via water service providers); water consumed through various processes; and waters returned (to water bodies and/or to water service providers) over a given time period.
- Balance processes also should consider seawater (directly used or desalinated), recycled water, water withdrawn from the atmosphere (e.g., fog) or solid forms of water (e.g., snow, ice).
- Water process losses should include losses to leaks, releases to atmosphere (evaporation, transpiration, vapour/steam releases), irrigation, water retained in product, water retained on-site and any other water consumed on-site.
- Water intensity is a measure of water use per unit of production (goods or services). It is sometimes referred to as "water efficiency" as well and can reference water withdrawals or water consumed.
- The qualifier "by temporally relevant time unit" is intended to ensure that the temporal aspect of the measurement provides a sufficient temporal resolution to be meaningful. In other words, if there is a high degree of temporal variability in terms of the values, the time unit should be more disaggregated (i.e., finer temporal resolution, e.g., daily/weekly), while low degrees of variability may have a more aggregated time unit (i.e., low temporal resolution, e.g., annual or monthly).
- Numerous private-sector operators offer water balance calculation services. Feel free to contact AWS for suggestions.
- To conform with this aspect of the criterion, a site must:
    - Provide a quantified site water balance with inflows, losses and outflows noted as volumes (within a time period) or specifically as rates;
    - Provide a quantified measure of site water intensity with an appropriate metric of water withdrawn or consumed per unit production (averaged over the year).

Useful references and resources:

- Global Environment Management Institute (GEMI) website, *http://www.gemi.org/waterplanner/calc-waterbalance.asp* or *http://www.gemi.org/localwatertool*.
- Minerals Council of Australia, "Water Accounting Framework for the Minerals Industry v1.2," 2012, *http://www.minerals.org.au/file_upload/files/resources/water_accounting/WAF_UserGuide_v1.2.pdf*.

Examples:

- Council of Great Lakes Industries, "CGLI GLPF Water Footprinting Phase I Outcomes," 2011, *http://www.cgli.org/waterfootprint/WaterFootprintWorkshopSlideDeck/CGLI_GLPF_Water_Footprinting_Phase_I_Outcomes.docx.*
- BHP Billiton, "Mount Arthur Coal Complex Site Water Balance: MAC-ENC-PRO-059 Site Water Balance," 2012, *http://www.bhpbilliton.com/home/aboutus/regulatory/Documents/Mt%20Arthur%20Coal%202012/Site%20Water%20Balance.pdf.*
- Xstrata Coal, "Mangoola Coal Appendix 1 – site water balance," 2008, *http://www.xstratacoalmangoola.com.au/EN/Publications/Other%20Publications/mangoola_GEN-HSE-PLN-0006%20Site%20Water%20Balance.pdf*.

Site Water Quality

- Where there are multiple discharge points, each one should be noted if it is in a significantly different location.
- Incoming water quality samples should come from a location on the water body just upstream (<50 meters or equivalent) of the intake point (source water). In the case of water provided from a water service provider, BOTH the provided water AND the source should be tested. The water received from the water service provider should be tested as it arrives on-site.
- Effluent water quality samples should come from a location on the receiving water body just downstream (<50 meters or equivalent) of the discharge point (receiving body). In the case of water received and treated by a water service provider, the effluent water should be tested as it departs the site AND at the receiving water body.
- The data gathered should be used to determine the physical, chemical and biological status of water in the catchment in order to understand the quality status as a baseline and from which to develop targets.
- Parameters of concern can be drawn from:
    - The table of common water quality parameters of concern (see Table A1);
    - Known sector-specific water quality pollutants.
- Currently, where identification of the main water quality parameters of concern is not specified in legal requirements or mandates, it is largely left to the discretion of the site, with local stakeholders being the arbiters. The importance of stakeholder engagement in this regard is critical. This approach ensures that local water quality issues can be taken into account, while providing some level of oversight.
- The qualifier "credible" is intended to ensure that a level of professionalism is employed in the water quality testing methods. "Credible" could mean that the individual has the correct qualifications to undertake such activities, or that the individual is following some established and scientifically robust methodology such as one of the ISO water quality testing standards. Credible measurements should withstand scrutiny from other water quality professionals. The monitoring design and statistical analysis should both be appropriate for the context and able to withstand relevant and credible professional scrutiny.
- Water intakes for municipal use often calculate water quality parameters on a multiple-times-per-day basis. This may provide a resource for monthly, weekly, daily or even hourly source water quality data.
- The qualifier "by temporally relevant time unit" is intended to ensure that the temporal aspect of the measurement provides a sufficient temporal resolution to be meaningful. In other words, if there is a high degree of temporal variability in terms of the values, the time unit should be more disaggregated (i.e., finer temporal resolution, e.g., daily/weekly), while low degrees of variability may have a more aggregated time unit (i.e., low temporal resolution, e.g., annual or monthly).

- Sites should also consider water quality from an internal health and safety perspective to ensure that on-site water is not damaging the health of those using the site (e.g., workers, guests).
- To conform with this aspect of the criterion, a site must:
    - Provide water quality figures on a temporally meaningful frequency and gathered in a credible manner from:
        - Source water bodies
        - Provided waters
        - Effluent
        - Receiving water bodies
    - Note sources (or probable sources) of pollution if identified.

Useful references and resources:

- Available methodologies for how to collect the data yourself:
    - Citizens Environment Watch, "Water quality monitoring with benthic macroinvertebrates: field manual," 2009, *http://www.ecospark.ca/sites/default/files/currents/field_manual.pdf*.
    - US Environmental Protection Agency, "Industry Effluent Guidelines," *http://water.epa.gov/scitech/wastetech/guide/index.cfm*.

On-Site Important Water-Related Areas:

- Note: The following is largely a duplication of the information under the Important Water-Related Areas guidance for Criterion 2.3.
- In terms of gathering culturally Important Water-Related Area data, the site should strive to collect available data; note that in the case where data are not available or relevant stakeholders are not willing to share these data, the site will meet the criterion for the effort, even if data are not collected.
- The concept of "Important Water-Related Areas" is one that encompasses not only environmental areas with high conservation value, but also areas with high cultural and social value. While in some cases these are the actual water bodies (or portions of them), in other cases they are associated wetlands, riparian areas, floodplains, confluences, riverbanks, etc. They may or may not have water in them at any given point, but must have some connection to water in the catchment.
- "Important" is a determination that ultimately lies with stakeholders. Note that the site is not necessarily expected to engage stakeholders per se, but rather, stakeholders have to accept the Important Water-Related Areas that the site identifies. If stakeholders do not accept the identification and/or if sites are being missed, then stakeholder engagement is necessary.
- Stakeholder engagement may be particularly necessary in the case of culturally significant Important Water-Related Areas (e.g., speaking with indigenous people to determine the location of Australian birthing trees along a riverbank or temporary wetlands in agricultural fields that are known only to local farmers).
- Identification also may involve outside experts as well as local stakeholders. Expert input can inform aspects related to the cultural, historical, ecological or geographical significance (e.g., archaeological importance, critical habitat for species at risk, important cultural gathering sites), while local input is important to ensure that current uses and values are taken into consideration (e.g., swimming areas, fishing spots).
- When working with indigenous groups, important water areas should be determined through a stakeholder engagement process based on the principles of free, prior and informed consent (FPIC) and should explicitly consider the role of women and local and indigenous communities.

- The concept of High Conservation Value Areas (HCVAs), derived from the world of forestry, works well for water areas and can assist in the provision of approaches and tools to help identify such areas. See: *http://www.hcvnetwork.org/about-hcvf/the-hcv-process-folder*.
- Environmentally Important Water-Related Areas should include globally, regionally and locally identified water-related areas that are disproportionately important in the values they provide. Areas that are important for aquifer recharge; critical breeding areas for freshwater species or species that rely upon water bodies for critical life stages; areas of high productivity (such as deltas, estuaries and wetlands); and temporary water bodies (e.g., vernal pools) are all examples of environmental Important Water-Related Areas. Some examples and sources of information are noted below:
    - World Database on Protected Areas website, *http://www.wdpa.org*.
    - Alliance for Zero Extinction website, *http://www.zeroextinction.org*.
    - Birdlife International's Important Bird Areas, *http://www.birdlife.org/action/science/sites*.
    - Ramsar Wetlands, *http://www.ramsar.org*.
    - UNESCO biosphere reserves, *http://www.unesco.org/mabdb/bios1-2.htm*.
    - Areas that provide key ecosystem services (see Table A2).
- Socially Important Water-Related Areas can include:
    - UNESCO World Heritage Sites, *http://whc.unesco.org/en/254*.
    - UNESCO, "Cultural Mapping and Indigenous Peoples," 2003, *http://www.landcoalition.org/sites/default/files/publication/704/03_UNESCO_cultural_mapping.pdf*.
- Economically Important Water-Related Areas typically revolve around areas that provide ecosystem services (i.e., natural infrastructure). Some sites that may prove helpful in identifying and quantifying such areas and their services include:
    - Natural Capital Business Hub, *http://www.naturalcapitalhub.org/web/natural-capital-business-hub*. (Site contains links to case studies, data, collaboration opportunities and more).
    - Natural Capital Project website, *http://www.naturalcapitalproject.org*.
    - InVEST Integrated Valuation of Environmental Services and Tradeoffs, *http://www.naturalcapitalproject.org/InVEST.html*. (A GIS-based tool for calculating ecosystem service values, including water-related services).
    - Katoomba Group (2014) Ecosystem Marketplace, *http://ecosystemmarketplace.com*, including 2013 report "Charting New Waters," *http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=9544&section=water_market&eod=1*.
    - Locally and regionally identified areas that provide livelihoods or contribute disproportionally to the local economy (e.g., fishing, hunting, eco-tourism).
    - IUCN, "Value: counting ecosystems as water infrastructure," 2004, *http://data.iucn.org/dbtw-wpd/edocs/2004-046.pdf*.
- Regardless of the method employed to identify Important Water-Related Areas, it is strongly suggested that the identified areas be reviewed by stakeholders since the term "important" is entirely subjective. While stakeholder consultation is not required in Important Water-Related Area identification, it is highly recommended since omitting some areas that are important to key stakeholders may result in significant reputational water risk for the site being ignored.
- AWS recommends looking to government and NGO resources (international, national and local) to help identify such areas.

Status:

- In addition to identification of such areas, this criterion also involves understanding their condition or "status". The status is a measure of the quality of the current condition of the area relative to its normal or healthy status. For example, is a site degraded or is it functioning as it should?

- The current status of the Important Water-Related Area may be described in qualitative or quantitative terms. The general idea is to gain a sense of whether the area is in good condition, heavily impaired or somewhere in between.
    - At a minimum, sites should strive to describe the status of the Important Water-Related Area on a scale ranging from 0 to 5 using the following guidance:
        0. The site has been lost or is beyond a cost-feasible restoration effort.
        1. The site is in a severely degraded condition and will require considerable restoration.
        2. The site is in a somewhat degraded condition and will require some restoration.
        3. The site is in an acceptable condition, but its condition could be improved.
        4. The site is in good condition and will require little work.
        5. The site is in excellent condition, requires no work and is an example of a well-preserved site of that type.
    - "Lost" Important Water-Related Areas are sites that used to exist and, in theory, should still exist but have been degraded by human activity (e.g., wetlands that were ploughed over; a river with religious significance that is not suitable for use due to poor water quality; a fish spawning site that was quarried for gravel).
    - The concept of ecological integrity (Table A3 – see guidance for Criterion 2.3) is tied to "ecological status" and is a more robust and applicable method for those sites that have ecological importance. Details on describing the ecological integrity of an area can be found here:
        - Unnasch et al., "The Ecological Integrity Assessment Framework: A Framework for Assessing the Ecological Integrity of Biological and Ecological Resources of the National Park System," 2009, *http://www.sound-science.org/NPS_Ecological%20Integrity%20Framework.pdf*.
        - A similar approach tailored for wetland areas may be found here (and adapted for other locations): NatureServe, "Ecological Integrity Assessment and Performance Measures for Wetland Mitigation," 2006, *http://www.natureserve.org/publications/eia_wetland_032707.pdf*, with examples of completed assessments found here: http://www.natureserve.org/conservation-tools/standards-methods/ecological-integrity-assessment.
    - For cultural or social water-related sites, status determination likely will be through cultural experts, including elders, spiritual leaders, community councils, etc. The scale noted before should be employed and a consensus agreement obtained on the general condition of the area.

Useful references and resources:

- IWMI (2013) Global Wetlands Initiative, *http://www.iwmi.cgiar.org/wetlands*.
- UNEP-WCMC (2013) World Database on Protected areas, *http://www.wdpa.org*.
- WWF & TNC (2013) Freshwater Ecoregions of the World, *http://www.feow.org*.
- Alliance for Zero Extinction Sites, *http://www.zeroextinction.org*.
- Birdlife International (2013) Important Bird Areas, *http://www.birdlife.org/action/science/sites*.
- Ramsar (2013) Ramsar Wetlands, *http://www.ramsar.org*.
- UNESCO biosphere reserves, *http://www.unesco.org/mabdb/bios1-2.htm* and *http://whc.unesco.org/en/254*.
- Conservation Measures Partnership (2007) Open Standards for the practice of Conservation, *http://www.conservationmeasures.org/wp-content/uploads/2010/04/CMP_Open_Standards_Version_2.0.pdf*.
- HCV Resource Network, *http://www.hcvnetwork.org/about-hcvf/the-hcv-process-folder*.
- A-Z Areas of biodiversity importance, *http://www.biodiversitya-z.org/areas/18*.

- Indigenous and Community Conserved Areas, *http://www.iccaregistry.org.*
- Plantlife International (2013) Important Plant Areas, *http://www.plantlifeipa.org/reports.asp.*

Examples:

- Northern Lancaster Groundwater Study: Critical aquifer recharge areas, *http://www.srbc.net/atlas/downloads/LowerSusqProjects/NLCGWS/1144j_NLCGS_MapPlate.PDF.*
- CSIRO, "Water and Indigenous People in the Pilbara, Western Australia: A Preliminary Study," updated 2012, *http://www.csiro.au/Organisation-Structure/Flagships/Water-for-a-Healthy-Country-Flagship/Water-Resource-Assessment/Water-and-Indigenous-People-in-the-Pilbara-Summary.aspx*.

Site Water-Related Costs, Revenues and Shared Value Creation

- Gathering cost information will help the site prioritize and conduct the financial analyses to determine costs and benefits.
- Water-related costs are often broader than initially perceived; they include more than just procurement of water and treatment of water.
- Water-related costs should be considered more holistically, and may include:
    - Total amount spent to procure water
    - Total amount spent to ensure that water is treated
    - Total amount spent to perform secondary or tertiary treatment (either inflows or outflows)
    - Total amount spent on energy for the movement of water
    - Total amount spent on energy for the heating and cooling of water
    - Cash payments made outside the organization for water-related materials, product components, facilities and services purchased. This includes water-related property rental, license fees, facilitation payments, royalties, payments for contract workers, employee training costs (where outside trainers are used) and employee protective clothing.
    - Total payroll for water-related staff
    - Payments to providers of capital for water-related projects (e.g., infrastructure)
    - Total amount spent on water-related infrastructure
    - Payments to government for water-related matters (e.g., permits or water-related property taxes)
    - Community investment costs (i.e., voluntary donations and investments in the catchment where the target beneficiaries are external to the site; e.g., charities, community infrastructure, social programmes)
    - Water-related fines or penalties
    - Total cost managing water-related stakeholder challenges (including litigation where applicable)
    - Total water-related costs
- Water-related revenues may include:
    - Total amount received from net sales of water-related goods
    - Total amount received from net sales of water-related services
    - Total amount received from net sales of water-related assets (e.g., property, infrastructure, equipment) and intangibles (e.g., IP, designs, brand rights)
    - Water-related ecosystem services provided from on-site natural infrastructure (Note: this can also be considered an asset)

- Shared value creation:
    - While the term "creating shared value" has received considerable attention in recent years, the concept of generating positive benefits for those outside of a company/entity is far from new. As considered within Criterion 2.4, this aspect of the Standard relates to the site's creation of economic value, social value or environmental value that benefits stakeholders outside of the site.
    - It is generally difficult (if not impossible) to separate value creation from water-related value creation since the site requires water to operate. As such, the shared value creation is broadly defined rather than restricted to water-related contributions.
    - Examples of each of these different areas include:
        - Economic value: workers' jobs and wages, payments to government (as noted above under "costs"), payments to others through operating costs, and community investments (see above under "water-related costs");
        - Social value: improved health (water-related), improved education (water-related), improved civic engagement in catchment governance processes and improved water recreational opportunities;
        - Environmental value: improved freshwater or wetland habitat health, lowered pollution emissions and healthier freshwater species; generally includes the array of water-related ecosystem services.
    - While it is not required, sites are encouraged to record how they calculated the shared value creation.
    - Sites are free to use whatever metrics they feel are appropriate so long as they capture the intent of *water-related value generated by the site for others.*
    - Though AWS does not prescribe a specific methodology to calculate shared value creation, sites can employ the original methodology for calculating shared value developed by Michael Porter and Mark Kramer and their consultancy, FSG (2012) Measuring Shared Value, *http://www.fsg.org/Portals/0/Uploads/Documents/PDF/Measuring_Shared_Value.pdf.*

2.5 Improve the site's understanding of its indirect water use

Intent: *To continually improve your understanding of how you are exposed to water risk within your supply chain and how you could be affected by water risk via your primary commodity inputs and outsourced water service. This criterion helps sites begin to understand how they are contributing to the overall water use (consumption and quality) through their supply chain. It is also intended to steadily raise the bar for those sites with significant indirect water use by requiring a growing improvement in their understanding of how they may be outsourcing water challenges to other catchments.*

- It is important to stress at the beginning that this criterion does not involve mapping one's complete supply chain. AWS recognizes that mapping one's supply chain is a complex, costly and time-consuming exercise, which, despite bringing beneficial insights, is beyond the capacity of many, if not most, sites. Furthermore, AWS recognizes that for many sites (especially small and medium-sized enterprises), their ability to influence suppliers may be limited.
- Rather, due to the above, this criterion is about beginning to understand the importance of indirect water use by sites and giving the site some degree of understanding of its reliance upon water (both quantity and quality) from other locations. The expectation is that once a site has begun to understand the importance of its reliance upon water in its supply chain, it can take action if necessary and/or steadily increase this understanding through time.
- Despite the challenges, indirect water use is a very important part of water stewardship. Developing an understanding of indirect water use is something that is increasingly recognized as good practice, and there have been increasing efforts put into how to measure water use within the supply chain. Different sites will have a

greater or lesser degree of reliance upon indirect water for their operations, and this should be taken into account when determining the level of expectation around continual improvement.
    - Sites that mainly rely upon direct water consumption for their operations and whose focus is the production of primary inputs (i.e., natural resource sectors who derive their revenues from the extraction of environmental goods – e.g., agriculture, mining, forestry, oil and gas) are likely to require less attention and a less sophisticated understanding of their indirect water use (since it is less- or non-material to their operations).
    - Sites that mainly rely upon input products for their operations and whose focus is on the modification/improvement of goods and services based upon primary products (i.e., sectors who derive their revenues from converting primary inputs into added value goods and services – e.g., manufacturing, processing, services) are likely to require more attention and a more sophisticated understanding of their indirect water use (since it is more or highly material to their operations).
- As an initial step in understanding indirect water use, this criterion requires the site to gather information on primary inputs and estimated origins, as well as outsourced water use. Primary inputs are the main commodities (goods) and services (including energy, water, etc.) that go into the goods or services created by the site.
- Primary inputs are the materially important product(s) or service(s) that a site consumes to generate the product(s) or service(s) it provides as its primary function. These can be thought of as the "main ingredients" that a site needs to run (e.g. aluminium, sugar (cane), CO_2, water and oranges, as well as an outsourced "cleaning service" for a site producing a canned, orange drink with bubbles). Note: primary inputs do not include infrastructure.
- Primary inputs should include any externally procured goods or services that account for over 5 per cent of the total weight of the goods generated, or 5 per cent of the costs of a site. For example, lumber, energy and water likely would be some of the primary inputs for a pulp and paper facility. Aggregate, energy and water likely would be the primary inputs for a mineral smelter. Fertilizer, seeds and water likely would be the primary inputs for a vegetable grower.
- Note: In the case that there is an input that does not meet this generic threshold (e.g., it is only 3 per cent by cost) but is significant in its water use these should be included (if known). Through time, a site should work to make these determinations and distinctions to fully understand risk exposure through indirect water use.
- Where products derive from commodity markets, this will be accepted as an end point that need not be traced back further. In such cases, global indirect water use numbers should still be used and through time, sourcing should be determined and/or estimated.
- Where products are compound (e.g., an electronic circuit board with various plastic and metal components) and difficult/impossible to determine a simple indirect water use calculation, the origin should still be noted to determine if the product is being manufactured in a water stressed catchment.
- The term "origin" is used in the criterion to provide sites with the flexibility to identify the highest resolution of geographical data available from country down to catchment. Ideally, the smaller the area of the origin identified, the better. To conform with this criterion, the site must:
    - Provide a list of primary inputs (or all material inputs) with their associated annual (or better) water use and origin (country/region/catchment – as appropriate) as well as the origin's level of water stress;
    - Provide a list of outsourced services that consume water or affect water quality and:
        (A) If possible, obtain the water volume used by the outsourced service(s) (Mm3 or m3 per year or better);
        (B) Estimate your percentage of their business and extrapolate a value;
        (C) Repeat (A) and (B) for water quality, focusing on water quality parameters of concern.
- To conduct a simple indirect water use calculation:
    1. Gather a list of primary input commodities ("primary inputs" are defined above and in Appendix A: Glossary).

2. For each commodity/input, list its total annual consumption (in kg, t, L, ML, or unit as appropriate) and its country/region/catchment of origin.
3. Look up the water use through existing calculations. The site is not expected to generate new data, but rather draw upon existing data. The Water Footprint Network (WFN) has an extensive database of products (that also includes locations) publicly available online: *http://www.waterfootprint.org/?page=files/WaterStat*. If using the WFN data, the commodity as well as its country (or even region) of production may be determined. If location is unknown, use global averages.
4. Multiply the annual consumption amounts against the appropriate commodity/source region water footprint values to get an estimate of total footprint.
5. Using readily available data (e.g., WFN Tool, WRI's Aqueduct Tool, WWF Water Risk Filter maps), review source locations to determine whether any water concerns are present in the basins being sourced (e.g., is the water use sustainable, or are the basins stressed?). Note any products/source areas of concern combinations that should be considered. These are the commodities that may experience price volatility or availability interruptions; therefore, consider alternative sourcing options and consider building into contingency planning.

- Where data do not exist (per the above methodology), which is likely the case for composite inputs, the site is not expected to generate primary data. However, it still expected to note the country/region/catchment of origin and whether the area experiences water risks (per the last step, v, in the above methodology). The preference is to link the primary input to a catchment and note (and understand) that catchment's water stress.
- It should be noted that several well-recognized methodologies have emerged in recent years to measure indirect water use, most notably the Water Footprint Network's Water Footprint Assessment Methodology and the ISO 14046 Water Footprint Life Cycle Analysis methodology, currently being finalized. Each of these, from different angles, measures indirect water use.
- Outsourced services that consume water are typically processes that are required for the ongoing operations of the site. This is often, but not always, connected to cleaning services but may also relate to sanitation services or other water-related services.
- Note: It is important to stress that for sites that rely upon indirect water, this criterion is based upon the premise of continual improvement. Through time, those sites that rely upon indirect water use are encouraged to undertake more comprehensive evaluations as outlined in Criterion 2.11 and in turn take action, as outlined in Criterion 4.16. This is a particularly important aspect of this criterion since the initial "primary inputs" identified may not be the most water-intensive/impactful products used by the site. Some low-volume products can have a very large water footprint (e.g., many animal products).
- Continual improvement should come in the form of an ever-improving understanding of the sources of indirect water use, including being able to identify the most material inputs (from a water perspective), better understanding the status of the source catchments, and improving the temporal and spatial resolution of the site's understanding. This should occur until such time as the site conforms with Criterion 4.16.

Useful references and resources:

- SABMiller and WWF (2009) "Water Footprinting: identifying & addressing water risks in the value chain," *http://awsassets.panda.org/downloads/sabmiller_water_footprinting_report_final_.pdf*.
- WFN methodology, *http://www.waterfootprint.org/?page=files/WaterFootprintAssessmentManual*.
- Veolia's Water Impact Index, *http://growingblue.com/footprint-tools/water-impact-index*.
- WFN WaterStat, *http://www.waterfootprint.org/?page=files/WaterStat*.
- WWF (2014) WWF-DEG Water Risk Filter, *http://waterriskfilter.panda.org*.
- World Resources Institute (WRI) (2014) Aqueduct water risk tool, *http://insights.wri.org/aqueduct*.
- World Business Council on Sustainable Development, Global Water Tool, *http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx*.

- ISO 14046, *http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=43263.*
- Water Futures Partnership (2009) Water Footprinting – Identifying & addressing water risks in the value chain, *http://www.water-futures.org/fileadmin/user_upload/PDF/2009_Water_Footprinting_Report.pdf.*

Examples:

- WSA's Dairy Field Trial (2013), *http://waterstewardship.org.au/wsa-publishes-full-field-trial-report.*

2.6 Understand shared water-related challenges in the catchment

Intent: *To link the water challenges identified by stakeholders with your site's water challenges in order to understand shared water challenges. These shared water challenges represent opportunities to create shared value through collective action. Ultimately, this information is beneficial in developing your water stewardship plan (Criterion 3.2) by identifying areas where you can, or must, work together with others to achieve shared interests.*

Guidance:

- Since water is a shared resource, and its use within a catchment is a shared experience, the idea of shared water challenges is fundamental to the concept of water stewardship. It is perhaps the aspect that most clearly separates water management (which is about site-level control) from water stewardship (which encompasses water management but extends to catchment-level collaboration).
- This criterion is largely a synthesis effort in which information gathered in Criteria 2.1-2.5 is pulled together to identify those water challenges that are in common with your site and other stakeholders. These are referred to as "shared water challenges".
- Shared water challenges often revolve around the water stewardship outcomes but, given a site's context, may be very specific to one or more outcome area. For example, the challenge may broadly revolve around water quality but be specific in that arsenic is causing a lack of available drinking water. It may also be something that cuts across outcomes, such as impacts of extreme climate and weather events on shared infrastructure.
- Shared water challenges (Criterion 2.6) are distinguished from stakeholder water challenges (Criterion 2.2) by virtue of the fact that the site is also affected directly or indirectly by these challenges. Water challenges might be shared because both sites face the same issue (e.g., both sites face water scarcity) or because stakeholders are concerned about the site's impacts upon that issue, real or perceived (e.g., the site has no concerns about water quality since it is meeting legal requirements, but stakeholders are concerned about cumulative impacts of a pollutant that the site is linked to. In this case, water quality would be a shared water challenge).
- The term "shared water challenge" was favoured over "shared water risk" because, while challenges can be faced by anyone, water risk (in the context of the Standard) is experienced by each stakeholder independently (including, most notably, the site). A given challenge, plus the *impact* that the site would experience, plus a *probability* of that impact occurring results in a water risk for the site. For instance, if WASH were the shared water challenge + a material number of sick workers = lost productivity (the impact) + the condition of sick workers being a regular occurrence (high probability of impact), then WASH would be a water risk for the site as well as a shared water challenge for the community.
- The site is free to prioritize the shared water challenges however it sees fit, but there should be some sort of ranking of shared water challenges. For continual improvement purposes, it is necessary to document the justification or rationale used for prioritizing the challenges.
- Where possible, it is helpful (though not required) to map out shared water challenges and the drivers of those challenges.

- To conform with this aspect of the Criterion, the site must provide a prioritized and justified list of shared water challenges with linked/associated public-sector agency initiatives identified.
- A table such as the following may prove useful (but is not required):

Table A7: Shared water challenges

Water challenge	Associated public-sector agency initiative	Relevance/rationale for stakeholders	Relevance/rationale for site	Priority	Rationale for prioritization
e.g., Loss of wetlands	Ministry of Environment RAMSAR work	Important for fishing	Important for primary water treatment	2	While valuable, treatment can be paid for through other means
e.g., Lack of summer river flows in dry years	Ministry of Water's water allocation review process; Ministry of Agriculture's water efficiency programme	Water restrictions for people, inability to navigate river in small boats, greater costs	Production limitation due to restrictions, increased costs	1	Critical issue that adds cost and can significantly slow down operational outputs for the site

The following is a list of potential shared water challenges (Note: list is drawn from CDP Water, with modifications):

- Physical:
  - Extreme events (i.e., climate change), including flooding
  - Impaired or declining water quality
  - Ecosystem vulnerability (due to volume and quality of water)
  - Inadequate infrastructure
  - Increased water scarcity. This may include longer-term drought (and effects upon energy production – especially where there is a hydropower dependency – and food and water for drinking and sanitation) as well as seasonal supply variability/interannual variability.
  - Projected water scarcity
  - Increased water stress (including pollution of water supply)
  - Projected water stress
- Regulatory and governance:
  - Higher water prices
  - Increased difficulty in obtaining water permits/licenses/allocations and/or statutory water withdrawal limits/changes to water allocation
  - Lack of transparency of water rights
  - Limited or no catchment management agencies/plans/actions
  - Challenging mandatory water efficiency, conservation, recycling or process standards
  - Poor coordination between regulatory bodies
  - Poor enforcement of water regulations

    - Regulation of discharge quality/volumes leading to higher compliance costs or service charges
    - Regulatory uncertainty, including unclear and/or unstable regulations on water allocation and wastewater discharge
- Other socio-cultural issues:
    - Infringement upon cultural and religious values
    - Inadequate access to water, sanitation and hygiene
    - Increased prevalence of water-borne diseases
    - Infringement upon indigenous values

Useful references and resources:

- WWF (2012) "Shared risk and opportunity in water resources: seeking a sustainable future for Lake Naivasha," *http://awsassets.panda.org/downloads/navaisha_final_08_12_lr.pdf.*
- WWF (2009) "Investigating shared risk in water," *http://awsassets.panda.org/downloads/investigating_shared_risk_final_low_res.pdf.*
- Water Futures Partnership (2010) Water Futures: working together for a secure water future, *http://www.water-futures.org/fileadmin/user_upload/PDF/2010_Water_Futures_Report.pdf.*
- Water Futures Partnership (2011) Water Futures: addressing shared water challenges through collective action, *http://www.water-futures.org/fileadmin/user_upload/PDF/2011_Water_Futures_Report.pdf.*

2.7 Understand and prioritize the site's water risks and opportunities

Intent: *To translate all of the information gathered in Step 2 into meaningful information for the site in terms of risks and opportunities. This criterion ensures that you understand the implications for what you must do to mitigate water risks and take advantage of opportunities to create shared value. The information from this criterion is used to develop your water stewardship plan in Criterion 3.2.*

Guidance:

- The majority of Step 2 involves gathering data on water, both at the site and for the site's context. Criterion 2.7 is the culmination of this effort and centres around processing this information to fully understand the water-related risks and opportunities that the site faces. Accordingly, the site should employ data from Criteria 2.1-2.6 in completing 2.7.
- In interpreting the data from Step 2, the site should first:
    - Consider its impacts:
        - the impact of its water balance, given the local context;
        - the water quality impacts, given input (or ambient) levels and the desired water quality for receiving water bodies;
        - the impact of local governance on the site and catchment;

- the contribution to the status of Important Water-Related Areas in the catchment (with a focus on the Important Water-Related Areas at the site, if applicable).

Note: It may be helpful for the site to develop impact metrics (see Table A4).

- To conform with this criterion, the site must:
  - Write and prioritize a risk profile that speaks to the physical, regulatory and reputational water risks. This risk profile should contain a description of the potential *severity of the impact* and its *likelihood within a given time frame*;
  - List and prioritize water-related opportunities at the site and within its catchment (for economic, social and environmental improvement);
  - Quantify the site's cost savings and value creation for all high-priority opportunities.
- There are various existing online platforms to assist in the exercise of developing a water risk profile, a number of which are noted below under "references". Note: the risk profile is for the site and catchment and need not include supply chain elements. If, stemming out of Criterion 2.5 or through other means, a site has a sense of the risks that it faces through its supply chain, it is encouraged to include it here, but it is not required for compliance with the criterion.
- In considering its risks, the site should factor in past, present and future considerations.
- For a list of impacts/opportunities at the catchment level, see Table A8. Site benefits could include such things as: cost savings, increased brand value, improved water efficiency, regulatory changes, sales of new products/services, staff retention, improved productivity, access to specific requests for proposal (RFPs), etc.
- Potential value creation through water stewardship may include such things as: price premiums, access to new markets, increase in production (efficiency improvements), reduction in variable costs (water, energy-water, quality inputs, treatment), reduction in fixed costs (infrastructure depreciation rate), improved access to capital (lower risk, better rates), natural capital asset creation/preservation (ecosystem services and possible payment schemes), staff retention through cost savings from regained lost staff time due to WASH-related absenteeism, etc.
- At the site level, opportunities are typically quantified in financial terms but may be quantified in other terms if non-financial value is of material benefit to the site.
- Financial savings/value creation may be calculated in a format that is meaningful to the site, but AWS encourages use of net present value (NPV).
- The information generated from this criterion is intended to set the stage for the development of the water stewardship plan.

Table A8: Impacts/Opportunities

	Social, Cultural and Health Impacts/Opportunities	Economic (Financial & Livelihood) Impacts/Opportunities	Environmental (Species & Habitats) Impacts/Opportunities
1	Access to improved source(s) of drinking water (impacts to quantity or quality)	Value of tourism/number of tourists	Abundance of native freshwater species
2	Abundance of commercial fish species, shellfish and/or edible aquatic plants	Value of hydropower generation potential/amount of hydropower generated	Abundance of freshwater species within the area of influence that are Vulnerable, Endangered or Critically Endangered
3	Area of floodplain or lakeshore farming opportunities	Value of navigation/estimated distance of water-based travel	Abundance of non-native or invasive species
4	Productivity of floodplain or lakeshore grazing (capacity)	Value of agricultural production /total agricultural production by crop	Area of high-value habitats

5	Abundance of wildlife/bird populations (hunting opportunities)	Value of water supply/number of days of disrupted water supply	Groundwater recharge capacity
6	Abundance of floodplain/lakeshore vegetables, fruits, spices, honey	Value of recreation opportunities/number of recreation enthusiasts	Water purification capacity
7	Loss of access to shallow groundwater for farming, drinking, cooking	Costs for cleaning/poor-quality water	Amount of saltwater intrusion into freshwater supplies
8	Abundance of medicinal plants	Sanctions imposed by competent authorities for water use in violation of the applicable regulatory framework Pending administrative or civil procedures for violations of the applicable regulatory framework or civil or criminal liability for social and environmental injury associated with the site's activities	Amount of sediment delivery; increases or decreases to downstream areas
9	Abundance of fuel-wood for cooking and heating	Rated scale of perceived reputation (social license to operate)	Amount of carbon trapping (sequestration) capacity
10	Abundance of building materials (timber, reeds, grass, gravel, sand, clay)	Business costs of regulatory changes to water pricing, escalating costs of water supply or increases in costs involved in the licensing procedure for new permits or for renewing existing ones	Alteration of nutrient cycling and deposition on floodplains
11	Abundance of craft materials (wood, grass, reeds, feathers, shells, bone, etc.)	Business costs of compliance with the applicable regulatory framework that affect ability to operate, viability and bottom-line Business costs with implementation of judicial and/or administrative decisions or settlements (e.g., compensatory, corrective, restoration, control or mitigation measures)	Capacity to flush/leach salts or acids from floodplain and lakeshore soils
12	Time spent to access areas to perform clothes washing or bathing (sanitation opportunities)	Market share increase/decrease in value attributed to perceptions, disclosure, response, actions, inactions, inconsistent supply, etc.	Ratio of soil erosion and sediment deposition to natural soil erosion and sediment deposition processes
13	Per cent access to sanitation	Number of water-related jobs created	Natural controls on pests and disease vectors
14	Prevalence of disease (e.g., malaria)	Other?	Flood retention capacity
15	Number of days where water-based transportation or trade routes cannot be navigated due to water withdrawals		Other?
16	Rated scale of perceived loss of recreational opportunities (hunting, fishing, wildlife viewing, boating, swimming, etc.)		

17	Rated scale of perceived loss of cultural or spiritual practices
18	Other?

Useful references and resources:

- There are numerous resources related to understanding the concept of water risk:
  - WWF (2012) Understanding water risk: a primer on the consequences of water scarcity for governments and business, WWF Water Scarcity Series IV, *http://awsassets.panda.org/downloads/understanding_water_risk_iv.pdf*.
  - WWF (2009) Investigating Shared Risk in Water: Corporate Engagement with the Public Policy Process, *http://awsassets.panda.org/downloads/investigating_shared_risk_final_low_res.pdf*.
  - WWF (2012) Shared risk and opportunity in water resources: seeking a sustainable future for Lake Naivasha, *http://awsassets.panda.org/downloads/navaisha_final_08_12_lr.pdf*.
  - WWF (2011) Assessing Water Risk: A Practical Approach for Financial Institutions, *http://awsassets.panda.org/downloads/deg_wwf_water_risk_final.pdf*.
  - SABMiller and WWF (2009) Water footprinting: Identifying and addressing water risks in the value chain, *http://awsassets.panda.org/downloads/sabmiller_water_footprinting_report_final_.pdf*.
  - Lloyds and WWF (2010) Global Water Scarcity: Risks and challenges for business, *http://awsassets.panda.org/downloads/lloyds_global_water_scarcity.pdf*.
  - WWF (2009) 21st Century Water: Views from the finance sector on water risk and opportunity – discussion paper, *http://awsassets.panda.org/downloads/21st_century_water.pdf*.
  - WWF (2009) Investigating shared risk in water, *http://awsassets.panda.org/downloads/investigating_shared_risk_final_low_res.pdf*.
  - Pacific Institute and Ceres, "Water Scarcity and Climate Change: Growing Risks for Businesses and Investors," 2009, *http://www.pacinst.org/reports/business_water_climate/index.htm*.
  - Ceres (2013) Assessing Water System Revenue Risk: Considerations for Market Analysts, *http://www.ceres.org/resources/reports/assessing-water-system-revenue-risk-considerations-for-market-analysts/view*.
  - Ceres (2012) Ceres AquaGauge: a framework for 21st century water risk management, *http://www.ceres.org/resources/reports/aqua-gauge/view*.
- There are also many water risk tools that can assist in developing a water risk profile:
  - WWF-DEG (2014) Water Risk Filter, *http://waterriskfilter.panda.org*.
  - World Resources Institute (2014) Aqueduct, *http://insights.wri.org/aqueduct*.
  - World Business Council on Sustainable Development (2014) Global Water Tool, *http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx*.
  - Global Environmental Management Institute (GEMI) (2014) Local Water Tool, *http://www.gemi.org/localwatertool*.
  - Veolia (2014) The Growing Blue Tool, *http://growingblue.com/the-growing-blue-tool*.

- Water valuation work that may assist your thinking:
  - OECD (2006) Cost-Benefit Analysis and the Environment: Recent Developments 2006: *http://www.oecd.org/greengrowth/tools-evaluation/36190261.pdf*.
  - WBCSD (2012) Water valuation: building the business case: *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15099&NoSearchContextKey=true*.

- WBCSD (2013) Business guide on water valuation: an introduction to concepts and techniques: *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15801&NoSearchContextKey=true.*
- FAO (2004) Economic valuation of water resources in agriculture, Economic valuation techniques, *http://www.fao.org/docrep/007/y5582e/y5582e00.htm*.

Examples:

- WBCSD (2012) Water valuation Business case study summaries, *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15098&NoSearchContextKey=true.*
- Trucost & Puma: This is an excerpt from an Environmental Profit & Loss case study, which provides a cost curve based upon scarcity. While not universal by any means, it is an interesting concept, which could be explored and expanded upon by other sites/organizations, *http://www.trucost.com/_uploads/publishedResearch/5_-_PRESS_KIT_Water_Valuation.pdf*. More details on the case can be found here: *http://www.trucost.com/blog/1057the-true-cost-of-clothing*.

2.8 Support and undertake joint water-related data collection

Intent: *To encourage data gathering to be done in a collaborative manner and thereby help reduce redundancy and promote collaboration and coordination.*

Points: 4

Guidance:

- Data gathering is required throughout all of the core criteria of Step 2. This criterion is intended to recognize data collection for any of those criteria that is done in collaboration with stakeholders from the catchment (or with those who have jurisdiction over the catchment).
- It is likely that Criteria 2.1, 2.2 and 2.3 are particularly suited to collaboration, though any of the criteria within Step 2 are technically eligible.
- Note: cases where data are simply gathered from another source (i.e., have been previously gathered by another stakeholder and are now being provided to the site) do not conform with this criterion.
- To qualify as "jointly gathered", data must be either (A) accessed through joint efforts to release data that was previously publicly unavailable, (B) acquired through joint gathering (either through in-kind or financially supported means), or (C) newly provided by the site to others.
- In all cases, the site must have been a part of the "joint effort".
- Providing funds to a joint monitoring and evaluation system would conform with this criterion.
- Posting your own proprietary data into the public domain would conform with this criterion.
- Note: it does not apply to entities hired by the site to help generate data, unless those entities are in turn collaborating with catchment-based stakeholders.
- While data most often come from public-sector agencies and are provided to citizens and businesses, there are times when sites generate their own data, which, in turn, can be contributed to the public sector. Providing such data can help fill key data gaps and promote the notion of shared responsibility for shared resources.
- The choice of shared data is up to the implementer, and commercially sensitive data need not be shared. For more details on commercially sensitive data, please see: *http://www.businessdictionary.com/definition/sensitive-information.html#ixzz2LOzHCpOE*.
- Similarly, sites are encouraged to share water data with others in the catchment – not only with the public sector but also with civil society and businesses.

- Data need to be gathered in a manner (or by using a technique) that is acceptable to the relevant entity.
- Some have proposed the development of a global, online water data-sharing hub such as: Salas, F.R., and Maidment, D. (2011) World Water Online Proposing an Integrated System for Global Water Information, *http://www.geossamericas2011.cl/lectures/WRM/WorldWaterOnline.pdf*. There are some sites that are attempting to emulate this sort of system. See references below. Perhaps the one that is closest at this point, but still not fully developed, is the Water Data Hub, *http://waterdatahub.org/*.
- Note: this form of collective action (i.e., join data gathering) does not count toward Criterion 4.15 (collective action).
- To conform with this criterion, the site must provide evidence of water-related data that was jointly gathered as qualified above.

Useful references and resources:

- Ushahidi (2014) Crowdmap, *https://crowdmap.com/welcome,* a GIS-based citizen-mapping platform that can help enable water-related data collection.
- CEO Water Mandate (2014) Water Action Hub, *http://wateractionhub.org/*, a platform for collaboration that can be used to work together on data gathering (Note: section on knowledge sharing can be used to help identify others interested in this activity).
- Kansas Riverkeepers (2014) The Citizen Mapper Project, *https://sites.google.com/site/citizenmapper/google-tools-crash-course.*

Examples:

- Institute of Public and Environmental Affairs (IPE) (2014) Pollution Map, *http://www.ipe.org.cn/en/pollution/corporation.aspx.* Pollution Map was a collaboration between NGOs and IPE, who, as a registered NGO, coordinates with the Chinese authorities to identify sites illegally discharging pollution into water bodies in China. This data are then publicly shared.
- Coca-Cola collaborated with the World Resources Institute to provide data that informed the development of Aqueduct. While not "site-specific", this is a good example of collaboration on water-related data between the private sector and an NGO. World Resources Institute and The Coca-Cola Company (2011) "The Coca-Cola Company Donates Extensive Water Risk Database To Aqueduct," *http://insights.wri.org/aqueduct/2011/09/coca-cola-company-donates-extensive-water-risk-database-aqueduct*.

2.9 Gather additional, detailed water-related data

Intent: *To recognize and incentivize sites that gather additional data and develop a deeper understanding of water-related issues or that generate data in highly data-deficient environments.*

Points: 3

Guidance:

- Criteria 2.1-2.7 require sites to gather and understand various types of data. However, since data availability and depth of effort will vary from site to site, this criterion exists to recognize those sites that have gone beyond the requirements listed in terms of depth, scope, frequency, etc., of data collection.

- This includes "better" data for core criteria (more frequent, more rigorous, etc.) as well as "more" data than the core criteria call for.
- AWS appreciates that, where employed, certification bodies likely will need to make a discretionary call with respect to this criteria with additional guidance to be established to help ensure consistency over time. Until such time, sites can make a case for why their data-gathering efforts should qualify for this advanced-level criterion.
- It cannot include any data required by the core criteria except in the case where the site has had to generate such context data from scratch. If a site exists in an environment where little or no catchment data exist, then the site will be granted these points if it generates such data. This is to recognize the extra effort that sites in data-deficient environments must give in order to obtain such data.
- Where sites gain access to additional more-detailed water-related data through a joint data-gathering exercise, the site would only gain credit through Criterion 2.8, not 2.9 as well.
- Note: Generation of site data does not count toward fulfilment of this criterion.
- Note: Since Criterion 2.5 has a related advanced-level criterion already (2.11), it is ineligible for the points in 2.9.
- Note: Sites are not entitled to gather points for data sets that contribute to points in 2.11 and 2.14.
- To conform with this criterion, the site must provide evidence of data gathering that exceeds core requirements in terms of quality, scope, etc. and provide a justification for why it feels it conforms with this criterion.

Useful references and resources:

- Allison, G.B. et al., "Vadose-Zone Techniques for Estimating Groundwater Recharge in Arid and Semiarid Regions," *https://www.crops.org/publications/sssaj/abstracts/58/1/SS0580010006?access=0&view=pdf*.
- USGS, "Selected Methods for Estimating Groundwater Recharge In Humid Regions," 2013, *http://water.usgs.gov/ogw/gwrp/methods/methods.html*.
- Gee, G.W., and Hillel, D., "Groundwater recharge in arid regions: Review and critique of estimation methods," *Hydrological Processes*, Volume 2, Issue 3, pp 255–266, July/September 1988, *http://onlinelibrary.wiley.com/doi/10.1002/hyp.3360020306/abstract*.
- Scanlon, B.R. et al., "Choosing appropriate techniques for quantifying groundwater recharge," *Hydrogeology Journal*, February 2002, Volume 10, Issue 1, pp 18-39, 2002, *http://link.springer.com/article/10.1007%2Fs10040-001-0176-2?LI=true*.
- See Guidance for 2.1, 2.2, 2.4, 2.5, 2.6, 2.7.

Examples:

- Frequency of data collection (e.g., water quality measurements on an hourly basis).
- Extent of data gathered (e.g., a comprehensive set of water quality data rather than just a few metrics).
- Quality of data (e.g., a very detailed assessment of Important Water-Related Areas).
- Data gathered on water-related illness statistics, figures on the economic value of water in the catchment, water allocation data for the catchment, lists of freshwater species in the catchment, groundwater data, etc.
- Contextual data gathered in data-deficient environments (e.g., water quality samples from water bodies in a data-deficient catchment).

2.10 Review a formal study on future water resource scenarios

Intent: *To understand the potential future status of water resources within your catchment – in terms of availability, quality, etc., in order to be able to plan accordingly. Since present water risks may change through time, understanding possible scenarios is critical to developing resilient strategies in your planning (Step 3).*

Points: 3

Guidance:

- Understanding future scenarios is a critical aspect for planning as the water supplies and demands of today are likely to look very different from those in the next 10 to 30 years. This is particularly true for infrastructure planning since it typically has a 30+-year lifespan.
- Basic considerations of the future are included in the core criteria of Step 2. What distinguishes this criterion from those requirements is the resolution and precision of the evaluation.
- Note: the term "review" was employed intentionally rather than "produce", "develop" or "generate" as the intent is to have the site understand, not necessarily create, a publication. While a formal study is required, it is not necessary for the site to conduct or commission this work directly. Rather, the site may (and is encouraged to) draw from studies completed by other groups/public-sector agencies. In the case where a study has not yet been completed, the emphasis is for sites to focus on developing a formal study (and are encouraged to work with relevant public-sector agencies). In the case where a study already exists, the emphasis is for sites to focus on the implications of the future water resource scenario.
- Some options for understanding future scenarios include:
    - Scenario planning
    - Model output analysis
- While hydrological modelling may appear complex, there are an increasing number of data sets and accessible modelling systems that enable sites to undertake such measures. Many modelling exercises rely upon a Geographic Information System (GIS) combined with climate, topographic and land use data to evaluate flows under varying scenarios. Access to GIS software is highly desirable to undertake such exercises.
- To comply with this criterion, the site must reference a study that contains a set of future scenarios and note implications for its use of water.

Useful references and resources:

- General
    - Pacific Institute (2009) Climate Change and the Global Water Crisis: What Businesses Need to Know and Do, *http://www.pacinst.org/publication/climate-change-and-the-global-water-crisis-what-businesses-need-to-know-and-do/*.
- Scenario Planning
    - The Economist (2008) Scenario Planning, *http://www.economist.com/node/12000755*.
    - Liam Fahey and Robert Randall (1997) "Learning from the Future, Competitive Foresight Scenarios," New York: Wiley.
    - Mats Lindgren, Hans Bandhold, Bruce Pilbeam (2003) "Scenario Planning: The Link Between Future and Strategy," Palgrave: Macmillan.
    - Gill Ringland (1998) "Scenario Planning, Managing for the Future," John Wiley and Sons.

- (2002) *Scenarios in Business* and *Scenarios in Public Policy*, both published by John Wiley and Sons.
- (2003) *Inevitable Surprises: Thinking Ahead in Times of Uncertainty*, New York: Gotham Books.
- Kees Van der Heijden (1996) "Scenarios: The Art of Strategic Conversation," John Wiley and Sons.
- (2002) *The Sixth Sense*, John Wiley and Sons.
- Hatzilacou, D., Kallis, G., Mexa, A., Coccosis, H. And Svoronou, E. (2007) Scenario workshops: A useful method for participatory water resources planning? *http://www.svoronou.gr/wp-content/uploads/2010/03/WaterResourceManagementArticle.pdf*.
- Malinga, R., Gordon, L.J., Lindborg, R. and Jewitt, G. (2013) Using Participatory Scenario Planning to Identify Ecosystem Services in Changing Landscapes, Ecology and Society, 18(4): Art 10. *http://www.ecologyandsociety.org/vol18/iss4/art10*.
- Remy L. de Jonga, Hasan Yazicigilb & Rashid I. Al-Laylac (1989) Scenario Planning For Water Resources: A Saudi Arabian Case Study, Water International, Vol. 14(1): 6-12, *http://www.tandfonline.com/doi/abs/10.1080/02508068908692025?journalCode=rwin20#.UwkM8vldWa8*.

- Climate Models & Climate Change information
  - The Nature Conservancy (2013) Climate Wizard, *http://www.climatewizard.org*. (The Climate Wizard has detailed information for the USA, but also has global coverage at a lower resolution for precipitation and temperature data/maps under various climate change scenarios.)
  - US Environmental Protection Agency (2014) Climate Change Impacts on Water Resources, *http://www.epa.gov/climatechange/impacts-adaptation/water.html* .
- Hydrological Models
  - *MIKE SHE* advanced integrated hydrological modelling system, *http://www.crwr.utexas.edu/gis/gishyd98/dhi/mikeshe/Mshemain.htm*.
- Natureserve Climate Change Vulnerability Index, *https://connect.natureserve.org/science/climate-change/ccvi*.
- ICLEI Adaptation Database and Planning Tool (ADAPT), *http://www.icleiusa.org/tools/adapt*.

Examples:

- Murray Darling Basin Authority, "Hydrologic modelling to inform the proposed basin plan: methods and results," 2012, *http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf*.
- Pacific Climate Impacts Consortium, "Hydrologic modelling in the Peace, Campbell and Columbia River Watersheds," 2010, *http://www.pacificclimate.org/resources/publications/hydrologic-impacts-climate-change-peace-campbell-and-columbia-watersheds-british-columbia-canada*.

2.11 Conduct a detailed, indirect water use evaluation

Intent: *To calculate total indirect water use and allow you to focus your efforts on reducing water impacts on the most relevant part of your supply chain. This criterion encourages sites to undertake the challenge of engaging in mapping out their supply chains and understanding the full scope of their water impacts and risks.*

Points: 7

Guidance:

- This criterion expands on the data gathered in 2.5 (indirect water use) to the full supply chain. It includes wastewater treatment, water imports and the embedded water in other inputs for the site's products.
- This information is necessary to understand what, if any, impact the site has outside of the catchment to help inform where water stewardship activities are most needed.
- Supply chain mapping can be a costly and time-intensive exercise, but it does provide key insights for the site's broader water risk exposure.
- This criterion is likely to provide limited value to smaller sites (especially those that are extractive in nature), but it may provide much greater value to larger sites (especially those that are heavily reliant upon food and fibre commodities).
- There are two prevalent methodologies for estimating total indirect water use: water footprinting and life cycle assessment (LCA). Life cycle assessment should only be used when the water data are localized and have not been normalized at an international scale.
- To conform with this criterion, the site must provide:
    - A comprehensive indirect water use evaluation that covers its supply chain and that uses one of the recognized indirect water use measurement methodologies;
    - A description of any engagement efforts with the site's supply chain to date.

Useful references and resources:

- SABMiller and WWF (2009) "Water Footprinting: identifying & addressing water risks in the value chain," *http://awsassets.panda.org/downloads/sabmiller_water_footprinting_report_final_.pdf.*
- Veolia's Water Impact Index, *http://growingblue.com/footprint-tools/water-impact-index.*
- WFN methodology, *http://www.waterfootprint.org/?page=files/WaterFootprintAssessmentManual.*
- ISO 14046: Water Footprint, *http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=43263.*
- UNEP publication library on LCAs, *http://www.unep.org/resourceefficiency/Home/Assessment/LifeCycleApproachesandIndicators/Publications/UNEPPublications/tabid/101299/Default.aspx*
- Pacific Institute, "Corporate Water Accounting: An Analysis of Methods and Tools for Measuring Water Use and Its Impacts," 2010, *http://www.pacinst.org/wp-content/uploads/sites/21/2013/02/corp_water_accounting_exec_sum3.pdf.*
- GWP Water Footprint and Virtual Water Concept, *http://www.gwp.org/en/ToolBox/TOOLS/Management-Instruments/Water-Resources-Assessment/Water-footprint-and-virtual-water-concept.*

- Water Futures Partnership (2009) Water Footprinting – Identifying & addressing water risks in the value chain, *http://www.water-futures.org/fileadmin/user_upload/PDF/2009_Water_Footprinting_Report.pdf*.

Example:

- Water Futures Experiences in applying water footprint, *http://www.gwp.org/en/ToolBox/CASE-STUDIES/Americas--Caribbean/Water-Futures-experience-in-applying-water-footprint-405*.

2.12 Understand groundwater status or environmental flows and the site's potential contributions

Intent: *To understand your catchment's groundwater status or environmental flows and therefore determine how your site can positively contribute (or avoid negatively contributing) to meeting groundwater recharge needs or environmental flow needs. Since both groundwater and environmental flows are very important to understand, yet difficult and costly to determine, this criterion rewards those who undertake such an effort.*

Points: 10

Guidance:

- As noted in the criterion, sites must coordinate with relevant public-sector agencies to conform with this criterion.
- Sites cannot gain double the number of points for understanding both groundwater AND environmental flows. This criterion has a maximum of 10 points.
- Note:
    - In cases where groundwater status or environmental flow assessments have already been completed for the catchment, the focus of the analysis should be on the site's potential contribution (the site can simply reference the catchment e-flow requirements). The site is encouraged to work with experts and public-sector agencies to determine appropriate and reasonable contributions.
    - In cases where environmental flow assessments have not been completed, the focus of the analysis should be to work with/support the government in conducting a basic environmental flow assessment that the site and others can use. While the site is also encouraged to then determine its own potential contribution, helping develop an environmental flow assessment by itself is sufficient to conform with this criterion.
- Rather than attempt to summarize guidance on environmental flows (e-flows), we recommend the documents below under "useful references and resources".
- Where possible, sites should strive to understand the quality of the assessment. There may be catchments in which e-flows/groundwater status have been defined, but these existing e-flow needs or groundwater recharge rates are insufficient for protecting ecosystem health and services (e.g., existing e-flows may be old and focused only on minimum flows). While a specific site will not be penalized for this, the intent of this criterion is to help undertake efforts to improve e-flows and groundwater recharge. Contributing to e-flows/groundwater recharge that – even if fully implemented – will maintain/restore an ecosystem is against the intent of this criterion.
- Specific methodologies are not prescribed but should be considered appropriate and credible by experts if questioned.
- To conform with this criterion, the site must (noting the above):

- Provide conclusions on an environmental flow-needs analysis (newly generated or existing) that evaluates the environmental flow requirements in the catchment as well as the site's ability to contribute to such environmental flow needs.
  OR
- Provide conclusions on a groundwater status analysis (newly generated or existing) that evaluates the groundwater status and recharge requirements in the catchment as well as the site's ability to contribute to such recharge needs.

Useful references and resources:

Groundwater

- Kalbus et al. (2006) Measuring methods for groundwater – surface water interactions: a review. *Hydrology and Earth Systems Science*, 10: 873–887, 2006, *http://www.hydrol-earth-syst-sci.net/10/873/2006/hess-10-873-2006.pdf.*
- Illinois State Water Survey (1985) PRACTICAL GUIDE FOR GROUND-WATER SAMPLING ISWS Contract Report 374, *http://epa.gov/oust/cat/pracgw.pdf.*
- Government of Australia (2009) Groundwater Sampling and Analysis – A Field Guide, *http://www.ga.gov.au/image_cache/GA15501.pdf.*
- Water International, Volume 38, Issue 4, 2013: Special Issue: Sustainable Groundwater Development for Improved Livelihoods in Sub-Saharan Africa, Part 1, *http://www.tandfonline.com/toc/rwin20/38/4#.UhLIyj8urT0.*
- British Geological Survey (2014) Groundwater resilience to climate change and abstraction in the Indo-Gangetic basin, *http://www.bgs.ac.uk/research/groundwater/international/SEAsiaGroundwater/home.html.*
- BGR & UNESCO (2014) World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP), *http://www.whymap.org/whymap/EN/Home/whymap_node.html.*
- GEF/World Bank/UNESCO-IHP/FAO/IAH-AIH (2014) Groundwater governance: a global framework for action, *http://www.groundwatergovernance.org.*
- Environmental Flows WWF, "Keeping rivers alive: a primer on environmental flows and their assessment," *http://assets.wwf.org.uk/downloads/keeping_rivers_alive.pdf.*
- Environmental Flows Network website, *http://www.eflownet.org.*
- Global Environmental Flows Network (2013), *http://eflownet.org/index.cfm?linkcategoryid=1&siteid=1&FuseAction=main.*
- IUCN, "FLOW: the essentials of environmental flows," 2003, *http://www.iucn.org/about/work/programmes/water/resources/toolkits/?2186/Flow-the-essentials-of-environmental-flows.*
- IUCN FLOW case studies, *http://www.iucn.org/about/work/programmes/water/resources/toolkits/flow.*
- TNC, "Environmental Limits of Hydrological Alteration (ELOHA)," 2012, *http://conserveonline.org/workspaces/eloha.*
- Poff, L. et al., "Ecological Limits of Hydrologic Alteration: Environmental Flows for Regional Water Management," 2011, *http://www.conservationgateway.org/Files/Pages/ecological-limits-hydrolo.aspx.*
- TNC, "Environmental Flow Components," 2010, *http://www.conservationgateway.org/Documents/Environmental%20Flow%20Components.docx.*
- Higgins, J.V. et al., "A framework for monitoring, reporting and managing dam operations for environmental flows," Version 1.0, SRP measures working group, 2011, *http://www.conservationgateway.org/Files/Pages/framework-monitoring-repo.aspx.*

- Higgins, J.V. and Konrad, C.P., "A Review of Benefits to People and Nature from Environmental Flow Management," 2012, http://www.conservationgateway.org/Files/Pages/review-benefits-people-an.aspx.
- Camp Dresser & McKee, Inc., "Watershed Flow Evaluation Tool Pilot for Roaring Fork and Fountain Creek," 2011, http://www.conservationgateway.org/Files/Pages/watershed-flow-evaluation.aspx.
- Australian Government, "Environmental Flow Guidelines," 1999, http://www.environment.act.gov.au/__data/assets/pdf_file/0004/156577/environmentalflowguidelines.pdf.
- Richter, B.D., "Re-thinking Environmental Flows: From Allocations and Reserves to Sustainability Boundaries," 2011, http://www.conservationgateway.org/Files/Pages/re-thinking-environmental.aspx.
- Esselman, P.C., and J.J. Opperman, "Overcoming information limitations for the prescription of an environmental flow regime for a Central American river," 2010, Ecology and Society 15(1): 6. http://www.ecologyandsociety.org/vol15/iss1/art6.
- Peake et al., "A new approach to determining environmental flow requirements: Sustaining the natural values of floodplains of the southern Murray-Darling Basin," 2011, http://www.mdba.gov.au/kid/files/1949-Hydrologic-Modelling-Report.pdf. GWP, GWP Toolbox "Ecosystem assessment," http://www.gwp.org/en/ToolBox/TOOLS/Management-Instruments/Water-Resources-Assessment/Ecosystem-assessment.
- SIWI/WWF/UNESCO-IHE/ IUCN Securing Water for Ecosystems and Human Well-being: The Importance of Environmental Flows, 2009, http://www.gwp.org/Global/ToolBox/References/Securing%20Water%20for%20Ecosystems%20and%20Human%20Well-being.%20The%20Importance%20of%20Environmental%20Flows%20(SIWI,WWF,UNESCO-IHE,IUCN,%202009).pdf.

Examples:

- TNC, "Environmental Flow Assessment for the Patuca River, Honduras: Maintaining ecological health below the proposed Patuca III Hydroelectric Project," http://www.conservationgateway.org/Files/Pages/environmental-flow-assess.aspx.
- Ward and Meadows, "Adaptive Management of Environmental Flow Restoration in the Savannah River," 2011, http://www.conservationgateway.org/Files/Pages/adaptive-management-envir.aspx.
- TNC, "Establishing environmental flows for sustainable water management: Upper and Middle Verde River watersheds," Arizona Background, 2011, http://www.conservationgateway.org/Documents/Proposal%20USGS%20TNC%20flow%20study-July09(1).doc.
- TNC, "Defining ecosystem flow requirements for the Bill Williams River, Arizona," http://www.conservationgateway.org/ExternalLinks/Pages/defining-ecosystem-flow-r.aspx.
- TNC ELOHA Case Studies, 2012, http://www.conservationgateway.org/Documents/ELOHA%20Case%20Studies.doc.

2.13 Complete a voluntary Social Impact Assessment

Intent: *To gain a deeper understanding of the social impacts that your site has upon others. Such assessments are robust mechanisms for evaluating the impacts of a site.*

Points: 3

Guidance:

- The development of a Social Impact Assessment (SIA), or a similar concept such as an Environmental and Social Impact Assessment (ESIA) or a Strategic Environmental Assessment (SEA), is sometimes a mandatory component of the development of a site that uses significant amounts of water. However, in cases where it is not mandatory, evaluating the full social impacts that a site's water use will have is a valuable source of information.
- The impact assessment should speak specifically to the water-related social impacts.
- Mandatory SIAs, ESIAs or SEAs are not eligible for these points.
- To conform with this criterion, the site must provide a copy of a social impact assessment (or similar) that focuses on water-related social impacts and contains recommendations for how the site can avoid, minimize or mitigate its water-related social impacts.

Useful references and resources:

- SIA Hub (2014) SIA Hub for Social Impact Assessment practitioners, *www.socialimpactassessment.com.* The SIA Hub provides extensive resources for practitioners and is a good starting point for resources, training and other information. Note: In particular, see: *http://www.socialimpactassessment.com/resources-references.asp.*

Examples:

- Du Pisani, Jacobus A. and Luke A. Sandham. (2006) Assessing the Performance of SIA in the EIA context: A Case Study of South Africa. Environmental Impact Assessment Review, 26 (8), pp 707-724.
- Palinkas, Lawrence A., Bruce Murray Harris, John S. Peterson. (1985) A Systems Approach to Social Impact Assessment: Two Alaskan Case Studies. Boulder, CO, Westview Press, 290 pp.

GUIDANCE FOR STEP 3: DEVELOP A WATER STEWARDSHIP PLAN

General guidance: Overall, Step 3 is all about developing plans. Having gathered the necessary data and understood its implications for the site, thinking through a plan of action is a critical step that should be given time and consideration. Site-level planning is often undertaken on an annual basis, and therefore incorporating the water-related issues from a water stewardship plan into a larger organizational/site plan is an important action not detailed below but inherent in making the plan come to life.

3.1 Develop a system that promotes and evaluates water-related legal compliance

Intent*: To ensure that you understand the legal requirements as well as water rights issues and have the capacity in place to ensure compliance. Legal compliance is a basic tenet of water stewardship, and therefore it is critical to ensure a system that will allow you to meet all national and state water regulations and laws.*

Guidance:

- Once the survey of relevant regulations and laws has been completed in 2.4, a legal compliance system should be developed. This should include:
    - A person(s) responsible for the compliance system (name and position);
    - Proof that the person responsible has the necessary capacity, including time, funding and knowledge (job description, years on the job/credentials)
    - A system that tracks submissions for compliance.

- If an existing system exists, it may be referenced so long as it is applicable to the water-related legal and regulatory issues identified in Criterion 2.3.
- To conform with this criterion, the site must:
    - Provide a system that outlines the names, positions and credentials of those staff responsible for ensuring legal compliance;
    - Have a system that lists relevant regulations (from Criterion 2.2) and indicates where to find evidence of the most recent compliance submission.
- In addition to the above, it is recommended that the system also outline the requirements of a given regulation and explain how the company is meeting such regulations. Such documentation will assist with continuity and knowledge sharing in the event of staff turnover. Furthermore, AWS also encourages a legal compliance system that promotes ethical, responsible and honest behaviour and which staff sign. Furthermore, such a system can be enhanced when linked to job performance/compensation.

Useful references and resources:

- None at present.

Example:

- Deutsche Bank (2014) Compliance: conformity with the law and adherence to regulations and standards, *https://www.db.com/cr/en/concrete-compliance.htm*. While this is an example from a large corporation rather than from a site, and not water-specific, it is nevertheless a good example of a general legal compliance system. Note that it does not explicitly contain the compliance requirements listed above.

Table A9: Same legal compliance system

Basic legal compliance system				
Name: John Doe Position: Site Legal Officer Credentials: Law degree; water regulation training, etc.				
Regulation 1	What is required	How it relates to the company	Data from company (reports)	Compliant at last check?

3.2 Create a site water stewardship strategy and plan

Intent: *To improve site-level water governance and determine the actions to be taken by the site in order to mitigate risks and harness opportunities. The water stewardship plan is at the core of translating your understanding of your site and context (Step 2) into the benefits that stewardship brings.*

Guidance:

- The water stewardship strategy and plan need to respond specifically to risk profile and outline the intended contribution to water stewardship outcomes at the site and catchment levels (Criteria 2.6 and 2.7). The strategy and plan should address any stakeholder concerns identified, and it is highly recommended that the site also consider food-energy-water nexus issues facing the catchment.
    - To conform with this criterion, the site must define: a general water stewardship strategy that outlines the shared water challenges, water risks and existing public-sector agency initiatives.
    - A plan that contains:
        - SMART targets/objectives (that is, annual targets or multi-year objectives that are Specific, Measurable, Achievable, Realistic and Time-based), which, when associated with shared water challenges, must continually improve in the relevant four water stewardship outcome areas until best practice has been achieved;
        - Proposed actions with associated responsibilities and accountabilities (including for data collection/monitoring and recording of core indicators);
        - Notes on capacity needs where necessary (e.g., water-related emergency incident preparedness activities);
        - Links to desired results (in terms of risks/opportunities, water stewardship outcomes or shared water challenges);
        - A budget (costs and projected savings/benefits based upon estimates from Criterion 2.7. These should ideally be combined as a net present value, or NPV, calculation).
- As noted above, targets must continually improve year over year until such time as *best practice has been achieved in the relevant four water stewardship outcomes.* Details on best practice may be found in Appendix A: Glossary or under Criteria 4.9, 4.10, 4.11 and 4.12. To phrase this differently, Criterion 3.2 requires the site to continually strive to improve until it conforms with Criteria 4.9, 4.10, 4.11 and 4.12. Ultimately, this will also move the site into conformance with Criterion 3.7 around stakeholder-based targets. Note that the expectation of continual improvement applies only to the "relevant" water stewardship outcome areas. Relevance is linked to shared water challenges, so if stakeholders are concerned with any given outcome area, then the expectation is that the site will strive for continual improvement in that outcome

area until such time as best practice has been achieved. This helps address the situation of catchments where one of the water stewardship outcome areas is not of concern (e.g., a site located in a sparsely populated, water-abundant catchment needing to put unproductive efforts into improving water balance).

- Generally speaking, in most cases sites will be expected to work toward improvements in all four water stewardship outcomes, and allowing excluded outcome areas should be treated as the exception rather than the rule.
- Note: The water stewardship strategy need not be highly detailed or overly complex. A relatively simple strategy that outlines the main areas of effort and why will suffice. For example, a site's strategy may be as simple as "In light of the catchment concerns and current government programmes regarding water quality, our water stewardship strategy will focus on addressing shared water quality challenges through on-site and off-site actions. This will help lower our energy costs and physical, regulatory and reputational water risks, and benefit other stakeholders in the basin – notably local communities and farmers. Please see information from our submission on Criteria 2.3, 2.4, 2.6, 2.7 and our plan in 3.2 for more details."
- It is recommended that water balance targets reference both intensity (water consumption per unit production) and absolute water consumption relative to availability.
- Responsibility indicates who will undertake the actions (i.e., who is responsible for carrying out the work) while accountability indicates who will ensure that the work is completed (i.e., who is accountable for achieving the target).
- When articulating the links to the desired results (i.e., risk/opportunity, outcome and/or shared challenges), not all three result areas need to be addressed by any one action. It is possible that an action may deliver upon one, two or all three of these areas. At a minimum, any action should link to at least one of these results.
- With respect to considerations on the food-energy-water nexus, there are a number of good references for guidance, which may be found below.
- Ensure that your plan considers stakeholder engagement, complies with the law and considers the "Protect, Respect and Remedy" framework for water-related rights.
- In the stewardship plan, AWS encourages you to reference all core criteria where relevant.

Useful references and resources:

- WEF Water Resources Group, "Water Security: The Water-Energy-Food-Climate Nexus," *http://www.weforum.org/reports/water-security-water-energy-food-climate-nexus* or *http://www3.weforum.org/docs/WEF_WI_WaterSecurity_WaterFoodEnergyClimateNexus_2011.pdf*.
- UNEP, "Bioenergy and Water Nexus," *http://www.unep.org/pdf/Water_Nexus.pdf*.
- McKinsey, "Charting our water future," *http://www.mckinsey.com/App_Media/Reports/Water/Charting_Our_Water_Future_Exec%20Summary_001.pdf*.
- The CEO Water Mandate, "Bringing a Human Rights Lens to Corporate Water Stewardship," August 2012, *http://pacinst.org/reports/corporate_water_human_rights_lens/final_report.pdf*.
- World Health Organization WSPortal: health through water (Water Safety Plans), *http://www.who.int/wsportal/en*.

Examples:

- An example of a water stewardship plan may be found below. This plan could be improved with additional tasks inserted into the various actions. This is only a select number of actions. If this were a fully illustrated example, all core criteria would be referenced.

Table A10: Example of water stewardship plan

Objective	Target	Metric(s)	Action	Cost/ Benefit (Note: NPV is preferred but various forms are shown below)	Link(s) to desired results: - harnessing opportunities & risk mitigation - contributing to achieving stewardship outcomes - addressing shared water challenges	Related Criteria	Responsible	Account-able	Start Date	End Date
Maintain a healthy wetland at the site	By November 2014, map and describe the status of Important Water-Related Areas on-site	Presence of map Species abundance	Identify Important Water-Related Areas on-site	Cost: $2K/yr + 50 hrs staff time Benefit: Natural infrastr. asset worth $50K	Outcome: Good status of Important Water-Related Areas Shared challenge: Contribute to restoring lost biodiversity within the catchment	2.4, 4.4	J. Smith	X. Li	01/ 09/ 2013	01/ 11/ 2013
Contribute to efforts to maintain water quality	By December 2014, have water quality data posted on Water Action Hub	Presence of uploaded data on Water Action Hub	Contribute water quality data to Water Data Hub	Cost: 5 days staff time Benefit: Potential partners and new/ improved data	Risk: Protects reputational water risk by demonstrating water quality Outcome: Good water governance and good status of water quality Shared challenge: Addresses the lack of communal data in the catchment	2.3, 2.8, 4.3, 4.5, 4.12	K. Ahmed	R. Suarez	01/ 12/ 2013	31/ 12/ 2013
Improve water intensity by 50% by 2020 from 2010 levels	Decrease cooling water use by 10% by end of 2014	M3 of cooling water/year $ of energy for cooling	Improve water efficiency at site	Cost/benefit: NPV = $500K Discount rate: 8%	Opportunity: Save money Outcome: Sustainable water balance	2.4, 4.2	E. Petrov	J. Traore	01/ 09/ 2013	31/ 12/ 2014

3.3 Demonstrate responsiveness and resilience to water-related risks into the site's incident response plan

Intent: *To ensure that water is considered and addressed in a responsive and resilient manner as part of a site's incident response plan. The intent of this incorporation is that the site be prepared for unexpected water-related incidents and can quickly return to (or even maintain) normal operations after such an incident.*

Guidance:

- In this context, incidents are unexpected, and often deleterious, water-related events. Examples of incidents include water-related worker safety events, floods, droughts, chemical spills and water-related infrastructure failures. In preparation for such an event, it is important that the site not only have an immediate and planned response, but also develop mechanisms to be more resilient in the face of such events. Resilience involves the ability to quickly adapt to such an incident and continue operations, and it is increasingly important to consider, in particular for extreme events. Resilience is not about "predicting and withstanding" incidents, but is rather about being flexible and adaptive in the face of water-related events.
- An example of how response and resilience are complementary but distinct is as follows: in the event of a water treatment facility breaking down such that it cannot provide clean water to the site, the site could be:
    - Responsive by providing bottled water to staff, sourcing out portable toilets and slowing production (an effective approach that predicts and manages the situation until it returns to normal);
    - Resilient by *diversifying* and *connecting* to other water service providers/having a backup purification system on-site (an approach so that if one system goes down, another can compensate), or by borrowing purification capacity from a neighbouring site (through a connected system).
- The response and resilience effort is focused within the site and, although encouraged, there is not an expectation that the site cover any of the following since they are covered in the advanced-level Criterion 3.6:
    - Explicitly work with others (e.g., public sector agencies, water service providers) on these plans;
    - Explicitly address shared infrastructure (i.e., the site could just focus on its own infrastructure, workers and operations);
    - Link the scope of the efforts to any sort of climate change projections in the future;
- The concept of incidence response is synonymous with emergency planning.
- Note: If no incident response plan exists, the site must develop a basic one to comply with this criterion.
- The intention is to get sites to think about water-related response and resilience and incorporate these notions into plans. Again, the focus is not on developing an in-depth, comprehensive resilience strategy.
- To conform with this criterion, a site must:
    - Describe in an appropriate plan its efforts to be responsive and resilient to water-related issues and/or risks.

Useful references and resources:

- Note: There are a considerable number of additional resources on resilience listed under the guidance for Criterion 3.6, which speaks to climate change adaptation and resilience. The resources below are less explicitly "climate change" focused.
- Smith, H. (2012) Understanding resilience: Implications for the water sector, Global Water Forum, *http://www.globalwaterforum.org/2012/09/16/understanding-resilience-implications-for-the-water-sector.* Note: this is an excellent primer on understanding resilience, and sites are encouraged to read it to understand the concept.

- US Environmental Protection Agency (2014) Community-based Water Resiliency, *http://water.epa.gov/infrastructure/watersecurity/communities.*
- US Federal Emergency Management Agency (FEMA) (2014) Emergency Response Plan, *http://www.ready.gov/business/implementation/emergency.*
- Water Environment Federation (2014) Water security and emergency response, *http://www.wef.org/watersecurity.*
- The American Water Works Association (2014) has a specific standard focused on this issue: "AWWA J100-10 Risk and Resilience Management of Water and Wastewater Systems," *http://www.awwa.org/store/productdetail.aspx?productid=24588.*

Examples:

- Hunter Water's is an example incident response management plan (though it lacks a resilience component). While such plans are not the expected product of such a review, they do provide insight on the sorts of considerations taken into account by a select site (i.e., Hunter Water in this case), *http://www.hunterwater.com.au/Resources/Documents/Plans--Strategies/Incident-Response-Management-Plan.pdf.*
- Epcor (notably a company and not a site) provides an example of a more integrated approach to incident response and resilience, *http://car.epcor.com/customers/emergency-response.html.*

3.4 Notify the relevant (catchment) authority of the site's water stewardship plans

Intent: *To connect you with your catchment authority/agency, encourage coordination and ensure that they are aware that you are explicitly contributing to their plan. To ensure that there is an explicit link (data requirements and impact targets especially) between a site's water stewardship plan and the larger catchment-level plan in which the site is located.*

Guidance:

- Note: If no catchment plan exists, a site does not need to comply with this criterion.
- Please refer to Criterion 2.3 for more guidance on catchment-level plans.
- To conform with this criterion, a site must:
  - demonstrate active outreach to the catchment authority (or equivalent) and
  - demonstrate how the site's water stewardship plan contributes to the catchment plan.
- "Active outreach" may be in various forms ranging from in-person meetings to phone calls, emails and written correspondence. For any given form of communication, appropriate documentation must be provided (e.g., agendas, phone call records) along with the name of the individuals contacted.
- In all cases, the key issue is that the site's plans link to the catchment's plans and are coordinated through active communication on the site's behalf.
- For example, if the catchment plan sets a target to maintain dissolved oxygen at a target level of at least 50 per cent saturation, the site's water stewardship plan must contribute to, or not impede, that target and let the authority know that the site is contributing to this target.
- In the case that the catchment is transboundary, or somehow involves multiple public-sector agencies, each of these agencies/authorities should be notified of the site's plans.
- AWS encourages sites to put in place joint monitoring and evaluation systems, which will help coordinate future efforts and results.

Useful references and resources:

- International River Basin Organizations, as compiled by Oregon State University, *http://www.transboundarywaters.orst.edu/research/RBO/index.html.*
- The appropriate public-sector agency with which to coordinate will vary from country to country and region to region. Where explicit catchment management authorities do not exist, and if the local water service provider does not play a coordinating role, the site may have luck searching with government branches. We suggest searching the Ministry/Agency/Department of:
    - Water
    - Irrigation
    - Agriculture
    - Interior
    - Environment

- The CEO Water Mandate (2012) "Corporate Water Disclosure Guidelines: Toward a common approach to reporting water issues," *http://ceowatermandate.org/files/DisclosureGuidelinesFull.pdf.*
- The CEO Water Mandate, "Guide to Water-Related Collective Action," Beta 1.0, August 2012, *http://ceowatermandate.org/files/guide_to_collective_action.pdf.*

Examples:

- A theoretical site implementing the Standard in a bottling facility in the Don Watershed (catchment) in Toronto would contact Toronto Regional Conservation Authority to communicate its efforts to restore a local wetland. It may also contact the City of Toronto to report efforts to improve primary treatment (which relates to Toronto Water as the water service provider), *http://www.trca.on.ca/protect/watersheds/don-river/don-river-watershed-plan.dot* and *http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=71dc5830a898e310VgnVCM10000071d60f89RCRD*.

3.5 Gain stakeholder consensus on the site's water stewardship targets

Intent: *To gain stakeholder buy-in on target-setting exercise.*

Points: 7

Guidance:

- To meet this criterion, the site must engage stakeholders in a site-led (i.e., actively initiated by site) joint planning and target-setting process to determine what site-based activities are necessary to address. This is to be done through a participatory, consensus-based approach.
- No matter how this engagement is undertaken, it must achieve consensus on one or more of the site's targets (note that consensus need not mean universal acceptance). Furthermore, recognizing that stakeholders may not be interested in certain targets, the site may focus discussion and consensus on only those areas that

are of interest to stakeholders but in all cases should present its full array of water-related targets. In other words, the full set of targets should be presented but stakeholders are free to focus on only those of relevance/interest to them.

- Sites must, at a minimum, solicit stakeholder input on any targets related to the four water stewardship outcomes.
- Please see criterion general guidance, as well as the guidance under 2.2 for more information on how to identify and collaborate with stakeholders at a catchment level.
- Consensus facilitators may be employed to guide the exercise.
- Stakeholders involved in this criterion should reflect the general array of stakeholders identified under Criterion 2.2 with special attention paid to relevant public-sector agencies and highly interested stakeholders.
- Special attention should be made to ensure that women, youth, and indigenous and vulnerable people can participate meaningfully in meetings and negotiations. Where the need is identified by the facilitator, there should be informal workshops to build local understanding in the community of the processes that may impact them directly to aid meaningful engagement.
- One specialized form of a stakeholder-based target is a target set based on an ecologically meaningful (or significant) basis. Setting ecologically meaningful targets, based upon credible scientific input, would conform with this criterion so long as this did not jeopardize consensus with the broader group of stakeholders. Long-term ecological viability should form the basis of such target-setting exercises. Please see "Conservation Measures Partnership" for more details.
- Documentation necessary to inform stakeholder positions should be made freely available to stakeholders in a timely, open, transparent and accessible manner through distribution channels appropriate to the local conditions.
- For water service providers, this could include consultation on access and standard of water services as two additional targets that should be determined by consultation and consensus.
- To conform with this criterion, a site must indicate which targets achieved consensus and include a list of stakeholders involved.
- Note: In particularly contentious catchments, sites or issues, AWS recommends exploring the use of a neutral, third-party facilitator to assist in the consensus-building exercise. Such approaches have demonstrated success in other similar circumstances.

Useful references and resources:

- IT-Harvard Public Disputes Program, The Program on Negotiation at Harvard Law School Consensus Building Handbook: Chapter 1 "Short Guide to Consensus Building: An Alternative to Robert's Rules of Order for Groups, Organizations and Ad Hoc Assemblies that Want to Operate By Consensus," *http://web.mit.edu/publicdisputes/practice.*
- Practical Action (2014) Consensus building with participatory action plan development, *http://practicalaction.org/media/preview/13102*.
- McKinney, M.J. (1988) Water resources planning: a collaborative, consensus-building approach. Society and Natural Resources, Volume 1(4): 335-349, *http://www.cnrep.org/documents/by_author/mckinney/Water_Resources_Planning.pdf*.
- Priscoll, J.D. (2003) Participation, consensus building and conflict management training course, IHP-VI, Technical documents in hydrology, PC-CP series, No.22, UNESCO|IHP|WWAP, *http://unesdoc.unesco.org/images/0013/001333/133308e.pdf.*
- World Bank, "Social Funds' Vulnerable Groups," 2011, *http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALPROTECTION/EXTSF/0,,contentMDK:20663797~menuPK:6344572~pagePK:148956~piPK:216618~theSitePK:396378,00.html*.

- Conservation Measures Partnership (2010) Open Standards for Conservation 2.0, *http://www.conservationmeasures.org/wp-content/uploads/2010/04/CMP_Open_Standards_Version_2.0.pdf*.

Examples:

- The following is an example of a table that could be employed to record the necessary information:

Table A11: Example of evidence of consensus-based target setting

Target	Consensus & notes	Stakeholders involved	Affiliation
1) By 2014, restore on-site wetland to 1ha size. [Note: modified from 0.5ha to 1ha]	Yes. Initial proposal was for 0.5ha but was modified after discussions to achieve consensus on 1ha. Strong support from the local waterfowl hunters association and local NGO.	John Tsang Jillian Borlund Emmanuel Traore Viktor Petrova	Small-Town Hunters Association Waterfowl Forever (NGO) City councillor Concerned local citizen
2) By 2014, improve water efficiency by 10% from 2013 levels	Not discussed due to lack of interest. Mr. Traore noted his appreciation for the effort, but the group did not discuss.	Jillian Borlund Emmanuel Traore Viktor Petrova	Waterfowl Forever (NGO) City councillor Concerned local citizen
3) During 2014, participate in all catchment management planning meetings	Yes. Stakeholders achieved consensus that this was a reasonable expectation. One concern was raised about corporate influence to planning process.	John Tsang Jillian Borlund Emmanuel Traore Viktor Petrova	Small-Town Hunters Association Waterfowl Forever (NGO) City councillor Concerned local citizen

3.6 Develop a formal plan for climate change adaptation

Intent: *To ensure that plans are in place to adapt to changing circumstances to help mitigate water risks.*

Points: 6

Guidance:

- Extreme weather and climate change are a part of life everywhere on Earth. Extreme events often manifest through too much or too little water. In this sense, virtually all extreme events are water-related, and sites must begin to think about how to manage such events (as part of their incident and resilience plans).
- However, climate change projections, along with recent climate patterns in many parts of the world, suggest that such events will become more frequent in the future. Furthermore, the intensity of such events may also increase, meaning that water-related infrastructure at the site, and within the catchment, could be at greater risk than it is currently designed to mitigate.
- This criterion is intended to specifically focus on preparing the site, in coordination with relevant public-sector agencies, for the projections of future extreme events. Present extreme events ought to be covered in the core requirements.

- Planning for such events is both an on-site and catchment-based exercise as the shared water-related infrastructure within the catchment is likely a major point of risk for the site. As such, it is to be stressed that this criterion explicitly requires coordination with relevant public-sector agencies, as well as entities/organizations that work on water-related infrastructure.
- There is a considerable amount of guidance on developing plans for adaptation and resilience to climate change. Please see the references below for additional details.
- To conform with this criterion, sites must provide a set of plans, developed in consultation with relevant public-sector agencies and infrastructure management entities, that mitigate the site's risk with respect to projected climate change impacts for its catchment, or demonstrate how its existing plans take these projected climate change impacts into account.

Useful references and resources:

- UN Global Compact and UNEP in cooperation with the CEO Water Mandate, (2012) "Business and Climate Change adaptation: Toward resilient Companies and Communities," *http://www.unglobalcompact.org/docs/issues_doc/Environment/climate/Business_and_Climate_Change_Adaptation.pdf.*
- IUCN, "Change: adaptation of water resources management to climate change," 2003, *http://www.iucn.org/about/work/programmes/water/resources/toolkits/?5742/Change-adaptation-of-water-resources-management-to-climate-change*.
- US Environmental Protection Agency (2013) Climate Ready Water Utilities Resources (2013), *http://www.epa.gov/safewater/watersecurity/climate/all-resources.html,* (provides a comprehensive global listing of resources for water utilities).
- WHO and DFID (2009) Vision 2030: the resilience of water supply and sanitation in the face of climate change. ISBN 978 92 4 159842 2, *http://www.who.int/water_sanitation_health/publications/vision_2030_summary_policy_implications.pdf*.
- Smith, D.M. and Barchiesi, S. (2010) Environment as infrastructure – Resilience to climate change impacts on water through investments in nature, Water Programme, International Union for Conservation of Nature (IUCN), *http://www.worldwatercouncil.org/fileadmin/world_water_council/documents_old/Library/Publications_and_reports/Climate_Change/PersPap_02._Environment_as_Infrastructure.pdf*.
- Asian Development Bank (2013) Guidebook: Increasing the climate change resilience of urban water infrastructure, *http://www.adb.org/publications/guidebook-increasing-climate-change-resilience-urban-water-infrastructure*.
- Turnbull, M., Sterrett, C.L., and Hilleboe, A., (2013) "Toward Resilience: A Guide to Disaster Risk Reduction and Climate Change Adaptation," *http://reliefweb.int/sites/reliefweb.int/files/resources/ECB-toward-resilience-Disaster-risk-reduction-Climate-Change-Adaptation-guide-english.pdf.*
- Business for Social Responsibility (2011) "Adapting to Climate Change: A Guide for the Mining Industry," *https://www.bsr.org/reports/BSR_Climate_Adaptation_Issue_Brief_Mining.pdf.*
- Ifejika Speranza, C., "Resilient adaptation to climate change in African agriculture / Chinwe Ifejika Speranza. – Bonn: DIE (Studies / Deutsches Institut für Entwicklungspolitik; 54) ISBN 978-3-88985-489-6, 2010, *http://dspace.cigilibrary.org/jspui/bitstream/123456789/29511/1/Resilient%20Adaptation%20to%20Climate%20Change%20in%20African%20Agriculture.pdf?1*.
- FAO (2011) "FAO-Adapt Framework Programme on Climate Change Adaptation," 2011, *http://www.fao.org/docrep/014/i2316e/i2316e00.pdf.*
- Economic Commission for Europe (2009) "Guidance on Water and Adaptation to Climate Change," *http://www.unece.org/fileadmin/DAM/env/water/publications/documents/Guidance_water_climate.pdf*.
- UK Secretary of State for Environment, Food and Rural Affairs by Command of Her Majesty (2011) "Climate Resilient Infrastructure: Preparing for a Changing Climate," *http://www.defra.gov.uk/publications/files/climate-resilient-infrastructure-full.pdf*.

- European Innovation Partnership Water's Strategic Implementation Plan 2012, *http://ec.europa.eu/environment/water/innovationpartnership/pdf/sip.pdf.*
- Global Water Partnership (2008) "Better water resources management – Greater resilience today, more effective adaptation tomorrow," *http://www.worldwatercouncil.org/fileadmin/world_water_council/documents_old/Library/Publications_and_reports/Climate_Change/PersPap_04._Planning_Better_WRM.pdf.*
- UN Water (2010) *Climate Change Adaptation: The Pivotal Role of Water, http://www.gwp.org/Global/ToolBox/References/Climate%20Change%20Adaptation%20The%20Pivotal%20Role%20of%20Water%20(UN%20Water,%202010)%20.pdf.*
- WWF (2009) Adapting Water Management, A primer on coping with climate change, *http://assets.wwf.org.uk/downloads/water_management.pdf.*
- WWF (2010) Freshwater ecosystem adaptation to climate change in water resources management and biodiversity conservation, *http://assets.worldwildlife.org/publications/385/files/original/Flowing_Forward_Freshwater_ecosystem_adaptation_to_climate_change_in_water_resources_management_and_biodiversity_conservation.pdf?1345749323*.
- Alliance for Global Water Adaptation (2012) Presentations from AGWA's WASH Resilience Workshop, Stockholm, Sweden, August 2012, *http://alliance4water.org/Focal%20Areas/WASH%20Resilience/index.html* AGWA is a useful resource as a whole with this being one example of their work.

Tools

- ICLEI Adaptation Database and Planning Tool (ADAPT), *http://www.icleiusa.org/tools/adapt.*
- Caribbean Community Climate Change Centre (2013) Caribbean Climate Online Risk and Adaptation Tool, *http://ccoral.caribbeanclimate.bz.*

US Environmental Protection Agency (2014) Climate Resilience Evaluation and Awareness Tool, *http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm.*

Examples:

- Climate Adaptation and Knowledge EXchange (CAKEX), *http://www.cakex.org/case-studies.*
- Arup (2014) Climate change resilience for water infrastructure in Wuhan, *http://www.arup.com/Projects/Climate_Change_Resilience_for_Water_Infrastructure_in_Wuhan.aspx.*

GUIDANCE FOR STEP 4: IMPLEMENT THE SITE'S STEWARDSHIP PLAN AND IMPROVE IMPACTS

General guidance: As the implementation component of the Standard, Step 4 focuses on the actual "doing" of water stewardship. In most circumstances, sites will already be undertaking water-related actions, so in a sense it is the starting point for many sites. In these cases, revisiting Steps 1 and 2 is helpful until such time as an updated plan (Step 3) can be developed and then implemented once again.

If an implementer that puts in due diligence toward meeting the targets falls short for some reason beyond its control or due to unpredictable circumstances, it may provide an explanation within the context of the Standard, and it will be at the discretion of the auditor to determine the validity of the explanation. This should be considered only in exceptional circumstances and should not be the norm.

In the evaluation of Step 4, emphasis should be placed on both effort (in line with the intent) and outcomes.

AWS encourages all sites implementing the AWS Standard to also register their efforts on the CEO Water Mandate's Water Action Hub: *www.wateractionhub.org*.

4.1 Comply with water-related legal and regulatory requirements

Intent*: To ensure that you are compliant with relevant water-related legislation, which, in turn, helps ensure mitigation of regulatory water risk. It also speaks to respecting water-related rights, which affect reputational water risk.*

Guidance:

- Legal compliance should be determined through a check on regulatory filings or violation records with the appropriate authorities. Note: Violations encompass any form of the law, not just water-related regulatory requirements.
- In addition to regulatory bodies, stakeholders may also provide insight on compliance-related concerns and indeed may provide "early warning signs" for sites if something is amiss.
- Since legal and regulatory compliance differs from state to state around the world, the guidance on compliance is to look to in-country guidance on meeting regulations and laws.
- In cases where transboundary catchments occur, sites must seek to meet both sets of legal and regulatory requirements.
- The guidance on how to "respect" water-related rights is drawn from the UN's work on human rights, specifically John Rugge's thinking, framed around the UN "Protect, Respect and Remedy" framework:
    - The state duty to protect against human rights abuses by third parties, including business, through appropriate policies, regulation and adjudication;
    - The corporate responsibility to respect human rights, which means to avoid infringing on the rights of others and to address adverse impacts with which a business is involved;
    - The need for greater access by victims to effective remedy, both judicial and non-judicial.

- To conform with this criterion, the site must provide, or reference, the documentation demonstrating legal compliance and provide documentation of any violations or corrective actions taken to address violations.
- Documentation may be in the form of authorizations, auditor records, compliance submissions, etc.
- Sites may reference documentation already gathered by regulatory bodies where appropriate, but note that such records must be accessible by the auditor for conformity purposes (i.e., to be verified).

Useful references and resources:

- The CEO Water Mandate, "Bringing Human Rights Lens to Corporate Water Stewardship: results of initial research," August 2012, *http://pacinst.org/reports/corporate_water_human_rights_lens/final_report.pdf.*
- Interfaith Center on Corporate Responsibility (ICCR), "Statement of Principles and Recommended Practices for Corporate Water Stewardship," 2012, *http://www.iccr.org/statement-principles-recommended-practices-corporate-water-stewardship.*

Example:

- Water-related aspects of a United States SEC filings 10K report along with summary chart.

4.2 Maintain or improve site water balance

Intent: *To ensure that you are meeting your water balance target, improving your water withdrawals or consumption, and contributing to improved water balance.*

Guidance:

- Fundamentally, this criterion is about carrying out the water balance aspects of your performance per the targets set in your water stewardship plan (Criterion 3.2). Therefore, this criterion must explicitly link to the site's water balance targets set in 3.2 and speak to performance.
- As one of the performance criteria that relates to the four water stewardship outcomes, where water balance is a shared water challenge, Criterion 4.2 requires continual improvement until such point that the site has achieved "best practice" (i.e., until it conforms with Criterion 4.9) at which point it should maintain that performance level. The key distinction between these criteria is that 4.2 is about working toward best practice, while 4.9 is about having achieved it.
- As defined by AWS, "best practice" is:
    - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER employing recognized best practice approaches as deemed by industrial benchmarks within regional context OR (in cases where benchmarking data is unavailable) achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- The criterion also contains a qualifier for sites where water scarcity is a shared water challenge. These sites must "cause no net increase in water scarcity in the catchment". First, it should be noted that where water is scarce (due to availability or over-allocation), generally speaking, sites should not be increasing absolute water

consumption. However, in the event that a site in a water-scarce catchment wishes to *increase* its withdrawals or consumptions, it must "cause no net increase in water use".

- No net increase can be achieved through any one (or more) of the following:
  - Improving the efficiency of water use on-site (i.e., improving water intensity)
  - Reducing on-site losses (leaks, evaporation, etc.)
  - Increasing the amount of water captured on-site
  - Recycling on-site wastewater
  - Drawing upon wastewater from another water user in the catchment and then returning the same amount to said user
- In catchments where regulatory systems allow for water withdrawal allocation trading, such a mechanism should be employed to ensure that there is no net increase in water use. While this is preferentially related to withdrawals, consumption is acceptable if that is the system in use within the local authority. ALSO, in all cases, the total catchment withdrawal limits must be capped as a catchment water balance and deemed sustainable by credible and independent experts (e.g., university researchers). Should it fail the latter requirement, the site is required to request a re-evaluation of the sustainable withdrawal levels from the relevant public-sector agency.
- In catchments where regulatory systems do not allow for allocation trading (or they're simply not present), then the site must employ a credible water benefit scheme (as detailed below) AND request that the relevant public-sector agency implement a sustainable catchment water balance allocation scheme with caps. The system should also be deemed sustainable by credible and independent experts (e.g., university researchers). This should be treated as a last option and should only be pursued if other options are not viable.
- A water benefit scheme is a financing mechanism for enabling additional water efficiency, supply and quality improvement projects, especially in water-stressed areas where additional finance is needed to enable change. In the context of water balance, such schemes would quantify water increases/decreases (i.e., additionally supplied or saved) in a manner that is standardized, transparent and credible. Such a scheme must:
  - Employ the notion of additionality (i.e., the work could not and would not have been completed without the financial intervention)
  - Provide the benefit only to others *within* the site's catchment
  - Be verifiable
  - Be recognized by AWS
- At present, AWS recognizes two such credible water benefit schemes (more will be added through time as appropriate; please check with AWS to find a current list):
  - The Gold Standard Water Benefit Certificate scheme, *http://www.cdmgoldstandard.org/water-benefit-certificates-%E2%80%93-a-new-approach-to-tackle-global-water-problems;*
  - The Bonneville Foundation Water Restoration Credit scheme, *http://www.b-e-f.org/our-solutions/water/water-restoration-certificates/why-wrcs.*
- No net increase is determined from the initial date upon which the site receives its certificate.
- No net increase includes water that is outsourced to other service providers in the catchment.
- Sites should strive to improve water productivity (consumption per unit production) and absolute water withdrawals and consumption.
- Site water balance improvement activities are often the first issue a facility explores when seeking to improve water management. Some activities that could be performed to improve water balance include:
  - Eliminating wastages (consumption, reduce leakages, crop selection, inefficient processes)

- Investing in infrastructure (increase efficiency)
- Recycling water (greywater, close-looped systems, water recovery)
- Harvesting precipitation
- Converting to waterless processes
- Metering for previously un-metered water use/discharge (which helps further identify opportunities for water savings)

- Note: Be aware of water-food-energy nexus trade-offs when trying to improve the site's water balance.
- For any activity, results must be measured against baseline data gathered in Step 2.
- To conform with this criterion, the site must:
  - Demonstrate, with quantitative data, performance relative to the water balance targets outlined in Criterion 3.2;
  - Where water balance is a shared water challenge, demonstrate either continual improvement in the performance, year over year, or best practice;
  - For sites located in water-scarce catchments that wish to withdraw more water, demonstrate, through appropriate means, no net increase in water scarcity in the catchment.

Useful references and resources:

- Since water balance improvements will be site-, sector- and geographically specific, the guidance will defer to local expertise.

4.3 Maintain or improve site water quality

Intent: *To ensure that you are improving in terms of minimizing your water quality impacts to a point that impacts are mitigated (i.e., are equivalent to or better than influent water quality status). It is also intended to deliver upon one of the four primary outcomes: assisting in ensuring good water quality status.*

Guidance:

- Fundamentally, this criterion is about carrying out the water quality aspects of your performance per the targets set in your water stewardship plan (Criterion 3.2). Therefore, this criterion must explicitly link to the site's water quality targets set in 3.2 and speak to performance.
- As one of the performance criteria that relates to the four water stewardship outcomes, where water quality is a shared water challenge, Criterion 4.3 requires continual improvement until such point that the site has achieved "best practice" (i.e., until it conforms with Criterion 4.10) at which point it should maintain that performance level. The key distinction between these criteria is that 4.3 is about working toward best practice, while 4.10 is about having achieved it.
- As defined by AWS, "best practice" is:
  - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
  - EITHER employing recognized best practice approaches as deemed by industrial benchmarks within regional context OR (in cases where benchmarking data is unavailable) achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.

- The criterion also contains a qualifier for sites where water quality stress is a shared water challenge. These sites must "continually improve their effluent for the parameters of concern until best practices are met". First, it should be noted that where water quality is stressed (due to inadequate treatment or over-pollution), generally speaking, sites should not be increasing absolute water consumption. However, in the event that a site in a water quality-stressed catchment wishes to *increase* its effluent for the parameters of concern, it must "cause no net degradation of water quality in the catchment".
- Water quality parameters of concern are those that are material to the water quality stress of the catchment. For example, if a site's effluent contains nitrogen and ammonia and is cooler than the ambient water body temperature, but the water quality concerns in the catchment revolve around eutrophication, then nitrogen would be a parameter of concern but ammonia and temperature would not. In other words, the intention is to have the site focus on the pollutants that are contributing to the problems, not focus on all aspects of its water quality, some of which are not meaningful.
- No net increase can be achieved through any one (or more) of the following:
    - Improving the efficiency of processes that affect water quality (i.e., improving the water quality intensity)
    - Improving water treatment technologies
    - Converting liquid water quality discharge into solid waste (with proper disposal)
- In catchments where regulatory systems allow for water quality allocation trading, such a mechanism should be employed to ensure that there is no net degradation in water quality. Also, in all cases, the cumulative catchment pollutant loads must be capped at a level that is deemed sustainable by credible and independent experts (e.g., university researchers). Should it fail the latter requirement, the site is required to request a re-evaluation of the sustainable water quality levels from the relevant public-sector agency.
- In catchments where regulatory systems do not allow for allocation trading (or they're simply not present), then the site must employ a credible water benefit scheme (as detailed below) and request that the relevant public-sector agency implement a sustainable catchment water quality allocation scheme with caps. The system should also be deemed sustainable by credible and independent experts (e.g., university researchers). This should be treated as a last option and should only be pursued if other options are not viable.
- A water benefit scheme is a financing mechanism for enabling additional water efficiency, supply and quality improvement projects especially in water-stressed areas where additional finance is needed to enable change. In the context of water balance, such schemes would quantify water increases/decreases (i.e., additionally supplied or saved) in a manner that is standardized, transparent and credible. Such a scheme must:
    - Employ the notion of additionality (i.e., the work could not and would not have been completed without the financial intervention)
    - Provide the benefit only to others *within* the site's catchment
    - Be verifiable
    - Be recognized by AWS
- At present, AWS recognizes two such credible water benefit schemes (more will be added through time as appropriate; please check with AWS to find a current list):
    - The Gold Standard Water Benefit Certificate scheme, *http://www.cdmgoldstandard.org/water-benefit-certificates-%E2%80%93-a-new-approach-to-tackle-global-water-problems*.
    - The Bonneville Foundation Water Restoration Credit scheme, *http://www.b-e-f.org/our-solutions/water/water-restoration-certificates/why-wrcs.*
- No net increase is determined from the initial date upon which the site receives its certificate.
- No net increase includes water that is outsourced to other service providers in the catchment.

- Site water quality improvement activities most likely will fit under legal requirements. However, where water quality is not regulated by authorities, measuring water quality parameters (especially in effluent) is the best place to start.
- Sites should strive to improve water quality intensity (effluent levels per unit production) and absolute total effluent amounts.
- Some activities that could be performed to improve water quality include:
    - Wastewater treatment (including a "duty of care" to ensure that effluent and solid wastes are handled and passed along or disposed of properly and do not have negative impacts)
    - Storm water management
    - Non-agricultural (or agricultural if applicable) non-point source abatement and control
    - Aquatic habitat restoration (notably wetlands and other land cover forms that perform water filtration ecosystem services)
    - Maintenance/restoration of riparian corridors (especially in cases of erosion)
- For any activity, results must be measured against baseline data gathered in Step 2.
- To conform with this criterion, the site must:
    - Demonstrate, with quantitative data, performance relative to the water quality targets outlined in Criterion 3.2;
    - Where water quality is a shared water challenge, demonstrate either continual improvement in the performance, year over year, or best practice;
    - For those sites located in water quality-stressed catchments that wish to emit more water quality parameters of concern, demonstrate, through appropriate means, no net degradation in water quality in the catchment.

Useful references and resources:

- Since water balance improvements will be site-, sector- and geographically specific, the guidance will defer to local expertise.

4.4 Maintain or improve the status of the site's Important Water-Related Areas

Intent: *To ensure that you are responsibly managing Important Water-Related Sites on your lands.*

Guidance:

- *Note: For those sites that contain no present, or past, Important Water-Related Area(s), in cases where Important Water-Related Areas are a shared water challenge within the catchment, then the site is expected to *strive to conform* with Criterion 4.11. If for those sites containing no on-site Important Water-Related Areas, Important Water-Related Areas are not a shared water challenge, then this criterion is not applicable (though a site can still engage in efforts on Important Water-Related Areas through off-site efforts in line with Criterion 4.11 if it so chooses). This requirement is in place to not "punish" those sites that happen to possess on-site Important Water-Related Areas.
- Fundamentally, this criterion is about carrying out the Important Water-Related Area(s) aspects of your performance per the targets set in your water stewardship plan (Criterion 3.2). Therefore, this criterion must explicitly link to the site's Important Water-Related Area(s) targets set in 3.2 and speak to performance.
- As one of the performance criteria that relates to the four water stewardship outcomes, where degradation of Important Water-Related Areas is a shared water challenge, Criterion 4.4 requires continual improvement until such point that the site has achieved "best practice" (i.e., until it conforms with Criterion 4.11) at which

point it should maintain that performance level. The key distinction between these criteria is that 4.4 is about working toward best practice, while 4.11 is about having achieved it.

- As defined by AWS, "best practice" is:
    - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER employing recognized best practice approaches (as deemed by credible and relevant experts on the Important Water-Related Area type within regional context) OR achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- The criterion also contains a qualifier for sites where degradation of Important Water-Related Areas is a shared water challenge. These sites must "cause no further degradation to Important Water-Related Areas". First, it should be noted that where water quality is stressed (due to inadequate treatment or over-pollution), generally speaking, sites should not be increasing absolute water consumption. However, in the event that a site in a water quality-stressed catchment wishes to *increase* its effluent for the parameters of concern, it must "cause no further degradation of such areas on-site".
- In most cases, maintenance of a current Important Water-Related Area will be the form of required performance, though issues of remediation and/or site access may be of concern to stakeholders.
- If Important Water-Related Areas are in a good status and actions are in place to ensure that their good status is maintained in the future, then no improvement is necessary.
- Under no circumstance should a site be removing or further degrading an on-site Important Water-Related Area. Such activity would constitute a non-compliance with this criterion. Improving the status of the site's water-related areas can be done in a multitude of fashions, depending on the need of the habitats/areas in question. Typically, actions can be broken down into the following three general notions:
    - Protect: If a site is already in very good condition, then the aim should be to maintain or "protect" that status. This would involve ongoing maintenance interventions where necessary and ensuring that the conditions in place that are allowing the area to thrive are maintained.
    - Manage: If a site is somewhat impaired, then management practices can be implemented to help improve its condition. This could include managing riparian vegetation, limiting or fully restricting access/use of the water area to ensure that no additional degradation occurs, removing invasive species, modifying water levels at a given time of the year, etc.
    - Restore: If a site is impaired or has been lost entirely, then actions typically involve in-depth restoration. This could include restoring a cultural area, re-planting vegetation or re-introducing appropriate species to a given water body as the context dictates. This conforms with the advanced-level criterion on restoration (Criterion 4.11).
- Note: If the Important Water-Related Area has been lost (i.e., historically, the site contained an Important Water-Related Area) or is not able to be feasibly restored, restoration is an advanced-level criterion. While left up to the site, the restoration effort should preferably be within the catchment and preferably be of a similar nature to the Important Water-Related Area that was lost (e.g., if this was a culturally important area, helping preserve a current area that performs a similar function would be acceptable). The scope of the effort should be comparable to the scope of restoring the on-site Important Water-Related Area. If a site's property is extensive (e.g., some forestry tenures, large agricultural operations), this criterion may be much more involved, while if a site's property is very limited in size (e.g., a manufacturing facility and its surrounding property), this criterion may be much less involved (or even not applicable).
- All on-site Important Water-Related Areas must be addressed.

- To conform with this criterion, sites with past or present on-site Important Water-Related Area(s) must:
    - Demonstrate, quantitatively, the status of any Important Water-Related Area(s) on-site relative to the target outlined in the water stewardship plan (Criterion 3.2);
    - Where degradation to Important Water-Related Areas is a shared water challenge, demonstrate either continual improvement in the performance, year over year, or best practice.
- To conform with this criterion, sites without past or present on-site Important Water-Related Area(s) that have also identified degradation to Important Water-Related Areas as a shared water challenge, must:
    - Demonstrate, quantitatively, efforts to improve Important Water-Related Area(s) off-site relative to the target outlined in the water stewardship plan (Criterion 3.2);
    - Demonstrate either continual improvement in the performance, year over year, or best practice.

Useful references and resources:

- Global Restoration Network (2013) Freshwater, *http://www.globalrestorationnetwork.org/ecosystems/freshwater.*
- Ramsar, "Handbook 18 – Managing wetlands," 2011, *http://www.ramsar.org/pdf/lib/hbk4-18.pdf.*
- Chatterjee, A., Phillips, B. & Stroud, D.A., "Wetland Management Planning. A guide for site managers," WWF, Wetlands International, IUCN, & Ramsar Convention. 76 pp, 2008, *http://www.unwater.org/downloads/wetlands_management_guide_2008.pdf.*

Examples:

- A Forest Stewardship Council-certified forestry operator who identifies and protects water-related High Conservation Value Areas, as well as water-related areas that are of importance to indigenous peoples (e.g., traditional fishing grounds).
- An urban food-processing site that does not contain an on-site Important Water-Related Area runs an annual field trip to help undertake clean-up and restoration of a riverside area that is used in an annual water-related religious ceremony. The site would need to continually undertake this effort if it required annual maintenance to remain in conformance with this criterion, whereas if the site were permanently restored, and stakeholders and experts deemed the site as positively contributing, then the site would be in conformance with both Criterion 4.4 and 4.11.
- A farmer who does not contain an on-site Important Water-Related Area contributes funds to an NGO for restoration of a wetland. In this scenario, once the wetland were restored, and stakeholders and experts deemed the site positively contributing, the site would be in conformance with both Criterion 4.4 and 4.11.

4.5 Participate positively in catchment governance

Intent: *To ensure that you are actively coordinating and cooperating with relevant catchment authorities and contributing to good governance. In catchments where authorities are lacking presence/capacity, this criterion ensures that stakeholder-initiated efforts to improve water governance are initiated.*

Guidance:

- Fundamentally, this criterion is about carrying out the catchment governance aspects of your performance per the targets set in your water stewardship plan (Criterion 3.2). Therefore, this criterion must explicitly link to the site's catchment governance targets set in 3.2 and speak to performance.
- As one of the performance criteria that relates to the four water stewardship outcomes, where water governance is a shared water challenge, Criterion 4.5 requires continual improvement until such point that the site has achieved "best practice" (i.e., until it conforms with Criterion 4.12) at which point it should maintain that performance level. The key distinction between these criteria is that 4.5 is about working toward best practice, while 4.12 is about having achieved it.
- As defined by AWS, "best practice" is:
    - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER employing recognized best practice approaches (as deemed by credible and relevant experts on water governance within regional context) OR achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- As one of the performance criteria that relates to the four water stewardship outcomes, Criterion 4.5 requires "continual improvement" until "best practice" is met.
- At a minimum, sites should always participate in the following:
    - Attending relevant meetings of the catchment management authority
    - Actively participating in components of the catchment plan
    - Providing input or feedback to the development or revision of a catchment plan
- Evidence of participation could include meeting minutes with names, acknowledgements in plans or verbal confirmation from relevant authorities of a site's engagement efforts.
- Other forms of participation are also possible, including (but not limited to) the following (note that all of the following should always be coordinated with relevant public-sector agencies):
    - Cooperating with relevant catchment authorities and public-sector agencies
    - Assisting with monitoring and evaluation
    - Strengthening governance capacity through training, expertise, knowledge sharing, etc.
    - Running for positions within the catchment governance body (if applicable)
    - Assisting with implementation of plans
    - Lending in-kind support for planning exercises
- Where catchment authorities are absent in driving good water governance, this criterion requires sites to convene one or more meetings with stakeholders to discuss how catchment-wide issues can be addressed through coordinated efforts (e.g., a voluntary stakeholder council). The expectations here are that the site convene with

stakeholders and begin a dialogue toward improved catchment governance. The site is not initially expected to form catchment governance, although, in time, it is expected to demonstrate progress *toward* a form of catchment governance. In all cases, relevant public-sector agencies should be notified and asked to be involved. It is better (for all parties concerned) that the site support the relevant public-sector agency in playing this role rather than have to initiate the effort on its own.

- Capacity-building within the catchment qualifies as participation in catchment governance and also conforms with the advanced-level criterion (4.12).
- To conform with this criterion, the site must:
    - Provide documented evidence of ongoing positive participation in catchment governance efforts;
    - Where water governance is a shared water challenge, demonstrate continual improvement in the site's performance on improving catchment governance (to recognized "best practice").

Useful references and resources:

- INBO/GWP A Handbook for Integrated Water Resources Management in Basins, 2009, *http://www.gwp.org/Global/ToolBox/References/A%20Handbook%20for%20Integrated%20Water%20Resources%20Management%20in%20Basins%20(INBO,%20GWP,%202009)%20ENGLISH.pdf*.
- The CEO Water Mandate (2010) Guide to Responsible Business Engagement with Water Policy, *http://ceowatermandate.org/files/Guide_Responsible_Business_Engagement_Water_Policy.pdf*.

Examples:

- Attending relevant meetings of the catchment management authority
- Actively participating in components of the catchment plan
- Providing input or feedback to the development or revision of a catchment plan
- Assisting with monitoring and evaluation
- Running for positions within the catchment governance body (if applicable)
- Assisting with implementation of plans
- Lending in-kind support for planning exercises

4.6 Maintain or improve indirect water use within the catchment*

Intent: *To work with members of your supply chain located in the catchment to reduce your water risk and broaden your stewardship impact.*

Guidance:

- In conjunction with Criteria 2.5 and 3.2, this criterion requires the site to take actions beyond the site's property boundary and engage members of its supply chain and outsourced water-related services located within the catchment to address its indirect water use.
- "Driving" includes:
  - Raising awareness of water stewardship, water impacts and water risks to your suppliers;
  - Encouraging uptake of commitments, data gathering, stewardship planning, actions, evaluation and/or communication on water issues;
  - Building capacity (including data-sharing, training, solutions, etc.);
  - Working collectively on shared water challenges.
- The scope of the engagement is limited to the catchment to ensure the feasibility of this criterion. If suppliers beyond the catchment are engaged, this would constitute an advanced-level practice and would count toward additional points.
- Note: If you are a "large" site (see definition in Appendix A: Glossary), the expectation is that you will reach out beyond your catchment as a core requirement (i.e., you will instead conform with Criterion 4.16).
- For any activity, results must be measured against baseline data gathered in Step 2.
- To conform with this criterion, the site must list the suppliers and service providers that were contacted with the actions they have taken as a result of your engagement relating to indirect water use.

Useful references and resources:

- None at this time

Example:

- If a hotel site were to identify that its food procurement and laundry services partially came from within the catchment (which had water quality concerns), it may raise the water quality issue with the two members of its supply chain (the food company and laundry company) and suggest they look into ways that they could reduce their pollution (and maybe even save money) and lower their regulatory risk:
  - On August 7, we contacted both our apple farm and our laundry facility. We spoke with the managers at both facilities (Mr Schwartz and Ms Holtz, respectively) and shared our concerns about nutrient loading in the catchment.
  - As a result of our actions, Ms Holtz has shifted to phosphate-free laundry detergent, while Mr. Schwartz is looking into a different method of fertilizer application that he hopes will lower nutrient runoff.

4.7 Provide access to safe drinking water, adequate sanitation and hygiene awareness (WASH) for workers on-site

Intent: *To ensure that the site respects the human right to water for all individuals who are working on-site.*

Guidance:

- Providing WASH for on-site workers is increasingly recognized as one of the methods by which a site can recognize the human right to water and sanitation. It is also increasingly recognized as simply a good business practice, as sick workers are not good for business, the economy or society as a whole.
- "Workers" is a broader term than "staff" or "employees" as it also encompasses those individuals who work for other companies who happen to be working on-site. For example, an outsourced cleaning service's workers, while cleaning a site, would be covered under this criterion.
- Drawing from the World Health Organization (see: WHO, 2014 in references below for more details), access to safe drinking water is defined as follows:
    - Drinking water is water used for domestic purposes, drinking, cooking and personal hygiene;
    - Access to drinking water means that the source is less than 1 kilometre away from its place of use, and that it is possible to reliably obtain at least 20 litres per member of a household per day;
    - Safe drinking water is water with microbial, chemical and physical characteristics that meet WHO guidelines or national standards on drinking water quality.
- Furthermore, WHO defines access to basic sanitation as:
    - The lowest-cost technology ensuring hygienic excreta and sewage disposal and a clean and healthful living environment. Access to basic sanitation includes safety and privacy in the use of these services.
    - The following are types of sanitation: public sewer connection; septic system connection; pour-flush latrine; simple pit latrine; ventilated improved pit latrine
- Hygiene awareness includes:
    - Making workers aware of the consequences of poor hygiene behaviour, (e.g., diarrhoea);
    - Providing workers with actions that can mitigate poor hygiene behaviour risks (e.g., hand washing with soap after defecation);
    - Generating awareness through various means such as: training, signage, site entry procedures, general staff and worker communications, etc.
- To conform with this criterion, the site must:
    - Provide written (or demonstrate if on-site) evidence of the provision of WASH services to workers on-site.

Useful references and resources:

- World Health Organization (2014) Health through safe drinking water and basic sanitation, *http://www.who.int/water_sanitation_health/mdg1/en.*
- World Business Council for Sustainable Development (WBCSD) Safe water, sanitation & hygiene at the workplace (2013), pledge, guiding priciples for implementation, and self assessment tool, *http://www.wbcsd.org/work-program/sector-projects/water/WASHatworkplace.aspx.*
- Wetlands International (2010) Wetlands, Water, Sanitation, and Hygiene (WASH), *http://www.wetlands.org/WatchRead/Currentpublications/tabid/56/mod/1570/articleType/ArticleView/articleId/2467/Default.aspx.*
- Practical Action (2014), *http://practicalaction.org/water-and-sanitation-answers.*
- Bringing A Human Rights Lens to Corporate Water Stewardship, *http://ceowatermandate.org/files/HumanRightsLens2012.pdf.*

- WaterAid – Sanitation Framework, *http://www.wateraid.org/~/media/Publications/sanitation-framework.pdf.*
- WaterAid – Water Security Framework, *http://www.wateraid.org/~/media/Publications/water-security-framework.pdf.*
- WaterAid – Hygiene Framework, *http://www.wateraid.org/uk/~/media/Publications/hygiene-framework.pdf.*
- WaterAid – Rights-based approaches to increasing access to water and sanitation, *http://www.freshwateraction.net/sites/freshwateraction.net/files/RBA%20Discussion%20paper%20FINAL%20-%20June%202012.pdf.*
- WaterAid – Sustainability Framework, *http://www.wateraid.org/uk/~/media/Publications/sustainability-framework.pdf.*

Example:

- Nestlé (note this is a corporate commitment example from the WBCSD pledge, rather than a site commitment under AWS, but all of Nestlé's sites must also be compliant and in that sense, it does represent an example).

4.8 Notify the owners of shared water-related infrastructure of any concerns

Intent: *To take basic action to mitigate risks related to shared water-related infrastructure.*

Guidance:

- Shared water-related infrastructure is out of the control of the site, and yet it represents a key area of risk exposure for many if not most sites, whether through ageing/degraded infrastructure, inadequate infrastructure or infrastructure that is exposed to extreme events and other risks. Furthermore, if the site cannot directly address concerns where they exist, then the site is left in a position where they can begin to call for action. Not all sites face situations in which there are concerns about water-related infrastructure. If, having completed Criteria 2.2, 2.3, 2.6, 2.7 and 3.3 no concerns arise around shared water challenges that are affected or link to water-related infrastructure, then there may not be the need to take action on this criterion. However, in the case that a site indicates that there is no need to address water-related infrastructure, sites should demonstrate why this is the case through evidence from 2.2, 2.3, 2.6, 2.7 and 3.3.
- While managers may actually operate the shared water-related infrastructure, it is important that the site contact the owners of the water-related infrastructure to voice their concerns (and potentially the concerns of others as well). Sites are encouraged to also contact the managers (if distinct from the owners) of the water-related infrastructure as well since they may also have an ability to help meet the shared water challenges.
- The focus of this criterion is simply to reach out and raise awareness of concerns. There is not an expectation that the infrastructure owners will immediately respond, but the intention is that if enough sites raise similar concerns, then there will be a more compelling case for action on the owner's behalf.
- To conform with this criterion, a site must provide a list of names (owners or representatives of owners of water-related infrastructure) contacted, along with a record of key messages conveyed.

Useful references and resources:

- None at this time

Example:

- A site located in a flood-prone deltaic region, facing expectations of large population growth, may be concerned that if a large flood combines with an extreme storm surge event and poor tidal conditions, then their business, as well as the entire region's economy, could be at risk. Accordingly, the site contacts the owner of the infrastructure (in this case, a public-sector agency) and speaks with the representative of this department to relay its concerns. It would document the following:
    - Contacted Limin Wu, general manager at the Department of Water Infrastructure, on 21 July 2013 to relay the following information: Our site is concerned about the height of coastal sea walls under extreme events and encourages the department to consider increasing the height of the wall. Furthermore, our site is concerned that the increased demand in the region, combined with the groundwater pumping, may result in salination of our water sources. We request that the department give consideration to these concerns and welcome any solutions that the department may be able to bring to address these concerns.

4.9 Achieve best practice results on site water balance

Intent: *To recognize those sites that are undertaking the very highest levels of expected action with respect to improving the site's water balance.*

Points: 8 points

Guidance:

- In the Standard, best practice represents the "end state" of what a site must continually work towards, or maintain once achieved. In many senses, it represents the core of what the Standard is attempting to achieve, especially with respect to the four water stewardship outcomes, of which water balance is one.
- Criterion 4.9 is distinguished from Criterion 4.2 in that it is about having achieved the "best practice" rather than "working towards" improved site water balance (which is the intent of Criterion 4.2).
- As defined by AWS, "best practice" for this criterion is:
    - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER employing recognized best practice approaches as deemed by regionally meaningful industrial benchmarks OR (in cases where benchmarking data are unavailable) achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- To conform with this criterion, the site must:
    - Provide quantified improvement since a site-selected baseline date;
    - Provide evidence through a summary of the consensus from an appropriate range of stakeholders on the fact that the site is seen as positively contributing to sustainable water balance in the catchment;

    - Provide evidence through regionally meaningful industry-specific benchmarking that the site's current performance falls within the top 10th percentile of what classifies as current best practice OR provide signed evidence of recognition by credible and relevant public-sector agency representatives that the site's current performance classifies as a leading practice within the region.
- Stakeholders must include a representative range of interests as outlined in Criterion 2.2, and such interests must be represented in any form of consensus.
- The public-sector agency must be in a position to comment upon the site's performance, having both the jurisdiction and the expertise (as deemed by professional credentials) to denote the site's current performance as a "leading practice within the region".
- Acceptable forms of evidence for stakeholder consensus include:
    - Written meeting minutes with names;
    - A full list of the names and contact information of stakeholders who can verbally verify the recognition.
- Acceptable forms of evidence for benchmarking include:
    - A dated summary of a study quantitatively demonstrating the range of performance of regionally and sectorally comparable sites that includes the site's current performance;
    - An accessible database that quantitatively demonstrates the range of performance of regionally and sectorally comparable sites that includes the site's current performance.
- Acceptable forms of evidence for public-sector agency recognition include:
    - A signed letter;
    - A personal email;
    - Verbal verification (requires the name and contact of the individual who can verbally verify the recognition).

References:

- None at present

Example:

- None at present

4.10 Achieve best practice results on site water quality

Intent: *To recognize those sites that are undertaking the very highest levels of expected action with respect to improving the site's water quality.*

Points: 8 points

Guidance:

- In the Standard, best practice represents the "end state" of what a site must continually work towards, or maintain once achieved. In many senses, it represents the core of what the Standard is attempting to achieve, especially with respect to the four water stewardship outcomes, of which water quality is one.
- Criterion 4.10 is distinguished from Criterion 4.3 in that it is about having achieved the "best practice" rather than "working towards" improved site water quality (which is the intent of Criterion 4.3).
- As defined by AWS, "best practice" for this criterion is:
    - Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER employing recognized best practice approaches as deemed by regionally meaningful industrial benchmarks OR (in cases where benchmarking data is unavailable) achieving recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- To conform with this criterion, the site must:
    - Provide quantified improvement since a site-selected baseline date;
    - Provide evidence through a summary of the consensus from an appropriate range of stakeholders on the fact that the site is seen as positively contributing to good water quality status in the catchment;
    - Provide evidence through regionally meaningful industry-specific benchmarking that the site's current performance falls within the top 10th percentile of what classifies as current best practice OR provide signed evidence of recognition by credible and relevant public-sector agency representatives that the site's current performance classifies as a leading practice within the region.
- Stakeholders must include a representative range of interests as outlined in Criterion 2.2, and such interests must be represented in any form of consensus.
- The public-sector agency must be in a position to comment upon the site's performance, having both the jurisdiction and the expertise (as deemed by professional credentials) to denote the site's current performance as a "leading practice within the region".
- Acceptable forms of evidence for stakeholder consensus include:
    - Written meeting minutes with names;
    - A full list of the names and contact information of stakeholders who can verbally verify the recognition.
- Acceptable forms of evidence for benchmarking include:
    - A dated summary of a study quantitatively demonstrating the range of performance of regionally and sectorally comparable sites that includes the site's current performance;

- An accessible database that quantitatively demonstrates the range of performance of regionally and sectorally comparable sites that includes the site's current performance.
- Acceptable forms of evidence for public-sector agency recognition include:
  - A signed letter;
  - A personal email;
  - Verbal verification (requires the name and contact of the individual who can verbally verify the recognition).

4.11 Achieve best practice results on Important Water-Related Areas through restoration

Intent: *To recognize those sites that are undertaking the very highest levels of expected action with respect to restoring Important Water-Related Areas.*

Points: 8 points

Guidance:

- In the Standard, best practice represents the "end state" of what a site must continually work towards, or maintain once achieved. In many senses, it represents the core of what the Standard is attempting to achieve, especially with respect to the four water stewardship outcomes of which maintaining the healthy status of Important Water-Related Areas is one.
- Criterion 4.11 is about having achieved the "best practice" and has a restoration focus, whereas Criterion 4.4 has a focus on "working towards" improved status of Important Water-Related Areas. The distinction lies in the "end state" as well as the restoration focus of this criterion. Note: working toward restoration does not conform with this criterion.
- As defined by AWS, "best practice" for this criterion is to have complete restoration of at least one Important Water-Related Area and in so doing:
  - Be recognized through a consensus of stakeholders as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
  - EITHER have its best practice restoration approaches recognized by credible and relevant experts on the Important Water-Related Area type within regional context OR achieve recognition through credible and relevant public-sector agency representatives as industrial best practice for the region.
- To conform with this criterion, the site must:
  - Provide quantified improvement since a site-selected baseline date;
  - Provide evidence through a summary of the consensus from an appropriate range of stakeholders on the fact that the site is seen as positively contributing to the healthy status of Important Water-Related Areas in the catchment;
  - Provide validated evidence through credible expert testimony of the positive contribution of the restoration work OR provide validated evidence of positive recognition by credible and relevant public-sector agency representatives that the site's restoration effort classifies as a leading practice within the region.
- Stakeholders must include a representative range of interests as outlined in Criterion 2.2, and such interests must be represented in any form of consensus.

- The public-sector agency must be in a position to comment upon the site's performance, having both the jurisdiction AND the expertise (as deemed by professional credentials) to denote the site's current performance as a "leading practice within the region".
- Acceptable forms of quantified improvement include:
    - Photographic evidence of completed restoration efforts;
    - Letter signed by the owner of the land recognizing restoration effort (Note: if the owner is the site, the additional evidence is required);
    - Visual visit, combined with pre-restoration evidence (such as a photograph, remotely sensed image, map, etc.).
- Acceptable forms of evidence for stakeholder consensus include:
    - Written meeting minutes with names;
    - A full list of the names and contact information of stakeholders who can verbally verify the recognition.
- Acceptable forms of evidence for either a credible expert or public-sector agency recognition include:
    - A signed letter (with name and credentials);
    - A personal email (with name and credentials);
    - Verbal verification (with name and credentials; also requires the contact of the individual who can verbally verify the recognition).
- Note: If you are working with others on this criterion, it should be counted here and not under Criterion 4.15 (Collective Action).

References and useful resources:

- The Cosumnes River Experience and Recommendations for Restoration Monitoring – Floodplain Restoration Success Criteria and Monitoring, *https://watershed.ucdavis.edu/pdf/crg/reports/Resto_Summary.pdf*

Example:

- Taking an area out of production and re-planting species in order to restore it to a seasonal wetland
- Completing implementation of an advanced integrated pest management system that has eliminated invasive species
- Restoring access to an on-site water-related area with significance to a specific cultural group

4.12 Achieve best practice results and strengthen capacity in good water governance

Intent: *To recognize those sites that are undertaking the very highest levels of expected action with respect to strengthening governance.*

Points: 8

Guidance:

- In the Standard, best practice represents the "end state" of what a site must continually work towards, or maintain once achieved. In many senses, it represents the core of what the Standard is attempting to achieve, especially with respect to the four water stewardship outcomes of which ensuring good water governance is one.

- Criterion 4.12 is about having achieved the "best practice" and has a capacity-strengthening focus, whereas Criterion 4.5 has a focus on "participating and working towards" good water governance. Since good governance is an ongoing exercise rather than a distinct "end state", for this criterion the distinction is particularly emphasized by the recognition "yes, that site is contributing to good water governance" as well as the capacity-strengthening focus of this criterion. Put another way, it is recognizing that you've done what you said you were going to do (in Criteria 3.2 and 4.5) and have even gone beyond that to build others' capacity.
- As defined by AWS, "best practice" for this criterion has both a recognition and capacity-strengthening aspect. Accordingly, the site must:
    - Demonstrate water governance capacity-building of others in the basin in a manner that is transparent and collaborative. It is preferable that this capacity development be for public-sector agencies, but if it is not required or desired by such agencies, then building the capacity of others within the catchment to engage conforms with the expectations of this criterion.
    - Be recognized through a consensus of stakeholders as positively contributing to the achievement of the four water stewardship outcomes in the catchment. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue; AND
    - EITHER have its good governance contribution efforts recognized as positive by credible and relevant experts on the Important Water-Related Area type within regional context OR (preferably) have its good governance contribution efforts recognized as positive through credible and relevant public-sector agency representatives as beneficial to achieving or maintaining good water governance.
- To conform with this criterion, the site must:
    - Provide quantified improvement in water governance capacity since a site-selected baseline date;
    - Provide evidence through a summary of the consensus from an appropriate range of stakeholders on the fact that the site is seen as positively contributing to the good water governance of the catchment;
    - Provide validated evidence that its good governance contribution efforts are recognized as positive by credible and relevant experts OR provide validated evidence of recognition by credible and relevant public-sector agency representatives that the site's restoration effort classifies as a leading practice within the region.
- Stakeholders must include a representative range of interests as outlined in Criterion 2.2, and such interests must be represented in any form of consensus.
- The public-sector agency must be in a position to comment upon the site's performance, having both the jurisdiction and the expertise (as deemed by professional credentials) to denote the site's current performance as a "leading practice within the region".
- Acceptable forms of quantified improvement include:
    - A letter signed by the recipient of the capacity-building effort quantifying the benefit;
    - A quantifiable record of the difference the in-kind contribution made (see below for examples) that can be validated by the recipient.
- Acceptable forms of evidence for stakeholder consensus include:
    - Written meeting minutes with names;
    - A full list of the names and contact information of stakeholders who can verbally verify the recognition.
- Acceptable forms of evidence for either a credible expert or public-sector agency recognition include:
    - A signed letter (with name and credentials);
    - A personal email (with name and credentials);
    - Verbal verification (with name and credentials; also requires the contact of the individual who can verbally verify the recognition).

- Note: If you are working with others on this criterion, it should be counted here and not under Criterion 4.15 (Collective Action).
- Engagement in governance and public policy can be potentially dangerous for sites as they could be seen as attempting to engage in "policy capture". There is significant discussion on how to avoid such situations in the CEO Water Mandate guidance noted under the "Useful references and resources" section below.
- General coordination and collaboration are not, by themselves, sufficient to warrant conformance with this criterion (they are covered in Criterion 4.5). The site must also engage in capacity-building and be seen by others as positively contributing.
- Types of positive, good governance engagement and capacity-building include (but are not limited to):
    - Policy: Engagement could include efforts such as public support for an improved policy, assistance with technical input or support for non-profits to advocate for improved policy. For example, publicly supporting a public-sector agency's efforts to strengthen local, regional, national or international water stewardship legislation or policy.
    - Governance participation: Assisting others (e.g., indigenous communities on water/land rights) is another form of positive water governance engagement. If the site plays a recognized role in assisting others to secure water and/or land rights that they did not previously have, this would likely be seen by others as a positive contribution to good water governance. Sites could also directly participate by sitting on official boards (where applicable).
    - In-kind capacity: The site can increase catchment capacity by providing its own time to train catchment personnel in desired areas (e.g., finance, data-sharing, monitoring, planning, cooperation, stakeholder engagement). Note: Such direct, in-kind capacity offerings must be vetted with relevant authorities and/or relevant public-sector agencies as it is important that such efforts coordinate with relevant public sector efforts.
- Note: Where implementers are legally required to undertake such activities, such efforts will not count toward these points. Similarly, any effort that is counted under another criterion cannot be used for points in this criterion.

Useful references and resources:

- SIWI/UNDP Water Governance Facility (2014), *http://www.watergovernance.org.*
- IUCN (2013) BRIDGE – Building River Dialogue and Governance*, http://iucn.org/about/work/programmes/water/wp_our_work/wp_our_work_bridge*.
- UNDP (2014) Capacity Development in Sustainable Water Management, *http://www.cap-net.org.*
- Environmental Information Exchange Network, *http://www.exchangenetwork.net/communities-of-interest/water*.
- Water Data Hub, *http://waterdatahub.org.*
- OECD Recognition of Non-Formal and Informal Learning: Country Practices 2010, Patrick Werquin, *http://www.oecd.org/edu/skills-beyond-school/44600408.pdf*.

Examples:

- Supporting policy improvements (changes that drive the stewardship outcomes and positive social, environmental and economic impacts)
- Assisting or supporting stakeholders in participating in water governance
- Training individuals to bolster capacity for governance
- Transferring business management knowledge to a catchment management agency

4.13 Advance regionally specific industrial water-related benchmarking

Intent: *To recognize sites that engage externally and contribute to the development and dissemination of industry-wide, water-related benchmarking that is regionally meaningful.*

Points: 3

Guidance:

- Benchmarking is the process of comparing a company's processes and performance metrics with the industry's best practices. Benchmarking can be a good tool to identify the range of practices and performance in the same industry and can also help facilitate data-sharing and understanding. It is also an important aspect of driving continual improvement and is linked to performance within the AWS Standard. This includes efforts to work with others to ensure that common metrics/indicators and data collection methodologies are employed, that they benefit all parties and contribute to understanding what good water stewards elsewhere are achieving.
- Efforts must record the context in which data were gathered (i.e., note the catchment and its general region). This regionally specific metadata are critical for benchmarking efforts because it is important to distinguish practices in water-abundant areas from those in water-scarce areas in order to compare like to like.
- Efforts must also denote the industry for which the data were gathered (i.e., what is the industry). AWS suggests employing the distinctions noted by the Global Industry Classification – see *http://www.msci.com/products/indices/sector/gics/gics_structure.html* for more details.
- Contribution to benchmarking may include, but is not limited to:
    - Demonstrated participation or effort to participate in industry;
    - Sharing of data and dissemination of best practices;
    - Promotion of common metrics and indicators.
- To conform with this criterion, the site must provide a list of efforts to contribute to regionally specific benchmarking and spread best practices.

Useful references and resources:

- International Benchmarking Network for Water and Sanitation Utilities (IBNET), *http://www.ib-net.org.*
- Global Benchmarking Network, *http://www.globalbenchmarking.org.*
- AquaRating (2014) AquaRating, *www.aquarating.org.*
- AWWA (2014) Benchmarking, *http://www.awwa.org/resources-tools/water-utility-management/benchmarking.aspx.*
- The International Benchmarking Network for Water and Sanitation Utilities (IBNET) (2014), *http://www.ib-net.org.*
- The European Benchmarking Co-operation (2014), *http://www.waterbenchmark.org/* (Also see EWP).

Example:

- BIER, "Water Use Benchmarking in the Beverage Industry," *http://bieroundtable.com/files/BIER%20Benchmarking%20Publication%202011.pdf.*

4.14 Re-allocate saved water for social or environmental needs

Intent: *To ensure that, in cases where rivers are over-allocated (or at risk of over-allocation), water saved through a site's efficiency measures and re-allocated to environmental or social flow requirements is recognized.*

Points: 6

Guidance:

- While the process of setting up and managing water allocations is firmly within the realm of government, helping ensure the transfer of allocations to environmental flows is something that sites can play a role in. The references below provide background information on allocations for environmental flows from an array of perspectives. It is recognized that this criterion may not be applicable in many jurisdictions or catchments.
- The points should be secured only once the site has signed some agreement (e.g., a memorandum of understanding) with the relevant public-sector agency. The agreement need not be in perpetuity, but the points will be secured only for the period associated with the agreement. If a permanent agreement is put in place, then the full point allocation should be granted in perpetuity. All re-allocations must be officially confirmed by the relevant public-sector agency. Documentation may be verbal (from a legally authorized agency) or written.
- Where questions are raised as to whether an allocation classifies as a "social or environmental need", shared water challenges should be referenced as guidance. Stakeholders, by and large, will dictate what does, or does not, constitute a legitimate environmental or social need. If water is provided, but not "needed" (i.e., is not recognized as a water challenge by stakeholders in the catchment), then the site would not conform with this criterion.
- Note: It is not necessary to have consensus on the legitimacy of the proposed "social or environmental need", but it should align with the intent of the water stewardship outcomes and be within the spirit of the overall AWS Standard.
- The re-allocation is intended to be in response to actions taken within Criterion 4.2; however, if the site has historically reduced withdrawals through improved efficiency, such historic savings may also be re-allocated as long as the site still retains the legal license to withdraw these volumes.
- Environmental re-allocations cover all manners of leaving water for the environment including, for example instream flow needs, habitat needs and groundwater needs.
- Note: If a jurisdiction does not allow for re-allocation, the site can undertake actions unilaterally; conversely, credit should be given for working with authorities to set up such provisions.
- Note: If related to environmental re-allocation, it is a pre-requisite for these points that the site also be compliant with Criterion 2.12 (understanding the status of groundwater and environmental flow needs).
- To conform with criterion, the site must:
    - Provide the total volume of water officially re-allocated for social and environmental needs (in m3 or Mm3);
    - Provide a form of legally binding documentation.

Useful references and resources:

- WWF (2007) "WWF Water Security Series 1 – Allocating scarce water: a primer on water allocation, water rights and water markets," *http://assets.wwf.org.uk/downloads/scarce_water.pdf.*
- Global Environmental Flows Network, *http://www.eflownet.org.*
- The Instream Flow Council, *http://www.instreamflowcouncil.org.*
- IUCN, "FLOW – The Essentials of Environmental Flows," *http://www.iucn.org/about/work/programmes/water/resources/toolkits/?2186/Flow-the-essentials-of-environmental-flows.*
- DIVERSITAS, an international programme for biodiversity science, including the freshwater BIODIVERSITY Cross-Cutting Network, *http://www.diversitas-international.org/?page=cross_freshwater.*
- Ramsar Convention Secretariat, "Water allocation and management: Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands," Ramsar handbooks for the wise use of wetlands, 4th edition, vol. 10, Ramsar Convention Secretariat, Gland, Switzerland, 2010, *http://www.ramsar.org/pdf/lib/hbk4-10.pdf.*
- Loch, A., Bjornlund, H., and McIver, R., "Achieving targeted environmental flows: An evaluation of alternative allocation and trading models under scarce supply – lessons from the Australian reform process," Centre for Regulation and Market Analysis Working Paper, 2010, *http://www.academia.edu/596865/Achieving_targeted_environmental_flows_Alternative_allocation_and_trading_models_under_scarce_supply-lessons_from_the_Australian_reform_process.*
- Arthington, A.H., and Pusey, B.J., "Flow restoration and protection in Australian Rivers, River Research and Applications," 19: 377–395, 2003, *http://www.ufz.de/export/data/1/30562_flow_restoration.pdf.*
- Katz, D., "Going with the flow: preserving and restoring instream water allocations," Chapter 2 in The World's Water: 2006-2007, Gleick, P. (Ed.), Island Press, *http://ceaa-acee.gc.ca/050/documents/48645/48645F.pdf.*

Examples:

- Oregon Water Resources Department, "Flow restoration in Oregon," 2013, *http://www.oregon.gov/owrd/pages/mgmt_instream.aspx.*
- Republic of South Africa, Department of Water Affairs and Forestry, "A draft position paper for water allocation reform in South Africa: toward a framework for water allocation planning discussion document," 2005, *http://www.dwaf.gov.za/Documents/Policies/WARdraftJan05.pdf.*
- Government of Alberta Environment and Sustainable Resource Development, "Water allocation transfer under a license," 2013, *http://environment.alberta.ca/01653.html.*

4.15 Engage in collective action to address shared water challenges

Intent: *To recognize sites that engage externally with others in collective action that addresses impacts and mitigates risk, including those sites that succeed in playing a material role in achieving success.*

Points: 8 (for engaging in collective action) or 14 (engaging in collective action + being recognized as a material contributor to a successful collective action)

Guidance:

- Collective action is defined by the CEO Water Mandate as "corporate water management initiatives that involve interaction with government entities, local communities or civil society organizations with the goal of advancing 1) responsible internal company management of water resources within their direct operations and supply chains in line with policy imperatives, and 2) the sustainable and equitable management of the catchment in which companies and their suppliers operate." This definition comes from the CEO Water Mandate's 2012 guide to water-related collective action. This guidebook is a very good resource for understanding and undertaking collective action that aligns with the AWS Standard's approach to water stewardship.
- Note: Engagement with multiple suppliers does not qualify as collective action under this criterion as it is already covered under Criteria 4.6 and 4.16.
    - Another excellent reference to consider if engaging in this criterion is the CEO Water Mandate's Water Action Hub. "The Hub" is an online platform that sites can employ to identify other users within their catchment interested in undertaking collective action: *http://wateractionhub.org*.
- For the purposes of the AWS Standard, collective action always involves three or more entities jointly working on water-related issues in a two-directional partnership role that is within the spirit of the Standard (i.e., positive and trying to drive "water stewardship"). This is distinguished from the situation in which there is a one-directional role involving two or more entities. For example, four entities working together to recharge an aquifer would be considered collective action, while three entities being trained on groundwater recharge by a fourth entity would not. In the former case, the entities are working in partnership, while in the latter case, it is a one-directional relationship between the training entity and the other three entities receiving training. The latter would still be considered a part of capacity-building (Criterion 4.14) but would not constitute collective action.
- Collective action can take many different forms, but any form should be in an effort to improve the fundamental water stewardship outcomes (water governance, balance, quality and Important Water-Related Areas) or shared water challenges.
- One specific form of collective action is policy advocacy, and one area that may be of interest to sites is advocacy around the establishment of protected areas (which would protect both natural infrastructure and/or Important Water-Related Areas).
- Collaboration is often helped through establishing the following (with credit to Dr James Austin, Harvard Business School):
    - Clarity of purpose: making sure that all stakeholders involved in the collective action understand and agree upon its purpose;
    - Chemistry: making sure that the people involved have enough of a connection with the purpose that they also relate to one another as people;
    - Complementary resources: making sure that different groups bring resources that fill critical gaps and that enable innovation that would otherwise not be possible;
    - Collaborative value mind-set: making sure that you're thinking about how to create value both for yourself and for others throughout the action;
    - Communication between partners: making sure that there is good, regular communication between the stakeholders involved. Scheduling meetings helps with this;
    - Creating trust: making sure that trust is built between parties. This is most readily accomplished through actions and accountability;
    - Creative problem-solving: making sure that a positive and creative problem-solving mind-set is employed by the partners in the collective action;

    - Continual learning and innovation: making sure that those involved collaboratively learn from collective mistakes (this helps with fostering further innovation);
    - Commitment to a long-term partnership: making sure that the effort is not a one-off, but part of a longer-term relationship and partnership (which helps build trust).
- A protected area is "a clearly defined geographical space, recognized, dedicated and managed through legal or other effective means to achieve the long-term conservation of nature with associated ecosystem services and cultural values". (Source: UNEP-WCMC About Protected Areas, Dudley, N. (ed.),"Guidelines for Appling Protected Areas Management Categories," (IUCN: Switzerland, 2008) pp 8-9).
    - They can be created only through cooperation at the national level; therefore, compliance with this criterion requires a list of advocacy activities participated in and outcomes achieved.
    - Additionally, a publicly available statement supporting the permanent protection of Important Water-Related Areas is required.
- Land trusts are another mechanism to protect Important Water-Related Areas through collective action (joint financing).
    - Land trusts are formal agreements where one party agrees to hold ownership of a piece of real estate for the benefit of another party (this could be the community or the environment, etc.).
    - The Nature Conservancy (*http://www.nature.org*) and World Land Trust (*http://www.worldlandtrust.org*) are examples of such. Private entities also can act as land trustees.
- To conform with this criterion, the site must:
    - Provide a list of efforts;
    - Name the other entities involved in the collective action;
    - Provide evidence of the quantified change that has resulted from the collective action since a site-set baseline date.
- Note: even in cases where no change has occurred, the site is still in conformance with this criterion (i.e., an improvement is not required to conform). In particular, collective action on data gathering (Criterion 2.8) does not conform with this criterion (i.e., 4.15).
- Furthermore, this site also has a provision to recognize those sites that play a material role in a successful collective action. Determination of whether a site has played a material role is left up to a combination of those involved in the collective action and the other stakeholders that the collective action in question affects.
- To qualify for these additional points (six additional points for a total of fourteen for this criterion), the site must also:
    - Provide evidence of the quantified *improvement* that has resulted from the collective action since a site-set baseline date;
    - Be recognized through a consensus of stakeholders linked to the collective action (including both those perpetrating the action and those affected by the action) as materially and positively contributing to the achievement of the collective action. Note: Since this latter requirement is based upon consensus, there need not be unanimity on this point. However, all stakeholder concerns that are backed with credible evidence must be accounted for by the site. Auditors will ultimately play the role of arbiter on this issue.

Useful references and resources:

- The CEO Water Mandate, "Guide to water-related collective action," 2012, *http://ceowatermandate.org/files/guide_to_collective_action.pdf*.
- The CEO Water Mandate (2010) Guide to Responsible Business Engagement with Water Policy, *http://ceowatermandate.org/files/Guide_Responsible_Business_Engagement_Water_Policy.pdf*.

- CDP, "Collective responses to rising water challenges: CDP Global Water Report 2012," See in particular pages 16-23, 2012, *https://www.cdproject.net/CDPResults/CDP-Water Disclosure Global Report 2012.pdf*.
- Swallow, B., Johnson, N., Meinzen-Dick, R. and Knox, A., "The Challenges of Inclusive Cross-Scale Collective Action in Watersheds," *Water International* 31(3): 361-375.
- Ecosystem Marketplace, 2013, *http://www.ecosystemmarketplace.com*.
- Lake Naivasha Ecosystem Service Project, *http://www.watershedconnect.com/projects/lake_naivasha_watershed_management_project*.
- Natural Capital Business Hub, *http://www.naturalcapitalhub.org/web/natural-capital-business-hub* (Site contains links to case studies, data, collaboration opportunities and more).
- Water Futures Partnership (2010) Water Futures: working together for a secure water future, *http://www.water-futures.org/fileadmin/user_upload/PDF/2010_Water_Futures_Report.pdf*.
- Water Futures Partnership (2011) Water Futures: addressing shared water challenges through collective action, *http://www.water-futures.org/fileadmin/user_upload/PDF/2011_Water_Futures_Report.pdf*.
- Jensen, J., "Understanding links between collective action, livelihoods, and poverty alleviation in a watershed," Humphreys, E., Bayot, R.S., van Brakel, M., Gichuki, F., Svendsen, M., Wester, P., Huber-Lee, A., Cook, S., Douthwaite, B., Hoanh, C.T., Johnson, N., Nguyen-Khoa, S., Vidal, A., MacIntyre, I. and MacIntyre, R. (eds). *Fighting Poverty Through Sustainable Water Use: Proceedings of the CGIAR Challenge Program on Water and Food 2nd International Forum on Water and Food*, Volume 3 pp 148-154, 2006, *http://www.cgiar.org/our-research/challenge-programs/challenge-program-on-water-and-food*.

Examples:

- Water Funds: Payment for Ecosystem Service (PES) schemes have been around for many years, but over the past decade The Nature Conservancy, in conjunction with many partners, has been working to develop freshwater-based PES schemes in Latin America and beyond called "Water Funds". These systems create a fund that pays users in the upper parts of the watershed to manage their lands and waters in such a way that those downstream receive benefits (and in turn pay for those benefits). *http://www.nature.org/ourinitiatives/regions/latinamerica/water-funds-of-south-america.xml* and manual at *http://www.conservationgateway.org/ConservationPractices/EcosystemServices/NaturesValues/NaturesValuesTheUltimateHandbookforWaterFunds/Pages/nature%E2%80%99s-values-ultimate-.aspx*.
- Katoomba Group (2014) Ecosystem Marketplace, *http://ecosystemmarketplace.com*, including 2013 report "Charting New Waters," *http://www.ecosystemmarketplace.com/pages/dynamic/resources.library.page.php?page_id=9544&section=water_market&eod=1*.
- Lake Naivasha Grower's Group (2013), *http://lngg.org*.
- Alcoa (2013) Mine Collaboration Sparks Award-winning Reclamation Project, *http://www.alcoa.com/locations/usa_warrick/en/info_page/awards.asp*.

4.16 Drive reduced indirect water use throughout the site's supply chain and outsourced water-related service providers

Intent: *To recognize efforts to engage members of your supply chain and mitigate your water risks.*

Points: 5 (engagement of material supply chain) or 7 (engagement of material supply chain + credited for prompting demonstrated reductions)

Guidance:

- The basis for this criterion is to reach out to the rest of your supply chain to engage them by requesting they take action to help contribute to the desired water stewardship outcomes in their catchments. In essence, it is an extension of 4.6, with a larger scope of reaching out to the rest of your supply chain beyond the catchment.
- A site's supply chain consists of not only the upstream suppliers who provide the site with its goods and services, but also the downstream entities that provide the site with water-related services for operations, including those that are outsourced. Furthermore, the scope of this criterion, like that of 4.6, is restricted to *material* suppliers for the site's operations – in other words, those suppliers who provide substantive inputs or services required to generate the goods and services that the site creates. For example, a site that bottles beverages would not need to contact the company that produced the pencils that the site employs. However, it would need to at least contact the companies that provide its ingredients, its water and its packaging, as well as any companies involved in cleaning its site.
- The key distinction between this criterion and Criterion 4.6 is that the scope of the engagement is beyond the catchment. In the case that the full supply chain of a site happens to be within the catchment, the site would conform with this criterion if it reached out to all of its material suppliers.
- It is assumed that the site would need to undertake a supply chain mapping exercise to complete this criterion, though evidence of such an exercise is not required per se to conform with this criterion.
- To conform with this criterion, the site must:
    - Provide a list of material suppliers, including their locations; and for each supplier, obtain:
        - A statement on their water-related legal compliance;
        - A description on the water stress status of their catchment;
        - A list of actions that they, as suppliers, are taking, broken down by the four stewardship outcomes as well as any other water-related actions.
    - Provide a list of engagement efforts/requests for each site.
- To qualify for these additional points (two additional points for a total of seven for this criterion), the site must also:
    - Provide evidence of the changes undertaken by one or more sites;
    - Provide evidence from the supplier that the site played a material role in prompting the change.

Useful references and resources:

- SABMiller and WWF (2009) Water footprinting: Identifying and addressing water risks in the value chain, *http://awsassets.panda.org/downloads/sabmiller_water_footprinting_report_final_.pdf*.
- Green, P.S. (2012) "Water Risk in Supply Chains Draws Investor Scrutiny," *http://www.bloomberg.com/news/2012-01-10/water-risk-in-supply-chains-draws-investor-scrutiny.html.*

Example:

- A water service provider that has identified various chemical companies that provide products necessary to run its operation. Each of these companies is requested to provide the necessary information, is provided with a brochure of AWS and is encouraged to undertake training in water stewardship. One site opts to not only participate in an AWS water stewardship course, but also implement a variety of programmes to improve its water risk management as a result (which it credits the water service provider for). Such a site would conform (pending documentation above) with this criterion, including the extra points.
- A parallel example is the Ford Motor Company, which drove implementation of ISO 14001 throughout its suppliers. If such an action were successfully undertaken by a site with its suppliers, it would conform with this criterion.

4.17 Complete implementation of water-related initiatives

Intent: *To recognize sites for completing the water-related initiative work that they committed to under Criterion 1.4.*

Points: 3

Guidance:

- As noted above in the intent, this criterion is about completing a commitment, or to use an English phrase "walking the talk" with respect to the advanced-level water-related initiative commitment undertaken in Step 1 (Criterion 1.4).
- To conform with this criterion, the site must provide, or reference, appropriate documentation indicating successful completion/implementation of the relevant water-related initiative.
- The simplest form of appropriate documentation is either an issued certificate (if applicable) or contact information for the owner of the initiative that can be contacted to verify the successful implementation.
- Note: Criterion 1.4 is a pre- or co-requisite for this criterion. Please see Criterion 1.4 for a list of eligible initiatives.
- Note: Points cannot be claimed if already applicable in another criterion.

Useful references and resources:

- See guidance under Criterion 1.4.

Examples:

- A farm that grows sugar cane (and is also implementing the AWS Standard) provides a copy of its Bonsucro certificate number.

4.18 Provide access to safe drinking water, adequate sanitation and hygiene awareness off-site

Intent: *To work beyond the site's boundaries to directly provide access to safe drinking water, adequate sanitation and hygiene awareness in contexts where such services are lacking and unable to be provided by relevant public sector agencies. In no cases should the intent be to fully replace the role of the public sector in providing such services, but rather to assist such agencies and provide the services in the short term until such time as the appropriate public sector agency is able to provide these services. This is fundamentally about assisting in the human right to safe water and sanitation and recognizing that in certain contexts companies can play a key role in bridging the provision of such services.*

Points: 5

Guidance:

- It is critical to note that AWS recognizes that the role of providing access to safe drinking water, adequate sanitation and hygiene awareness is fundamentally the role of the public sector and it is not the intention of the Standard to replace such a role. Rather, this criterion is about recognizing the fact that in some circumstances, the public sector may lack capacity or resources to meet the water needs of communities while businesses may be able to assist.
- The site is not responsible for providing access to every stakeholder within the community access to WASH to conform with this criterion. Conversely, the effort must be consistent with the intent of the criterion and in the spirit of the AWS Standard.
- To conform with this criterion, the site must:
    - Provide a list of actions taken to provide catchment stakeholders with access to off-site access to safe drinking water, adequate sanitation and hygiene awareness
- Note: even in cases where no change has occurred, the site is still in conformance with this criterion (i.e., an improvement is not required to conform).
- If providing water, the site should strive to provide a minimum of 20 litres of safe water per person per day as recommended by the World Health Organization to take care of basic hygiene needs and basic food hygiene.
- Sites may also opt to provide community members with access to sanitation/hygiene directly on site, or develop infrastructure that provides these services. Sites may also opt to provide funding to civil society organizations who in turn provide these services. Any of the aforementioned activities conform with this criterion.
- Sites are encouraged to undertake this effort in conjunction with others and apply for points under Criterion 4.15. Examples of such an effort would be engagement in a community-based sanitation program (e.g., *http://www.borda-sea.org/basic-needs-services/cbs-community-based-sanitation.html*). Sites undertaking off-site WASH provision actions via other advanced-level criteria (e.g., 4.15) cannot claim these points in addition to other points. They would have to choose one criterion OR the other.

Useful references and resources:

- World Health Organization (2014) Water Sanitation Health: what is the minimum quantity of water needed? *http://www.who.int/water_sanitation_health/emergencies/qa/emergencies_qa5/en*

GUIDANCE FOR STEP 5: EVALUATE YOUR PERFORMANCE

General guidance: Evaluation is a standard practice in most organizations and may be performed on a regular interval (e.g., annually) or even on a continual basis. The process of evaluation allows the site to reflect upon efforts and successes and determine whether efforts have been effective (i.e., achieved the desired change) and efficient (i.e., efforts have expended minimal resources in terms of time and funds). Many of the core criteria in the Evaluate step involve revisiting information from Steps 1-4 (most notably Criteria 2.6, 2.7, 3.2 and 3.3, as well as most of the criteria in Step 4) to determine change. While it is not explicit in the criteria listed in Step 5 to list out solutions to maintain or improve, it is somewhat inherent in Criterion 5.4 (which relates to updating plans).

It may be logical to undertake the evaluation process in conjunction with your efforts to gather data for formal disclosure processes (where applicable). Combining aspects of Steps 5 and 6 into one larger exercise may help improve the efficiency of efforts.

It is also worth noting that for water service providers (i.e., water utilities) the AquaRating tool (*www.aquarating.org*) may prove useful as a comprehensive mechanism for undertaking evaluation of the site, as the Hydropower Sustainability Assessment Protocol (*http://www.hydrosustainability.org*) is for dams.

There are many generic resources on evaluation that can be applied to this section, and thus we have endeavoured to restrict the references to more water-specific examples.

5.1 Evaluate the site's water stewardship performance, risks and benefits in the catchment context

Intent: *To periodically review how you are performing, including assessing your contributions and benefits, as well as how your risk exposure has changed, in light of efforts and context. This forms the basis of determining any adaptive management efforts that are required by modifying your water stewardship plans (i.e., changes to your stewardship plan in Criterion 5.4). Overall, this review effort helps improve the effectiveness of your water stewardship efforts by harnessing lessons learned post-implementation. Understanding and quantifying the benefits helps build the case for water stewardship and rationalize the site's use of water resources.*

Guidance:

- The site water stewardship plan requires that data be regularly collected, monitored and evaluated.
- On an annual basis, at a minimum, this data should be comprehensively reviewed and evaluated to determine whether:
    - The plan is delivering on the intended targets;
    - The data points are the right data points to be collected;
    - Context information has changed;
    - Any lessons learned/areas for improvement are noted;
    - You can identify successful strategies and/or best management practices;
    - Stakeholder engagement efforts have been well-received (including transparency);
    - Your water risks have changed since the last evaluation (the last time Criterion 2.7 was evaluated);
    - Your efforts have been effective and efficient in terms of costs/benefits (financially, socially, economically and environmentally to the site or the catchment).

- This will be a combination of quantitative and qualitative analysis, where lessons learned from implementing the plan are noted.
- Note where circumstances have changed or affected performance.
- The evaluation should include a review of regulatory changes and enforcement.
- To conform with this criterion, the site must:
    - Provide a written discussion on performance relative to plans as outlined in Criterion 3.2. In particular, areas of strong/weak performance should be highlighted, as well as changes in water risks and the catchment context. The evaluation should address whether water stewardship efforts are being effective in mitigating water risks, decreasing shared water challenges or creating value.
    - Provide a financial water cost-benefit component. This financial evaluation should include costs, cost savings and/or value creation that relates to the water stewardship actions outlined in Criterion 3.2. Such financial evaluations will help justify the measures that are taken and provide a so-called business case for the water stewardship efforts that have been undertaken.
    - Provide a list of site-generated, shared-value benefits accrued by others in the catchment, preferably with quantified contributions.
- In calculating the financial benefits, the site is encouraged to look at all water-related costs. See the guidance for Criterion 2.4 under "Site water-related costs, revenues and shared value creation" for a full list of costs.
- This is the "check" part of a "plan, do, check, act" continuous improvement loop. As such, the site should revisit Criterion 2.7 to review the initial risk assessment performed there, and evaluate changes.
- The review should be an annually written document that addresses items raised for concern in terms of performance.

Useful references and resources:

- ISEAL Alliance (2012) Impacts Code, *http://www.isealalliance.org/sites/default/files/P041_ISEAL_Impacts_Codev1.0.pdf*.
- See references in 2.7 for risk assessment/evaluation.
- OECD (2006) Cost-Benefit Analysis and the Environment: Recent Developments, *http://www.oecd.org/greengrowth/tools-evaluation/36190261.pdf*.
- WBCSD (2012) Water valuation: building the business case, *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15099&NoSearchContextKey=true*.
- WBCSD (2013) Business guide on water valuation: an introduction to concepts and techniques, *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15801&NoSearchContextKey=true*.
- FAO (2004) Economic valuation of water resources in agriculture, Economic valuation techniques, *http://www.unwater.org/downloads/wr27e.pdf* or *http://www.fao.org/docrep/007/y5582e/y5582e08.htm*.
- Ceres (2012) Ceres AquaGauge: a framework for 21st century water risk management, *http://www.ceres.org/resources/reports/aqua-gauge/view*.

Examples:

- WBCSD (2012) Water valuation Business case study summaries, *http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15098&NoSearchContextKey=true*.
- Trucost & Puma: This is an excerpt from an Environmental Profit & Loss case study, which provides a cost curve based upon scarcity. While not universal by any means, it is an interesting concept that could be explored and expanded upon by other sites/organizations, *http://www.trucost.com/_uploads/publishedResearch/5_-_PRESS_KIT_Water_Valuation.pdf*. More details on the case can be found here: *http://www.trucost.com/blog/1057/the-true-cost-of-clothing*.

5.2 Evaluate water-related emergency incidents and extreme events

Intent: *To understand whether you have taken appropriate actions in light of any emergency incidents and extreme events that may have taken place and whether the water stewardship system (including management and infrastructure) is fit to handle such situations.*

Guidance:

- Incidents can include environmentally based emergencies (which may or may not be extreme events, and may or may not be anthropogenic):
  - Floods – mild to severe – that may affect the flow regime and infrastructure capabilities, including storm water management
  - Natural disasters that have disrupted the water infrastructure (e.g., tornado, hurricane, earthquake)
  - Droughts that have seriously affected water availability and concentrations of contaminants in effluent
  - Environmental shifts in water quality (e.g., algal blooms)
  - Freshwater invasive species (some of the worst include *Dreissena polymorpha* (zebra mussel), *Salvinia molesta* (African payal), *Clarias batrachus* (Thai catfish), *Eriocheir sinensis* (Chinese mitten crab), *Lates niloticus* (Nile perch) and *Pomacea canaliculata* (apple snail))
- Incidents may also include accidental or other external situations:
  - Contaminant spills or leakages that require abatement
  - Structural failures of equipment
  - Political conflicts (e.g., war)
  - Human error
  - Vandalism/terrorism
- To conform with this criterion, the site should:
  - Prepare a written annual review of the year's emergency incident(s) with particular attention to the site's response to the incident(s). Any proposed measures to mitigate against future incidents should be included in Criterion 5.4.
- Such a review may be performed as part of a larger review (of all emergency incidents), so long as the water-related aspects are identified and documented as above.
- Extreme events, including those from neighbouring catchments, that have occurred in the past 10-20 years should also be considered relevant as they may indicate potential future climate-related water risk for the site. For an explanation of what constitutes an "extreme event" please see Appendix A: Glossary.
- Extreme weather events and extreme climate events are most easily noted through media stories but may also be found through academic research, which sometimes compiles such information. Public-sector agencies may, in certain jurisdictions, offer resources in terms of both tracking such events and evaluating their impacts and risks. Lastly, non-governmental organizations also have tools and often generate reports that speak to the trends in a given location. All of these groups should be explored to see whether extreme event information is available for evaluation.

Useful references and resources:

- US Environmental Protection Agency (EPA) (2014) Emergency/Incident Planning, Response, and Recovery, *http://water.epa.gov/infrastructure/watersecurity/emerplan.*
- Global Invasive Species Database (2014) 100 World's worst invasive species, *http://www.issg.org/database/species/search.asp?st=100ss.*

- Ceres (2009) Water Scarcity & Climate Change: Growing Risks for Business & Investors, *http://www.ceres.org/resources/reports/water-scarcity-climate-change-risks-for-investors-2009/view*.
- US Environmental Protection Agency (EPA) (2014) Climate Ready Water Utilities, *http://water.epa.gov/infrastructure/watersecurity/climate/index.cfm.*

Examples:

- Hunter Water (2013) has a solid incident response management plan. While such plans are not the expected product of such a review, they do provide insight on the sorts of considerations taken into account by a select site (i.e., Hunter Water in this case), *http://www.hunterwater.com.au/Resources/Documents/Plans--Strategies/Incident-Response-Management-Plan.pdf*.

5.3 Consult stakeholders on water-related performance

Intent: *To validate your performance with stakeholders, thereby reducing reputational risk.*

Guidance:

- Stakeholders are an important source of feedback and can often provide sites with advanced warning of concerns before they manifest as more serious risks. As a result, stakeholder consultation on performance not only gives an "early warning system" if there are potential water-related conflicts emerging, but also helps build trust and relationships in the cases where conflict does arise. Furthermore, stakeholder feedback on performance may in fact lead to insight and enhancement of operations, as well as ideas for collaboration and mutual benefits.
- The natural space for stakeholder consultation centres around the issue of shared water challenges since, by definition, this is of interest to all parties. However, stakeholder consultation need not, and should not, be restricted to this aspect. While proprietary and/or sensitive water-related data may be kept confidential, sites are asked to consult stakeholders on the full array of the site's water-related performance.
- To conform with this criterion, the site must:
  - Engage stakeholders at least once every year to review its water stewardship performance;
  - Provide written commentary from identified stakeholders on the site's performance.
- This consultation is a good opportunity to confirm shared water challenges and Important Water-Related Areas in the catchment.
- The form of the consultation should be appropriate for the local context and the stakeholders engaged but does not need to be conducted in person. Note that this may be a rather "informal" consultation. More elaborate and formal engagements are recognized as an advanced-level criterion (see Criterion 5.6).
- Stakeholders should be derived (or sampled if necessary) from those identified in Criterion 2.2.
- This is also a chance to further gather input for the renewed water stewardship plan (Criterion 5.4).

Useful references and resources:

- See Stakeholder Engagement section at the beginning of the Guidance
- Also see the guidance under Criterion 2.2
- UNFPA (2004) Tool Number 4: Stakeholder Participation in Monitoring and Evaluation, *http://www.unfpa.org/monitoring/toolkit/stakeholder.pdf* .

- C-Change (2012) Conducting a stakeholder review, *https://www.c-changeprogram.org/sites/default/files/C-Bulletin-9.pdf*, (health focused, but conceptually similar).

Examples:

- See case studies from Ceres (2007) Facility Reporting Project: Guide to Stakeholder Engagement, *http://www.ceres.org/resources/reports/facility-reporting-project-guide-to-stakeholder-engagement/view*.

5.4 Update water stewardship and incident response plans

Intent: *To use the results of the evaluations above to improve (further strengthen or address problems with) your water stewardship and incident response plans.*

Guidance:

- This criterion pulls together the various evaluations conducted throughout Step 5 to update the two primary plans developed in Step 3 (3.2 and 3.3). Put another way, it ensures that the site revises its plans created in Step 3 with an evaluation (Step 5) of the data gathered in Step 2 and implemented in Step 4.
- This is the "act" part of the "plan, do, check, act" loop.
- At a minimum, updates should occur on an annual basis.
- To conform with this criterion, the site must either:
    - Provide the previous and updated copies of the water stewardship and incident response plans OR
    - Highlight the changes made to the water stewardship and incident response plans.

Useful references and resources:

- None at this time

Examples:

- None at this time

5.5 Conduct executive or governance body-level review of water stewardship efforts

Intent: *To ensure that the concepts of water stewardship, risks and impacts are considered and evaluated, not only by staff but also by those at the highest level within the organization. Having board-level consideration of water helps ensure that those tasked with the ultimate responsibility of risk are indeed aware.*

Points: 3

Guidance:

- The executive team is the senior-most individuals within the organization. The preference is that this review occurs with the chief executive officer (or equivalent), chief financial officer (or equivalent) or chief operations officer (or equivalent). In all cases, however, a relevant member of the executive team should be the one to perform the review.
- Alternatively, the overarching governance body, typically a board (or equivalent), may perform the review. If no board exists, the equivalent governance body should be consulted (e.g., trustee council).
- AWS encourages the site to engage in a comprehensive discussion of water stewardship efforts, but at a minimum the following should be discussed:
    - Shared water challenges (as identified in 2.6 and confirmed in 5.3 and 5.4)
    - Water risks (as identified in 2.7 and confirmed in 5.1)
    - Water-related opportunities, cost savings and benefits (as identified in 2.6 or 2.7 and confirmed in 5.1)
    - And, if relevant, material water-related incidents or extreme events
- Conformance with this criterion requires the site to:
    - Provide a copy of the agenda from the meeting at which the site's water stewardship efforts (including shared water challenges, water risks and opportunities, any water-related cost savings or benefits realized, and material incidents) were discussed. Accordingly, an agenda with such components, along with a list of those in attendance, is necessary.

Useful references and resources:

- None at this time

Examples:

- None at this time

5.6 Conduct a formal stakeholder evaluation

Intent: *To recognize particularly strong stakeholder engagement efforts during the stakeholder's evaluation of the site's plan.*

Points: 6

Guidance:

- Stakeholder engagement as a concept often is poorly undertaken by businesses. Weak efforts, poorly considered outreach, a lack of gender-based considerations and many other aspects lead to weak engagement. Conversely, efforts that explicitly have gender considerations and take into account marginalized groups can provide much more robust understanding. Such engagements will provide additional insights from those stakeholders who are often the first to feel impacts. Accordingly, these marginalized groups often can provide the most valuable insights. A participatory stakeholder evaluation (or simply participatory evaluation) is one form of formal stakeholder evaluation that would meet this criterion. Participatory evaluation employs a partnership approach to evaluation in which stakeholders actively engage in developing the evaluation and all phases of its implementation.
- Compliance with this criterion must involve stakeholder efforts that are beyond business as usual and undertake what would be considered "best practice" for stakeholder engagement, including a formally documented process.
- To conform with this criterion, a site must document a formalized stakeholder evaluation process that is recognized as best practice.
- Recognition as a best practice stakeholder consultation may be done by industry or by local stakeholders.
- While the Standard defers to stakeholders on "best practice", in general best practice formal evaluations have greater scope (more stakeholders), depth (greater depth of review) and transparency (more information provided for review) than what would be expected under 5.3. Furthermore, best practice formal evaluations also take additional factors into account, such as gender and power issues (special considerations for marginalized groups) and detail how the feedback is translated into changes to the water stewardship and incident response plans.

Useful references and resources:

- ISEAL Alliance, "Module 6: Engaging Stakeholders," November 2007, *http://www.isealalliance.org/sites/default/files/EI_Module_6_Stakeholders_Nov07.pdf.*
- AccountAbility's stakeholder engagement standard, *http://www.accountability.org/images/content/3/6/362/AA1000SES%202010%20PRINT.PDF.*
- University of Kentucky Work Group for Community Health and Development (2014) Community Tool Box: Participatory evaluation, *http://ctb.ku.edu/en/table-of-contents/evaluate/evaluation/participatory-evaluation/main.*
- Zukoski, A. and Luluquisen, M. (2002) Participatory evaluation: What is it? Why do it? What are the challenges? *http://depts.washington.edu/ccph/pdf_files/Evaluation.pdf.*
- Aubel, J. (1999) Participatory Program Evaluation Manual: 2nd Edition, *http://www.coregroup.org/storage/Monitoring__Evaluation/PartEvalManualEnglish.pdf.*
- Pankaj, V. et al. (2011) Participatory analysis: expanding stakeholder involvement in evaluation, *http://www.innonet.org/client_docs/innovation_network-participatory_analysis.pdf*.
- IFC, "Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets" 2007, *http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_stakeholderengagement__wci__1319577185063*.

Examples:

- Consensus Building Institute (2012) Corporate and Community Engagement in the Niger Delta: Lessons Learned from Chevron Nigeria Limited's GMOU Process, *http://www.cbuilding.org/sites/default/files/Corporate%20and%20Community%20Engagement%20in%20the%20Niger%20Delta_Lessons%20Learned.pdf.*

GUIDANCE FOR STEP 6: COMMUNICATE ABOUT WATER STEWARDSHIP AND DISCLOSE YOUR WATER-RELATED EFFORTS

General guidance: Communication of positive and negative results is an important aspect of responsible stewardship. It provides the basis for continual improvement through learning and sharing of lessons. It helps build trust and stronger relationships and allows others to better evaluate (and therefore contribute to) your water-related efforts. Communication encompasses a broad array of different means of interaction and is intended as such within the Standard.

In recent years, the concept of disclosure (and reporting more than just financial statements) has gained increasing traction in the sustainability/corporate social responsibility sphere. AWS interprets and distinguishes disclosure from other forms of communication in that it is explicitly for those with oversight and/or control of a site's or organization's operations – a specific target audience(s). In the private sector, disclosure tends to focus on investors and regulators as two primary target audiences, while public-sector equivalents may have alternative target audiences. In all cases, disclosure involves a formal provision of information in a format requested by another group for the purposes of decision-making.

Note that disclosure need not mean broad public accessibility.

AWS would also stress that sites may begin with the disclosure step (Step 6). It is not necessary to wait to disclose any information until all other aspects of the Standard are in order. Communication, disclosure and transparency are vital, regardless of whether a site is doing well or not. While not required, AWS encourages sites to disclose information no matter what stage of the "water stewardship journey" they are on.

The general basis for AWS's section on disclosure was built out of the thinking from the CEO Water Mandate's guidance on corporate water disclosure and subsequently modified. Furthermore, AWS, working together with CDP, has endeavoured to identify the linkages between the 1.0 AWS Standard and CDP's 2014 Water Information Request (Appendix C). In addition to the CDP-AWS work, there is also information on linkages between the 1.0 AWS Standard and the Global Reporting Initiative 4.0 (GRI – also in Appendix C).

In addition to this, below are a series of general resources, many of which are drawn from Ceres – a US-based NGO that heavily focuses on investors, risk and disclosure, which may be useful when thinking about site-level efforts related to Step 6:

- The CEO Water Mandate (2012) Corporate Water Disclosure Guidelines: toward a common approach to reporting water issues, *http://ceowatermandate.org/files/DisclosureGuidelinesFull.pdf*.
- The CEO Water Mandate (2009) Water Disclosure 2.0 Assessment of Current and Emerging Practice in Corporate Water Reporting, *http://pacinst.org/publication/water-disclosure-2-0-assessment-of-current-and-emerging-practice-in-corporate-water-reporting.*
- Ceres (2013) Disclosure Framework for Water and Sewer Enterprises, *http://www.ceres.org/resources/reports/disclosure-framework-for-water-sewer-enterprises/view.*
- Ceres (2012) Physical Risks from Climate Change: A guide for companies and investors on disclosure and management of climate impacts, *http://www.ceres.org/resources/reports/physical-risks-from-climate-change/view.*
- Ceres (2010) Murky Waters? Corporate reporting on water risk, *http://www.ceres.org/resources/reports/corporate-reporting-on-water-risk-2010/view.*
- Ceres (2007) Facility Reporting Project: Guide to Stakeholder Engagement, *http://www.ceres.org/resources/reports/facility-reporting-project-guide-to-stakeholder-engagement/view.*

- CDP (2014) Water programme, *https://www.cdp.net/en-us/programmes/pages/cdp-water-disclosure.aspx*.
- GRI (2014) G4 Sustainability Reporting Guidelines, *https://www.globalreporting.org/reporting/g4/Pages/default.aspx*.
- Water Environment Federation (2012) Sustainability Reporting Statements for Wastewater Systems, Portland Press, *https://www.e-wef.org/OnlineStore/ProductDetail/tabid/55/ProductId/18215/Subsystem/INV/ProductCode/P120002/Default.aspx*.

6.1 Disclose water-related internal governance

Intent: *To provide others with a level of transparency associated with your governance. By providing specific names, it increases the level of clarity with respect to governance, legal compliance and regulatory risk. It also acts as a mechanism to promote transparency and thereby mitigate reputational risk.*

Guidance:

- Water-related governance is ultimately focused on responsibility and accountability of water-related matters at the site. It is about having a clear line of authority in order to ensure that preventative measures are in place, as well as immediate corrective actions when things go wrong.
- The governance disclosure effort needs to be publicly accessible in a suitable format for the target audience(s).
- To conform with this criterion, the disclosure should:
    - Provide a summary of how water-related issues at the site are governed at the site level. This can be a general overview of the management systems in place;
    - Name(s) of the individual(s) accountable for compliance with water-related laws and regulations. If this is a committee, all members should be listed by name;
    - Indicate the hierarchy between those accountable for water and the senior-most leadership at the site level (CEO or equivalent) or the board.
- In cases where sites are part of a larger organization's disclosure efforts, the larger corporate disclosure must indicate that site-level water-related governance is available upon request. If not, a separate site-specific report needs to be generated and made available to both verifiers and the target audience(s).
- The format of disclosure is at the discretion of the site but should be appropriate for interested parties (e.g., possibly a presentation to community members, website content for civil society groups, annual sustainability report for investors).

Useful references and resources:

- CEO Water Mandate (2012) "Corporate water disclosure guidelines: toward a common approach to reporting water issues," *http://www.pacinst.org/reports/corporate_water_disclosure_guidelines/full_report.pdf*.

Examples:

- Yarra Valley Water (2014) Corporate governance and the Board, *http://www.yvw.com.au/Home/Aboutus/Ourorganisation/Ourboard/index.htm*.

6.2 Disclose annual site water stewardship performance

Intent: *To ensure that you are held publicly accountable for your performance against your intended targets. It also acts as a mechanism to promote transparency and thereby mitigate reputational risk.*

Guidance:

- This aspect of disclosure should be a summary of the results (and/or efforts) the site has achieved in addressing its water-related challenges. Moreover, it should include the site's water-related targets (per the Water Stewardship Plan from Criterion 3.2), as well as a reference to the site's commitment (per Leadership Commitment from Criterion 1.1).
- The disclosure of water stewardship performance needs to be accessible in a suitable format for the target audience(s).
- The site need not report all results from its water stewardship plan (as detailed in 3.2) but must include all results that are material to the concerns of the target audience(s). This will often mean an emphasis on performance that saved time, money and/or water (often intensity focused) or reduced effluent. Sites are encouraged, but not required, to report as many results as possible and also speak to results that relate to site water risks and opportunities (e.g., creation or restoration of water-related assets such as natural and built water infrastructure).
- To conform with this criterion, the site must:
    - Disclose, in a suitable format, results that pertain to material issues for the target audience;
    - Disclose all relevant targets as outlined in Criterion 3.2.
- Sites are encouraged to discuss any of the challenges and opportunities that arose in the context of their efforts to affect change. This helps provide an understanding of the enabling conditions and impediments to achieving the proposed targets.
- Where significant impacts have been achieved, these should be highlighted by the site.
- In cases where sites are part of a larger organization's disclosure efforts, the larger corporate disclosure still should speak to plans at the site level. If not, a separate site-specific report needs to be generated and made available to both verifiers and interested parties.
- The format of making the site's performance results available is at the discretion of the site but should be appropriate for interested parties (i.e., in local languages and a format that can be understood). This could include formats such as a community notice board, the site's website, annual sustainability report for investors, etc.
- The Global Reporting Initiative (GRI) speaks about determining materiality with the following guidance (Note: slight edits denoted in square parentheses to adjust for AWS language):

> "In financial reporting, materiality is commonly thought of as a threshold for influencing the economic decisions of those using an organization's financial statements, investors in particular. The concept of a threshold is also important in sustainability reporting, but it is concerned with a wider range of impacts and stakeholders. Materiality for sustainability reporting is not limited only to those aspects that have a significant financial impact on the organization. Determining materiality for a [water stewardship] report also includes considering economic, environmental and social impacts that cross a threshold in affecting the ability to meet the needs of the present without compromising the needs of future generations. These material aspects often have a significant financial impact in the short term or long term on a [site]. They are therefore also relevant for stakeholders who focus strictly on the financial condition of an organization.

"A combination of internal and external factors should be used to determine whether an aspect is material, including factors such as the [site's] overall mission and competitive strategy, concerns expressed directly by stakeholders, broader social expectations, and the [site's] influence on upstream (such as supply chain) and downstream (such as customers) entities. Assessments of materiality should also take into account the basic expectations expressed in the international standards and agreements with which the organization is expected to comply.

"These internal and external factors should be considered when evaluating the importance of information for reflecting significant economic, environmental and social impacts, or stakeholder decision-making. A range of established methodologies may be used to assess the significance of impacts. In general, 'significant impacts' refer to those that are a subject of established concern for expert communities, or that have been identified using established tools such as impact assessment methodologies or life cycle assessments. Impacts that are considered important enough to require active management or engagement by the organization are likely to be considered to be significant."

Useful references and resources:

- CEO Water Mandate, "Corporate water disclosure guidelines: toward a common approach to reporting water issues," 2012, *http://www.pacinst.org/reports/corporate_water_disclosure_guidelines/full_report.pdf*.

Examples: Note – example would need to be site-specific to conform to the Standard.

- Coca-Cola, "Sustainability Report 2011-2012," *http://www.coca-colacompany.com/sustainabilityreport/performance-highlights.html#section-waterstewardship*.

6.3 Disclose efforts to address shared water challenges

Intent: *To provide feedback to interested stakeholders and target audience(s) about efforts to address shared water challenges. This communication helps build awareness, understanding and positive, trusting relationships. Ultimately, transparency around shared efforts helps mitigate all forms of water risk.*

Guidance:

- Shared water challenges are identified, and should be drawn from, Criterion 2.6.
- To conform with this criterion, the site must:
  - List all shared water challenges;
  - Describe actions/efforts undertaken to address shared water challenges;
  - Discuss stakeholder engagement efforts, with an emphasis on engagement directed toward shared water challenges;
  - Actively disclose this information to target audience(s) and actively communicate this information to interested stakeholders in a suitable format(s).
- In addition to formal disclosure, sites are required to communicate efforts to address shared water challenges to relevant stakeholders in a manner that is both active and accessible. This means that the site should not be passive (i.e., requiring that stakeholders come to them) but instead should undertake efforts to provide such information to interested stakeholders. See details on stakeholder engagement at the beginning of the Guidance for more details on stakeholder engagement.

- The format of making the shared water challenges and responses available is at the discretion of the site but should be appropriate for interested parties (i.e., in local languages and in a format that can be understood). This could include formats such as a community notice board, the site's website, annual sustainability report for investors, etc.

Useful references and resources:

- None at this time

Examples:

- None at this time

6.4 Drive transparency in water-related compliance

Intent: *To promote transparency and accountability and to mitigate both regulatory and reputational water risk. It is consistent with good ethical business practices and is a core component of water stewardship.*

Guidance:

- A summary of compliance may be provided, but any and all significant water-related violations must be made available. It is helpful to provide the context for such violations to allow others to understand why/how they occurred and how they might be prevented in the future.
- "Significant" water-related violations are any that heavily (materially) affect the company's finances, the freshwater ecosystems surrounding the site, or local people's use and enjoyment of fresh water. For example, a large number of complaints by stakeholders would indicate a "significant" water-related violation; a large fine for a water-related compliance violation also would be significant.
- A site also may report in this section that it has gone "above and beyond" compliance through the completion of the AWS Standard.
- The format of making the compliance violation available is at the discretion of the site but should be appropriate for interested parties (i.e., in local languages and in a format that can be understood). This could include formats such as a community notice board, violations noted on the site's website, annual sustainability report for investors, etc.
- AWS does recognize that in certain contexts, actively communicating such violations could cause undue attention and therefore heighten reputational water risks. Accordingly, this criterion does not require active communication of compliance violations. However, in all cases, sites should provide the relevant information to any stakeholder requesting the information. The fact that such information is available will be made known through the site's AWS-certified status.
- In cases where there is an immediate threat to local stakeholders, including ecosystems, note that the site must notify the relevant public-sector agencies of the violation immediately. Sites found delaying in such instances will not be eligible for certification.

Useful references and resources:

- CEO Water Mandate (2012) "Corporate water disclosure guidelines: toward a common approach to reporting water issues," *http://www.pacinst.org/reports/corporate_water_disclosure_guidelines/full_report.pdf*.

Examples:

- Nestlé (2012) "Annual Report – Compliance," (p.9), *http://www.nestle.com/asset-library/Documents/Library/Documents/Annual_Reports/2011-Annual-Report-EN.pdf.*

6.5 Increase awareness of water issues within the site

Intent: *To broaden the appreciation of the importance of water issues to staff at the site, thereby minimizing water-related risks to staff health, safety and well-being.*

Guidance:

- Generating awareness of water issues with staff at the site can be done through a variety of means – training programmes, posters on walls, staff meetings, etc. However, the selected media must be appropriate for uptake (e.g., do not provide written materials for staff who may be illiterate).
- While a one-off, awareness-raising effort would comply with this criterion, sites are encouraged to have ongoing awareness programmes rather than single events.
- A record of the effort and the number of staff reached is helpful to assess the results on staff.
- Water issues may include issues facing the site (e.g., water scarcity affecting operations, explaining why the site is working on AWS), the catchment (e.g., contaminated groundwater, pollution, threatened wetlands), or individuals (e.g., water, sanitation and hygiene; water borne diseases, on-site water-related safety issues).
- Note: Communicating to staff about on-site water-related safety issues, while a highly recommended part of this criterion is not, by itself, sufficient to meet this criterion. The awareness efforts must go beyond just water safety to encompass other water stewardship issues as illustrated above.
- To conform with this criterion, the site must:
    - Touch upon/reference at least one of the water stewardship outcomes of good governance, sustainable water balance, good water quality status or healthy Important Water-Related Areas;
    - Note how the water-related issue affects staff, site and beyond (e.g., community, catchment, other stakeholders).

Useful references and resources:

- Centers for Disease Control and Prevention (CDC) Living in a Clean and Healthy World, 2008 Podcast (04:12), *http://www2c.cdc.gov/podcasts/player.asp?f=8520.*
- Centers for Disease Control and Prevention (CDC) Living in a Clean and Healthy World, 2008 Podcast (02:26), *http://www.cdcfoundation.org/blog-entry/safe-water-video.*

Examples:

- Annual WASH at work training programme for all staff

6.6 Disclose water risks to owners (in alignment with recognized disclosure frameworks)

Intent: *To encourage you to increase the water risk awareness of your investors/owners while aligning to recognized disclosure frameworks. This improves owners' understanding of the importance of water to the site and also helps ensure consistency and minimize proliferation of reporting, which in turn makes reporting more efficient and effective for all.*

Points: 4 (disclosure to owners) or 6 (disclosure to owners + alignment with recognized frameworks)

Guidance:

- Raising the awareness of owners of water-related risks is an important and valuable aspect of water stewardship.
- "Owners" include investors (such as equity shareholders or debt lenders) as well as controlling bodies for publicly held organizations (i.e., the governance body with ultimate responsibility for the functioning of the site).
- This criterion recognizes that the disclosure of water risks is a sensitive issue, which is why this criterion is both advanced and restricted to owners. This is not intended to disclose risks to the public.
- The emphasis of such disclosure efforts should be on *material* water risk. Water risk should be addressed in terms of physical water risk, reputational water risk, regulatory water risk and the resulting financial risks. These risks should be discussed explicitly in the context of the site, given its location, catchment, regulatory environment, etc. Data from Criterion 2.7 should be employed to speak to the risk with a focus on materiality (see Appendix A: Glossary).
- To conform with this criterion, the site must provide written evidence to owners/investors that outlines the material water risks faced by the site.
- Recognizing that sites often do not directly contribute to such disclosure initiatives (seeing as they are corporate disclosure initiatives, not site-based), sites are encouraged to align with recognized disclosure frameworks to help create consistency and coherence in the water disclosure space.
- Currently, AWS recognizes the following disclosure frameworks that include water:
    - CDP's Water Disclosure
    - Global Reporting Initiative (GRI)
- If another framework is noted by the site, it should be brought to AWS for evaluation. In time, additional frameworks may be added to this list.
- Note: Both CDP and GRI are typically aggregated at a corporate (multi-site) level, and since water is a "local issue", such aggregations can lack insight and meaning (and may not apply to many SMEs). In time, we anticipate water disclosure to become more site-specific and/or require disaggregation of water data. Accordingly, in addition to providing the disclosure framework-compliant data to the organization (e.g., GRI, CDP), conformance with this criterion requires site-level data to be generated and able to be disaggregated.
- To conform with the additional points (for a total of six points), the site must provide data to owners in a format that is consistent with the requirements of recognized disclosure frameworks.

Useful references and resources:

- WWF (2009) 21st Century Water: Views from the finance sector on water risk and opportunity, *http://awsassets.panda.org/downloads/21st_century_water.pdf.*
- Lloyds and WWF (2010) Global Water Scarcity: Risks and challenges for business, *http://awsassets.panda.org/downloads/lloyds_global_water_scarcity.pdf.*
- The CEO Water Mandate (2012) Corporate Water Disclosure Guidelines: toward a common approach to reporting water issues, *http://ceowatermandate.org/files/DisclosureGuidelinesFull.pdf.*
- The CEO Water Mandate (2009) Water Disclosure 2.0 Assessment of Current and Emerging Practice in Corporate Water Reporting, *http://pacinst.org/publication/water-disclosure-2-0-assessment-of-current-and-emerging-practice-in-corporate-water-reporting.*

- Ceres (2013) Disclosure Framework for Water and Sewer Enterprises, *http://www.ceres.org/resources/reports/disclosure-framework-for-water-sewer-enterprises/view.*
- Ceres (2012) Physical Risks from Climate Change: A guide for companies and investors on disclosure and management of climate impacts, *http://www.ceres.org/resources/reports/physical-risks-from-climate-change/view.*
- Ceres (2010) Murky Waters? Corporate reporting on water risk, *http://www.ceres.org/resources/reports/corporate-reporting-on-water-risk-2010/view.*
- Ceres (2007) Facility Reporting Project: Guide to Stakeholder Engagement, *http://www.ceres.org/resources/reports/facility-reporting-project-guide-to-stakeholder-engagement/view.*
- CDP (2014) Water programme, *https://www.cdp.net/en-us/programmes/pages/cdp-water-disclosure.aspx.*
- GRI (2014) G4 Sustainability Reporting Guidelines, *https://www.globalreporting.org/reporting/g4/Pages/default.aspx.*
- Water Environment Federation (2012) Sustainability Reporting Statements for Wastewater Systems, Portland Press, *https://www.e-wef.org/OnlineStore/ProductDetail/tabid/55/ProductId/18215/Subsystem/INV/ProductCode/P120002/Default.aspx.*

Tools:

- One report is an online tool that organizes and enables disclosure to the above frameworks, *http://one-report.com.*
- WWF (2014) Water Risk Filter, *http://waterriskfilter.panda.org.* Entering information into WWF's Water Risk Filter also enables a site to generate CDP-compliant outputs.

Examples:

- Nestlé, "GRI Content Index," 2013, *http://www.nestle.com/csv/nestle/ourperformance/gricontentindex.*

6.7 Implement a programme for water education

Intent: *To encourage you to broaden awareness of water stewardship to others.*

Points: 4

Guidance:

- Communicating to other stakeholder groups – be they local communities, distant but interested people online, civil society organizations, etc. – about water issues is also the role of a responsible water steward. As a whole, this criterion is about raising awareness of water stewardship and/or water issues and, in particular, communicating about the local shared challenges, the actions of the site designed to benefit shared water resources, and the role that others can play in developing joint solutions.
- Communications differ from disclosure in that they need not be written. Communication efforts can be oral, written, presented in various forms of media, etc. Sites are encouraged to speak to interested parties about water issues as this personal interaction will help build the relationships necessary to undertake collective action.
- Education programmes can be both catchment-based and/or beyond-catchment based.
- Sites are also encouraged to actively educate customers on water issues (both in the catchment and beyond).
- Education programmes may include efforts such as:
    - Contributing to municipal demand management programmes to help communities learn how to conserve water;
    - Supporting research and education programmes at local universities;
    - Sponsoring students to study for an advanced degree in a water-related field.
- Sites are strongly encouraged to focus education efforts on shared water challenges relevant to the site's context.
- Note: General communications on what a site is undertaking on water is insufficient to comply with this criterion. The programme must be specifically designed to engage stakeholders. Communication/disclosure required for core criteria (i.e., Criteria 6.1-6.5) are not sufficient to comply with this criterion.
- Corporate-run water education initiatives are eligible for this criterion IF the site plays some active role or the programme is active in the site's catchment.

Useful references and resources:

- UNESCO-IHE (2014) Education, *https://www.unesco-ihe.org/education.*
- Water Environment Federation (2014) Public Information, *http://www.wef.org/publicinformation.*
- WaterAid (2014) Research and Publications, *http://www.wateraid.org/what-we-do/our-approach/research-and-publications.*
- World Water Monitoring Challenge (2014) World Water Monitoring Challenge, *http://www.worldwatermonitoringday.org.*
- Project WET (2014) Worldwide Water Education, *http://projectwet.org.*
- Australian Government (2014) School programmes and community involvement, *http://www.environment.gov.au/topics/water/water-education-resources/water-education-toolkit/school-programs-community-involvement.*
- The Coca-Cola Company (2014) The Coca-Cola Foundation, *http://www.coca-colacompany.com/our-company/the-coca-cola-foundation.*

- Global Water Partnership (2002) Ideas on water awareness campaigns, *http://www.gwp.org/Global/ToolBox/References/Ideas%20for%20Water%20Awareness%20Campaigns%20(GWP,%202002).pdf .*

Examples: Note that the following examples would need to be active in the site's catchment to be eligible.

- Nestlé (2013) Engagement Initiatives, *http://www.nestle.com/csv/water/communityengagement/engagementinitiatives.*
- Veolia Water (2013) Promoting eco-citizenship, *http://www.veoliawater.com/missions/educate-inform.*
- Sealed Air (2013) Our Community Involvement, *http://www.diversey.com/oldabout-us/purpose--history/our-community-involvement.*
- Programmes on WASH (advocate for the fulfilment of their rights, dealing with open defecation (programmes that handle open defecation), basic hygiene programmes), freshwater biodiversity, freshwater ecosystem services, the importance of water in the economy, etc.

6.8 Discuss site-level water stewardship in the organization's annual report

Intent: *To encourage awareness and discussion of water stewardship and its benefits to shareholders and/or other stakeholders.*

Points: 2

Guidance:

- Annual reports represent a key organizational communication vehicle and are typically published both online and in print.
- Since sustainability or Corporate Social Responsibility reports are sometimes separate, these are acceptable as well, though AWS encourages water stewardship issues (along with other sustainability issues) to be incorporated into the main annual report via integrated reporting.
- The reference, with page number, must:
    - Explicitly reference AWS including explicitly mentioning one or more sites undertaking the AWS Standard;
    - Contain any broader AWS commitments (if applicable).

Useful references and resources:

- Gutman, M. (2013) Triple Pundit: How to write a great CSR report, *http://www.triplepundit.com/2013/07/write-great-corporate-social-responsibility-report.*
- Global Reporting Initiative (2014) About Sustainability Reporting, *https://www.globalreporting.org/information/sustainability-reporting/Pages/default.aspx.*
- IISD (2007) Corporate Social Responsibility: an implementation guide for businesses, *www.iisd.org/pdf/2007/csr_guide.pdf.*
- Margolis, J. and Casseres, M.G. (2012) The 10 best practices for sustainability reporting, *http://www.greenbiz.com/blog/2012/03/02/10-best-practices-sustainability-reporting.*

Examples:

- General Mills (2013) Global Responsibility Report, *https://www.generalmills.com/~/media/Files/CSR/2013_global_respon_report.ashx*, page 51. Note: this commitment would need to also explicitly reference a specific site to comply (point three above).

Appendix C: Reporting and disclosure initiatives and their AWS linkages

AWS recognizes the significant effort that many companies undertake to complete annual water disclosure and reporting. In an effort to help lessen the burden on sites, there has been an effort to map the current alignment between several of these initiatives. It is also important to note the following:

1) Reporting & disclosure initiatives (such as GRI and CDP) and AWS are complementary and not competing or contradictory initiatives.
2) Reporting & disclosure initiatives (such as GRI and CDP) and AWS serve very different purposes, and involvement in one is not a substitute for, nor does it preclude involvement in, the other.
3) AWS provides a water stewardship standard and guidance that outlines the "what" and the "how" of water stewardship. It is primarily intended for use by companies (and other entities) in locations where they seek to understand impacts and address water risks at a site and catchment level.
4) Reporting & disclosure initiatives (such as GRI and CDP) enable companies to aggregate their site-level efforts (that may or may not be guided by AWS) into a summary of corporate water risk and response that supports water stewardship. Such corporate-wide disclosures are informed by impacts and challenges across facilities and across supply chains.
5) CDP and AWS are both committed to ongoing efforts to maintain alignment and improve their respective initiatives based on continual learning from one another.

Below are two tables that map two of the major reporting and disclosure initiatives in this space: CDP and GRI.

The first table (Table C1) is broken down by AWS criterion and maps across AWS and CDP depending on whether you are starting from one or the other. We have endeavoured to link specific questions in the current CDP Water Questionnaire (as of April 2014) to the AWS requirements. For further questions or details, please contact AWS (*www.allianceforwaterstewardship.org*) or CDP (*www.cdp.net*). The second table (Table C2) undertakes a parallel effort for GRI.

Table C1: CDP and AWS linkages

Partial completion of requirement
Full, or nearly full, completion of requirement

AWS Criteria	Completing AWS if you've done CDP	CDP Water Questionnaire	Completing CDP if you've done AWS
Commit			
1.1 Establish a leadership commitment on water stewardship	No linkage	N/A	No linkage
1.2 Develop a water stewardship policy	The water stewardship policy from CDP is typically corporate (which is acceptable for AWS) and also goes into goals (which is not necessary for AWS conformance). However, the AWS requirements may require modifications of the corporate policy (at the site level) to reflect the fundamentals of water stewardship (the "what" of outcomes and the "how" of working with others).	W6.3 Does your organization have a water policy that sets out clear goals and guidelines for action?	Water policies from AWS may be based at a site level (which may not apply to the corporation completing CDP) or at a corporate level (in which case the policy noted in AWS-1.2 would meet CDP-W6.3). For sites lacking a corporate water stewardship policy, AWS-influenced site-based policies could form the basis for improved/strong corporate policies.
1.3 Further the Alliance for Water Stewardship	No linkage	N/A	No linkage
1.4 Commit to other initiatives that advance effective water stewardship	No linkage	N/A	No linkage
1.5 Secure a water stewardship commitment from the site's senior-most executive or the site's governance body	No linkage	N/A	No linkage
1.6 Prioritize communities' rights to water	No linkage	N/A	No linkage

Gather & Understand			
2.1 Define the physical scope	The geographical scale in CDP-W2.2 and W3.2 is likely to be coarser than the catchments defined in AWS. The risk assessment timing relates to AWS-2.7 (see below).	W2.2 Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider W3.2b & 3.2c (Country and River basin columns)	Any AWS-certified site would have annual water risk assessments, catchment-scale analysis and future considerations (though the latter is not time-dictated); thus, data from AWS-2.1 can feed directly into CDP-W2.2. Data from AWS-2.1 also feed into the geographical information 3.2b and 3.2c. (country & river basin).
2.2 Identify stakeholders, their water-related challenges and the site's sphere of influence	CDP-W2.4 and W2.4a are directly connected to AWS-2.2 and could be drawn from CDP reporting to fill out AWS conformance requirements, so long as the physical scope (catchment & stakeholders) were appropriate.	W2.4 Which of the following contextual issues are always factored into your organization's water risk assessments? W2.4a Which of the following stakeholders are always factored into your organization's water risk assessments?	AWS-2.2 is directly connected to CDP-W2.4 and W2.4a and would meet CDP requirements; thus, any AWS-certified site would have data from W2.4 and W2.4a completed under AWS-2.2.
2.3 Gather water-related data for the catchment	While CDP-W2.4 categorizes catchment context issues, it does not generate the data per se. Accordingly, a site that had completed CDP-W2.4 would need to use the underlying data of CDP-W2.4 to complete requirements for AWS-2.3.	W2.4 Which of the following contextual issues are always factored into your organization's water risk assessments?	AWS-2.3 would provide the raw data to complete CDP-W2.4. In other words, any AWS-certified site should have all of the data it requires to complete the table in CDP-W2.4.
2.4 Gather water-related data for the site	In general, completing CDP module W5: Accounting provides the data necessary to complete several of the aspects for AWS-2.4. Specifically CDP-W5.2 (withdrawals, consumption, discharge and recycling), when taken at a site level, links to the water balance indicator AWS-2.4.2. CDP-W5.2 (discharge water quality by parameter) links to the water quality indicator AWS-2.4.3.	W5: Accounting - 5.3 withdrawals (2.4.2 Standard), 5.4 discharge (2.4.2 Standard), 5.5 consumption (2.4.2 Standard), 5.6 water intensity (2.4.2 Standard) 2.4.3 - link to W5.2 table option about water discharge quality data	AWS-certified sites would have all of the necessary data to complete CDP module W5: Accounting (though recycling rates are not required within AWS).
2.5 Improve the site's understanding of its indirect water use	If data were gathered to complete CDP-W2.5, then sites would most likely have much of the information required to complete AWS-2.5 (but would require further calculations to meet AWS requirements).	W1.1 Please rate the importance (current and future) of water quality and water quantity to the success of your organization W2.5 Do you require your key suppliers to report on their water use, risks and management? W2.5a Please provide the proportion of key suppliers you require to report on their water use, risks and management and the proportion of your procurement spend this represents	AWS-certified sites would be able to provide a partial answer to CDP-W1.1 through completion of AWS-2.5 (restricted to suppliers in the catchment) and a full answer if they completed AWS-2.11 (all material suppliers). Similarly, AWS-certified sites should be able to provide the responses for CDP-W2.5 and W2.5a.

2.6 Understand shared water-related challenges in the catchment	CDP W3.2b and W3.2c are directly connected to AWS-2.6 (via Risk driver column) and could be drawn from CDP reporting to fill out AWS conformance requirements, so long as the physical scope (catchment & stakeholders) were appropriate.	W3.2b & W3.2c (Risk driver column, IF shared) Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations & supply chain and the strategies to mitigate them	AWS-2.6 is directly connected to CDP-W3.2b and W3.2c (specifically: Risk driver column) and would meet CDP requirements; thus, any AWS-certified site could employ its data from AWS-2.6 to fill in some of CDP-W3.2b and W3.2c.
2.7 Understand and prioritize the site's water risks and opportunities	Sites reporting to CDP would have considerable water risk information already developed via CDP-W1.3a (Impact column), W3.2b and W3.2c (Potential impact, Description of impact, Timeframe and Likelihood columns). These columns, if site-specific, could be used to complete the majority of the requirements for AWS-2.7, though prioritization would still be required. Furthermore, CDP-W4.1a (if site-level) provides the data for the opportunities requirement (AWS-2.7.2) and (if underlying data are available) potentially on savings/value creation (AWS-2.7.3) as well.	W1.3a (Impact column) Please describe the detrimental impacts experienced by your organization related to water in the reporting period W3.2b & W3.2c (Potential impact, Description of impact, Timeframe and Likelihood columns) Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations & supply chain and the strategies to mitigate them W4.1 Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization? W4.1a Please describe the opportunities water presents to your organization and your strategies to realize them	AWS-2.7 is connected to CDP-W3.2b and W3.2c (specifically: Potential impact, Description of impact, Timeframe and Likelihood columns) and would meet most CDP requirements. An AWS-certified site could employ its data from AWS-2.7 to fill in most of CDP-W3.2b and W3.2c. AWS-2.7.2 and 2.7.3 provide the data to complete several aspects of CDP-4.1 and 4.1a though the strategy and timeframe are not part of AWS requirements.
2.8 Support and undertake joint water-related data collection	No linkage	N/A	No linkage
2.9 Gather additional, detailed water-related data	No linkage	N/A	No linkage
2.10 Review a formal study on future water resources scenarios	If a site has completed CDP-W1.2 it will have given thought to future water resource conditions in its catchment and will have thought through its impacts upon the site's growth strategy. While AWS would also require reference to a formal study, much of the work toward this criterion would be met if CDP-W1.2 requirements were met.	W1.2 Have you evaluated how water quality and quantity affects/could affect the success of your organization's growth strategy?	An AWS-certified site that was also in conformance with AWS-2.10 would be in a position to provide the required information for CDP-W1.2 for the site.

2.11 Conduct a detailed, indirect water use evaluation	If data were gathered to complete CDP-W2.5, W2.5a and W3.2c, then sites would most likely have much of the information required to complete AWS-2.11 (but would require further calculations and commentary upon influence to meet AWS requirements).	W2.5 Do you require your key suppliers to report on their water use, risks and management? W2.5a Please provide the proportion of key suppliers you require to report on their water use, risks and management and the proportion of your procurement spend this represents W3.2c Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your supply chain and strategies to mitigate them	AWS-certified sites that were also in conformance with AWS-2.11 would have their answers to CDP-W2.5 and W2.5a through data from AWS-2.11. Such sites would also have much of the necessary information to respond to CDP-W3.2c.
2.12 Understand groundwater status or environmental flows and the site's potential contributions	No linkage	N/A	No linkage
2.13 Complete a voluntary Social Impact Assessment	No linkage	N/A	No linkage

Plan			
3.1 Develop a system that promotes and evaluates water-related legal compliance	Since CDP requests this information from a corporate level, while there is a linkage, AWS would anticipate that the site-based system would have linkages to site-based staff with a direct responsibility at a site level.	W6.1 Who has the highest level of direct responsibility for water within your organization, and how frequently are they briefed?	An AWS-certified site would have the information at a site level, but this would likely not meet the requirements for CDP-W6.1 as it would likely be at a corporate level. IF the AWS-certified site's legal compliance system extended to corporate, then it may meet the requirements for CDP-W6.1.
3.2 Create a site water stewardship strategy and plan	While CDP-1.3a (Response strategy and Description of response strategy columns) W8.1a and W8.1b are likely corporate targets or goals, if drawn from the site level, these would align with AWS-3.2 and conform with this criterion.	W1.3a (Response strategy and Description of response strategy columns) Please describe the detrimental impacts experienced by your organization related to water in the reporting period W8.1a Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made W8.1b Please describe any company-wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these	AWS-3.2 provides the information necessary to fill out much of the table in CDP1.3a (Response strategy and Description of response strategy columns) and CDP-W8.1a (including the following columns: Category of target, Description of target, Quantitative unit of measurement, Baseline year, Target year, and Proportion of target achieved - via AWS-5.1). However, since AWS is site-specific, these may not align with corporate strategic responses, targets or goals.
3.3 Demonstrate responsiveness and resilience to water-related risks in the site's incident response plan	No linkage	N/A	No linkage
3.4 Notify the relevant (catchment) authority of the site's water stewardship plans	No linkage	N/A	No linkage
3.5 Gain stakeholder consensus on the site's water stewardship targets	No linkage	N/A	No linkage
3.6 Develop a formal plan for climate change adaptation	No linkage	N/A	No linkage

Implement			
4.1 Comply with water-related legal and regulatory requirements	No linkage	W7. Compliance (will need to qualify)	AWS-certified sites will have compliance performance information available that can be employed to complete CDP-W7 on a site-by-site basis.
4.2 Maintain or improve site water balance	If a site has completed CDP-W8.1a it will likely have some of the data available to complete AWS-4.2 on water balance.	W8.1a. Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made - Drop-down option: "Absolute reduction of water withdrawals", "Reduction in consumptive volumes".	AWS-certified sites will have water withdrawal, consumption and intensity performance information available that can be employed to complete CDP-W8.1a on a site-by-site basis.
4.3 Maintain or improve site water quality	If a site has completed CDP-W8.1a it will likely have the data available to complete AWS-4.3 on water quality.	W8.1a. Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made - Drop-down option: "Quantitative unit of measurement - % reduction in concentration of contaminants per discharge volume".	AWS-certified sites will have water quality performance information available, which can be employed to complete CDP-W8.1a on a site-by-site basis.
4.4 Maintain or improve the status of the Important Water-Related Areas	No linkage	N/A	No linkage
4.5 Participate positively in catchment governance	No linkage	N/A	No linkage
4.6 Maintain or improve indirect water use within the catchment	If a site has completed CDP-W8.1a it may have some of the data available to complete AWS-4.6 on efforts to address indirect water use (though this may go beyond the catchment, which is fine).	W8.1a. Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made - Drop-down option: "Engagement with suppliers to help them improve water stewardship".	AWS-certified sites will have limited supplier engagement performance information available that can be employed to complete CDP-W8.1a on a site-by-site basis.

4.7 Provide access to safe drinking water, adequate sanitation and hygiene awareness (WASH) for workers on-site	If a site has completed CDP-W8.1a it will likely have the data available to complete AWS-4.3 on WASH.	W8.1a. Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made - Drop-down option: "Increase access to Safe Water, Sanitation and Hygiene (WASH) ".	AWS-certified sites will have WASH performance information available that can be employed to complete CDP-W8.1a on a site-by-site basis.
4.8 Notify the owners of shared water-related infrastructure of any concerns	No linkage	N/A	No linkage
4.9 Achieve best practice results on site water balance	No linkage	N/A	No linkage
4.10 Achieve best practice results on site water quality	No linkage	N/A	No linkage
4.11 Achieve best practice results on Important Water-Related Areas through restoration	No linkage	N/A	No linkage
4.12 Achieve best practice performance, and strengthen capacity, in water governance	No linkage	N/A	No linkage
4.13 Advance regionally specific industrial water-related benchmarking	No linkage	N/A	No linkage
4.14 Re-allocate saved water for social or environmental needs	No linkage	N/A	No linkage
4.15 Engage in collective action to address shared water challenges	No linkage	N/A	No linkage
4.16 Drive reduced indirect water use throughout the site's supply chain and outsourced water-related service providers	No linkage	N/A	No linkage

4.17 Complete implementation of water-related initiatives	No linkage	N/A	No linkage
4.18 Provide access to safe drinking water, adequate sanitation and hygiene awareness off-site	If a site has completed CDP-W8.1a it will likely have the data available to complete AWS-4.3 on WASH (NB: CDP data must indicate that the site's efforts to provide WASH go beyond the facility).	W8.1a. Please complete the following table with information on company-wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made - Drop-down option: "Increase access to Safe Water, Sanitation and Hygiene (WASH)".	AWS-certified sites will have WASH performance information available that can be employed to complete CDP-W8.1a on a site-by-site basis.
Evaluate			
5.1 Evaluate the site's water stewardship performance, risks and benefits in the catchment context	In the Guidance of the AWS Standard (under Step 5), it is noted and suggested that evaluation is undertaken in conjunction with gathering data for disclosure to efforts like CDP. This helps improve the efficiency of efforts.	N/A	No linkage
5.2 Evaluate water-related emergency incidents and extreme events	No linkage	N/A	No linkage
5.3 Consult stakeholders on water-related performance	No linkage	N/A	No linkage
5.4 Update water stewardship and incident response plan	No linkage	N/A	No linkage
5.5 Conduct executive or governance body-level review of water stewardship efforts	No linkage	W9.1 Please provide the following information for the person that has signed off (approved) your CDP water response	No linkage
5.6 Conduct a formal stakeholder evaluation	If a site had employed CDP's Reporter Services it would partially meet the requirements of this criterion. In addition, it would be necessary to confirm that stakeholders in the catchment had also provided formal feedback to fully conform.	NOTE: Reporter Services is a CDP service that provides its members with one-to-one disclosure support, unique access to CDP data and opportunities to discuss reporting challenges within the CDP network. Its aim is to improve the quality of data being disclosed and share expertise on how to utilise CDP data in the corporate world to improve and inform sustainability strategy.	No linkage

Communicate & Disclose			
6.1 Disclose water-related internal governance	Completion of CDP-W6.1 provides part of the requirements for AWS-6.1 (since it is likely corporate-focused). Addition of site-level water-related governance would be required for conformity with this criterion.	W6.1 Who has the highest level of direct responsibility for water within your organization, and how frequently are they briefed?	An AWS-certified site would have the information at a site level, but this would likely not meet the requirements for CDP-W6.1 as it would likely be at a corporate level. IF the AWS-certified site's internal governance extended to corporate, then it may meet the requirements for CDP-W6.1.
6.2 Disclose annual site water stewardship performance	No linkage	N/A	No linkage
6.3 Disclose efforts to address shared water challenges	The Risk driver and Response strategy columns from the table in CDP-W3.2b and W3.2c are comparable to the water-related challenges in AWS. However, to align, they would need to be "shared" (per AWS distinction) and site-specific. Note: the full table from CDP-W3.2b and W3.2c would not be required to be disclosed to meet this criterion.	W3.2b & W3.2c (Risk driver and Response strategy columns) Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations & supply chain and the strategies to mitigate them	AWS-certified sites would have already provided a list of "shared water challenges" that are being addressed and so these should be readily available to incorporate into CDP-W3.2b and W3.2c. Note that there are other aspects of CDP-W3.2 that would still be required, so AWS-certification and Criterion 6.3 do not provide all of the requirements for CDP-W3.2.
6.4 Drive transparency in water-related compliance	The compliance requirements within CDP are aggregated at a corporate level and are more demanding than the AWS requirements. CDP W7: Compliance asks companies to provide data about any penalties and/or fines the company received during the reporting period at the corporate level; therefore, this data should more than cover any requirements within AWS-6.4. Put another way, AWS does not require the site to disclose all of what CDP-W7 requires.	W7. Compliance (will need to qualify)	The disclosure requirements of AWS-6.4 are less stringent than CDP-W7. However, Compliance information is gathered through AWS-4.1 so CDP-W7 could draw upon this information, plus some of the information from AWS-6.4 to complete the site's portion of CDP-W7.
6.5 Increase awareness of water issues within the site	No linkage	N/A	No linkage
6.6 Disclose water risks to owners (in alignment with recognized disclosure frameworks)	If you have completed a CDP Water disclosure for the site, you will have met this criterion.	W3. Water risks	The disclosure requirements of AWS-6.6 mostly align with CDP-W3 (which in turn is drawn from AWS-2.7). Between AWS-6.6 and 2.7, the site-based data to complete CDP-W3 should be available.
6.7 Implement a programme for water education	No linkage	N/A	No linkage

6.8 Discuss site-level water stewardship in the organization's annual report	No linkage	N/A	No linkage

Table C2: GRI and AWS

G4 Indicator	Description	AWS Linkage	AWS Notes
G4-1 Strategy and Analysis	Provide a statement from the senior-most decision-maker of the organization (such as CEO, chair or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability: "Strategic priorities and key topics for the short and medium term with regard to sustainability, including respect for internationally recognized standards and how such standards relate to long-term organizational strategy and success".	AWS-1.1	If referencing AWS
G4-2 Strategy and Analysis	Provide a description of key impacts, risks and opportunities.	AWS-2.7; AWS-6.6	If covering water
G4-15 Organizational Profile	List externally developed economic, environmental and social charters, principles or other initiatives to which the organization subscribes or which it endorses.	AWS-1.4	If recognized by AWS
G4-24 Stakeholder Engagement	Provide a list of stakeholder groups engaged by the organization.	AWS-2.2	If catchment-specific and named
G4-27 Stakeholder Engagement	Report key topics and concerns that have been raised through stakeholder engagement and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	AWS-2.2; AWS-3.2; AWS-6.3	If catchment-specific and named
G4-34 Governance	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	AWS-2.4; AWS-3.1; AWS-3.2; AWS-5.5; AWS-6.1	If water-related
G4-35 Governance	Report the process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees.	AWS-3.1	If water-related
G4-36 Governance	Report whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental and social topics, and whether post-holders report directly to the highest governance body.	AWS-2.4; AWS-3.1; AWS-3.2; AWS-5.5; AWS-6.1	If water-related
G4-37 Governance	Report processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics. If consultation is delegated, describe to whom and any feedback processes to the highest governance body.	AWS-5.3; AWS-5.6	If water-related
G4-42 Governance	Report the highest governance body's and senior executives' roles in the development, approval and updating of the organization's purpose, value or mission statements, strategies, policies and goals related to economic, environmental and social impacts.	AWS-3.1; AWS-3.2; AWS-5.5; AWS-6.1	If water-related

G4-43 Governance	Report the measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics.	AWS-6.5	If water-related and targeted at governance
G4-44 Governance	Report the processes for evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics. Report whether such evaluation is independent or not and its frequency. Report whether such evaluation is a self-assessment. Report actions taken in response to evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics, including, as a minimum, changes in membership and organizational practice.	AWS-5.4; AWS-5.5	If water-related
G4-45 Governance	Report the highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities. Include the highest governance body's role in the implementation of due diligence processes. Report whether stakeholder consultation is used to support the highest governance body's identification and management of economic, environmental and social impacts, risks and opportunities.	AWS-5.3; AWS-5.5	If water-related
G4-46 Governance	Report the highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics.	AWS-5.5	If water-related
G4-47 Governance	Report the frequency of the highest governance body's review of economic, environmental and social impacts, risks and opportunities.	AWS-5.5	If water-related
G4-49 Governance	Report the process for communicating critical concerns to the highest governance body.	AWS-5.5	If water-related
G4-49 Governance	Report the nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them.	AWS-5.4; AWS-5.5	If water-related
G4-DMA-b Disclosures on Management Approach	Provide sufficient information for report-users to understand the organization's approach to managing the material Aspect and its impacts. - policies - commitments - goals and targets - responsibilities - resources - specific actions.	AWS-1.2; AWS-1.3; AWS-1.4; AWS-3.2	If water-related
G4-EC1 Economic performance	Report the direct economic value generated and distributed (EVG&D) on an accruals basis, including the basic components for the organization's global operations as listed below. If data are presented on a cash basis, report the justification for this decision and report the basic components as listed below: (1) Direct economic value generated (Revenues); (2) Economic value distributed (Operating costs; Employee wages and benefits; Payments to providers of capital; Payments to government); (3) Community investments (Economic value retained (calculated as "Direct economic value generated" less "Economic value distributed").	AWS-2.4; AWS-5.1	
G4-EC2 Economic performance	Report risks and opportunities posed by climate change that have the potential to generate substantive changes in operations, revenue or expenditure, including: A description of the risk or opportunity and its classification as either physical, regulatory or other; A description of the impact associated with the risk or opportunity; The financial implications of the risk or opportunity before action is taken; The methods used to manage the risk or opportunity; The costs of actions taken to manage the risk or opportunity.	AWS-2.7; AWS-6.6	If water-related climate change impacts

G4-EC7 Indirect economic impacts	Report the extent of development of significant infrastructure investments and services supported. Report the current or expected impacts on communities and local economies. Report positive and negative impacts where relevant. Report whether these investments and services are commercial, in-kind or pro bono engagements.	AWS-2.4; AWS-5.1	
G4-EC8 Indirect economic impacts	Report examples of the significant identified positive and negative indirect economic impacts the organization has. These may include: Changing the productivity of organizations, sectors or the whole economy; Economic development in areas of high poverty; Economic impact of improving or deteriorating social or environmental conditions; Availability of products and services for those on low incomes; Enhancing skills and knowledge amongst a professional community or in a geographical region; Jobs supported in the supply chain or distribution chain; Stimulating, enabling or limiting foreign direct investment; Economic impact of change in location of operations or activities; Economic impact of the use of products and services. Report the significance of the impacts in the context of external benchmarks and stakeholder priorities, such as national and international standards, protocols and policy agendas.	AWS-2.4; AWS-5.1	If water-related
G4-EC9 Procurement practices	Report the percentage of the procurement budget used for significant locations of operation spent on suppliers local to that operation (such as percentage of products and services purchased locally). Report the organization's geographical definition of "local". Report the definition used for "significant locations of operation".	AWS-2.5	If catchment-specific and named
G4-EN3 Energy	Report total fuel consumption from non-renewable sources in joules or multiples, including fuel types used. Report total fuel consumption from renewable fuel sources in joules or multiples, including fuel types used. Report in joules, watt hours or multiples, the total: Electricity consumption; Heating consumption; Cooling consumption; Steam consumption. Report in joules, watt hours or multiples, the total: Electricity sold; Heating sold; Cooling sold; Steam sold. Report total energy consumption in joules or multiples. Report standards, methodologies and assumptions used. Report the source of the conversion factors used.	AWS-2.4; AWS-5.1	If water-related energy consumption
G4-EN6 Energy	Report the reductions in the energy requirements of sold products and services achieved during the reporting period, in joules or multiples. Report the basis for calculating reductions in energy consumption such as base year or baseline and the rationale for choosing it. Report standards, methodologies and assumptions used.	AWS-2.4; AWS-5.1	If water-related energy costs
G4-EN8 Water	Report the total volume of water withdrawn from the following sources: Surface water, including water from wetlands, rivers, lakes and oceans; Groundwater; Rainwater collected directly and stored by the organization; Wastewater from another organization; Municipal water supplies or other water utilities. Report standards, methodologies and assumptions used.	AWS-2.3; AWS-2.4	Specifically relates to water balance
G4-EN9 Water	Report the total volume of water withdrawn from the following sources: Surface water, including water from wetlands, rivers, lakes and oceans; Groundwater; Rainwater collected directly and stored by the organization; Wastewater from another organization; Municipal water supplies or other water utilities Report standards, methodologies and assumptions used.	AWS-2.3; AWS-2.4	Specifically relates to water quality
G4-EN10 Water	Report the total volume of water recycled and reused by the organization. Report the total volume of water recycled and reused as a percentage of the total water withdrawal reported under Indicator G4-EN8. Report standards, methodologies and assumptions used.	AWS-2.4	Specifically relates to water balance

G4-EN11 Biodiversity	Report the following information for each operational site owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas: Geographic location; Subsurface and underground land that may be owned, leased or managed by the organization; Position in relation to the protected area (in the area, adjacent to or containing portions of the protected area) or the high biodiversity value area outside protected areas; Type of operation (office, manufacturing or production, or extractive); Size of operational site in km^2; Biodiversity value characterized by: The attribute of the protected area or high biodiversity value area outside the protected area (terrestrial, freshwater or maritime ecosystem); Listing of protected status (such as IUCN Protected Area Management Categories, Ramsar Convention, national legislation).	AWS-2.3; AWS-2.4	If water-related, specifically relates to Important Water-Related Areas
G4-EN12 Biodiversity	Report the nature of significant direct and indirect impacts on biodiversity with reference to one or more of the following: Construction or use of manufacturing plants, mines and transport infrastructure; Pollution (introduction of substances that do not naturally occur in the habitat from point and non-point sources); Introduction of invasive species, pests and pathogens; Reduction of species; Habitat conversion; Changes in ecological processes outside the natural range of variation (such as salinity or changes in groundwater level). Report significant direct and indirect positive and negative impacts with reference to the following: Species affected; Extent of areas impacted; Duration of impacts; Reversibility or irreversibility of the impacts.	AWS-2.6; AWS-2.7	If water-related, specifically relates to shared challenges and water risks of Important Water-Related Areas
G4-EN13 Biodiversity	Report the size and location of all habitat protected areas or restored areas, and whether the success of the restoration measure was or is approved by independent external professionals. Report whether partnerships exist with third parties to protect or restore habitat areas distinct from where the organization has overseen and implemented restoration or protection measures. Report on the status of each area based on its condition at the close of the reporting period. Report standards, methodologies and assumptions used.	AWS-4.11; AWS-4.15	If water-related
G4-EN22 Effluents and Waste	Report the total volume of planned and unplanned water discharges by: Destination; Quality of the water, including treatment method; Whether it was reused by another organization. Report standards, methodologies and assumptions used.	AWS-2.4	
G4-EN24 Effluents and Waste	Report the total number and total volume of recorded significant spills. For spills that were reported in the organization's financial statements, report the additional following information for each such spill: Location of spill; Volume of spill; Material of spill, categorized by: Oil spills (soil or water surfaces); Fuel spills (soil or water surfaces); Spills of wastes (soil or water surfaces); Spills of chemicals (mostly soil or water surfaces); Other (to be specified by the organization). Report the impacts of significant spills.	AWS-5.2; AWS-6.4	
G4-EN26 Effluents and Waste	Report water bodies and related habitats that are significantly affected by water discharges based on the criteria described in the Compilation section below, adding information on: Size of water body and related habitat; Whether the water body and related habitat is designated as a protected area (nationally or internationally); Biodiversity value (such as total number of protected species).	AWS-2.3; AWS-2.4	
G4-EN29 Compliance	Report significant fines and non-monetary sanctions in terms of: Total monetary value of significant fines; Total number of non-monetary sanctions; Cases brought through dispute resolution mechanisms. Where organizations have not identified any non-compliance with laws or regulations, a brief statement of this fact is sufficient.	AWS-4.1; AWS-6.4	If water-related

G4-EN31 Overall	Report total environmental protection expenditures by: Waste disposal, emissions treatment and remediation costs; Prevention and environmental management costs.	AWS-2.4	If water-related
G4-EN33 Supplier Environmental Assessment	Report the number of suppliers subject to environmental impact assessments. Report the number of suppliers identified as having significant actual and potential negative environmental impacts. Report the significant actual and potential negative environmental impacts identified in the supply chain. Report the percentage of suppliers identified as having significant actual and potential negative environmental impacts with which improvements were agreed upon as a result of assessment. Report the percentage of suppliers identified as having significant actual and potential negative environmental impacts with which relationships were terminated as a result of assessment, and why.	AWS-4.5	If water-related
G4-LA1 Employment	Report the total number and rate of new employee hires during the reporting period, by age group, gender and region. Report the total number and rate of employee turnover during the reporting period, by age group, gender and region.	AWS-2.4; AWS-5.1	
G4-LA2 Employment	Report the benefits that are standard for full-time employees of the organization but are not provided to temporary or part-time employees, by significant locations of operation. These include, as a minimum: Life insurance; Health care; Disability and invalidity coverage; Parental leave; Retirement provision; Stock ownership; Others. Report the definition used for "significant locations of operation".	AWS-2.4; AWS-5.1	
G4-LA6 Occupational Health and Safety	Report types of injury, injury rate (IR), occupational diseases rate (ODR), lost day rate (LDR), absentee rate (AR) and work-related fatalities, for the total workforce (that is, total employees plus supervised workers), by: Region; Gender. Report types of injury, injury rate (IR), occupational diseases rate (ODR), lost day rate (LDR), absentee rate (AR) and work-related fatalities for independent contractors working on-site to whom the organization is liable for the general safety of the working environment, by: Region; Gender. Report the system of rules applied in recording and reporting accident statistics.	AWS-5.2; AWS-6.4	If water-related, may inform 5.2 and 6.4 but not directly connected
G4-LA9 Training and Education	Report the average hours of training that the organization's employees have undertaken during the reporting period, by: Gender; Employee category.	AWS-6.5	If water-related, may provide insight into 6.5
G4-LA10 Training and Education	Report on the type and scope of programmes implemented and assistance provided to upgrade employee skills. Report on the transition assistance programmes provided to facilitate continued employability and the management of career endings resulting from retirement or termination of employment.	AWS-6.5	If water-related, may provide insight into 6.5
G4-HR8 Indigenous Rights	Report the total number of identified incidents of violations involving the rights of indigenous peoples during the reporting period. Report the status of the incidents and actions taken with reference to: Incident reviewed by the organization; Remediation plans being implemented; Remediation plans that have been implemented and results reviewed through routine internal management review processes; Incident no longer subject to action.	AWS-4.1	If water-related, provides partial aspect of 4.1

G4-SO1 Local Communities	Report the percentage of operations with implemented local community engagement, impact assessments and development programmes, including the use of: Social impact assessments, including gender impact assessments, based on participatory processes; Environmental impact assessments and ongoing monitoring; Public disclosure of results of environmental and social impact assessments; Local community development programmes based on local communities' needs; Stakeholder engagement plans based on stakeholder mapping; Broad-based local community consultation committees and processes that include vulnerable groups; Works councils, occupational health and safety committees, and other employee representation bodies to deal with impacts; Formal local community grievance processes.	AWS-2.2; AWS-2.13; AWS-3.2; AWS-3.5; AWS-5.6; AWS-6.3	If water-related, this is a highly informative aspect of GRI, which has bearing upon numerous areas of the AWS Standard
G4-SO2 Local Communities	Report operations with significant actual and potential negative impacts on local communities, including: The location of the operations; The significant actual and potential negative impacts of operations.	AWS-2.2; AWS-2.6; AWS-2.7	If water-related

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