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Guide for Companies Listed on Beijing Stock Exchange—Preparation of Sustainability Report

No. 5 Water Utilization

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To assist listed companies in accurately understanding and applying the applicable provisions of the *Continuous Supervisory Guidelines No. 11 for Companies Listed on Beijing Stock Exchange—Sustainability Report (For Trial Implementation)* (the “Guidelines”), and to standardize the disclosure of information related to water utilization in sustainability reports, the Beijing Stock Exchange (the “Exchange”) has formulated the *Guide for Companies Listed on Beijing Stock Exchange—Preparation of Sustainability Report: Part 5 Water Utilization* (this “Guide”).

Chapter I Assessment of Water-Related Risks and Opportunities

Water-related risks and opportunities of a disclosing entity may have negative or positive impacts on its business model, operations, development strategy, or financial condition. Enterprises shall use water resources intensively and efficiently, enhance conservation management throughout the water usage process, and promote water reduction, reuse, and recycling in production and distribution processes.

I. Water-Related Risks and Opportunities

(I) Water-Related Risks

Water-related risks primarily include physical and transition risks. These may involve water quantity (like scarcity) and quality issues (such as suitability for use, need for pretreatment) within a basin or region.

If no material changes occur in a company’s business model, policy environment, and natural environment, annual assessments are not required. The company shall carry out assessments based on its own circumstances, while considering cost affordability.

Table 1: Examples of Water-Related Risks

Type	Examples (company may conduct analysis based on its own circumstances)
Water-Related Physical Risks	<ol style="list-style-type: none">1. Reduction in asset value caused by drought.2. Unavailability of clean water resulting from sudden water contamination incidents.3. Business shutdown or relocation in the absence of alternative water sources.4. Direct disruption to major water-dependent processes such as agricultural irrigation, industrial cooling, and product cleaning. For example, water scarcity may constrain agricultural irrigation, leading to reduced output.5. Deteriorating water quality necessitates increased investment in water treatment—such as pretreatment facilities and wastewater reuse

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Type	Examples (company may conduct analysis based on its own circumstances)
	systems—incurring additional pretreatment costs.
Water-Related Transition Risks	<ol style="list-style-type: none"> 1. Tightening regulations or policies (e.g., water supply adjustments such as changes in water allocation or usage restrictions, enhanced or new water withdrawal permits, stricter wastewater discharge standards, and amendments to water quality regulations). 2. Cost increases arising from changes in water supply, demand, and financing, including fluctuations in water availability and pricing. 3. Transition from water-intensive products or services to more efficient technologies or advancement in water purification methods may render existing technologies obsolete and increase R&D expenses. 4. Production activities (or products/services) that affect water resources may trigger complaints from stakeholders (e.g., consumers, investors, and local communities) or lead to public incidents. Growing water scarcity heightens exposure to reputational risks, while declining water availability and quality exacerbate competition for clean water, straining relations between companies and local communities.

A company may assess water-related risks in a targeted manner through the following steps.

Step 1: Understand the company's current water usage data across various business processes and identify key processes in the entire workflow that are dependent on or have an impact on water resources.

Table 2: Examples of Water Usage by Business Processes

Business Process	Examples of Water Usage
R&D	Water is used for experiments, research, and testing during the R&D of new products and the improvement of existing ones.
Production	The company's production process directly relies on the availability and quality of water, which serves as a core production input. Water is also used as an auxiliary resource in activities like cleaning and equipment cooling.

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Business Process	Examples of Water Usage
Sales and Logistics	Water acts as a supporting resource in logistics and warehousing, such as for cleaning transport vehicles, product packaging, and sales experiences at retail stores.
...	...

Step 2: Understand the current water environment and relevant water usage policies in the regions where the company operates, and apprehend local water usage requirements and restrictions, so as to further evaluate and identify operational sites located in water-scarce and high-risk areas.

Water risks are largely contingent on local environment, which can be the focus of the company's attention. In water-scarce areas, ecosystems are especially vulnerable to water consumption. Water withdrawals beyond the natural replenishment capacity, or water consumption surpassing the ecosystem's carrying capacity, can trigger cascading ecological issues. These include groundwater decline leading to land subsidence, interruption of river flows damaging aquatic habitats, and wetland drying exacerbating regional droughts.

By identifying operational sites facing significant water stress, the company can determine the importance and priority of water risk management measures across different geographical areas. Monitoring evaluations by competent government authorities on water-overwithdrawn regions helps assessing regional water risks.

Table 3: Examples of Physical Water Risk Assessment Metrics for Basins Where Operations Are Located

Risk Type	Examples of Common Assessment Metrics	Source
Physical Risk	Evaluation of water scarcity based on water availability and demand	E.g., Ministry of Water Resources' <i>China Water Resources Bulletin</i> , regional water resources bulletins
	Frequency of droughts	E.g., Ministry of Water Resources' disaster and

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Risk Type	Examples of Common Assessment Metrics	Source
	and floods	hydrology data
	Regional water quality	E.g., Ministry of Ecology and Environment's water quality data, National Surface Water Quality Automatic Monitoring and Real-Time Data Release System
...

Step 3: Conduct a comprehensive analysis of the company's water usage, business criticality, and specific regional conditions to identify operational sites where water-related risks are concentrated and assess potential financial impacts, thereby tailoring management measures.

Table 4: Examples of Comprehensive Water-Related Risk Assessment for Operational Site

Operational Site	Business Criticality	Business Water Usage	Regional Water Availability Classification	Regional Water Quality Classification	Comprehensive Assessment Result
Region A	Critical	High proportion of total corporate water usage	Water-scarce region	Class I	Level 1 water risk; prioritize water conservation programs
Region B	Critical	High proportion of total corporate water usage	Non-water-scarce region	Class III	Level 2 water risk; continuously monitor changes in regional water quality

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Operational Site	Business Criticality	Business Water Usage	Regional Water Availability Classification	Regional Water Quality Classification	Comprehensive Assessment Result
Region C	Non-core operational site	Low proportion of total corporate water usage	Water-scarce region	Class II	Level 3 water risk; non-core operational site; maintain ongoing monitoring
	

Note: The text and values in this table are for illustrative purposes only. Each company shall customize assessments according to its own circumstances. For instance, regional water quality classifications can be based on the categorization used in the National Surface Water Quality Automatic Monitoring and Real-Time Data Release System.

(II) Water-Related Opportunities

Water-related opportunities are primarily reflected in new market development, improved resource utilization efficiency, and increased demand for products and services.

Table 5: Examples of Water-Related Opportunities

Type	Examples (company may conduct analysis based on its own circumstances)
Water-Related Opportunities	<ol style="list-style-type: none"> 1. New market emerges. For instance, regions with poor water quality may exhibit higher demand for household water filtration systems; areas with high leakage rates could require technical solutions such as smart water management systems. 2. Rising demand for water-saving equipment and wastewater treatment technologies in industrial and agricultural sectors allows related enterprises to increase market share and competitiveness. 3. Proactive measures in water risk management may lead to partnerships with enterprises that engage in supply chain water management. 4. Improving utilization efficiency of water resources directly reduces

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Type	Examples (company may conduct analysis based on its own circumstances)
	<p>fresh water consumption and lowers water procurement expenses.</p> <p>5. By optimizing water usage processes and introducing water recycling systems, treated wastewater can be reused in production or other non-potable applications. This enhances water reuse rates, reduces water waste, and decreases wastewater treatment and discharge costs.</p> <p>6. Providing professional services such as water audits, water-saving solution design, and wastewater treatment operation and maintenance to other market participants can address market gaps and create new profit growth opportunities.</p> <p>7. Enterprises and projects demonstrating high water usage efficiency and sustainable water management capabilities can attract financial support for technology R&D, equipment upgrades, and business expansion, accelerating their growth.</p> <p>8. Establishing a differentiated advantage in water-scarce regions by producing water-efficient or water-saving products or investing in local water improvement are more likely to strengthen local customer loyalty and elevate brand value and reputation.</p>

II. Financial Effects of Water-Related Risks and Opportunities

The financial effects of water-related risks and opportunities on a disclosing entity stem from such risks and opportunities the entity faces and are related to the entity's strategies and decisions in managing them. These risks and opportunities may have effects on the entity's financial position, financial performance and cash flows, including both actual financial impacts that have occurred in the current and/or prior years and expected financial impacts. Taking water scarcity as an example, inadequate water resources may disrupt business operations. The corresponding expected financial impact may be estimated qualitatively or quantitatively by considering the frequency of local water scarcity, the severity of individual occurrences, and the economic losses resulting from business disruptions.

The financial effects of water-related risks and opportunities mainly involve the following financial categories: revenues and expenses (income statement); assets and liabilities (balance sheet); and cash inflows and outflows (cash flow statement).

Table 6: Major Categories of Financial Impacts Related to Water Utilization

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Category	Description
Revenue	<p>Water scarcity or quality issues can disrupt production and reduce output, directly affecting corporate revenue. Insufficient water supply may force companies to reduce production capacity. In areas identified as over withdrawn in terms of water resources (e.g., surface water or groundwater), the inability to secure new water withdrawal permits can hinder potential business expansion. Proactive water management, including investing in water-saving technologies, can open up new revenue streams, such as income from wastewater recycling technologies.</p>
Expenses	<p>Water scarcity or pollution can escalate water withdrawal and treatment costs, adding to operating expenses. Higher water prices, water resource taxes, or fines for environmental non-compliance can further inflate expenditures. Companies may need to augment capital expenditures to tackle water risks, such as equipment upgrades or alternative water source projects. Comprehensive management in water-overwithdrawn regions—such as industrial restructuring, enhanced water conservation, water source replacement, stricter water regulation, and water rights trading—may modify operating costs. Efficient water management (e.g., water recycling) can reduce production costs in the long term.</p>
Assets and Liabilities	<p>Water scarcity could result in asset impairment, such as rendering high water-consuming equipment unusable. Penalties for non-compliant water usage, e.g., unpermitted water withdrawal or exceeding pollution thresholds, might invoke fines, litigation compensation, and other contingent liabilities.</p>
Cash Flows, etc.	<p>Extreme weather or policy requirements can cause variations in water withdrawal costs, water treatment expenses, and water resource taxes, affecting cash flows from operating activities.</p>

Chapter II Common Method for Calculating Water Usage

I. Water Withdrawal Volume

Water withdrawal volume is the amount of water obtained from various water sources or channels, including both conventional and non-conventional sources.

Conventional water sources (i.e., fresh water) refer to fresh water withdrawn from natural environments or provided by municipal water supply facilities.

Non-conventional water sources include reclaimed water (i.e., urban wastewater that has undergone appropriate treatment processes to meet specific quality standards and functional requirements for beneficial use), harvested rainwater, seawater and desalinated seawater, and brackish water.

$$V_i = \sum_{j=1}^n V_{ij}$$

Where:

V_i – Water withdrawal volume during the statistical period, in metric tons

V_{ij} – Water withdrawal volume from a specific water source during the statistical period, in metric tons. Here, “j” represents different water sources.

II. Water Consumption Volume

Water consumption volume refers to the quantity of water that is consumed or lost in various forms during production and operational activities and cannot return to surface water bodies or aquifers. This figure is equal to the water withdrawal volume minus the water discharge volume (i.e., the volume of water treated to meet specific standards and released back to surface water, groundwater, seawater, or third parties). It reflects a company’s overall impact on the water availability of downstream users.

$$V_t = V_i - V_d$$

Where:

V_t – Water consumption volume during the statistical period, in metric tons

V_i – Water withdrawal volume during the statistical period, in metric tons

V_d – Water discharge volume during the statistical period, in metric tons

Chapter III Key Disclosure Items

Pursuant to the *Guidelines*, if a disclosing entity has created a holistic governance structure and internal rules for managing and supervising the impacts, risks, and opportunities related to water utilization, it may integrate the disclosure of governance elements without disclosing the governance of water utilization separately. Information concerning the governance, strategy, impacts, risk and opportunity management, as well as metrics and targets related to water utilization, may be disclosed in alignment with the guide on general requirements and disclosure framework.

Key Disclosure Item 1: Basic Information on Water Usage

1. Total Water Consumption

Disclosing entities shall disclose their total water consumption in metric tons, calculated with reference to the method outlined in Chapter II. Entities are also encouraged to disclose total water withdrawal volume.

2. Water Use Intensity

Disclosing entities shall disclose water use intensity (e.g., per unit of product or per unit of revenue).

Enterprises with a concentrated product range disclose water intensity per unit of product (e.g., water consumption per unit of product). Enterprises with diverse product types, multiple product lines, or service-oriented operations disclose water intensity per unit of revenue (e.g., water consumption per unit of revenue).

Key Disclosure Item 2: Water Conservation Targets and Specific Actions

1. Water conservation targets. A disclosing entity can set targets related to water consumption, water reuse, and non-conventional water sources. Examples include quantifiable and trackable targets like water consumption per unit of product/revenue or the proportion of reused water. Target selection should take into account industry characteristics, the entity's operational contexts, and relevant policy standards to ensure relevance and comparability.

2. Specific water conservation actions. An enterprise can customize actions based on its own circumstances or consider starting with the following actions.

Table 7: Examples of Specific Water Conservation Actions

Process	Examples of Specific Actions
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Process	Examples of Specific Actions
Water Resource Management	<ol style="list-style-type: none"> 1. Improve the organizational structure for water resource management, such as having the board oversee water usage and conservation efforts, establishing a water resource management department and full- or part-time personnel, and clarifying roles and responsibilities. 2. Develop water conservation policies and rules, conduct staff training on water efficiency, and enhance overall water conservation awareness. 3. Create a water usage management and accounting system. Regularly conduct water usage accounting to adjust water usage plans dynamically, and define clear physical boundaries for water resource management. For example, identify water sources (surface/ground/reclaimed water) and corresponding water rights (such as statutory withdrawal permits or customary water rights in basins) within the boundaries of all production and operational sites, including leased premises. 4. Enhance smart management. Improve water metering infrastructure and promote the installation of smart water meters to achieve precise monitoring of water usage data.
Planning and Designing	<ol style="list-style-type: none"> 1. Prioritize water resource compatibility in site selection decisions. Conduct water withdrawal feasibility analyses and water resource assessments to align business operations with local water carrying capacity. Avoid siting high-water-consumption activities or projects in water-scarce or -stressed regions to minimize risks of water shortages, production disruptions, and supply chain interruptions. 2. Equip new, renovated, or expanded construction projects with water-saving facilities, ensuring these facilities are designed, constructed, and operated simultaneously with the main projects. 3. Integrate effective management measures, water reuse, non-conventional water sources utilization, and water-saving technologies or processes into planning, designing, and developing water usage and conservation programs.
Water Withdrawal	<ol style="list-style-type: none"> 1. Rationally plan and calculate water withdrawal volumes to ensure total volume control and quota management. 2. Select water sources based on production needs and local water availability, obtain approvals from local water authorities, and withdraw water in accordance with approved plans. 3. Maximize the utilization of non-conventional water sources according

Process	Examples of Specific Actions
	<p>to local conditions. Substitute high-quality water with lower-quality alternatives that meet usage requirements. For instance, enterprises in coastal areas may use seawater, while mining companies can utilize mine water.</p> <p>4. Strengthen control and management of water obtained from public supply systems and external sources.</p> <p>5. Equip self-built water supply systems with standard water withdrawing, metering, and treatment equipment.</p>
Water Supply, Storage, and Usage	<p>1. Develop and implement maintenance and management rules for water supply, storage, and usage pipelines and equipment, and conduct regular inspections. Establish a leakage control system for water supply and usage networks, and take other actions to reduce water leakage and losses.</p> <p>2. Enhance management of key water-consuming equipment and processes by setting and enforcing water usage standards and operational procedures.</p> <p>3. Strengthen internal water management by instituting water conservation management systems. Adopt advanced and proper water-saving technologies, processes, and equipment, such as graded water supply, efficient cooling and washing, water recycling, and wastewater treatment and reuse. Evaluate water quality and usage volume across production units to avoid mismatches between water quality and application scenarios and prevent overuse, thereby optimizing water balance.</p> <p>4. Recycle cooling water from production equipment, air conditioners, and boiler condensate. High water-consuming industrial enterprises should progressively adopt advanced wastewater treatment and reuse technologies to improve water recycling rates. Enhance the design of internal water treatment and reclaimed water reuse systems to increase efficiency. Construct storage ponds/reservoirs to collect rainwater for reuse in production.</p> <p>5. Develop water-saving irrigation technologies, such as sprinkler irrigation, micro-irrigation, pipeline irrigation, lined canal irrigation, and supplementary irrigation with rainwater, to enhance irrigation water efficiency.</p>

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3. Describe water recycling and reuse practices. Specific actions and outcomes of water recycling and reuse can be disclosed together with water conservation actions. Outcomes can be measured and disclosed using quantitative metrics, such as the proportion of reused water in total water usage.

4. Describe any specific challenges encountered in water utilization (if applicable).