

# Corporate Water Resource Management System Framework in the Context of ESG and Sustainable Development: Global Perspectives and China's Challenges

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**CAREC Water Policy Dialogue**

**Analyzing the Financial Governance Gap of Water Sector in Central Asia:**

**From Planning to Effective Implementation**

**Webinar**

**29 March 2024**

**16:00 – 18:00 (Beijing time, GMT + 8)**

# Contents

## Basic Question

Research motivation:  
the proposal of corporate water resource management

## Analytical Framework

New framework of corporate water resources management: from public governance to corporate governance

## Specific Contents

Corporate water resources management:  
strategy, accounting, disclosure and decision making

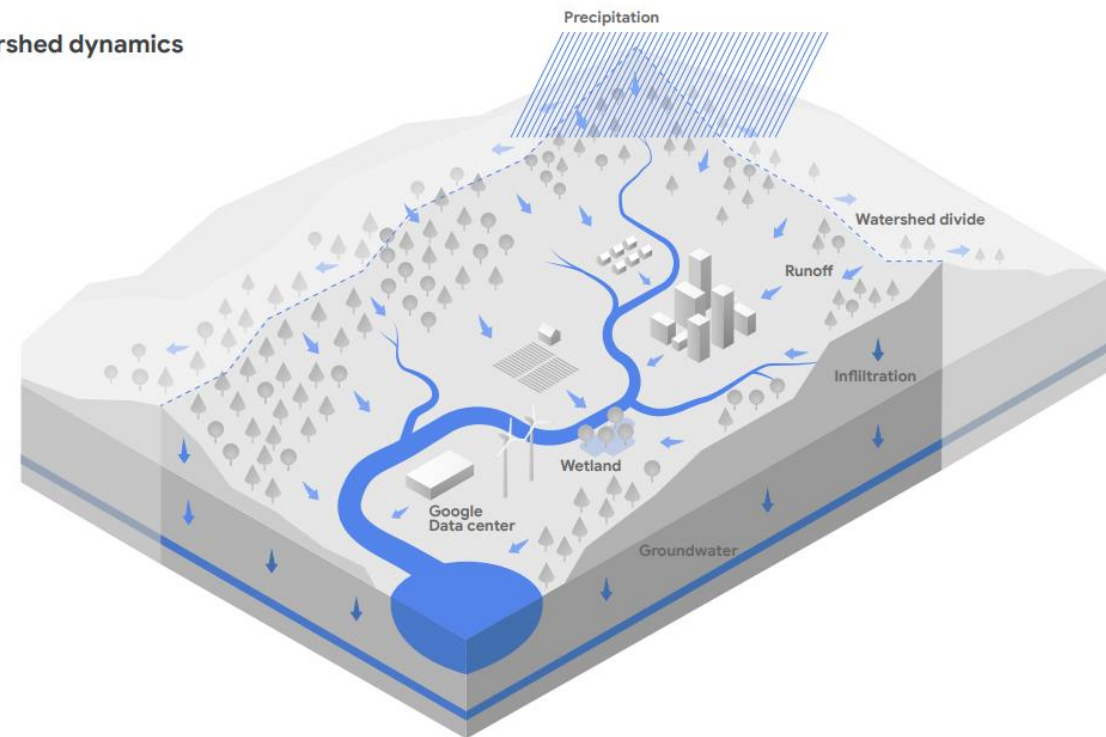


# Introduction: Google's Water Resources Management Report (September 2021)

- Watershed management for Google's Silicon Valley office
- Removed 134 parking spaces
- Build 1 natural oasis
- Restoration of 1 alluvial plain

FIG. 1

Watershed dynamics



# World Top 500 and “water security” Issues: Overview



ALLIANCE FOR  
WATER STEWARDSHIP



L'ORÉAL

Sainsbury's  
Helping everyone eat better

AstraZeneca



Tyson

BASF  
We create chemistry

Woolworths Group

VEOLIA



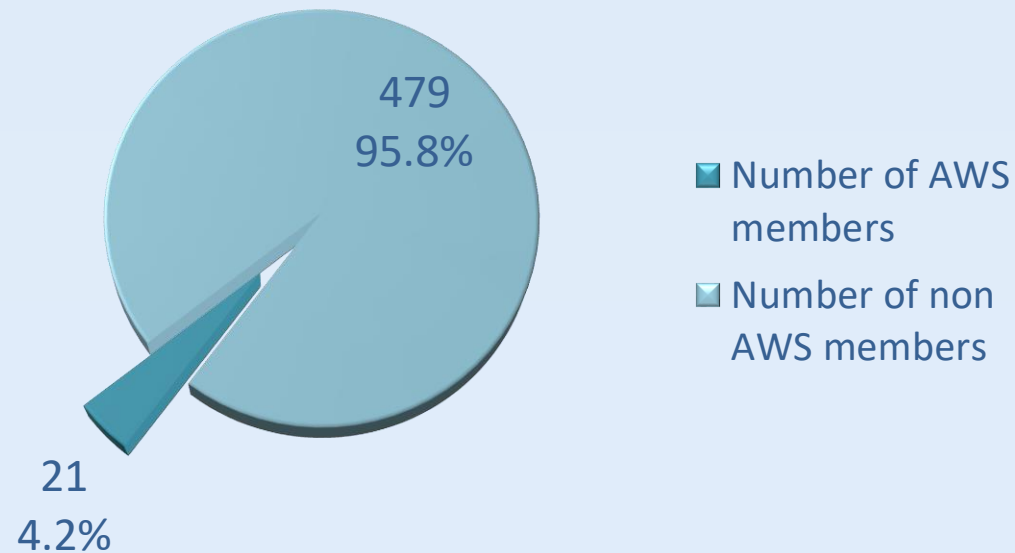
TOYOTA

Boehringer Ingelheim

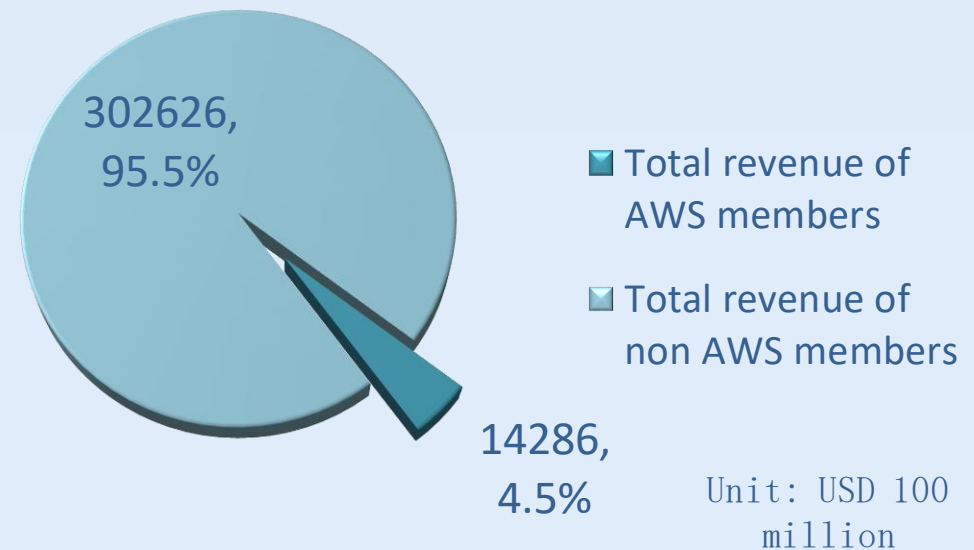
Olam

# World Top 500 and “water security” Issues: Overview

- AWS members contribute to the **sustainability** of local water-resources through adoption of the AWS Standard.
- The different constituencies of AWS continually challenge each other, and the system, to respond to **water-related issues** in a way that is **transparent, equitable, sustainable and effective**.



Quantity  
proportion



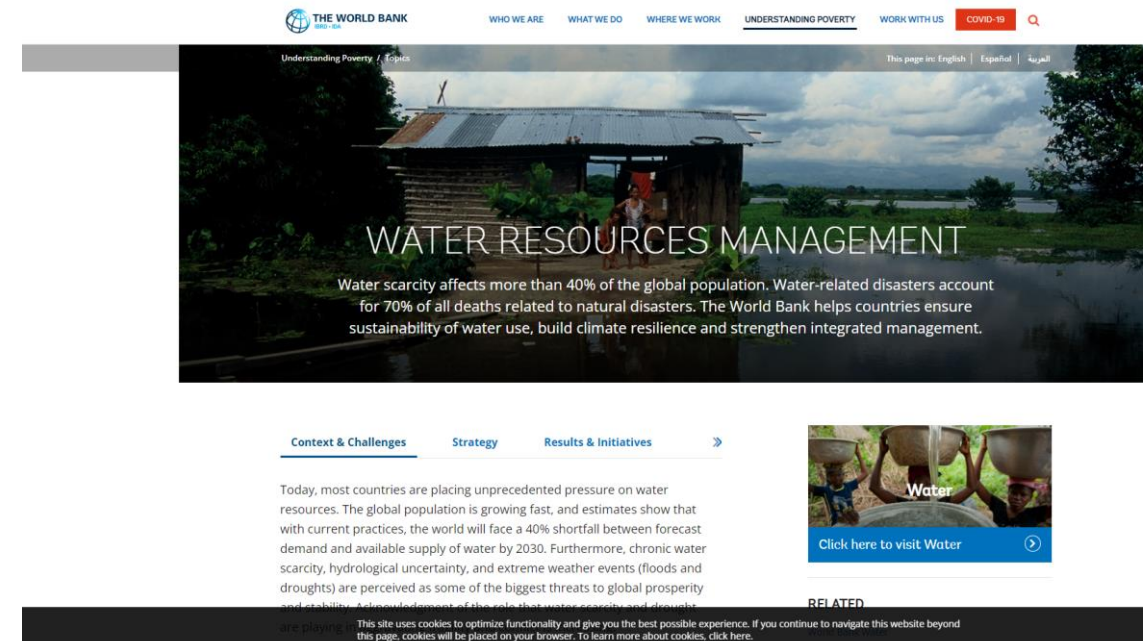
Revenue  
proportion

# Enterprise Water Resources Management Issues: A Call to Arms

- Enterprise Water Resources Management: Theory and Practice
- In Theory
  - Journal (**Water Resources Management**): An International Journal - Published for the European Water Resources Association (EWRA)
  - **Journal of Water Resources Research**
    - Journal of water resources research aims at disseminating and displaying the latest achievements in the field of world hydrology and water resources research and promoting China's Hydrology and water resources research to the world.
  - **Journal of Water Conservancy Economics**
    - Journal of water conservancy economics is a scientific and technological journal jointly sponsored by Hehai University and China Water Conservancy Economic Research Association. It is the only professional journal of water conservancy economic research and application in China. Mainly published economic theory and economic analysis; Research on water rights, water price and water market; Economic evaluation, financial evaluation and benefit analysis of water conservancy projects; Research on sustainable development of water resources, etc.

# Enterprise Water Resources Management Issues: A Call to Arms

- Enterprise Water Resources Management: Theory and Practice
- In Practice
  
- Existing problems
- More macro and less micro
- More governments and less Enterprises
- More passive, less active



The screenshot shows the top portion of a webpage from The World Bank. The header includes the World Bank logo and navigation links: WHO WE ARE, WHAT WE DO, WHERE WE WORK, UNDERSTANDING POVERTY, WORK WITH US, and COVID-19. Below the header is a large banner image of a rural building with a corrugated metal roof. The text on the banner reads: "WATER RESOURCES MANAGEMENT" and "Water scarcity affects more than 40% of the global population. Water-related disasters account for 70% of all deaths related to natural disasters. The World Bank helps countries ensure sustainability of water use, build climate resilience and strengthen integrated management." Below the banner is a navigation bar with three tabs: "Context & Challenges", "Strategy", and "Results & Initiatives". The "Context & Challenges" tab is active. The main content area begins with the text: "Today, most countries are placing unprecedented pressure on water resources. The global population is growing fast, and estimates show that with current practices, the world will face a 40% shortfall between forecast demand and available supply of water by 2030. Furthermore, chronic water scarcity, hydrological uncertainty, and extreme weather events (floods and droughts) are perceived as some of the biggest threats to global prosperity and stability." To the right of this text is a small image of people carrying water on their heads, with the word "Water" and a button that says "Click here to visit Water". At the bottom right, there is a "RELATED" section. A footer at the very bottom contains a cookie consent notice: "This site uses cookies to optimize functionality and give you the best possible experience. If you continue to navigate this website beyond this page, cookies will be placed on your browser. To learn more about cookies, click here."

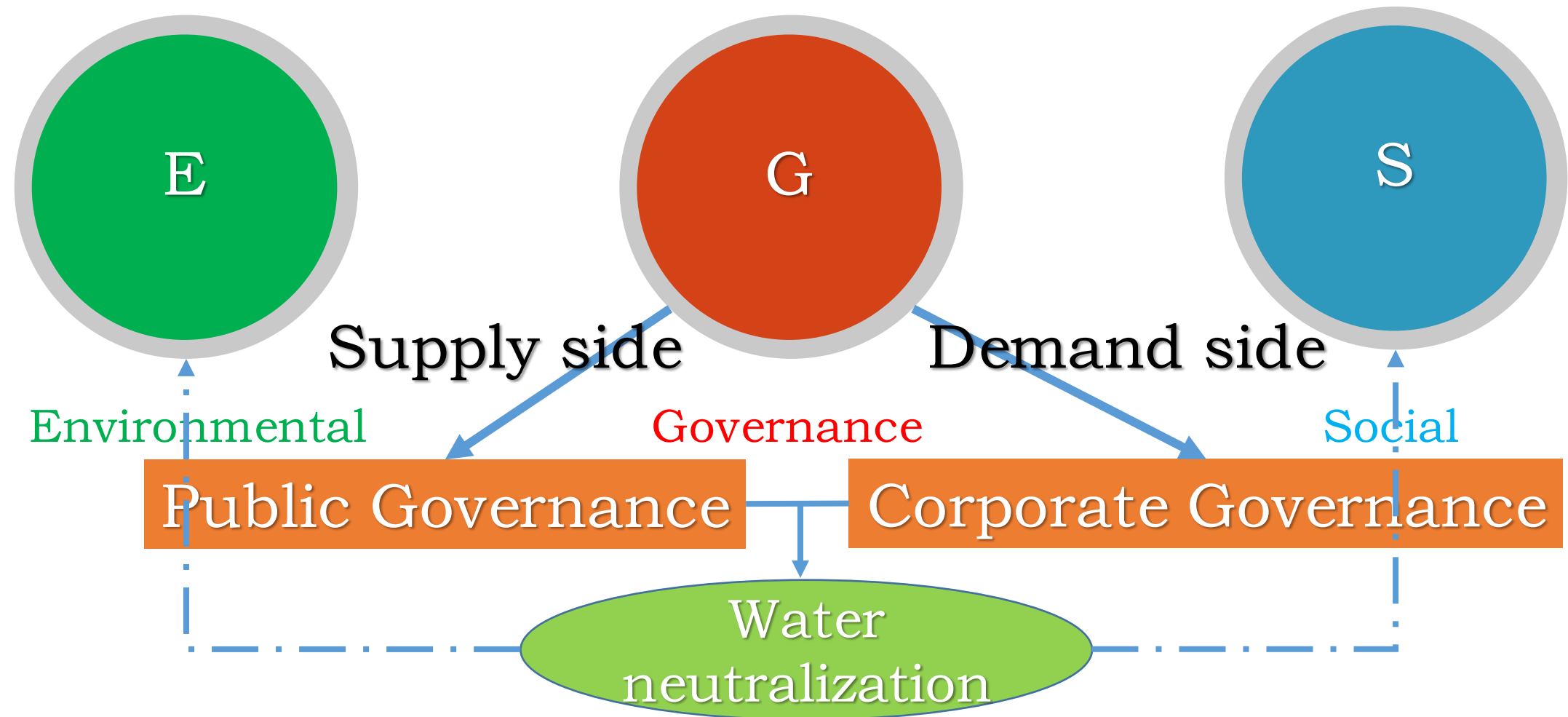
# Enterprise Water Resources Management Issues: A Call to Arms

- Enterprise water resources management: learn from "carbon neutralization" and put forward the "water neutralization" issue
- For every new development, total water use in the region after the development must be equal to or less than total water use in the region before the new development ([Therival et al. 2006 Discussion Paper UK](#)).
- For every new development, the predicted increase in total water demand in the region due to the development should be **offset** by reducing demand in the existing community ([Environment Agency UK 2009](#)).
- For every new development, water demand should first be **minimised** then any remaining water demand offset, so that the total demand on the public water supply in **a defined region** is the same after development as it was before ([Makin et al. 2021 Waterwise UK](#)).
- Going water neutral means that the **water footprint** of any and all activities are reduced as far as is practicably possible, with the **negative externalities** of the remainder then offset ([Mann 2022 Smart Water Magazine](#)).
- **Our definition:** in the context of ESG and sustainable development, in order to achieve water neutralization goals, enterprises voluntarily perform their own management behaviors in water use and reuse, wastewater discharge, etc



# Back to ESG to Understand Enterprise Water Resources Management

- ESG Origin and Enterprise Water Resources Management



# Water Resources Management under Corporate Governance: Theoretical Progress

- Theoretical Study on Enterprise Water Resources Management
- Management Perspective
  - Afrin et al. (JBE2021); Egan (JBE2015)
- Stewardship Perspective
  - Hoekstra (Nature 2014); Jones et al. (2015); Becker (2018); 王腾, 周海炜, 张阳(2021)
- Nexus Perspective
  - 周海炜、范从林、张阳(2009); Ahmetovic et al. (2015); Schillebeeckx et al.(2018)
- **19 related articles!**

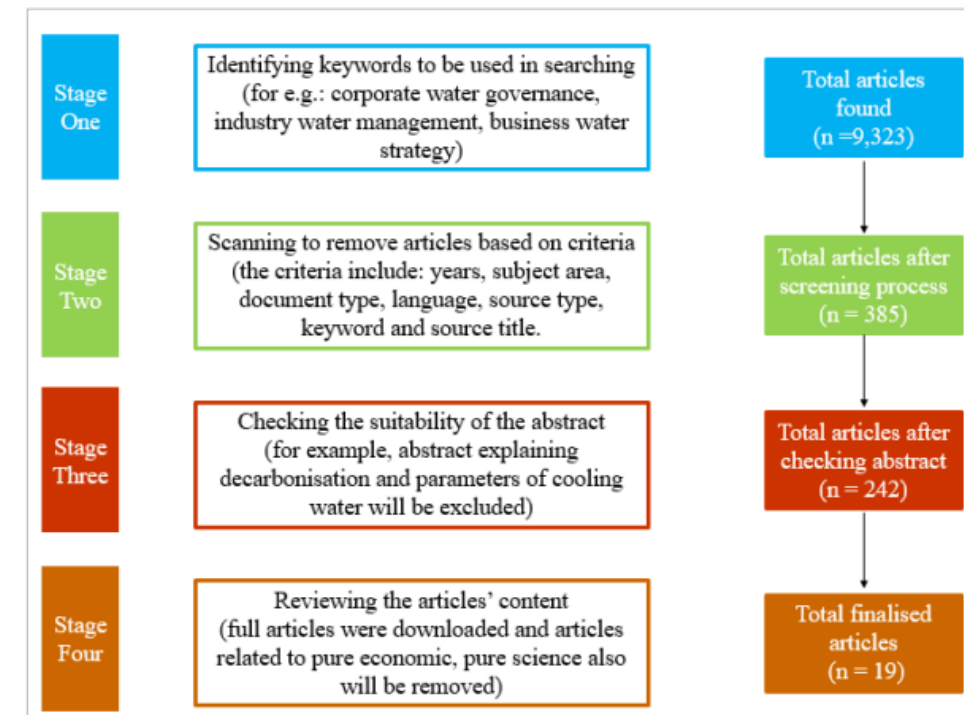


Figure 1: Four Stages in the Process of Systematic Literature Review

# Water Resources Management under Corporate Governance: Physical Progress

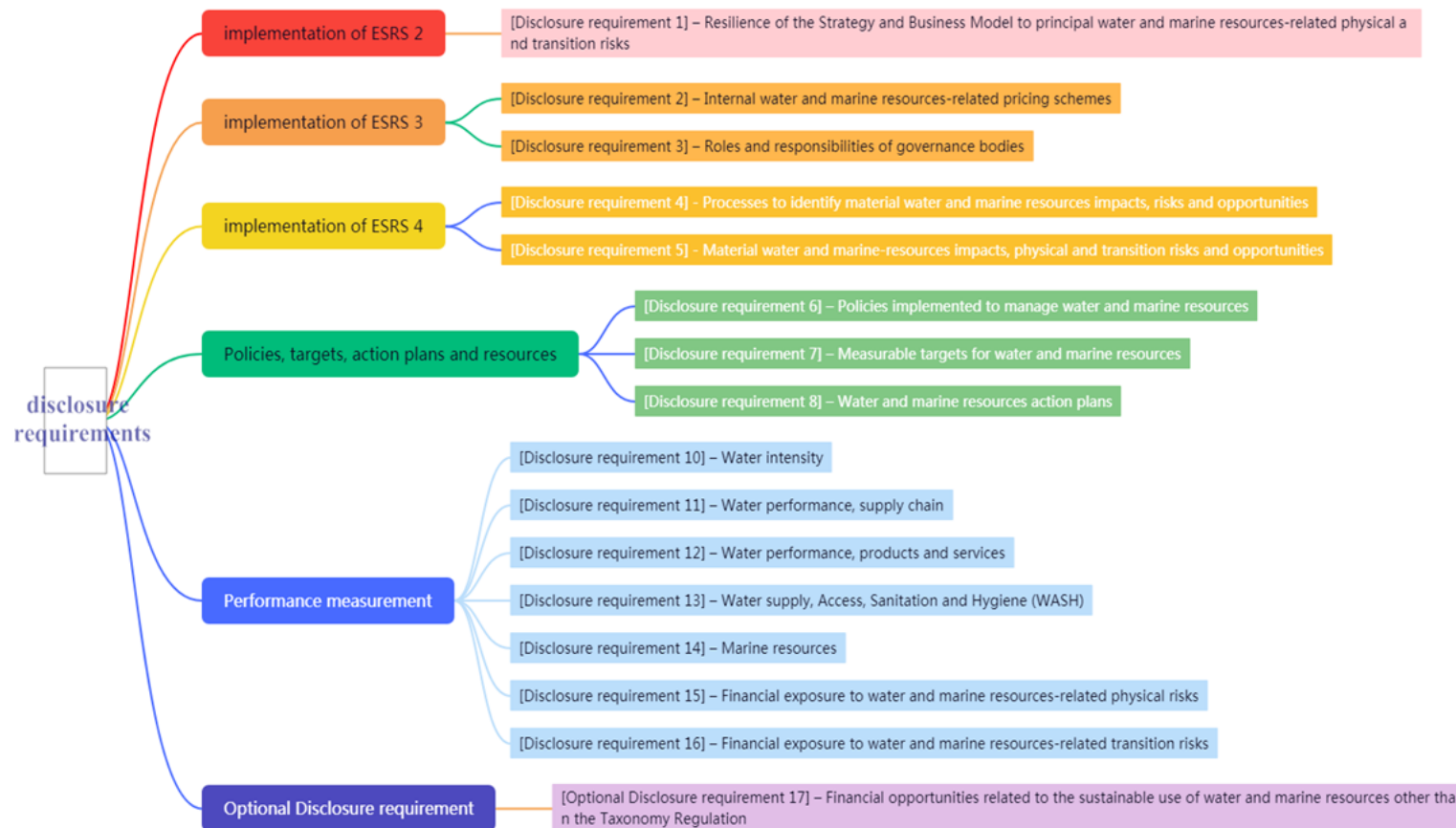
Table 3: Water Initiatives

Initiative	Explanation
Alliance for Water Stewardship	This effort seeks to be a crucial tool for businesses to guarantee that their internal operations are properly managed and have minimal environmental impact, to have a better understanding of the catchments in which they operate, and to communicate to stakeholders that they act responsibly.
Berlin Rules on Water Resources	The Berlin Rules provide an important foundation for assisting governments in managing water resources in a sustainable manner, as well as assisting businesses in participating in this process when necessary. Useful when foreign countries or other organisations (such as industrial facilities) operating across national borders impacting water pollution and scarcity.
Carbon Disclosure Project Water Disclosure	A framework prepared to collect companies' water-related policies and information. It emphasises the fact that these types of analysis not only do facilitate drive down water-related risks and impacts, but that consumers, investors, and the main stakeholders are also beginning to anticipate companies to accumulate and communicate such information.
Carbon Disclosure Standard Board	Application guidance for water-related disclosures.
CERES Aqua Gauge	An Excel-based flexible tool and linked methodology that tolerates investors to scorecard a firm's water management activities against detailed definitions of leading practice. Its primary aims are to help equity investors interpret and evaluate the information provided by companies on their management of water issues, and to provide a framework to guide investor engagement and dialogue with companies.
European Union Water Framework Directive	Frameworks for refining coastal marine ecosystems, water-related human health issues, river basin management, water quality and water supply, are all included in this policy. The directive serves as a good model for groundwater management, water quality management, human health management, public engagement, and so on.

The Ruggie Framework for Business and Human Rights	This framework though not specific to water, has played a crucial role in the evolving discussion in business' role in safeguarding the human right to water access. This framework offers assistance on these questions and could advice companies and governments recognise while establishing relevant functions and foster efficient approaches.
UN Millennium Development Goals	A useful framework offered by MDGs for businesses to comprehend broad policy goals, analyse whether their business operations obstruct those aims, and develop engagement methods to help them accomplish those goals. They're especially useful in catchments where public entities don't have visibly stated water-related policy objectives.
Water Footprint Network	A methodology for water footprinting was developed as a tool for water resource management. This is currently its major application. Water footprinting allows managers, policymakers, and planners, to plan several water uses in a system for these reasons (for example; industrial, municipal, agricultural.)
Water International	Witness The organisation promotes responsibility to incentivise improved performance of water management institutions by establishing greater openness and knowledge. To strengthen and widen its work, Water Witness is forming a global network of partners.
World Business Council for Sustainable Development Water Tool	The Tool assists companies in determining where policy engagement is most needed by categorising where they are located in water-stressed populations and areas or with insufficient access to water services.
World Economic Forum Water Initiative	The Initiative's Steering Board is made up of major corporations including Dow Chemical, Coca-Cola, PepsiCo and Nestlé, as well as non-governmental organisations and other groups like the

# Water Resources Management under Corporate Governance: Physical Progress (international organizations + NGO)

- European Sustainability Reporting Standard E3 Water and Marine Resources Disclosure requirements



# Water Resources Management under Corporate Governance: Physical Progress (international organizations + NGO)

- UN Global Compact: CEO Water Mandate

UN Global Compact | Pacific Institute

Mailing List Publications Tools & Websites

SIGN THE COMMITMENT GET INVOLVED LEARN ABOUT

**Join our Water Resilience Coalition**

A CEO-led, industry-driven initiative committed to reducing water stress by 2050

What is the Coalition?

Take the pledge

**203**  
ENDORSING COMPANIES  
[A list of all endorsing companies](#)

**1717**  
PROJECTS  
[on the Water Action Hub](#)

**575**  
RESOURCES  
[in the Water Stewardship Toolbox](#)



The UN Global Compact is the world's largest corporate sustainability initiative, with more than 12,000 corporate participants and stakeholders from more than 140 countries. The UN Global Compact is based on [ten principles](#) in the areas of human rights, labour standards, the environment, and anti-corruption.



The Pacific Institute is one of the world's leading nonprofit research groups. The Institute creates and advances solutions to the world's water challenges.

# Water Resources Management under Corporate Governance: Physical Progress (international organizations + NGO)

- International Banking Institutions
- Netherlands International Group ([ING Group](#) – communicating the risk of investing in climate damaging industries)
  - Barclays Bank ([Barclays](#) – investing in water-friendly start-ups and entrepreneurs)
  - Credit Suisse Group ([Credit Suisse](#) – creating funds that push for better water management)
  - [BNP Paribas asset management](#)
  - Banco Bilbao Vizcaya Argentaria ([BBVA](#) – partnering with water charities to support local projects)
- International Rating Agencies
  - Standard & Poor's 500 ([S&P500](#)) : S&P Global Water Index
  - [Fitch Ratings](#): 2022 ESG in Credit white paper
  - [Moody's](#)

# Basic Content of Enterprise Water Resources Management

- Enterprise Water Strategy

- Enterprise Water Risk Assessment

- Enterprise Water Information Disclosure

- Enterprise Water Footprint Assessment

- Enterprise Water Accounting

- Enterprise Water Behavior

- Enterprise Water Innovation and Business Opportunities

- Water (products and services) Consumption and Marketing

- Water Cooperation Between Enterprises and Stakeholders

- Based on the complex characteristics of water, formulate the strategic framework for sustainable development of enterprises
- Water resources risk in operation
- Supply chain water resources risk
- External water resources risk of the enterprise
- Corporate social responsibility and sustainable development
- Due diligence on enterprise investment and financing
- Water resources accounting: the total amount of direct or indirect water used by an enterprise
- Enterprise operation water footprint, supply chain water footprint and product terminal water footprint
- Enterprise water use behavior (water saving behavior), industry water use behavior (water saving behavior)
- Enterprise water consumption standard and quota
- Water treatment technology, aquatic products and water services
- Brand, reputation and marketing strategy
- Employees, consumers, communities, governments, NGOs

Thank You For Your Attention!

