WATER MANAGEMENT

BCPG recognizes the importance of water resources as a fundamental factor for life and sustainable development. The Company is committed to efficient water management, from project site selection to operational processes. BCPG strictly adheres to the Code of Practice (COP) for photovoltaic solar power generation and the ISO 14001 environmental management system standards to ensure that its operations utilize water resources efficiently while continuously monitoring potential risks. At the same time, the Company implements preventive measures to minimize environmental impact, supporting sustainable development and creating long-term value for the organization, society, and the environment.

Challenges and Opportunities

Water resources cover more than three-quarters of the Earth's surface, yet the amount of freshwater available for use is limited. This makes water an essential element for human life and ecological balance. However, population growth and urban expansion have led to increasing water demand, posing challenges in the allocation and management of this limited resource. BCPG recognizes the critical role of water in its operations, both for consumption within office buildings and in renewable energy project areas. The Company is committed to reducing water usage and implementing careful and efficient water management practices to prevent and mitigate environmental and community impacts. At the same time, BCPG strives to maintain a balance between current water use and conservation for the future.

Key Performance and Goals in 2024

Key Performance

Water consumption within the office building remained unchanged at **0%** compared to 2023.

Water stress assessments in power plant project areas in Thailand were conducted **4 times** (18 areas).

The proportion of water used in electricity generation projects in Thailand increased by **15%** compared to 2023.

The volume of water drawn from areas with water scarcity exceeding legal or regulatory limits was **0 cubic meter**.

The proportion of water used from both tap water and groundwater for electricity generation in 2024 increased, likely due to the higher dust levels, prolonged dry season, and rising temperatures. These factors impacted the efficiency of solar panels or electricity production. As a result, the Company had to clean the panels appropriately to maintain optimal electricity production efficiency.

Goals

Water consumption within the office building decreased by **5%** compared to the previous year.

The assessment of water stress in the power plant project areas in Thailand is conducted at **least once a year**.

The proportion of tap water and groundwater used for electricity production decreased or did not exceed **5%** from the previous year.

The volume of water drawn from areas with water scarcity does not exceed the limits set by laws or regulations.

Key Stakeholders

Key Stakeholders	Actions Taken to Meet the Stakeholders' Needs in 2024
Employee	• Creating awareness on water management through organizational activities and active participation in achieving the goals set by the organization, to promote responsible environmental practices and generate positive impacts on the community and society as a whole.
Community	• Assessing and developing plans to prevent and reduce impacts on the community, such as impacts from flooding, wastewater leakage from treatment systems, etc. • Evaluating water stress in power plant project areas to monitor the water situation in these areas and reduce unnecessary water use, ensuring efficient and sustainable water management. • Strictly complying with relevant laws and regulations regarding water withdrawal in water-scarce areas to prevent and mitigate the impacts of excessive water usage, maintaining the balance of water resources in these areas.

Strategy and Management Approach

In the process of selecting project sites larger than 1,000 KVA, the BCPG specifies that the project location must not be within agricultural irrigation zones, should not obstruct seasonal waterways, and must not encroach upon public bodies of water or rivers and canals. During site preparation, the Company prioritizes selecting suitable water sources, taking into account the community's water usage needs as a primary consideration.

In cases where groundwater is necessary, BCPG adheres to the Groundwater Act of 1977, ensuring compliance with legal requirements. Currently, the Company's projects in Thailand are progressing with a sustainable water management approach to maintain a balance between business operations and water resource conservation, while minimizing impacts on communities and surrounding environments.

Sustainable Water Management Guidelines

The group has a water resource management approach based on the 3Rs principles: Reduce water usage, reuse water, and recycle treated wastewater.

Reducing Water Consumption by3Rs

BCPG is committed to efficient water management by utilizing groundwater sources and sourcing clean raw water from local suppliers to support project activities such as solar panel cleaning and domestic consumption. The wastewater generated from operations is categorized into two main types:

1. **Wastewater from Solar Panel Cleaning** – This type of wastewater contains dust particles. The Company collects and reuses it within the project, such as for irrigation, ensuring that no wastewater is discharged outside the project area. This practice helps prevent environmental impacts and promotes sustainable water usage.

2. **Wastewater from Restroom Usage** – This wastewater is collected and treated through a prefabricated wastewater treatment system in accordance with sanitation principles.

Additionally, the Company implements strict measures to monitor the quality of discharged water to ensure compliance with legal regulations. It adheres to the Code of Practice (COP) for solar photovoltaic power generation and strictly follows the ISO 14001 environmental management system standards. The Company also follows the regulations set by the Ministry of Industry and maintains strict oversight measures. Furthermore, during the initial phase of the project, the company conducts an Initial Environmental Examination (IEE), which includes an analysis of water consumption during construction and an assessment of nearby water sources. This ensures that the project operates sustainably and ensures responsibly toward the environment.

BCPG's water management approach includes the following strategies:

Water reserve for panel cleaning and water storage systems	• Asses water level to ensure its adequacy for cleaning solar panels without impacting locals and communities. • Install water storage tank and control the water level well below the required limit. • Evaluate water quality to ensure it alignswith standards before usage.
Systematic flood prevention	• Research and evaluate flood risks in designated areas. • Establish emergency response plan and prevention measures. For instance, Design and construction of earthen berms in flood-prone areas, including the installation of water level monitoring stations around the operational site, among other measures. • continue to monitor and evaluate water risks.
Inspection of water drainage system	• Maintain and inspect drainage system including relevants tool and machinery to ensure the system is operable. • Train personels and suppliers to operate with caution and safety. • Minimize the impacts of discharged water to the environment.
Reused water	• Use water resource efficiently, and inspect water quality to ensure it meets international standards by reusing water for other activities such as watering plants. • Design water reuse system effectively to decrease water loss and lessen environmental impacts in a long run.
Assessment of water stress in the watershed near the operational area	• Evaluate the degree of water stress in the watershed adjacent to the project's operational site.

BCPG continuously monitors and records water usage data throughout the year to assess trends and adjust plans accordingly. In the past year, the Company initiated a study on reducing water consumption through a program that calculates the necessity of cleaning solar panels. Currently, BCPG is in the process of testing a data collection and analysis system utilizing Artificial Intelligence (AI) technology in its power generation projects. Additionally, the Company has implemented water conservation measures across both office buildings and power generation project sites, as follows:

For office buildings, BCPG conducts awareness campaigns to inform employees about water consumption in the past year, comparing it with the annual target. Additionally, the Company monitors progress to enhance awareness and encourage employee participation in achieving sustainable water reduction goals.

For power generation project sites, BCPG ensures that discharged water meets legal standards and is reused for various activities, such as reducing raw water consumption within the project. Additionally, the Company implements a long-term reforestation project in solar power plant areas, utilizing treated wastewater for seedling irrigation. This approach helps minimize reliance on public water sources and reduces the impact on community water usage. These efforts reflect the Company's commitment to water resource conservation and the promotion of ecological sustainability. backup for panel cleaning and water storage systems.

Water Risk Assessment and Management Project

The Company has conducted a Physical Risk Assessment, prioritizing water resource risks as they are crucial to business operations and form an integral part of a comprehensive physical risk evaluation. This assessment covers renewable energy projects in Thailand to ensure preparedness for potential risks. To support this evaluation, the Company utilizes the Water Risk Map developed by the AQUEDUCT Water Risk Atlas and the Climate Change Knowledge Portal. The risk assessment focuses on four key areas: urban flood, river flood, coastal flood, and water scarcity. The water stress assessment encompasses 18 projects across the Company's operational areas in Thailand, with the evaluation results as follows.

1. Urban Flood is assessed based on the Damaging Intensity Threshold and historical data on the frequency and severity of urban flooding events. The assessment revealed that 10 projects fall under high risk, while 3 projects fall under the moderate risk category.

2. River Flood is assessed based on the Damaging Intensity Threshold and historical data on the frequency and severity of flooding events in riverbank areas. The assessment revealed that 7 projects fall under high risk, while 2 projects fall under the moderate risk category.

3. Coastal Flood is assessed based on the Onshore Flood Depth and historical data on the frequency and severity of past flooding events. The assessment revealed that 2 projects fall under high risk.

4. Water Scarcity is assessed based on the Lower Water Availability. The assessment revealed that 8 projects fall under moderate risk.

BCPG has used the assessment results to develop a mitigation plan to address and reduce the impact of water-related risks. The focus is on developing strategies tailored to the specific characteristics of each area. Additionally, the Company has set a goal to reduce water usage by 5% in both its office buildings and power generation projects in Thailand from the 2023 baseline. This is aimed at reducing water resource stress and minimizing impacts on surrounding communities.

Benefits from the Programs

- Conducted a physical risk assessment for all **18** renewable energy power generation projects to plan measures for addressing potential future risks.
- Established water management measures that align with the operational characteristics of each power plant to increase water resource efficiency, reduce environmental impact, and support sustainability goals.

For more details on the Physical Risk Assessment, visit: Click

Flood Emergency Impact Mitigation Plan

BCPG has developed a comprehensive Business Continuity Plan (BCP) to mitigate business impacts from flooding and reduce potential risks to its projects. As part of this plan, the Company constructs embankments or water barriers around wastewater treatment ponds to minimize flooding risks and prevent wastewater overflow. Additionally, flood prevention measures are assessed and installed at high-risk areas within each project to prevent water leakage into vulnerable zones. The Company also conducts regular inspections and maintenance of drainage systems to prevent blockages and reduce the risk of chemical or hazardous waste contamination in the environment. Furthermore, chemical products, raw materials, and waste are stored in flood-safe areas to minimize environmental impacts during emergencies. Special attention is given to monitoring and improving operational sites with a history of flooding, as well as assessing potential water flow paths into project areas. This enables the company to design and enhance flood prevention systems tailored to the specific characteristics of each project, ensuring effective and sustainable risk management.

Chart Showing the Severity Ranking of Flood Levels

Tier 1	Tier 2	Tier 3
Monitoring level • Prepare tools and confirm it is functional.	Abnormal water level rise • Prepare and assemble sandbags. • Set up power generators • Operate water pump and get workers ready.	Critical water level rise • Evacuate irrelevant personnels from affected area. • Ensure sufficient fuel supply. • Organize watchen for 24 hours.

Note: The Tier levels indicate the elevation above sea level for each project, categorized based on the geographical characteristics of the regions where the company operates.

Examples of Flood Prevention and Management Plans for the Company's Projects

	Water level (meters)	Water gate (meters)	Prevention	Action
Tier 3	6.1	6.1	Inspect the flood prevention every day. Operate the water pump and prepare backup fuel.	Evacuate unrelated personnel from the area. Assign staff for 24-hour surveillance. Place sandbags around the project area.
Tier 2	4.4	5.8	Prepare emergency equipment such as generators, boats, supplies, etc. Prepare sandbags to block the project entrance.	Create temporary access routes for entering and exiting the project. Dismantle and move essential equipment.
Tier 1	2.4	3.8	Monitor the water situation around the project area. Monitor the management of dams or reservoirs around the project area. Coordinate with government agencies to receive information and policy plans.	Inspect and maintain water pumps to ensure they are ready for use by testing them at least once a week. Avoid bringing electrical equipment into flood-prone areas, such as solar panels, inverters, transformers, etc.

Benefits from the Programs

Develop a contingency plan to mitigate the potential impacts of flooding emergencies in each project, in order to respond promptly and reduce the effects of flooding.

Pilot Project for the Application of Artificial Intelligence in Solar Panel Management

BCPG is committed to technological advancements to minimize environmental impacts and enhance operational efficiency in the solar power business. As part of this effort, the Company has invested in Artificial Intelligence (AI) and Big Data systems for monitoring and maintaining solar panels. These technologies enable the rapid and precise detection of abnormalities in solar panels, such as panel degradation, dust accumulation, and shading, which may affect power generation efficiency. By leveraging AI, the Company has improved electricity production efficiency by up to 10% through faster issue detection and resolution. Additionally, **AI plays a crucial role in optimizing water usage** by analyzing Soiling Loss, which refers to efficiency losses caused by dust accumulation on solar panels. This analysis incorporates environmental factors such as humidity, temperature, and weather conditions. **The system can predict and identify panels that genuinely require cleaning**, replacing the traditional fixed-schedule cleaning method.

This approach has allowed BCPG to reduce unnecessary water usage and enhance water management efficiency. However, in 2024, the Company observed an increase in tap water and groundwater consumption due to rising dust levels, an extended dry season, and higher temperatures. These factors affected the efficiency of solar panels and could potentially impact power generation capacity. To address this, the Company has implemented a strategic solar panel cleaning plan, ensuring that water resources are used efficiently and sustainably while maintaining optimal energy production.

Additionally, the pilot implementation of AI and Big Data in two of the Company's solar power plants has led to the detection of over 300 panel defects. Notably, more than 20% of these cases involved early-stage degradation, allowing for rapid issue resolution. This proactive approach has helped minimize potential future damage, reduce labor and maintenance costs, and enhance overall operational efficiency.

These technologies not only enhance the company's operational efficiency but also reflect its commitment to sustainable resource management. By reducing environmental impact and promoting efficient water usage, the Company ensures its ability to adapt to environmental changes while supporting its long-term sustainability goals.