

Radium (2547 TW)

Radium (2547 TW) Subsidiary Bao Ding Reclaimed Water Inauguration Marks the Dawn of an AI-Driven, Sustainable Water Era

Taoyuan Mayor Chang, San-Cheng and Radium Chairman Lin, Rong-Shian Jointly Preside Over Launch Ceremony - Establishing Asia's Flagship Smart Water Demonstration Hub

Bao Ding Reclaimed Water, a subsidiary of listed company Radium Group (2547 TW), today (April 2) officially inaugurated the Taoyuan Northern District Reclaimed Water Center. The ceremony was jointly presided over by Taoyuan Mayor Chang, San-Cheng, Deputy Minister of the Interior Tung, Chien-Hung and Radium Group Chairman Lin, Rong-Shian.

This milestone signals the launch of Northern Taiwan's first AI-integrated smart reclaimed water demonstration plant and ESG interactive park, a project that elevates Taiwan's water infrastructure into a new strategic era.

Lin, Rong-Shian stated that Radium Group has been deeply rooted in Taoyuan for over 13 years, investing over NTD 17.5 billion and connecting more than 170,000 users. Subsidiary Rih-Ding Water recycles and purifies a large and stable source of municipal water, providing Bao Ding Reclaimed Water with high supply resilience and expansion flexibility. Through the integrated operation of "front-end wastewater collection" and "back-end reclaimed water supply," the system ensures uninterrupted industrial water use, further driving industrial transformation and establishing an ESG-oriented sustainable park as well as the largest "urban reclaimed water reservoir" in Northern Taiwan.

Rapid Global Market Growth: Reclaimed Water Becomes a Strategic Industry

According to market research firm Research Nester, the global water recycling and reuse market is projected to reach approximately USD 21.2 billion in 2025, grow to USD 23.4 billion in 2026, and exceed USD 60 billion by 2035, with a compound annual growth rate (CAGR) of over 11%. Amid accelerating climate change and rising industrial demand for stable water supply, alongside advancements in water treatment and recycling technologies, reclaimed water has evolved from an environmental engineering solution into a core pillar of national infrastructure and industrial security strategy.

Taiwan Policy Momentum: 1.32 Million CMD Target by 2031. Industrial Economics Taking Shape

Taiwan's Reclaimed Water Resources Development Act has been implemented for years, with the government targeting a nationwide reclaimed water supply of 1.32 million cubic meters per day (CMD) by 2031. Reclaimed water is set to become a key alternative source for high-tech industries and metropolitan areas.

From a business model perspective, reclaimed water is shifting from a "cost-driven" approach to one centered on "ESG and risk management." In terms of industrial water

cost structures, tap water remains the primary source, averaging around NTD 11~12 per ton, with softening treatment adding about NTD 5 per ton. Advanced purification using UF+RO typically costs NTD 13~14 per ton. Depending on industry-specific water quality requirements, total water costs generally range from NTD 11 to 30 per ton. Under public-private partnership (PPP) models, UF+RO-grade reclaimed water incurs construction and operational costs of approximately NTD 20~30 per ton. For industries requiring high-quality, large-volume, and stable water supply, reclaimed water already demonstrates competitive pricing, particularly when ESG considerations and water outage risks are factored in.

Dedicated reclaimed water supply systems further reduce distribution costs and meet industrial users' stringent "zero interruption" requirements, shifting the economic logic from pure cost considerations to risk management. This trend is especially evident in the semiconductor and high-tech manufacturing sectors, where the adoption rate of reclaimed water continues to rise, indicating that water circularity is becoming a standard industrial configuration. As a major industrial hub in Taiwan, Taoyuan holds significant strategic importance in the development of reclaimed water infrastructure.

Northern Taiwan's Largest Reclaimed Water Facility: The "Urban Micro-Reservoir"

Under joint central and municipal government planning, Baoding Reclaimed Water develops the Taoyuan Northern District BTO project, the largest reclaimed water plant in Northern Taiwan. Upon full completion, daily supply capacity will reach 110,000 CMD, significantly reducing reliance on the Shimen Reservoir and operationalizing the "urban micro-reservoir" concept.

The strategic resource allocation will make natural tap water prioritized for residential use, while reclaimed water mainly for high-tech and manufacturing industries process needs, ensuring uninterrupted supply for civil use and uninterrupted industrial operation, reducing water resource risks in the industrial chain.

The platform is scalable, extending in the future to agricultural irrigation and low-carbon rice cultivation demonstration programs, thereby integrating industry, ecology, and agriculture into a unified water circularity ecosystem.

AI-Driven Smart Water: Redefining Plant Management

Baoding Reclaimed Water integrates Rih-Ding Water's technology expertise to establish Taiwan's first reclaimed water plant powered by Generative AI and deep learning systems. Core technologies include generative AI decision models, Segment Anything Model (SAM) visual recognition, Generative Adversarial Networks (GAN), time-series predictive analytics, and knowledge-based decision systems.

AI systems detect foam surface variation and water quality anomalies in real time, forecast operational risk, and enable 24/7 autonomous monitoring and early warning. The systems enhance processing efficiency, improve stability, and reduce human intervention.

Additionally, the plant integrates Industry 4.0 architecture, IoT sensor networks, cloud-based data lakes, and AutoML deployment frameworks, making it the first AI-automated reclaimed water demonstration facility in Taiwan. The achievement has attracted delegations from U.S. Water Research Foundation, American Water Works Association, and Japanese and Korean expert teams, signaling Taiwan's elevation onto the global smart water stage.

ESG Circular Park: A Platform for Public Engagement

Aligned with Radium's vision of "A green enterprise determined to uphold sustainability," the ESG Park integrates renewable energy systems, including solar photovoltaic arrays, and micro-hydropower from treated discharge. Facilities include smart hydroponic farms, greenhouse cultivation zones, and dual-certified green and smart buildings. Radium plans also the "Energy & Resource Circular Innovation Center," in which through immersive exhibition design, visitors experience the full lifecycle of water - from daily use to treatment and regeneration. Interactive thematic zones translate everyday activities (handwashing, laundry, irrigation) into educational modules, demystifying water processing and regeneration value.

Additionally, a 3D plant model and transparent LED waterfall installation visualize plant operations and ESG planning blueprints. Integrated café and public dialogue spaces position the facility as a platform where sustainability philosophy and commercial validation intersect. This is one of Radium's tangible commitments to sustainable city-building.

Looking Forward: Asia's Smart Water Demonstration Center

Lin, Rong-Shian emphasizes that water stability and circularity form the bedrock of Taiwan's industrial competitiveness. What Radium has constructed is not merely a water plant, but a critical operating module within a sustainable urban system. With global smart water markets entering high-growth expansion, Radium will deepen AI deployment in water resource management, implement micro-intelligent expert systems, and accelerate plant automation and digital transformation.

This project represents a structural shift, from infrastructure construction to systemic resilience architecture. The objective is to strengthen Taoyuan's urban resilience and secure Taiwan's position as a leading Asian smart water development demonstration center.



Taoyuan Mayor Chang, San-Cheng (back row, first from right) and Radium Chairman Lin, Rong-Shian (back row, second from right) happily interacted with elementary school teachers and students at the Taoyuan North District Reclaimed Water Center.



Bao Ding Reclaimed Water- Taoyuan North District Reclaimed Water Center, ESG Park