## Initial Issuer Credit Rating Report

# Hoa Binh – Xuan Mai Clean Water LLC (“HB-XM”)

## Project Company Credit Rating (PCR*): BB

## Outlook: Stable

**Hanoi, 13 November 2024**


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*The rating presented in this announcement is effective from the rating date, until and unless we make any further updates.*

*This document is prepared in both English and Vietnamese. The English translation is for reference only and the Vietnamese version will prevail in the event of any inconsistency between the English version and the Vietnamese version.*

## TABLE OF CONTENTS

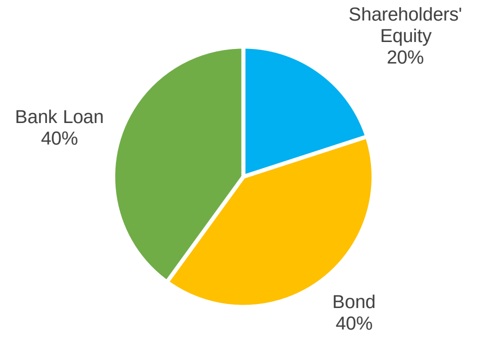
# RATING SUMMARY

| Company | Type | Date | Rating | Outlook |
|---|---|---|---|---|
| **Hoa Binh – Xuan Mai Clean Water LLC ("HB-XM")** | Initial Credit Rating | 13 November 2024 | **BB** | **Stable** |

**Industry: Water**

**Company Profile:** Founded in 2018 by AquaOne Water Joint Stock Company ("AquaOne"), Hoa Binh – Xuan Mai Clean Water Company LLC (referred to as "HB-XM" or "the Company") is dedicated to developing and managing the Hoa Binh – Xuan Mai water plant project. The project encompasses key infrastructure elements, including a raw water intake system, pumping station, pipelines, water treatment facility, intermediate tank, and clean water distribution network. As of June 30, 2024, HB-XM's total assets amounted to VND 101.5 billion, with AquaOne contributing VND 100.4 billion in equity.

**Exhibit 01: HB-XM's project capital structure**




*Sources: HB-XM, FiinRatings*

### Industry Risk:

The clean water production and supply sector is a vital service industry, growing alongside the economy and serving critical roles across sectors such as manufacturing, construction, trade, services, and people's daily needs. Over the past decade, the demand for tap water in Vietnam has steadily increased, averaging 5-6% growth per year, and is projected to continue, especially in regions designated as administrative hubs or new industrial zones, such as Hanoi, Ho Chi Minh City, Binh Duong, Dong Nai, and Long An.

Vietnam's water industry has high barriers to entry, particularly in regulatory compliance, due to strict oversight by government authorities. Water supply and distribution enterprises fall under local government management, reflecting the sector's specificity and importance. Typically, each province is served by only one or a few water supply enterprises. Although water prices are negotiated between suppliers and distributors, they remain within a regulated price range for each region. Water plants are generally permitted to set prices that cover production costs, with gradual annual increases anticipated.

| Rating Summary | Assessment |
|---|---|
| **Construction phase** | **bb** |
| *Business Assessment* | *Modest Risk* |
| *Financial Assessment* | *Moderately High Risk* |
| **Operational phase** | **bb** |
| *Business Assessment* | *Moderate risk* |
| *Financial Assessment* | *Min DSCR = 1.18x* |
| *Operation Phase Modifiers:* | *No impact* |
| *Resiliency Analysis* | *+0* |
| *Debt Structure* | *+0* |
| **Project SACP** | **bb** |
| External influences | +0 |
| **Project Finance Credit Rating (PCR)** | **BB** |
| **Outlook** | **Stable** |

**DSCR = Cash flow available for debt obligations / Debt obligations*

### Rating Rationale:

Hoa Binh – Xuan Mai benefits from the expertise of its parent company, AquaOne, which has extensive experience owning, constructing, and operating large-scale clean water plants, such as Duong River and Vam Co Dong river water plants.

The HB-XM water plant project is strategically located to minimize transportation and treatment costs. Leveraging water from the naturally sedimented Hoa Binh Lake, the project requires less intensive treatment, lowering operational workload. Additionally, the gravity-based water distribution design reduces investment costs for the pumping system. Drawing on AquaOne's operational expertise, HB-XM aims to maintain a water loss rate below 5%, well below the industry average of 15%.

HB-XM has secured all necessary legal documentation and commenced Phase 1A construction in April 2024, with an initial capacity of 150,000 $m^3$ per day and projected completion by 2026. AquaOne, in partnership with general contractor Aone Deutschland AG (Germany), oversees construction and operational standards, ensuring technical compliance and water quality.

Market risk is low due to strong demand for clean water in southern Hanoi, where HB-XM's scale addresses pressing regional needs. Upon full completion, the plant will supply 300,000 $m^3$ of water daily. To stabilize output and pricing, HB-XM plans to establish long-term contracts with major clients and anticipates future water price adjustments. The significant increase in Hanoi's clean water retail prices in 2024 is a favorable factor, helping reduce pricing risks for wholesale producers like HB-XM.

However, financial risk during construction remains high due to limited contingency funds, with the project reliant on capital from AquaOne and bond issuance—expected to fund 60% of the total investment. The project's total capital requirement is VND 2,187.8 billion, with a funding structure of 20% equity and 80% from bonds and loans. Nonetheless, FiinRatings' "Certain Funding Sources/Downside Need Uses" metric stands at 0.77, indicating potential funding gaps that may delay project timelines.

| Exhibit 02: Key Analytical Metrics (2024E-2028F) | Unit | 2024E | 2025F | 2026F | 2027F | 2028F |
|---|---|---|---|---|---|---|
| **Net Revenue** | VND bn | - | - | 72.40 | 261.00 | 279.65 |
| **Gross Profit** | VND bn | - | - | (29.13) | 91.25 | 102.36 |
| **EBITDA** | VND bn | - | - | 39.49 | 192.97 | 203.87 |
| **Debt/Equity** | Times | 4.20 | 4.47 | 9.02 | 13.05 | 20.82 |
| **Debt/EBITDA** | Times | N/A | N/A | 44.29 | 9.06 | 8.56 |

*Sources: HB-XM, FiinRatings*

# COMPANY OVERVIEW AND PROJECT SUMMARY

Hoa Binh – Xuan Mai Clean Water LLC (HB-XM or "the Company") primarily operates in the clean water supply sector in Vietnam. Founded in 2018 by AquaOne Water Joint Stock Company, one of Vietnam's leading clean water suppliers, HB-XM was established to develop and operate the Hoa Binh - Xuan Mai water plant project ("HB-XM Water Plant"). This project includes critical infrastructure such as a raw water intake system, pumping stations, pipelines, a water treatment plant, intermediate storage, and clean water pipelines. As of June 30, 2024, HB-XM's total assets stood at VND 101.5 billion, with equity of VND 100.4 billion, fully owned by AquaOne.

**The HB-XM Water Plant** is designed for a total capacity of 300,000 $m^3$/day, phased as follows:

- Phase 1A (2025): 150,000 $m^3$ of clean water/day
- Phase 1B (2030): 150,000 $m^3$ of clean water/day

Key components of the project include:

- **Raw Water Collection and Pumping Station:** Located in Mieu Hamlet, Trung Minh Ward, Hoa Binh City, with a 3.4-hectare land use area.
- **Water Treatment Plant:** Situated in Du Phuong Hamlet, Mong Hoa Commune, Hoa Binh City, with a 45.5-hectare land use area.
- **Intermediate Storage Tank:** Constructed in Kem Hamlet, Lam Son Commune, Luong Son District, with a 3.5-hectare land use area.
- **Water Pipelines:** Two DN1200 pipelines will be built to support the design capacity. Phase 1A involves a single DN1200 pipeline (28 km), ensuring a capacity of 150,000 $m^3$/day. Phase 1B will add a second DN1200 pipeline (28 km) to achieve the full capacity. These pipelines will comprise materials such as cast iron, steel, HDPE, or other equivalent materials to comply with technical standards and regulations.

This report will focus on evaluating Phase 1A, with a total investment of VND 2,187.8 billion. Funding for Phase 1A is sourced from three primary channels: VND 437.6 billion from owner equity (20%), VND 875.1 billion from bond issuance (40%), and VND 875.1 billion from bank loans (40%).

# RATING RATIONALE

The credit rating of Hoa Binh - Xuan Mai Clean Water LLC (“HB-XM”) at “**BB**” with a “**Stable**” outlook reflects FiinRatings’ assessment of risks during both the construction phase and expected operational risks for the water plant, scheduled to commence operations in Q2/2026.

**HB-XM benefits from the experience and capabilities of its parent company, AquaOne, a major clean water supplier in Vietnam.** AquaOne owns and operates two large-scale water plants: Duong River in Hanoi (capacity of 300,000m³/day) and Vam Co Dong River in Long An (capacity of 200,000m³/day) and holds a controlling interest in Phu Yen Water Supply and Drainage Company. Given AquaOne’s experience with similar-scale projects, FiinRatings recognizes HB-XM’s development team as well-equipped to execute and operate this project effectively.

**FiinRatings further notes that the construction of clean water facilities generally involves a moderate level of complexity** due to optimized, automated design technologies that ensure stable water quality. The HB-XM project location along National Highway 6 is strategically beneficial, reducing transportation time and costs. The water intake and pumping station, located 7km from the Da River, provides convenient access to high-quality water, minimizing chemical treatment costs. However, the treatment plant’s hillside location poses challenges, with potential delays and cost escalations due to the complex terrain.

HB-XM has a competitive advantage using water from Hoa Binh Lake, where natural sedimentation reduces water treatment requirements. Additionally, the project’s geographical location allows gravity to aid water distribution, reducing investment costs in pumping and valve systems. Supplying water to intermediary distributors such as Xuan Mai - Hanoi is also expected to help HB-XM maintain a water loss rate below 5%, significantly lower than the national average. HB-XM plans to retain key technical staff from its contractor to maintain operational stability and minimize risks, while ensuring a diversified supply of chemicals to avoid disruptions. The project will also maintain strict inventory reserves, limiting supply interruptions to under an hour.

The project has obtained necessary legal clearances and commenced Phase 1A on April 18, 2024, with an initial capacity of 150,000m³/day, targeted for operation by Q2/2026. AquaOne, HB-XM’s parent company, leads as the investor, while Aone Deutschland AG (Germany), a reputable EPC contractor, manages technology provision and trial operations, ensuring compliance with clean water standards.

FiinRatings also notes potential construction risks for HB-XM, including possible delays in site handover, equipment transportation challenges, and other unforeseen events. Specifically, the Luong Son - Xuan Mai Town Connection Road Project (Phase 1) in Hanoi, intersecting the HB-XM pipeline, is currently delayed due to site clearance issues, which could impact HB-XM’s construction timeline and costs.

**In terms of market risk, HB-XM faces low risk due to its large scale and rising demand for clean water in Hanoi.** Once fully operational, HB-XM will supply 300,000m³ of water daily, becoming a significant water provider for Hanoi. FiinRatings assesses a reduced risk of output and pricing concerns for HB-XM, as Hanoi has completed water supply planning through 2050. Furthermore, with a minimum approved retail price of VND 8,500/m³ in Hanoi, expected to rise from 2023, the risk of wholesale water prices falling below production and distribution costs is minimized. The HB-XM project is positioned to meet Hanoi’s increasing clean water demand, particularly in expanding urban and industrial areas in the western region.

**However, FiinRatings classifies the financial risk during the construction phase as High, due to limited financial buffers and potential capital mobilization challenges**. The total project investment is VND 2,187.8 billion, with funding allocated as 20% equity, 40% bond issuance, and 40% bank loans, as outlined in the Company’s financial plan. The equity portion is contingent upon incremental contributions from parent company AquaOne, which has a track record of implementing and funding projects’ equity as evidenced by the past projects including Duong River and Vam Co Dong, scheduled from Q4/2024 through the end of 2026. Other funding sources remain in negotiation and planning stages. In FiinRatings’ scenario, the “Certain Funding Sources/Downside Need Uses” metric of less than 1 indicates that the current funding structure may risk delays in project completion if capital arrangements do not proceed as planned.

# CREDIT HIGHLIGHTS

## Credit Strengths

- **The stakeholders of the project have significant experience in Vietnam's clean water supply sector**, particularly the parent company, AquaOne, which has developed major water projects such as the Hau River Surface Water Plant and Duong River Surface Water Plan.The Company has expertise in designing, constructing, and operating water facilities while consistently adhering to national technical standards for clean water quality.
- **The project has secured key licenses**, including project approval and approval of construction design documents to be implemented which helps minimize legal risks during the construction phase period.

## Credit Weaknesses

- **Company's financial buffer is quite limited under stress scenarios**, particularly if its ability to raise funds from equity or secure bank loans falls short of expectations.

# RATING UPGRADE AND DOWNGRADE SCENARIOS

The "**Stable**" rating outlook reflects our view that HB-XM's current credit rating will be maintained over the next 12 months.

FiinRatings' credit rating of HB-XM project may be reviewed for an upgraded or downgraded rating in the following scenarios which reflect our assumptions of potential events over the next 24 months:

## Upgrade Scenario

- The construction progress of the project is faster than expected, allowing the project to be put into operation before 2026 without facing legal or construction risks.
- The company can access additional funding sources to ensure reserve capital and increase the buffer for project construction. Note that the new funding must be secured or backed by a financial instrument such as an unconditional and irrevocable LOC from a bank.
- The sale price and volume of water sold from the project are guaranteed by contract and are higher than FiinRatings' current assumptions.

## Downgrade Scenario

- The project construction process is prolonged due to legal issues, delays in the transportation of materials, and construction.
- The progress of the company's equity contribution, bond issuance, and bank loans is slower than expected, or the amount of loans obtained is less than anticipated.
- The sale price and volume of water sold from the project are not guaranteed by contract or are significantly lower than FiinRatings' current assumptions

# BASE-CASE SCENARIO PROJECTION

## Key Assumptions

- Hoa Binh – Xuan Mai's plant is scheduled to begin operations in 2026, starting at 50% capacity and gradually ramping up to 100% by 2031.
- The estimated selling price is set at 4,000 VND/m³ in 2026, which will increase to 6,914 VND/m³ in 2027 once the official pricing is approved.
- The production cost per cubic meter of water, which includes chemical costs, labor, and others, is expected to grow by 3.15% annually.
- The annual depreciation expense is projected to be 106.6 billion VND. The factory conducts major repairs every 5 years, the repair cost is 2% of the original cost of construction and equipment, the major repair cost is allocated on an annual basis.
- The company plans to contribute 437.6 billion VND in equity and raise 1,750,2 billion VND in debt financing, including 875,1 billion VND in bonds and 875,1 billion VND in bank loans. HB-XM intends to start repaying bank loan principal from 2026 and bond principal from 2029.

## Key Metrics

**Exhibit 03: HB-XM's key ratios (2024E-2030F)**

| *Unit: VND million* | *2024E* | *2025F* | *2026F* | *2027F* | *2028F* | *2029F* | *2030F* |
|---|---|---|---|---|---|---|---|
| Revenue | - | - | 72.40 | 261.00 | 279.65 | 316.93 | 384.94 |
| *Water price (VND/m3)* | - | - | *4,000* | *6,914* | *6,914* | *6,914* | *7,514* |
| *%Utilization rate* | - | - | *50%* | *70%* | *75%* | *85%* | *95%* |
| Gross Profit | - | - | (29.13) | 91.25 | 102.36 | 129.38 | 183.81 |
| EBITDA | - | - | 39.49 | 192.97 | 203.87 | 230.61 | 284.65 |
| Debt | 875.10 | 1,361.75 | 1,749.00 | 1,747.40 | 1,745.00 | 1,736.20 | 1.711.80 |
| Equity | 208.39 | 304.42 | 193.98 | 133.90 | 83.80 | 57.53 | 85.42 |
| Debt-to-Equity (x) | 4.20 | 4.47 | 9.02 | 13.05 | 20.82 | 30.18 | 20.04 |
| Debt-to-EBITDA (x) | N/A | N/A | 44.29 | 9.06 | 8.56 | 7.53 | 6.01 |
| DSCR* | N/A | N/A | 0.37 | 1.24 | 1.34 | 1.41 | 1.59 |

*Notes: E: Estimated; F: Forecasted,*

**DSCR = Cash flow available for debt obligations / Debt obligations,*

**Cash Flow Available For Debt Service (CFADS)= Operating Revenue – Operating & Maintenance Expenses. Cash Flow Available For Debt Service (CFADS) not include cash flow from investing activities and cash flow from financing activities.*

*Sources: HB-XM, FiinRatings*

*(back to rating summary)*

The project is anticipated to reach a stable operational phase by 2030, with production output reaching 95% of capacity and the Debt/EBITDA ratio decreasing to 6.06x.

In terms of financial risks during this operational phase, a minimum DSCR (Debt Service Coverage Ratio) of 1.18x projected between 2028 and 2044 indicates that, while the company may encounter some financial pressure at times, the overall financial health of the project remains favorable. The DSCR during this period is expected to range between 1.18x and 1.59x, with the lowest ratio of 1.18x in 2043-2044. This decrease is due to regulatory adjustments in water prices as certain fixed assets reach full depreciation and financial costs decline.

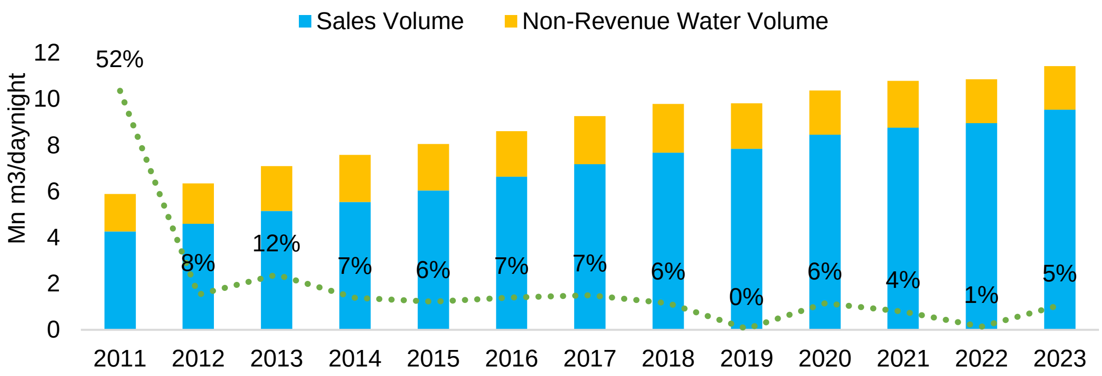
# INDUSTRY RISK

## Vietnam Water Supply and Production Industry

FiinRatings assess the risk level of Vietnam's water industry as **Very Low**, driven by consistently rising demand for essential water products, a cost-covering pricing mechanism, and significant entry barriers.

**The water industry is integral to economic development and critical sectors such as industry, construction, trade, and services, while also serving the daily needs of the population**. Over the last decade, the demand for tap water in Vietnam has grown steadily, averaging 5-6% annually, a trend expected to continue—particularly in areas designated for new administrative or industrial development. This growth is fueled by population increases, urbanization, and initiatives to replace groundwater sources, which face pollution risks and quality concerns. In 2023, total clean water output nationwide reached approximately 11.4 million m³ per day, a 5.3% rise from 2022. The water loss rate has also improved, reaching 17% in 2023, nearing the government-directed target of 15% by 2025.

**Exhibit 04: Water production output and Non-revenue water rate in Vietnam in the period 2011-2023**




*Source: FiinRating compiled from General Statistics Office (GSO), Vietnam Water Supply and Sewerage Association (VWSA)*

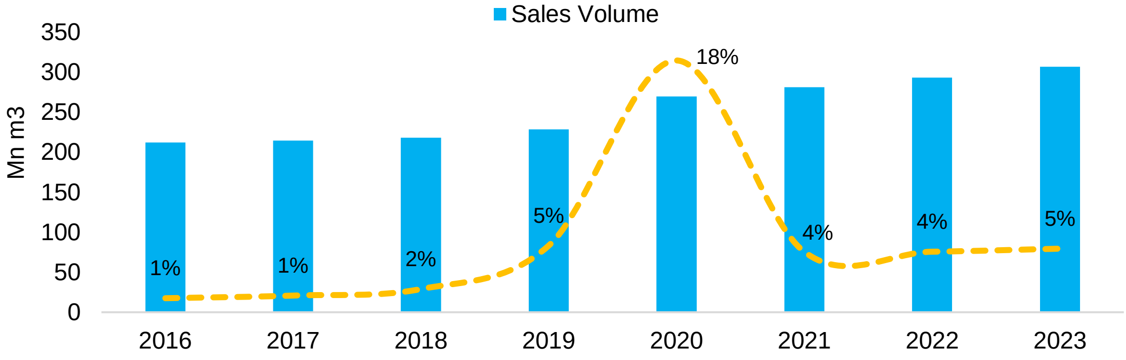
**The water industry in Vietnam presents significant entry barriers, particularly due to stringent regulatory oversight.** Local authorities strictly regulate clean water supply and distribution companies, given the industry's essential role. Typically, only one or a few companies are authorized to operate in each province or city. Although some water supply companies were previously privatized, Decision 908/QD-TTg halted divestments to private entities within the water industry in mid-2020. New entrants must compete for projects included in provincial master plans, emphasizing quality, scale, and financial capacity. To navigate these challenges, private companies like DNP and AquaOne often initiate new project proposals within provincial planning, circumventing direct competition with experienced state-owned companies. However, this route is time-intensive due to numerous procedural steps, including site clearance, investment certification, and approvals from multiple government agencies such as the Provincial People's Committee, Ministry of Construction, Ministry of Planning and Investment, Ministry of Health, and Ministry of Agriculture and Rural Development.

**Regarding the pricing mechanism, water prices are determined through negotiations between suppliers and distributors but remain within a fixed regional range. Most suppliers have prices that cover production costs and anticipate gradual annual increases.** Each Provincial People's Committee establishes a clean water price range and an incremental pricing roadmap in alignment with guidelines from the Ministry of Finance. This pricing structure ensures coverage of both production and financial costs. Water suppliers and distributors negotiate purchase and sale prices within the provincial range, enabling most companies to achieve positive gross profit margins from early stages of operation, despite some variation in profit margins across the industry.

## Clean Water Production and Supply Sector in Hanoi

**The demand for clean water for daily life in Hanoi is at a high level, creating opportunities for development and capacity expansion for water production and supply companies.** According to the Hanoi Statistics Office, in 2023, Hanoi will have 28 water production plants with a total recorded tap water output of 306.9 million m3 of water, an increase of 4.5% compared to 2022. With the city's demand for domestic water increasing by an average of 4% -5% per year, while the investment rate for domestic water projects in the city is still slow, not meeting the increasing demand of people, leading to a risk of shortage of about 50,000 m3 of water/day/night in 2024, concentrated in the West and Southwest of Hanoi.

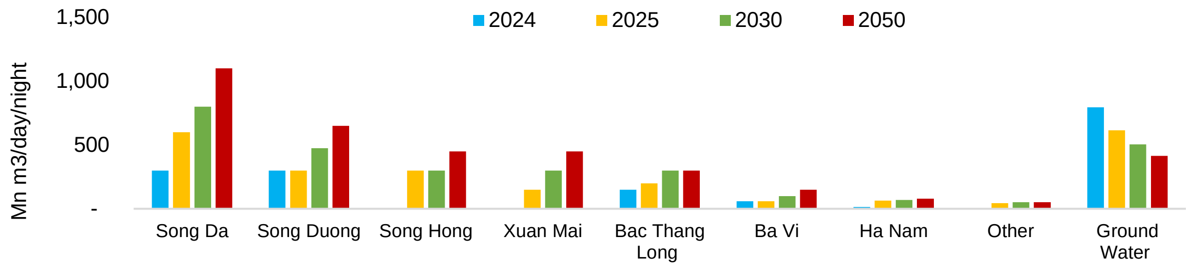
**Exhibit 05: Clean water output recorded in Hanoi in the period 2016-2023**




*Source: Hanoi City Statistical Office*

The total designed capacity of water supply plants in Hanoi currently stands at 1,611,600 m³ per day and night. However, the Hanoi Construction Department projects that the demand for clean water will rise to 1,900,000 m³ per day/night by 2025 and further increase to 2,200,000 m³ per day/night by 2030. This growing demand, coupled with the goal of reducing reliance on declining groundwater resources, presents significant growth opportunities for clean water production and supply companies in Hanoi. To meet these needs, water companies are investing substantially to expand their plant capacities. Additionally, each water plant is designated to serve specific areas within the city, which helps minimize competition among suppliers. This allocation approach not only fosters stability in service delivery but also contributes to a sustainable and robust water supply infrastructure for the capital.

**Exhibit 06: Hanoi water plant capacity development plan**




*Source: Hanoi Water plant capacity development plan*

**Exhibit 07: Hanoi clean water retail price (VND)**

| | 2014 | 2015-30/6/2023 | 1/7/2023-31/12/2023 | 2024 |
|---|---|---|---|---|
| **I. Residential households** | | | | |
| *First 10m3* | *5.020* | *5.973* | *5.973*-7.500* | *5.973*-8.500* |
| *10m3 - 20m3* | *5.930* | *7.052* | *8.800* | *9.900* |
| *20m3 - 30m3* | *7.313* | *8.669* | *12.000* | *16.000* |
| *Over 30m3* | *13.377* | *15.929* | *24.000* | *27.000* |
| **II. Administrative agencies, Public services** | 8.381 | 9.955 | 12.000 | 13.500 |
| **III. Manufacturing** | 9.796 | 11.615 | 15.000 | 16.000 |
| **IV. Service business** | 18.342 | 22.068 | 27.000 | 29.000 |

*Source: FiinRatings*

** Water price for poor and near-poor households.*

The increase in retail water prices in July 2023 is expected to attract more investors to Hanoi's clean water production and supply sector, fostering the growth of new water companies and enhancing the capital's water supply infrastructure. For the past eight years (from 2015 to June 2023), retail water prices in Hanoi remained unchanged, posing significant challenges in attracting investment to the sector. With the recent price adjustments, water production and supply companies can better balance operational and investment costs, enabling them to upgrade and expand the water supply system. This shift not only supports financial sustainability for these enterprises but also enhances business performance, service quality, and capacity to meet the rising demand for clean water.

# CONSTRUCTION PHASE

FiinRatings assigns a **"BB"** Construction Phase Stand-Alone Credit Profile to the Hoa Binh-Xuan Mai project, reflecting a combination of the Construction Phase Business Assessment and the Construction Phase Financial Assessment.

## Construction Phase Business Assessment

### Construction Difficulty

**FiinRatings assess building a water supply system is generally considered Moderately Complex** due to the proven design principles and advanced technology used. Modern water treatment plants rely on well-established methods, such as filtration, sedimentation, and chemical treatment, which have been tested and refined over many years. These processes are automated, reducing the chance of human error and ensuring consistency in water quality. Additionally, the equipment used, like pumps and filters, is highly reliable and built to handle large capacities. With strict regulations in place, the design and construction follow clear guidelines, minimizing uncertainties. Overall, the combination of standardized designs, reliable technology, and regulatory oversight makes building a water treatment plant a low-risk project.

According to the plan, phase 1A of the HB-XM water plant project will exploit raw water from the Da River to process and provide clean water, inter-regional, inter-provincial, stable and long-term for Hoa Binh and Hanoi. The projects benefit from its water pipelines location that along National Highway 6, which eliminates the need for land clearance during pipeline construction, saving both time and capital. Additionally, sourcing water from the Da River, around 7 kilometers from the project's raw water intake and pumping station, ensures better water quality, leads to lower chemical costs and more efficient water processing, resulting in considerable operational savings and enhanced long-term profitability. However, the water treatment plant is located on a high hill, which makes site preparation more complex and time-consuming. Grading and leveling the land on hilly terrain require more resources and time, potentially delaying the construction schedule and increasing the cost.

**Figure 08: HB-XM water plant's location**


*Source: HB-XM, FiinRatings*

### Stakeholder Experience

According to the decision on approving the investment policy decision to build the Xuan Mai clean water supply system in Hoa Binh province, the HBXM water plant project is developed by AquaOne, with HB-XM being the project execution firm. Founded in 2014, AquaOne has notable experience in Vietnam's clean water supply sector, having developed water projects such as the Hau River Surface Water Plant and Duong River Surface Water Plant. The Company has expertise in designing, constructing, and operating water facilities while consistently adhering to national technical standards for clean water quality.

Additionally, Hoa Binh Xuan Mai Water Plant has appointed Aone Deutschland AG (Germany) as the general contractor for technology (EPC) and to support trial operations. Aone Deutschland AG, part of the Tilia Group based in Leipzig, Germany, will oversee the technology and operation aspects. The company has experience in supporting urban infrastructure, industrial companies, solution providers, and developing efficient and sustainable infrastructure and treatment systems. Notably, Aone Deutschland AG (Germany) has a proven track record of successful collaboration with Aquaone, particularly in the construction of phase 1B of the Duong River surface water plant. This partnership resulted in upgrading the plant's capacity to 300,000 $m^3$/day and night, along with the construction and installation of a 15 km clean water transmission pipeline, with diameters ranging from DN1200 to DN1800.

### Project Progress and Risk Allocation

In terms of legal progress, the project has secured key licenses, including project approval and approval of construction design documents to be implemented after the basic design (construction drawing design) and cost estimates for the leveling of the water plant and intermediate tank (including reinforcement of the slope surface, retaining wall of the construction area) of the project.

As of 18/4/2024, phase 1A of the project with design capacity of 150.000 $m^3$/day and night was officially commenced and is expected to be operational by 2026. FiinRating also noted potential risks in the construction of the HB-XM project, including delays in handing over land for factory construction, difficulties in transporting equipment, and other adverse events. In particular, the Luong Son – Xuan Mai Town Connection Road Project, Hanoi (phase 1), where the HB-XM project's water pipeline passes through, is currently behind schedule due to difficulties in site clearance, which may affect the project's construction process, leading to an extension of the completion time and increased costs compared to the original estimate.

The Company is currently in the process of selecting contractors for the supply of raw materials, construction, and operation of the project. To reduce risks during construction, the project is divided into smaller stages for easier supervision. Additionally, the Company uses fixed unit price contracts and lump-sum agreements to mitigate risks related to exchange rate fluctuations and equipment transportation delays. It also adopts a flexible approach in choosing both domestic and international contractors, focusing on experience and capabilities to optimize costs.

## Construction Phase Financial Assessment

**FiinRatings assesses HB-XM's construction phase at a high financial risk level,** reflecting the Company's limited financial buffer under stress scenarios, particularly if its ability to raise funds from equity or secure bank loans falls short compared to the Company's expectation. Given that the project's total forecasted investment cost is VND 2,187.8 billion (including VAT), which approximate the Company's budget. The funding structure includes VND 437.6 billion from equity (20% of total), VND 875.1 billion from bond issuance (40%), and VND 875.1 billion from bank loans (40%).

We use the Certain Funding Sources/Downside Need Uses ratio to assess whether the project has sufficient funding to cover construction costs and ensure completion, even in a stress scenario where we assume a 10% increase in total investment costs. This accounts for potential unfavourable events such as cost overruns and delays, including any additional expenses that could result from postponed operations or delays in starting scheduled debt service.

In low-case scenario, we assume the company will successfully issue VND 875.1 billion in Q4/2024 while securing a bank loan of VND 612.6 billion, which is 30% lower than the Company's expectation to capture a level of uncertainty. Accordingly, to meet the required capital structure standard, the equity funding would be VND 371.9 billion which accounts for 20% of the total investment cost. As a result, the Certain Sources/Downside Need Uses ratio reaches 0.77x, captureing the low-case scenario in which the Company's budget may not be available to the project in a timely manner or with sufficient certainty for the construction phase as planned.

**Exhibit 09: Forecasted Certain Funding Sources/Downside Need Uses during Construction phases.**

| Certain Sources | VND billion | Downside Need Uses | VND billion |
|---|---|---|---|
| Equity | 371.9 | Constructions and other start-up projects costs | 1,671.7 |
| Bond | 875.1 | Funding of Working Capital | 477.9 |
| Bank Loan | 612.6 | Interest Payable during Construction | 114.5 |
| | | Funding of Reserve Accounts and Other Costs | 142.5 |
| **Total Sources** | **1,859.6** | **Total Uses** | **2,406.6** |
| **Certain Funding Sources/Downside Need Uses = 0.77x** | | | |

# OPERATIONS PHASE

## Operations Phase Business Assessment

FiinRatings assigned a "**BB**" rating for HBXM's Operations Phase Stand-alone Credit Profile ("SACP"), consisting of a Low risk business assessment and a minimum DSCR of 1.18x in the project's operations phase financial assessment.

### Performance Risk

#### Asset Class Operations Stability

Water utility factory operation is assessed to have a very low performance risk due to its fairly straight operation chain, involving treating raw water from natural sources before distributing it to public consumption. Initial steps include drawing water from sources such as rivers, lakes, reservoirs, etc., and briefly filtering. The water is then treated with chemicals to achieve the coagulation followed by the flocculation state of the remaining particles. These clumps of particles are then removed in the sedimentation process in which the heavy clumps settle on to the bottom of a basin while clearer water is collected on the surface. The water is then filtered through layers of materials, such as sand and gravel, activated carbon, etc., for smaller particles to be trapped. Final steps utilize chemical like chlorine to disinfect the water before it is distributed. Located nearby water sources, most water factories are connected to a network of of pipes following public roads and infrastructure to reach households and businesses. It occasionally goes through pumping stations or valves, which maintains an appropriate level of pressure for the water flows.

#### Project-Specific Attributes

HBXM's factory location has given this project some competitive advantages in the sedimentation and distribution steps. First of all, utilizing the water from Hoa Binh reservoir, HBXM's water supply would have already been through a sedimentation process in which the reservoir acts as a large settling basin. As a result, water collected and processed in the factory is considered surfacedly filtered twice. Regardless, this double-sedimented attribute gives the project the same standardized water output and is not a deciding factor for whether water from HBXM is preferred by buyers compared to other water providers. Moreover, the project's higher ground compared to its buyers allows HBXM to utilize the gravity to distribute water downstream, allowing the Company to save on valve and pumping station investments.

In addition, focusing on mostly wholesale to other water distributors, HBXM is expected to maintain a relatively low level of water loss rate. In most cases, wholesaling water involves less breaking water flows into smaller streams and directions, resulting in a low water loss rate and a straight maintenance process. HBXM intends to sell at least 90% of its water to Xuan Mai – Ha Noi, an intermediary water distributor, which allows to Company to plan to keep its water loss rate of below 5% for the whole life cycle, much lower than the current national water loss rate of approximately 10% and Hanoi's water loss rate of approximately 15%.

In order to ensure the operation stability of the project, HBXM intends to offer long-term operational positions in the factory to key members of the technology contractor after their tasks in the construction phase. By utilizing these engineers and specialists, HBXM aims to minimize any operational risks by assuring the project's operators would have the experience and knowledge of the original constructors.

Furthermore, HBXM takes measures to ensure the continuous operation of the water facility via supply and inventory management. Regarding resource risk management, HBXM diversifies its chemical suppliers to reduce the concentration risk and to minimize delays if a provider is unable to meet HBXM's supply request. Most chemicals are sourced from at least two different providers, allowing the Company to meet its demand at the appropriate prices. Additionally, being a utility provider, HBXM's project is required to maintain a continous water stream and to have a delay period of less than 01 hour. As a result, the Company stores its neccesary replacements in inventory which are always available for use.

### Market Risk

FiinRatings assesses the market risk of the HB-XM project as **Low**, based on its anticipated position as one of the leading clean water suppliers in Hanoi, poised to meet increasing demand. Operating within an industry characterized by high regulatory barriers, and guided from the approach of its parent company AquaOne, the HB-XM project is expected to face minimal competition. However, FiinRatings notes that there is a potential concentration risk due to HB-XM's reliance on selling 90% of its water output to Xuan Mai – Ha Noi, a water distribution intermediary, before reaching other water retailers. This reliance brings potential risks related to both pricing and purchase volume, particularly as only in-principle contracts have been confirmed while the final sales contract between HB-XM and the water wholesalers remains unsigned. FiinRatings views this as a critical factor for the project's operational phase and will continue to monitor and provide updates in future reports.

**Asset Profile**

Located in Hoa Binh and nearby Hanoi's border, HBXM's project is designed to add 900,000 $m^3$/day (through 04 phases) of piped water to Hanoi's exisiting capacity of approximately 1.53 million $m^3$/day. Once operational, the project is expected to be among the top 5 largest water suppliers regarding capacity in Hanoi, of which Hawaco and Viwasupco are currently major players. Unlike these water providers, HBXM does not intend to break its sale target smaller within Hanoi; instead, the project would sell 90% of its piped water to intermediaries such as Xuan Mai – Ha Noi before it reaches other direct water distributors. The remaining amount of water is planned to reach several direct users operating in industrial zones such as Mong Hoa industrial park.

**Market Position**

Being the capital of Vietnam, Hanoi's area has been expanded toward the north and the west in recent decades, which increased the city's rural area. In the rural area, a large proportion of the population is used to utilizing well water and rainwater which does not guarantee hygiene standards. Subsequently, as the urbanization expands to these regions, piped water providers would have opportunities to seize the new pieces of market share. Moreover, these regions are promising destinations for new industrial parks, e.g., Hanssip (Phu Xuyen) and Quang Minh 2 (Me Linh). Therefore, conveniently lies in the west of Hanoi, HBXM possesses a bright potential to benefit from the growing demand. However, we expect the demand would gradually increase in the long term.

**Strategy**

The water sector is characterized by high barriers to entry, particularly in terms of legal compliance due to stringent government oversight. Although there was a privatization initiatives of water supply companies, Decision 908/QD-TTg halted the divestment of state-owned enterprises (SOEs) in the water sector as of mid-2020. Market entry typically occurs through competitive bidding for projects included in provincial master plans, requiring high standards of quality, scale, and financial capacity. Being a subsidiary of AquaOne, HBXM was under the parent company's influence to have sought to avoid direct competition with experienced SOEs by proposing new projects for inclusion in provincial plans. This approach is not easy for other private water treatment companies to replicate; however, the process can be lengthy, involving multiple steps from land clearance to investment certification, requiring approvals from provincial People's Committees and various ministries, including Construction, Planning and Investment, Health, and Agriculture and Rural Development.

**Market Exposure and Counterparty's Creditworthiness**

HBXM tends to have long-term water providing contracts with its customers to secure the project stability. In terms of pricing mechanisms, although prices may fluctuate based on negotiations between HBXM and distributors or end users and are subject to regional price ceilings, the project is expected to have the selling prices that cover production costs, and is anticipated to have annual price increases. Based on the general clean water pricing framework set by the Ministry of Finance, each provincial People's Committee establishes its own price framework and phased price increase schedule, ensuring all production costs are included. Water supply and distribution companies negotiate the purchase price of clean water, after which the distributor proposes a selling price within the provincial guidelines.

For Hanoi, clean water retail prices can fluctuate between VND 5,973 per $m^3$ and VND 29,000 per $m^3$. HBXM intends to negotiate its water selling prices in the range from VND 5,000 per $m^3$ to VND 7,500 per $m^3$ in the first years of the contracts. Regarding production, the estimated average demand for water is specified in each contract, ranging from 200,000 $m^3$ per day and night to 300,000 $m^3$ per day and night. FiinRatings assessed that the project has potential concentration risks as HB-XM's largest customer is Xuan Mai – Hanoi, a company related to HB-XM's parent company, which acts as an intermediary for HB-XM to transfer 90% of its water output to other direct water distributors in Hanoi such as Hawaco and Viwasupco. FiinRating also noted that the project may be exposed to risks in terms of selling price as well as purchasing output as the water purchase contract between the Company and the water distributor has not been officially signed.

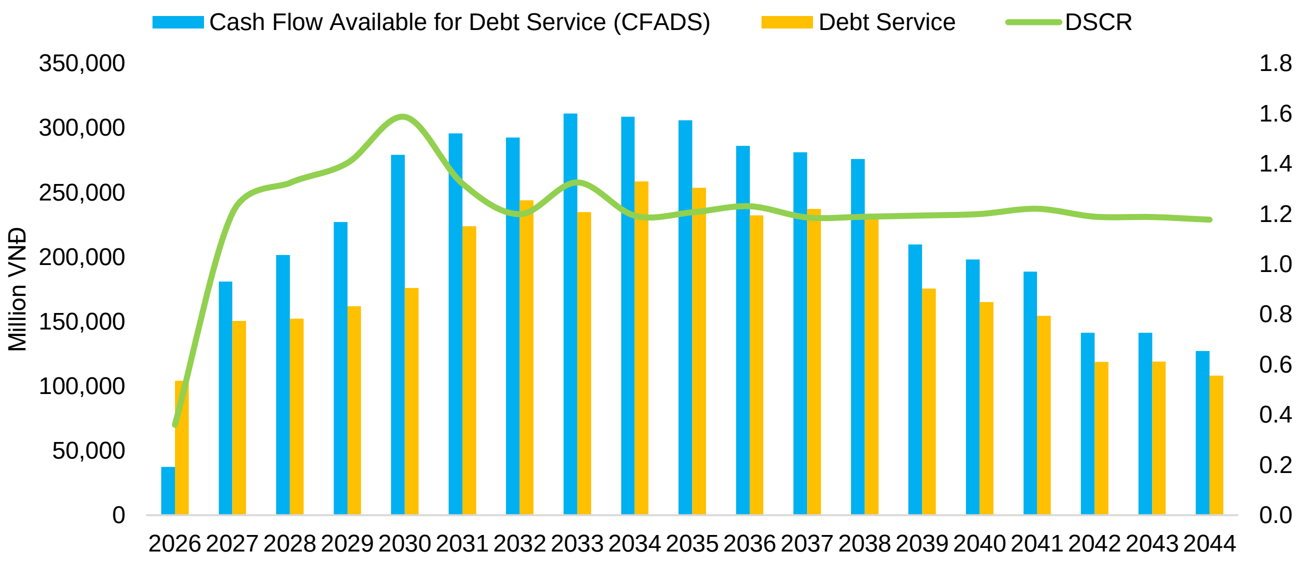
## Operations Phase Financial Assessment

We conducted a comprehensive base-case forecast of the project's cash flows and debt service requirements to assess its financial viability throughout the debt repayment period. As part of this analysis, we calculated the minimum Debt Service Coverage Ratio (DSCR), which is a critical measure used to evaluate the project's ability to cover its debt obligations. The DSCR serves as an indicator of the project's risk of default, with the minimum DSCR highlighting the most financially vulnerable period during the operations phase.

**Key assumptions in the base-case scenario include:**

- The plant is projected to become operational in 2026, with production output initially reaching 50% of capacity. Full capacity utilization is anticipated over a 5-year ramp-up period. This plan aligns with steady growth in demand for clean water in the Hanoi area. The Hanoi province is prioritizing the shift towards surface water sources—namely the Da, Red, and Duong Rivers—while phasing out groundwater exploitation due to degradation of exploited wells, reduced reserves, and increasing water levels, etc.
- The provisional water selling price for 2026 is 4,000 VND/m3, and the official water price is expected to be approved at 6,914 VND/m3 in 2027, then increase to 8,013 VND/m3 in the period of 2033-2035 and decrease to 5,652 VND/m3 in 2042 when the project has fully depreciated some assets and the interest expense is reduced. Compared with the lowest retail price of clean water in Hanoi in 2024 (8,500 VND/m3) and the selling price of other water plants in the area, FiinRatings believes that Hoa Binh - Xuan Mai is likely to be approved at the expected water selling price.
- The annual growth rate of production costs is 3.15%, including chemical costs, fuel costs, labor costs and other costs.
- The factory conducts major repairs every 5 years, the repair cost is 2% of the original cost of construction and equipment, and the major repair cost is allocated in 3 consecutive years after every 5 years.
- The bond loan interest rate is 6.25%/year, the bank loan interest rate from 2027 is 8.5%/year.

**Exhibit 10: Debt service coverage ratio (DSCR) of Hoa Binh - Xuan Mai (2026-2044)**




*Sources: FiinRatings, Hoa Binh – Xuan Mai*

When calculating the minimum DSCR, we intentionally excluded the period from 2026 to 2027, as the project's utilization rate was only 50% and 70%, respectively, indicating that the project had not yet reached its stable operational phase following the completion of construction. These early years were considered atypical and unrepresentative of the project's long-term performance, as the project was still ramping up.

The DSCR for the 2028-2044 period ranges from 1.18x to 1.59x, with a minimum DSCR of 1.18x projected in 2044. This lower DSCR is attributed to a decline in the water selling price, as some fixed assets will have fully depreciated, and financial expenses will be reduced. Consequently, the authority-approved water price will be adjusted downward, temporarily reducing the project's cash flow available for debt servicing. Despite the increased risk during this period, the overall DSCR metrics for the project remain favorable.

In light of the Operations Phase Business Assessment (OPBA) rating, the preliminary Stand-Alone Credit Profile (SACP) for the Hoa Binh - Xuan Mai project during the operations phase has been rated as '**BB**'. This rating reflects the project's overall financial health, factoring in both its average performance and the identified period of financial vulnerability during the operations phase.

# OPERATION PHASE MODIFIERS

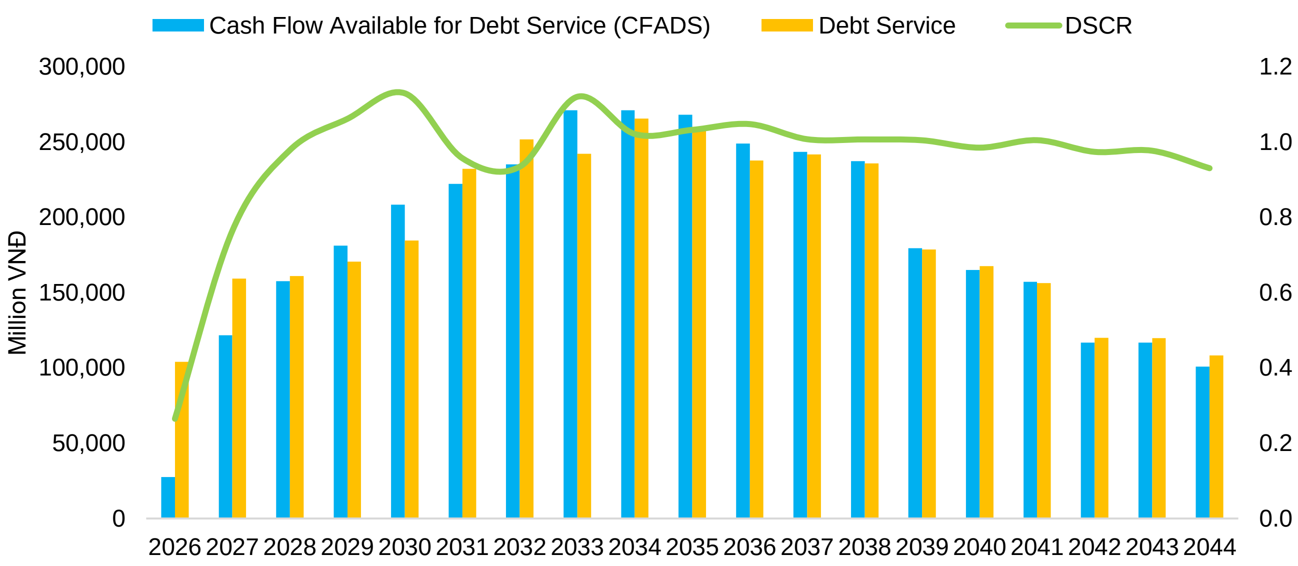
## Resiliency Analysis

FiinRatings evaluates HB-XM's resilience under a stress test as being at a **Moderate** level. As a result, we do not adjust the company's preliminary Stand-Alone Credit Profile (SACP) for this Modifier.

Key assumptions for the low-case scenario include the following:

- Water prices are 5% lower compared to the base-case scenario.
- The time required to reach full capacity is extended to 7 years, instead of 5 years in the base-case.
- Non-revenue water is 0.7% higher than in the base-case, with an additional 0.1% increase each year.
- Receivable days increase to 45 days, compared to 30 days in the base-case.
- The growth rate of production costs is projected at 4%, higher than the 3.15% in the base-case.
- Major repair costs, based on the original construction and equipment expenses, are set at 3% every five years, up from 2% in the base-case.
- The selling cost as a percentage of revenue is 1%, higher than the base-case estimate of 0.5%.
- Payable days are reduced to 45 days, compared to 60 days in the base-case.
- The interest rate for bank loans starting from 2027 is assumed to be 9.5%, compared to the 8.5% rate used in the base-case scenario.

**Exhibit 11: Debt service coverage ratio (DSCR) of Hoa Binh - Xuan Mai under the low-case scenario (2026-2044)**



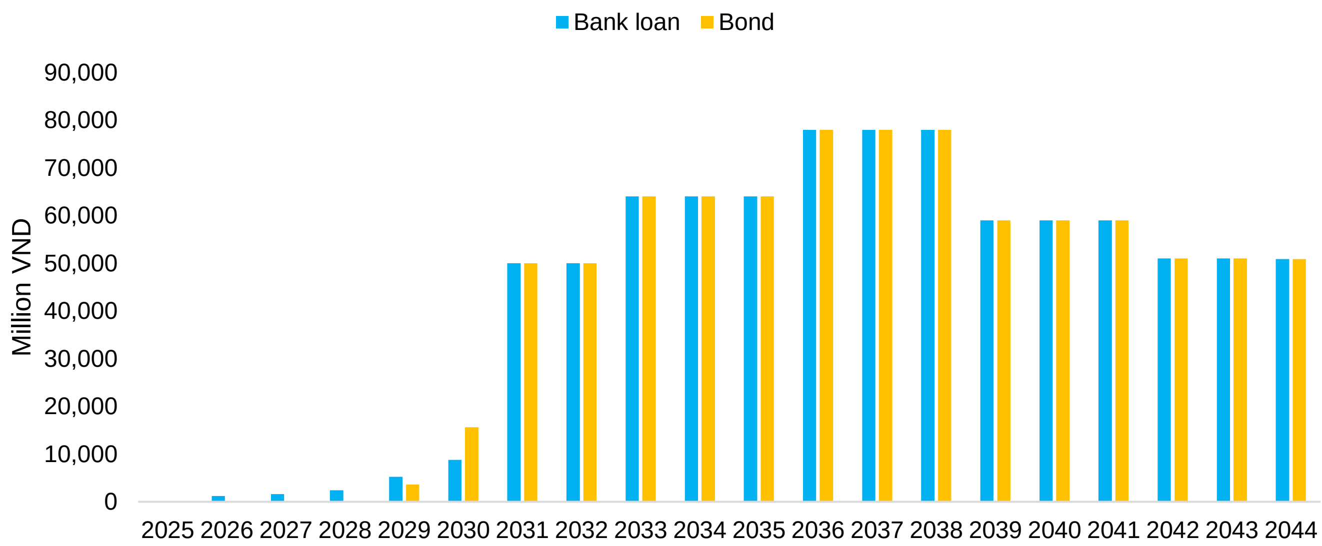

*Sources: FiinRatings, Hoa Binh – Xuan Mai*

During the stress test, 7 out of 17 periods show a DSCR below 1, with the lowest at 0.93x in 2032 when the pressure to repay loan principal and interest is relatively high. As a result, there is limited confidence that Hoa Binh – Xuan Mai would maintain DSCR above 1.0x under the downside stress period. Despite this, the cash reserves during that period are adequate to offset deficits over a few years.

## Debt Structure

The project's debt leverage is in line with its peers, and the debt tenor is typical at 20 years. Amortization payments are also standard. For the bond debt, payments begin in the 6th year, peak at 8.91% in the 14th year, and decrease thereafter. For the bank debt, payments start in the 2nd year at 0.14%, rising to a maximum of 8,91% in the 12nd year before declining. The project's exposure to inflation rate changes is minimal, as production costs only account for 30% of revenue. Therefore, no adjustment is made to the preliminary Stand-Alone Credit Profile (SACP) for this factor.

**Exhibit 12: HB-XM's debt repayment schedule (2025-2044)**




*Sources: FiinRatings, Hoa Binh – Xuan Mai*

# PARENT LINKAGE

FiinRatings assesses the association level between Hoa Binh – Xuan Mai (HB-XM) and AquaOne Group as **Linked**, based on the following key factors:

- **Capital Commitment:** AquaOne, as the parent company, is responsible for contributing capital equal to 20% of the total project investment, reflecting a substantial financial commitment that underscores its support for the project's development.
- **Payment Guarantee and Financial Support:** HB-XM does not receive a payment guarantee support from AquaOne in the early stages of project development. As the project enters its operational phase, other AquaOne member companies are not expected to provide financial backing for HB-XM.
- **Key Customer Relationship Within the Group:** A primary customer of HB-XM is Xuan Mai – Hanoi, an affiliate within AquaOne Group. This relationship may present counterparty risks or additional obligations for HB-XM through agreements to supply goods and services to this related entity.
- **Shared Personnel and Operational Dependency:** The development, operation, and management of the HB-XM water plant are overseen by AquaOne's experienced staff, indicating a significant reliance on the parent company's personnel and expertise.

Given these substantial linkages, FiinRatings limits HB-XM's credit rating to a maximum of three notches above AquaOne's rating, reflecting the high degree of dependence on the parent company's financial stability and operational resources.

## RATING METHODOLOGY

The rating methodology explains FiinRatings approach to assessing credit risk of companies in Vietnam. This methodology is intended as a general guidance to help companies, investors, and other market participants to understand how FiinRatings looks at quantitative and qualitative factors significant in explaining rating outcomes in general and specific for each sector that we cover.

In addition, certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please follow the link below for the Rating Methodology and Related Criteria:

- Corporate Rating Methodology
- Project Finance Rating Methodology

Or refer to the following link for more details on the general ranking methodology:

- General Rating methodology

## RATING HISTORY

| Hoa Binh - Xuan Mai Clean Water LLC (“HB-XM”) | | | |
|---|---|---|---|
| **Credit Rating Type** | **Date** | **Rating** | **Outlook** |
| Initial Issuer Credit Rating | 13 November 2024 | **BB** | **Stable** |

# OWNERSHIP DISCLOSURE AND STATEMENTS

At the time of the publication, the following information is provided as required by current regulations and as a part of our compliance policies in providing credit ratings:

- HB-XM's percentage of equity ownership at FiinRatings: *none*
- FiinRatings's percentage of equity ownership at HB-XM: *none*
- FiinRatings's other employee percentage of equity ownership at HB-XM: *none*
- HB-XM's investment value of bond(s) issued by FiinRatings: *none*
- FiinRatings's investment value of bond(s) issued by HB-XM: *none*
- HB-XM's investment value of other debt instruments issued by FiinRatings: *none*
- FiinRatings's investment value of other debt instruments issued by HB-XM: *none*

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**FIINRATINGS JOINT STOCK COMPANY**

Public Credit Rating Announcement No. 01-C46-2024

Nguyen Quang Thuan, FCCA

Chief Executive Officer

Hanoi, 13 November 2024

# APPENDICES

## Appendix 1: Hoa Binh – Xuan Mai's Financial Statements

| Balance Sheet | 2021 | 2022 | 2023 |
|---|---|---|---|
| **CURRENT ASSETS** | **4.022** | **4.901** | **45.413** |
| Cash and cash equivalents | 13 | 1.071 | 1.551 |
| ST Investments | - | - | - |
| ST Accounts receivable | 3.489 | 3.301 | 43.211 |
| Inventories | - | - | - |
| Other current assets | 519 | 529 | 652 |
| **NON-CURRENT ASSETS** | **57.856** | **62.848** | **42.369** |
| LT Accounts receivable | 28.427 | 33.055 | 10.448 |
| Fixed assets | 63 | 41 | 21 |
| LT assets in progress | 29.358 | 29.752 | 31.863 |
| LT financial investments | - | - | - |
| Other LT assets | 8 | - | 37 |
| **TOTAL ASSETS** | **61.877** | **67.749** | **87.783** |
| **LIABILITIES** | **739** | **279** | **701** |
| **Current liabilities** | **739** | **279** | **701** |
| *ST trade payables* | 242 | 213 | 678 |
| *Taxes and payables to the State budget* | 75 | - | 15 |
| *Payables to employees* | 411 | - | - |
| *ST loan and finance lease* | - | - | - |
| *Others* | 10 | 65 | 7 |
| **Non-current liabilities** | **-** | **-** | **-** |
| *LT advances from customers* | - | - | - |
| *LT unearned revenue* | - | - | - |
| *LT loan and finance lease* | - | - | - |
| **OWNERS' EQUITY** | **61.139** | **67.471** | **87.081** |
| Contributed capital | 65.802 | 72.182 | 90.000 |
| Share premium | - | - | - |
| Retained earnings | -4.663 | -4.711 | -2.919 |
| Minority interest | - | - | - |
| Other funds | - | - | - |
| **TOTAL CAPITAL RESOURCES** | **61.877** | **67.749** | **87.782** |

| Income Statement | 2021 | 2022 | 2023 |
|---|---|---|---|
| **Net revenue** | **-** | **-** | **-** |
| Cost of sales | - | - | - |
| **Gross profit/(loss)** | **-** | **-** | **-** |
| Financial income | - | 4 | 2.159 |
| Financial expenses | - | - | - |
| *Interest expense* | - | - | - |
| Selling expenses | - | - | - |
| Administration expenses | 1.311 | 46 | 355 |
| **Net operating profit/(loss)** | **-1.311** | **-42** | **1.805** |
| Other profit/(loss) | -6 | -6 | -12 |
| **Profit/(loss) before tax** | **-1.317** | **-48** | **1.793** |
| **Net profit/(loss) after tax** | **-1.317** | **-48** | **1.793** |

| Cashflow Statement | 2021 | 2022 | 2023 |
|---|---|---|---|
| Profit before tax | -1.317 | -48 | 1.793 |
| Depreciation, amortization | 19 | 22 | 20 |
| Investment gain/loss | - | -4 | -2.159 |
| Op. profit b/f WC changes | -1.298 | -30 | -346 |
| **Cash flows from operations** | **-13.749** | **-4.931** | **-637** |
| Capital expenditure | -1.121 | -395 | -1.285 |
| Fixed assets disposal | - | - | - |
| Purchase of debt instruments of other entities | - | - | -15.495 |
| Sales of debt instruments of other entities | - | - | - |
| Interest and dividends received | - | - | - |
| **Cash flows from investments** | **-1.121** | **-391** | **-16.700** |
| Issuance of new shares | 14.870 | 6.380 | 17.818 |
| Proceeds from borrowings | - | - | - |
| Repayment of borrowings | - | - | - |
| **Cash flows from financing** | **14.870** | **6.380** | **17.818** |
| **Net cash change** | **-** | **1.058** | **480** |
| Beginning cash balance | **13** | **13** | **1.071** |
| **Ending cash balance** | **13** | **1.071** | **1.551** |

## Appendix 2: Key Metrics and Formula

- Interest expense = interest expense reported + Capitalized interest + Operating lease interest expense + hybrid dividend accrual + Other adjustments
- Cash interest paid = Interest expense paid + Hybrid cash dividend
- EBITDA (reported) = Revenue - COGS- SG&A - R&D + D&A - Tax and additional expense - Other operating expenses
- EBITDA = EBITDA (reported) + Operating lease rent -Capitalized development cost + Capitalized interest + Dividend received from equity investments + Other adjustments
- EBIT = EBITDA - D&A - Operating lease depreciation + Non-operating income + Other adjustments
- FFO = EBITDA - Interest expense + interest and dividend income - Current tax + Other adjustments
- CFO = CFO reported - Capitalized interest + Operating lease depreciation - Capitalized development cost - hybrid dividend cash payment - interest paid/received + Dividends received + Other adjustments
- Capital expenditure = Capital expenditure reported - Capitalized interest - Capitalized development cost + Other adjustments
- EBITDA interest coverage = EBITDA/interest expense
- FFO interest coverage = (FFO + Cash interest paid)/ interest expense
- EBITDA Margin = EBITDA / Revenue
- Cash ratio = Cash & cash equivalents/Current liabilities
- Quick ratio = (Cash & cash equivalents + Short-term investments + Short-term receivables)/ Current liabilities
- Short-term coverage ratio: (Cash & cash equivalents + Short-term investments)/(Current liabilities – Prepayments from customers – Unearned revenue + Interest paid + Dividend paid)
- Current ratio = Current asset/ Current liabilities
- Debt/Equity = (Short-term debt+Long-term debt)/Equity
- Total liabilities/Equity = (Short-term liabilities+Long-term liabilities)/Equity
- Debt/EBITDA (*) = (Short-term debt+Long-term debt)/EBITDA
- Return on asset (“ROA”) = Net income/Average total assets
- Return on equity (“ROE”) = Net income/Average total equity
- Total asset turnover = Net revenue/ Average total assets
- Receivable days = Average account receivables*365/Net revenue
- Inventory days = (Average inventories +Average Long-term asset in progress) *365/Cost of goods sold
- Payables days = Average trade payables*365/Cost of goods sold
- Cash conversion cycle = Receivables days + Inventory days – Payables days
- Gross margin = Gross profit/Net revenue
- EBIT margin = EBIT/Net revenue
- EBITDA margin = EBITDA/ Net revenue
- Operating margin = Operating profit/Net revenue
- Pre-tax margin = Pretax income/Net revenue
- Net margin = Net income/Net revenue

## Appendix 3: Rating Scale and Definition

We employ below rating scale in assigning ratings for all issuers across industries and sectors that we cover in Vietnam. The rating scale used by FiinRatings is the national scale, therefore, it must not be equated with or represented as a rating on the scale used by any other rating agencies.

| Definition | Rating Scale |
|---|---|
| **Group 1: Extremely strong** capacity to meet financial obligation. | AAA |
| **Group 2: Very strong** capacity to meet financial obligation. | AA+ |
| | AA |
| | AA- |
| **Group 3: Strong capacity** to meet financial obligations but somewhat susceptible to adverse economic conditions and changes in circumstances. | A+ |
| | A |
| | A- |
| **Group 4: Adequate capacity** to meet financial commitments but more vulnerable to adverse developments and economic conditions. | BBB+ |
| | BBB |
| | BBB- |
| **Group 5: Moderate capacity** to meet financial obligations but less vulnerable than other speculative issuers. | BB+ |
| | BB |
| | BB- |
| **Group 6: Weak capacity** to meet financial obligations. Sensitive to business, financial and economic conditions. High risk. | B+ |
| | B |
| | B- |
| **Group 7: Very weak** capability or very likely to get into default. Very sensitive to business, financial and economic conditions. Substantial risk. | CCC+ |
| | CCC |
| | CCC- |
| | CC |
| | C |
| **Group 8: Default**. Payments on an obligation are not made on the date due (**SD**) or the issuer becomes insolvent (**D**). The '**D**' rating also will be used upon the filing of a bankruptcy petition or the taking of similar action. | SD, D |

# CONTACT

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