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Attribution

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CFA Institute Research Challenge

hosted by

Cambodia Community of Investment Professionals

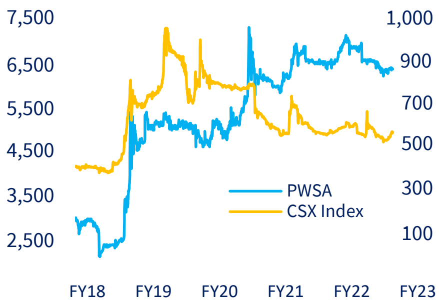
Team A

The CFA Institute Research Challenge is a global competition that tests the equity research and valuation, investment report writing, and presentation skills of university students. The following report was prepared in compliance with the Official Rules of the CFA Institute Research Challenge, is submitted by a team of university students as part of this annual educational initiative and should not be considered a professional report.

Not Every Drop Is Valuable

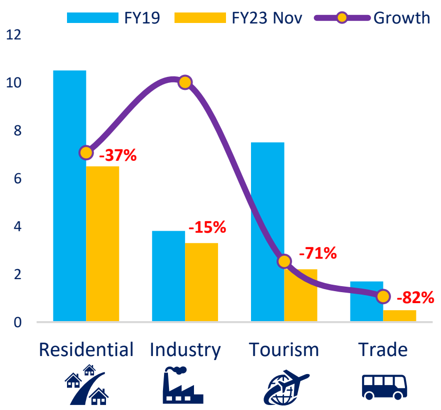
RECOMMENDATION	SELL
Date	31 Dec 2023
Current Price	KHR 7,280
Target Price	KHR 6,207
Downside Risk	15%
Industry	Utility
Sector	Water Supply
Ticker	PWSA
Stock Exchange	CSX
Outstanding Shares	86,973,162
Market Cap (million)	KHR 633,165
EPS (LTM)	KHR 1,244
P/E (LTM)	5.85x

PWSA's Share Price (in KHR)



Source: CSX, Team Analysis

Figure 1: Approved Construction Investments by Sectors in Cambodia (FY19 vs FY23)



Source: CBRE Cambodia, Team Analysis

Figure 2: PWSA's Key Financial Ratios Compare to Peers FY22

Key Ratios	FY22	FY23E	Peers
Revenue Growth	-6%	6%	9%
EPS Growth	-16%	-3%	22%
Dividend Yield	4.4%	4.5%	4.5%
ROE	9%	8%	13%
ROIC	4%	4%	10%
EBITDA Margin	53%	56%	30%
Assets Turnover	0.13	0.13	0.79
Debt-to-Equity	115%	114%	63%
CAPEX-to-Op. Cash	3.9%	2.9%	0.3%

Source: Bloomberg, Team Analysis

Phnom Penh Water Supply Authority *(PWSA)* is a state-owned enterprise processing clean water treatment and distributing clean water to users within Phnom Penh and Takhmao cities. PWSA is running the operation under regulated tariff and bear its own costs.

INVESTMENT SUMMARY

We initiate PWSA with a **SELL** recommendation based on a one-year target price of KHR 6,207, representing a 15% downside risk at a closing price of KHR 7,280 on December 31, 2023. We utilize the discounted cash flow *(DCF)* model to evaluate PWSA based on FCFE. With PWSA's stock trading at a 12% premium above its regional peer's average P/E multiple, FY22 ROE of 8.5% and ROIC of 4.4% below the industry average of 13% and 10%, and cost of equity of 15.2% and WACC of 11.8%, respectively, we believe PWSA's value is justified. Despite its vital role in providing essential services, PWSA is grappling with significant challenges that have led to poor financial performance and the company's inability to achieve returns above the investor's minimum required return. Investors may worry about the company's financial stability.

REGULATORY PRESSURE HINDERS PWSA's ABILITY TO ADJUST TARIFFS

PWSA faces regulatory pressure that hinders its ability to adjust the tariff structure in response to inflationary pressure, increased operational costs, capital upgrades, service expansion, energy price increases, and debt control. This has resulted in a misalignment between revenue generation and cost management. Cambodia's regulatory framework has traditionally lagged behind Southeast Asia regulators of water supply, where the water tarrif is constantly changed, with a 38% average tariff increase in FY23 compared to FY22 and an 8.2% global increase. However, PWSA's average tariff was only revised twice in the last 25 years **(Appendix J)**, from average KHR 910/m^3 in FY01 to KHR 1,300/m^3 in FY20 for domestic segment, which was the last revision. We do not anticipate the regulatory landscape shifting soon, restricting the PWSA's ability to change its tariff structure and risking revenue growth. Without favorable regulatory conditions or diversified revenue streams, financial performance is hampered, and investors may face increasing uncertainty about returns.

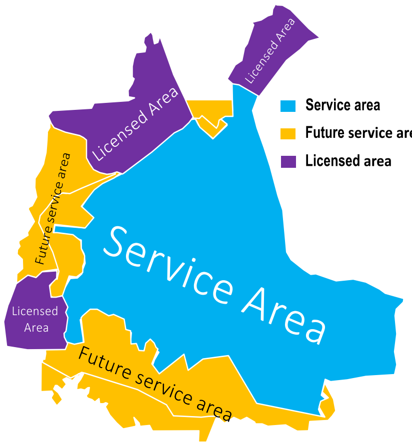
SLOW PICKUP IN THE REAL ESTATE MARKET POST-COVID POSES CONTINUED RISK

The real estate market, a key driver for PWSA's expansion plan, has been slow to recover post-Covid due to a 37% decrease in construction projects approved in FY23-Q3 compared to FY19-Q3 and rising interest rates, with the average lending interest rate on term loans reaching 10.6% p.a. compared to 5% to 6.5% pre-Covid. Residential construction projects dropped 37% and industrial 15% from FY19-Q3 **(Figure 1)**. This caused a considerable decline in the YoY growth of credit to construction, real estate, and mortgage loans to homeowners, which increased by 11%, 15%, and 4% in FY23-Q3 compared to the 25%, 20%, and 45% YoY in FY19-Q3. Late home loan repayments *(30 days past due date)* rose to 3.8% in FY23-Q3 from 0.5% in FY19-Q3. The PWSA's strategic plans and growth targets are threatened by this slow recovery. Since 90% of PWSA's water sales come from home and industrial customers, real estate development is crucial to its expansion objectives. We expect this gradual real estate market recovery to reduce water supply demand, restricting the PWSA's growth and financial performance.

CAPACITY FUNDING STRATEGY CONFLICTS MAXIMIZE SHAREHOLDER's WEALTH

Constrained tariff structures, rising operating costs due to inflationary pressure and service expansion have led to PWSA's poor financial performance in recent years. PWSA's FY22 revenue fell 6% while regional counterparts rose 9% **(Figure 2)**. PWSA's EBITDA margin dropped 7% YoY to 53.2% in FY22. The net profit margin for PWSA fell to 31.3% in FY22 from 35% in FY21. Operating expenditures such salaries and labor, depreciation, and electricity rose at 12%, 9%, and 2% CAGRs over FY17-22, causing these negative earnings results. Additionally, over the past five years, PWSA has achieved 4-7% ROIC and 4%-11% ROE, whereas regional peers have earned 10% and 13%, respectively, and its capital employed has grown by 13%. More so, the current ROE and ROIC are below the company's cost of equity of 15% and WACC of 12%. Poor ROIC and ROE hurt PWSA's credibility, and capital employed growth demonstrates that the company is not investing in high-return investments, reducing shareholder wealth. In the current regulatory climate, the PWSA may have little ability to change its pricing structure. This restriction substantially affects PWSA's revenue growth and financial performance.

Figure 3: PWSA Coverage Areas in Phnom Penh



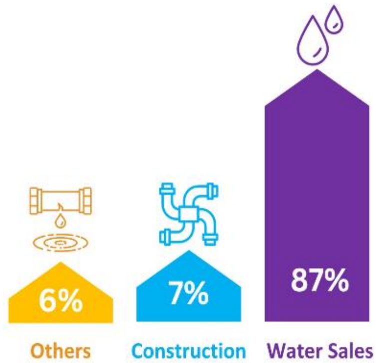
Source: Company Data, Team Analysis

Phnom Penh Water Supply Authority *(PWSA)* is a one-stop provider of water services, with operations encompassing the supply of tap water, network construction and maintenance services **(Appendix B)**. Founded in 1960, listed on Cambodia Securities Exchange *(CSX)* in FY12 and headquartered in Phnom Penh, PWSA has extensive and exclusive water supply coverage operating as a monopoly business supplying water to over to 2.3 million users in Phnom Penh and Takhmao city **(Figure 3)** via 451 thousand connections as of FY22. Though there are other 6 private water supply companies that provide potable water to limited locations in Phnom Penh not covered by PWSA. With its operating scale and industry experience, PWSA had a total length pipe installed of 4,475km across its coverage areas in FY23-Q2, representing a 44.0% increase compared to FY18. This has led to PWSA reporting a total revenue of KHR 346m in FY22 and has reported a QoQ of 18.0% on Q3-FY23 revenue and well on cause to achieve these revenue growth mainly from the increased of water sales by 31.0% and decreased on house connection fees by 24.0%. PWSA's revenue comes from three main sources of revenue namely, water sales, connection fees, construction service sales; mainly on the expansion of distribution system to water supply distributor **(Figure 4)**.

DOMINANT PLAYER ACROSS THE MARKET

PWSA is vertically integrated across the value chain, and this includes water supply, connection, and constructions **(Appendix C)**. PWSA dominates the water supply industry by supplying more than 80.0% of the daily water demand of 746,000m^3 covering Phnom Penh and Takhmao City. PWSA categorizes customers into three types: households *(80% of FY22)*, commercial *(19% of FY22)*, and others *(1% of FY22)*. Each segment of PWSA's revenue increased from YoY based on the increase in average water tariff, number of connections, and consumption per connection. Serving as the backbone of the company's operations are the 8 water treatment plants supplying over 850,000m^3 of water per day and the Bakheng Phase 2, which will contribute an extra 195,000m^3 to the capacity. PWSA's competitive advantage lies in its strong established track record, its experience at project execution, and its low-cost financing through ADB, AFD, WB, EIB and Japan Government grants, etc.

Figure 4: Revenue Segment FY22

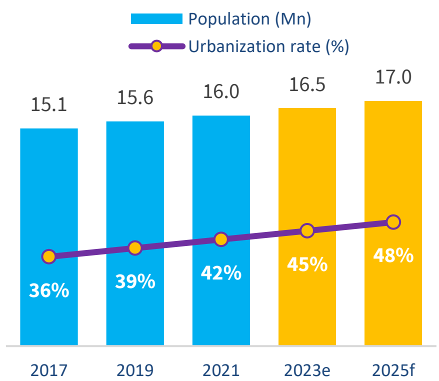


Source: Company Data, Team Analysis

CORPORATE STRATEGY

COVERAGE EXPANSION: Cambodia has experience a rapid urbanization growth from 36% of the poupulation in FY17 to an estimated 45% by FY23 **(Figure 5)**. Phnom Penh as one of the major urban city has been experiencing rapid urban development since the early 2000s and saw its population more than doubled from 1m to 2.3m, which has caused water demand to skyrocket. After doubling PWSA's production capacity between FY12 and FY17 to meet this growing demand, continuing urbanization means water access remains a challenge. PWSA's strategy is to continue to pursue growth opportunities in its core business which is focused on the Phnom Penh and Takhmao City market to achieve 100% coverage by FY30.

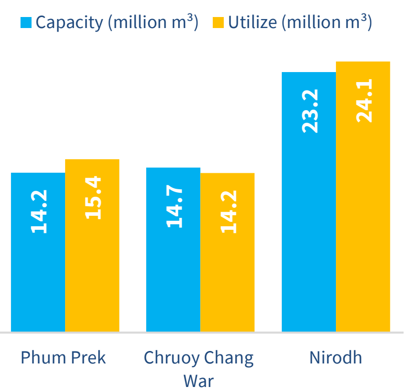
Figure 5: Urbanization in Cambodia



Source: IMF, Team Analysis

PRODUCTION EXPANSION: In FY22, PWSA supplied a record 239m m^3 of water. The company's water treatment plants are able to utilize water exceed their capacity expectation by 5.0% and 2.0% in FY21 and FY22 respectively **(Figure 6)**. Growth will be achieved by expanding existing capacity and volumes, from efficiency improvements and by the pursuit of tariff increases. Since incorporation, PWSA has invested in water supply treatment facilities and its distribution network, to enhance the capacity of its water production and to ensure that the population in its water coverage regions have access to adequate treated and clean water. With a successful track record of delivering growth for shareholders, a strong financial position and wide-ranging operational experience, we believe PWSA is well placed to capitalize on this investment opportunity and expand the scale of its business.

Figure 6: PWSA's Capacity & utilization

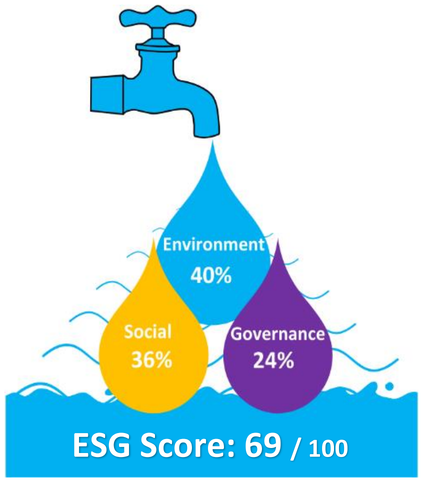


Source: Company Data, Team Analysis

OPERATIONAL EXCELLENCE AND WATER QUALITY: PWSA's cost management strategy and improve operating efficiency of existing assets has helped the company to minimizing the water loss rate which is one of the most critical functions in its operation, which stood at 8.5% in FY22 which consider very low among average global rate **(Figure 8)**. This was achieved through PWSA's proper management of customers' connection information, water meter and replacement of old pipes with new ones. The introduction of new technologies in operations such as the variable speed distribution pumps have helped PWSA significantly reduce operating costs relating to wages and power. With the goal of continued customer retention, PWSA has a strategic focus on the quality of water supply with its valuation through 53 laboratory processes in Singapore and Shanghai annually following WHO guidelines. With the seasonal changes in water quality and levels from the source *(river)*, adequate chemical substances are required, which PWSA has started to take into consideration in their raw material budget plan from FY22. Ensuring the quality of water is not just about meeting immediate needs but also about securing the long-term profitability and sustainability of PWSA. By providing safe, clean, and sustainable water, a PWSA can maintain customer trust, reduce risks, attract investments, and position itself for future success in an environmentally and socially responsible manner **(Appendix E)**.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE

Figure 7: ESG Scorecard



A high ESG Score indicates better sustainability.

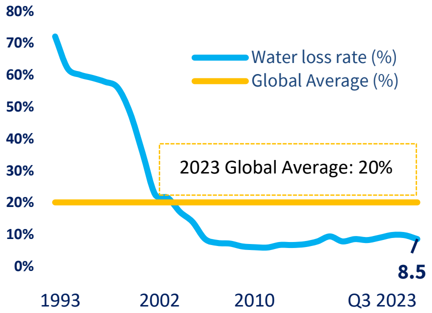
Source: Company Data, Team Analysis

PWSA's ESG Evaluation score of 69% using Refinitive Methodology **(Figure 7)** reflects our view that the company prioritizes commitments to safety, environmental stewardship, and public health in its strategy and that ESG goals are a natural fit for and align well with its business model **(Figure 7 & Appendix D)**. Examples include the company's commitment to providing safe drinking water to its customers as well as low-income households and safe workplace conditions to its employees. However, PWSA scored the lowest in the governance aspect due to a lack of diversity among board members in terms of gender, independence and transparency.

ENVIRONMENTAL - *Sustainable solutions*

The PWSA environmental profile score of 40% shows that the water supply industry is moderately exposed to environmental risks like water-borne illnesses, making good use of water, and the right way to handle and get rid of biosolids and other waste from sanitary sewer treatment. PWSA made a commitment to renewable energy for its new Bakheng water treatment plant when it was completed. Additionally, PWSA is making a significant effort to increase the usage of renewable energy *(solar power)* in all its installations, especially in water treatment plants. For example, in FY23, PWSA installed a total of 3,500 solar panels with a 542-watt capacity, for a total of 1.9 megawatts. PWSA's raw water intake and wastewater discharge did not impact biodiversity, and there is no complaint from the Ministry of Environment *(MoE)* regarding these issues **(Appendix E)**. PWSA has installed modern technologies to monitor, track, and detect water leakages, which has helped reduce water loss **(Appendix I)**. However, in FY23, there was a 5.7% QOQ increase in water leakage from Q2 FY22–FY23, which is not in line with the target set for water leakage reduction in FY23 **(Figure 8)**.

Figure 8: Global and PWSA's Water Loss Rate

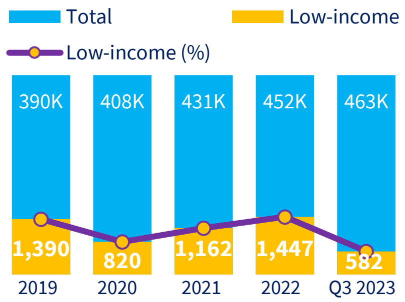


Source: Company Data, Team Analysis

SOCIAL - *Connecting PWSA with the communities*

PWSA's social profile score of 35% incorporates our view of the industry's relatively high exposure to social risks, in particular community engagement. While the sector in general faces exposure to managing community relationships, PWSA has been successful at attenuating this risk and has won multiple awards for its outstanding work in leadership, innovative technology implementation, social contribution and engagement, and quality excellence. In 1999, PWSA implemented the "Clean Water for the Poor" program, which, as of FY22, has helped low-income families with roughly 1,447 water connections, making sure they had access to clean water for daily use **(Figure 9)**. Moreover, since 2005, PWSA has provided subsidies on water connection fees to the poorest at a rate of 30%, 50%, 70%, and 100% based on real poverty. In addition to putting society first, PWSA makes sure that all of its workers receive fair treatment in terms of salary, seniority, and other related benefits, as well as complying with applicable laws and regulations. By providing incentives to those who report the misconduct of water usage, PWSA has also encouraged people within society to contribute with integrity, including complying with rules and regulations. PWSA has required all senior officers to reveal their assets every two years to mitigate corruption.

Figure 9: Water Connections

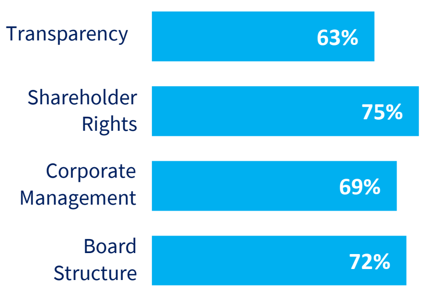


Source: Company Data, Team Analysis

GOVERNANCE - *Hidden Risk Impact Corporate governance*

We believe PWSA has an exemplary governance structure facilitate future growth **(Figure 10)**. The evaluation is based on four factors: the board structure, corporate management, shareholder rights and transparency and disclosure. We assigned a score of 69/100 in corporate governance based on these factors **(Figure 10, Appendix F)**. The governance structure is evaluated based on the CFA Institute Corporate Governance Manual for Investors framework. Negative factors affecting the rating of corporate governance are the lack of minority rights and disclosure of political related information, which result in a final score of 1.63 for the governance factor.

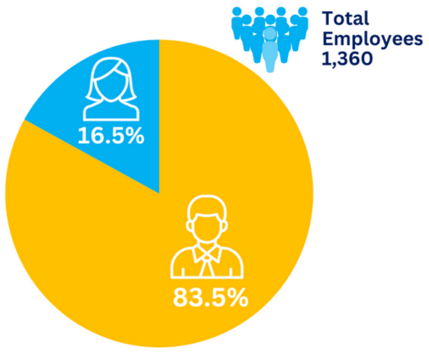
Figure 10: PWSA's Governance Scorecard



Source: CFA ICGM, Team Analysis

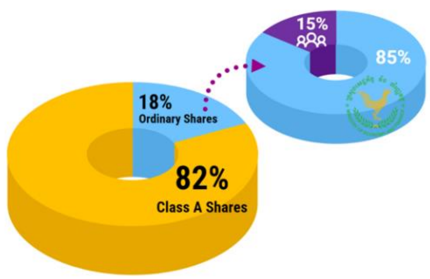
BOARD OF DIRECTORS AND CORPORATE MANAGEMENT: PWSA BOD composed of seven members from various educational background and a diversify of experiences relevant on strengthening PWSA future challenges. The boards are in charge of managing PWSA day-to-day operation **(Appendix G)**. They have established an audit committee and combined remuneration and nomination committee into one with standard disclosures, and board meeting reports in accordance to CSX and Cambodian Corporate Governance Code. In FY22, 71.0% of the board are government officials and among the BODs, there is only one

Figure 11: PWSA's Employees



Source: Company Data, Team Analysis

Figure 12: Shareholder Structure



Source: Company Data, Team Analysis

independent director and one non-executive director, which overlooks corporate governance principles and makes us question the board's independence. In addition, 100% of board members are male, an imbalanced gender ratio. Due to the nature of business, PWSA had a total of 1,360 employees, of whom 83.5% are males, including 25 senior officers **(Figure 11)**. Furthermore, five board members currently do not hold shares. We suggest that all board members hold PWSA shares in order to act in the best interest of shareholders.

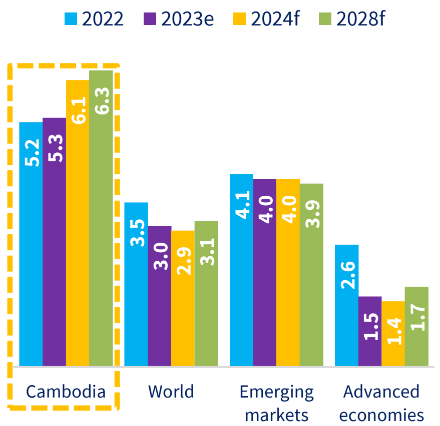
SHAREHOLDER STRUCTURE: PWSA shares are divided into two classes: ordinary shares and Class A shares. The company free floats accounts for 15% of ordinary shares and each share carries one voting rights. There are 86.97m ordinary shares and 391m Class A shares, both of which have a par value of KHR 1,000 per share. Private shareholders hold a total of 15% of ordinary shares, employee share option plans hold 1.5%, and the Ministry of Economy and Finance *(MEF)* holds the remaining shares **(Figure 12)**. Ordinary shares are eligible for dividends, voting rights and meeting rights, while Class A shares are not eligible for dividends or interest. Furthermore, Class A shares do not have voting rights, but there are three main circumstances in which Class A shares have a right to vote: amending the article of incorporation, effecting a capital reduction, and matters that legally require a special resolution.

TOP EXECUTIVE'S REMUNERATION AND COMPENSATION: Pay and remuneration are currently the factors influencing operational margins; from FY21 to FY22, there was a 15.2% reduction in operating margin due to an increase in personnel expenses of 5.7% as there is new recruitment of staffs. This indicator demonstrated the margins' susceptibility to changes in these expenses. PWSA disclosed that BOD pay and benefits, including bonuses, only make up 2% of all employee costs. We do not think that this amount is linked to long-term profitability and sustainability, which would encourage management to make strategic decisions that will support these goals. We consider the fact that this remuneration is internally regulated, and that approval of this remuneration does not correspond to the director's performance measures.

To conclude, we consider PWSA ESG performance to be satisfactory with its leadership for social contribution and its commitment to renewable energy. We expect PWSA will continue to pursue strong ESG standing and look into ESG risk portfolio as it has become a benchmark for ESG conscious investors.

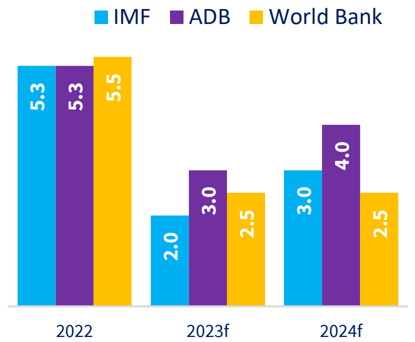
INDUSTRY OVERVIEW & COMPETITIVE POSITIONING

Figure 13: Cambodia & Global GDP Growth



Source: IMF, Team Analysis

Figure 14: Cambodia Inflation Rate (%)

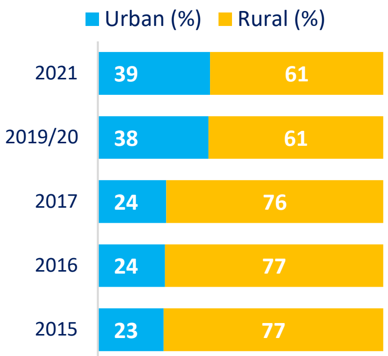


Source: IMF, ADB, Work Bank, Team Analysis

MACROECONOMIC GROWTH IN CAMBODIA: Cambodia's economy has made significant progress in the past few years. It advanced from low-income to lower-middle-income status in FY15, and it is presently on track to become an upper-middle-income country by FY30. Despite the global economic downturn, Cambodia's real GDP is predicted to expand to 6.6% in FY24, above IMF forecasts of 6.1%, with GDP per capita expected to climb to USD 2,071 in FY24 from USD 1,917 in FY23. This expansion may be ascribed mostly to the recovery of tourism, the expansion of foreign direct investment *(FDI)*, and the diversification of exports of solar panels and electrical components. The IMF forecasts that GDP will reach 6.3% by FY28, which is a positive sign for Cambodia's development **(Figure 13)**. In terms of inflation, Cambodia's rate has remained modest in recent years, except for a spike to 5.3% in FY22. The IMF predicts that the inflation rate will decrease to 2.0% by FY23 **(Figure 14)**, while the World Bank projects it to be at 2.5%. On the other hand, the ADB estimates it to be at 3.0%, citing increasing demand and energy prices resulting from geo-economics fragmentation between Russia and Ukraine, Middle East tension, and the uncertain economy. Despite this, the IMF still forecasts that Cambodia will continue to be a fast-growing economy, with the Philippines, Indonesia, and Vietnam trailing behind. We anticipate that PWSA will be immune to these challenges because it operates as a defensive business, which is typically characterized by more steady revenue sources and robust cashflow.

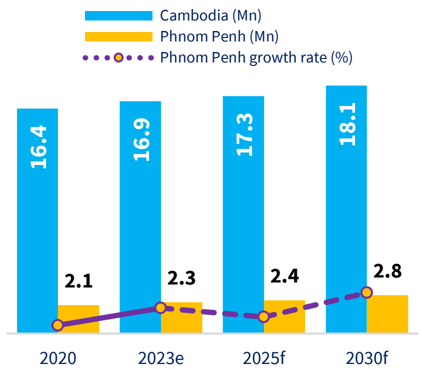
RESILIENT IN TOUGH ECONOMIC CONDITIONS: A rising rates environment threatening consumer spending, however demand for water remains strong. PWSA faces macroeconomic headwinds, amidst the rising interest rates around 0.5% to 1.0% for new loans. The increase is expected to slow down inflation to 3.0% in FY24 onwards resulting in the increase in cost of livings and falling utilities yield due to reduced consumer spending. The fragile state of the world economy following the recovery from COVID-19, the global economy will slow down from 2.6% in FY23 to 2.4% in FY24 hampered by high interest rates, persistent inflations, and a weakened China economy. However, we saw that PWSA remained resistant despite the economic slump, with total water sales increasing to 45% in FY20 from -6% in FY19. The low-cost financing rates have assisted PWSA in dealing with the present economic difficulties. Certainly, water remains a high priority and more resilient than other

Figure 15: Cambodia Urbanization



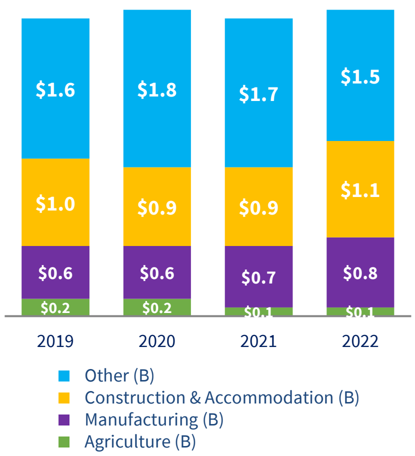
Source: NIS, Team Analysis

Figure 16: Cambodia's Population



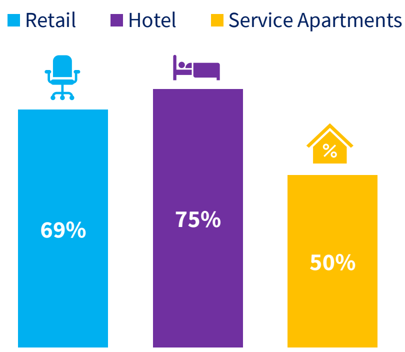
Source: Word Population Data, Team Analysis

Figure 17: Cambodia FDI by sectors



Source: NBC, Team Analysis

Figure 18: Cambodia Real Estate Occupancy Rate 2023



Source: Knight Frank, Team Analysis

areas of discretionary spending, with a consistent of high collection ratios *(95%)* indicating that more than 90% of Phnom Penh residents pay their water bills, and the acceleration of urbanization and population growth will continue to drive up demand for water supplies.

INDUSTRY DYNAMICS

In FY22, the water supply sector provided clean water and sanitation to more than 80% of Cambodia's population. Cambodia aims to achieve 90% access to clean water by FY23 and a 100% access by FY25, five years ahead of the FY30 global objective. The water supply business is in a defensive industry by nature, less sensitive to changes in economic conditions, and a vital necessity. Despite COVID-19, the proportion of rural households with basic access to safe drinking water has risen from 74.7% in FY19 to 85.7% in FY22. We anticipate strong expansion in the water supply business in the future years as a result of Cambodia's growing population, rising demand, government targets, and a recent World Bank financing of USD 163m for water supply and sanitation to support this growth. We are hopeful about its future success because, unlike other industries, the water sector is a necessity.

RISE OF CAMBODIA's POPULATION: The world population is rapidly increasing and is expected to reach 9.7b by 2050, up from the current 8.0b in FY23. Cambodia is no exception to this trend, as its population has been steadily growing over the years at 1.2%. In particular, Phnom Penh, which accounts for 13% of Cambodia's population, has experienced an annual growth rate of 3.15% reaching 2.35m in FY24. The United Nations forecasts that Phnom Penh's population will exceed 3m by FY30 **(Figure 16)**. This growth is attributed to the rise of the global urbanization rate as more people move to the city. According to World Bank data, urbanization has increased to 56%, resulting in more people moving to Phnom Penh and other metropolitan areas.

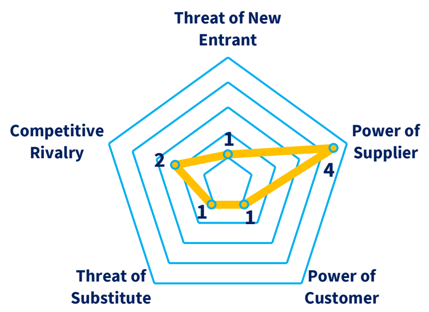
URBANIZATION | SLOW PICKUP OF THE REAL ESTATE MARKET POST-COVID POSES CONTINUED RISK: Phnom Penh's growing popularity as the country's economic capital is propelling its development. The government funds large-scale development projects and launches programs like smart cities to address urban issues as part of its strategic goal to improve the nation **(Figure 15)**. With FDI accounting for nearly 11% of Cambodia's GDP in FY22, capital inflow into Cambodia is approaching pre-pandemic levels. Foreign capital investment in agriculture, manufacturing, and construction & accommodations—three key economic growth sectors—is high **(Figure 17)**. The real estate market, a key driver for PWSA's expansion plan, has been slow to recover post-Covid due to a 37% decrease in construction projects approved in FY23-Q3 compared to FY19-Q3 and rising interest rates, with the average lending interest rate on term loans reaching 10.6% p.a. compared to 5% to 6.5% pre-Covid. The average retail occupancy rate was 69% in FY22-Q4 and FY23-Q1, the hotel occupancy rate in Phnom Penh was 75% due to increasing international visitor arrivals, and the high-end serviced apartment occupancy rate was 50% **(Figure 18)**. Late home loan repayments *(30 days past due date)* rose to 3.8% in FY23-Q3 from 0.5% in FY19-Q3. We expect this gradual real estate market recovery to reduce water supply demand, restricting the PWSA's growth and financial performance.

GOVERNMENT REGULATION: Every country has varied regulations for various industries, and Cambodia's water supply industry is no exception. To lawfully operate in Cambodia, a water supply company must first obtain a license from the MISTI. Furthermore, the company must supply at least 80% of clean water in its authorized areas, or the construction of water treatment should have already been fully completed. The government also controls the water tariff, with rates that have been set by various factors such as population, treatment system, technology, geographical location, and physical infrastructure. Every 3 to 5 years, MISTI has to appraise the water tariff to guarantee that it keeps up with inflation and water consumption.

COMPETITIVE POSITIONING

LEADING THE PACK WITH STRONG FOOTHOLD: PWSA's monopolistic market structure allows it to maintain a competitive edge, holding 85% market share, ahead of other private water supply companies in Phnom Penh, cementing its leadership position. With zero direct competitor, PWSA benefits from economies of scale in capital cities and receives full government backing for its expansion into viable economic sectors. Although PWSA dominate the competition, water tariff is heavily regulated by the government and high operational cost in an inflationary environment remains a challenge for future expansion. We expect the government will give out more licenses to private water operator so that meeting SDG goal by 2025 is viable. PWSA dominant leadership has resulted from its long establishment *(over 50 years of operation)* in the capital cities, continuous development on water treatment plant projects *(8 large water treatment plants)* and installing new connections annually *(FY22 451k)*,

Figure 19: Porter's five forces



Source: Company data, Team Analysis

boasting a house connection growth rate of 23% from FY18 to FY22. PWSA's efforts to repair damaged pipes on a daily basis and keep the water loss rate in the single digits since FY14 demonstrate their attention on reducing non-revenue water. In fact, PWSA ranked second in Asia for maintaining low levels of water loss rates, after Singapore **(Appendix I)**. In addition to large financial infusions and a lengthy payback period *(approx. 6-years)* to recover its cost, this has significantly reduced the threats of new entrant into the Phnom Penh water supply market **(Figure 19 & Appendix H)**, thus making it an attractive industry for PWSA. The Cambodian water supply industry require continuing significant investment to improve quality and resource availability. With a successful track record of delivering growth for shareholders, a strong financial position and wide-ranging operational experience, we strongly believe PWSA is well placed to capitalize on this investment opportunity and expand the scale of its business.

LOWEST TARIFF IN THE REGION: Unlike other cities in the region, PWSA pursued higher market share in the future at the expense of lower water tariff approximately USD0.33/m^3 in FY22. It has always maintained a strict pricing discipline around KHR1,350/m^3 in average regardless of mounting water demand **(Figure 20)**. As the company has transitioned from heavy subsidy based to full cost recovery, PWSA has funneled it surplus into new water infrastructure to develop more water production capacity selling at the same rate, which can hinder long-term profitability growth.

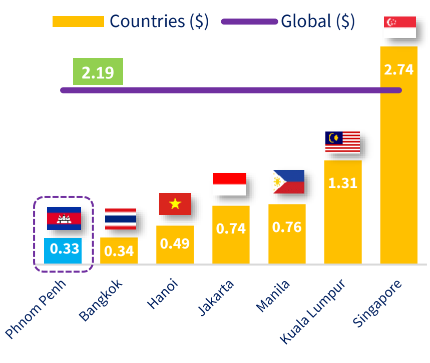
FINANCIAL ANALYSIS

Figure 21: Key Financial Ratios

	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Profitability Ratios											
Return on Equity	8.5%	3.6%	9.0%	11.1%	8.5%	7.7%	7.7%	8.2%	9.0%	9.9%	10.7%
Return on Assets	5.3%	2.1%	4.7%	5.6%	4.0%	3.6%	3.5%	3.6%	3.9%	4.2%	4.4%
Return on Capital Employed	7.7%	4.2%	8.5%	7.9%	5.5%	5.2%	5.1%	5.3%	5.8%	6.2%	6.5%
Return on Invested Capital	6.2%	3.3%	6.8%	6.3%	4.4%	4.2%	4.1%	4.3%	4.6%	4.9%	5.2%
EBITDA Margin	52.0%	47.0%	55.5%	57.5%	53.2%	56.2%	56.9%	58.7%	61.0%	63.1%	65.0%
Operating Profit Margin	35.8%	24.0%	40.0%	42.6%	36.1%	35.2%	35.4%	37.0%	39.5%	41.8%	44.0%
Net Profit Margin	28.9%	15.4%	27.2%	35.0%	31.3%	28.6%	28.5%	29.5%	31.1%	32.7%	34.1%
Leverage Ratios											
Debt-to-equity	64.5%	64.5%	92.8%	104.9%	114.6%	114.4%	119.2%	124.9%	130.6%	136.3%	142.0%
Debt-to-EBITDA	2.4x	3.3x	3.0x	3.8x	5.5x	5.4x	5.6x	5.7x	5.6x	5.5x	5.5x
Interest Coverage	5.9x	4.5x	10.2x	32.8x	10.3x	7.8x	7.3x	7.4x	7.7x	8.0x	8.2x
Liquidity Ratios											
Current Ratio	1.58x	0.90x	1.27x	2.09x	2.32x	2.14x	2.09x	1.99x	1.39x	1.98x	1.98x
Quick Ratio	0.88x	0.47x	0.91x	1.34x	1.56x	1.41x	1.37x	1.32x	1.29x	1.29x	1.31x
Cash Ratio	0.10x	0.23x	0.46x	0.47x	0.30x	0.62x	0.62x	0.67x	0.63x	0.63x	0.64x
Efficiency Ratios											
Asset Turnover	0.18x	0.13x	0.17x	0.16x	0.13x	0.13x	0.12x	0.12x	0.13x	0.13x	0.13x
Account Receivable Days	25	28	29	25	30	35	35	35	35	35	35
Operational Efficient & Costs Ratios											
Non-Revenue Water (NRW)	8.2%	8.9%	9.7%	9.7%	8.5%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Leakage Ratio	8.5%	19.8%	20.2%	12.2%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%
Collection Ratio	93.8%	95.3%	93.7%	94.5%	95.0%	94.1%	93.8%	93.4%	93.6%	93.6%	93.8%
D&A as % of EBIT	25.3%	30.2%	25.9%	26.0%	26.9%	32.3%	33.3%	34.4%	35.4%	36.5%	37.5%
Electricity as % of EBIT	22.8%	22.7%	19.0%	16.9%	15.9%	14.5%	13.4%	12.4%	11.4%	10.5%	9.7%
Salary as % of EBIT	31.7%	31.2%	28.8%	30.0%	31.7%	30.4%	31.0%	31.6%	32.1%	32.6%	33.0%

Source: Bloomberg, Company Data, Team Analysis

Figure 20: Water in Southeast Asia Versus Global Tariff

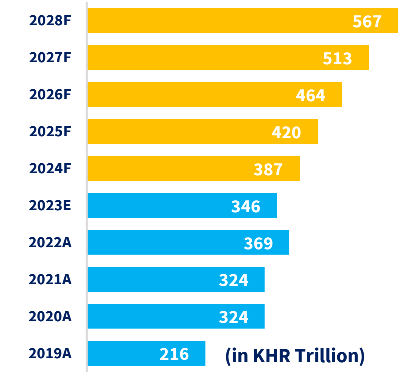


Source: Company Data, Team Analysis

STAGNANT TARIFF SQUEEZE REVENUE GROWTH

PWSA's profitability has historically declined, and its revenue source is unstable. The pre-pandemic growth rate dropped from 17.5% to -18.3% in FY16–19. The rate would have shrunk more during the pandemic if the government hadn't ordered a lockdown, which increased water use. Sales surged dramatically in FY20—from -18.3% YoY to 49.8% YoY—proving that the company needs a pandemic to survive. The post-pandemic lowered PWSA's revenue growth from 49.8% in FY20 to -6.2% in FY22. PWSA's average tariff remains at a historical low below a minimum average rate of KHR 1,300/m^3, despite COVID-19. The average tariff dropped from KHR 1,072/m^3 in FY20 to KHR 990/m^3 in FY22, resulting in a -6.2% revenue growth while a 4.4% increase in operational cost. If the minimum average tariff falls, a margin squeeze is likely. Even with an increase of average tariff by over 50% in FY20, it cannot fund PWSA's long-term expansion costs. Water rates must rise due to the USD 409 million project cost, ignoring inflation. This means the company relies solely on external finance. Despite poor water output, increased demand, and government targets have pressured PWSA to develop faster than necessary. Unadjusted tariffs will encourage excessive water use, which might strain water supplies and boost PWSA's operating costs to meet demand without increasing revenue. We forecast a five-year revenue CAGR of 9.0% **(Figure 22)**, down 1% from pre-pandemic 10%.

Figure 22: PWSA's Historical and Forecast Revenue

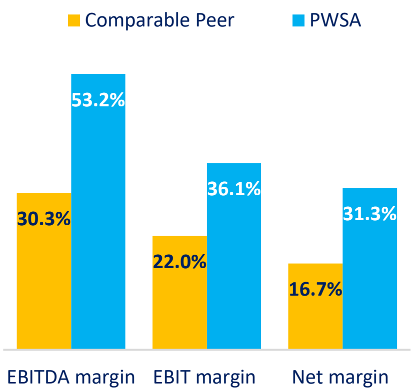


Source: Company Data, Team Analysis

PWSA relies on water sales and construction service fees, which we estimated separately. The weighted average of Phnom Penh's population growth, GDP growth rate, and PWSA's current water production capacity—including its new water treatment plant—determines water sales revenue, which grows 6.4% annually and increases by 3% in FY25 and 5% from FY26 onward due to coverage area expansion and projected water production capacity by FY30. The estimated average construction service charge as a percentage of water sales is used to estimate construction service fee growth **(Appendix K)**. By FY25, PWSA's water treatment facility enhancements are projected to raise production capacity to over one million m^3/day, a 54% increase over FY22 levels. If all Water Treatment Plants *(WTP)* are operational between FY23 and FY28, the proposed water treatment facility will boost water output by 91%. However, FY28 water supply was 20% below maximum water demand. PWSA income is expected to expand 0.57-fold from KHR 367b in FY23 to KHR 575b in FY28 due to pipeline and connection expansion in Phnom Penh and Takeo cities.

IMPROVED OPERATIONAL EFFICIENCY ALLOW MAGINS EXPANSION

Figure 23: FY22 Profitability Ratios

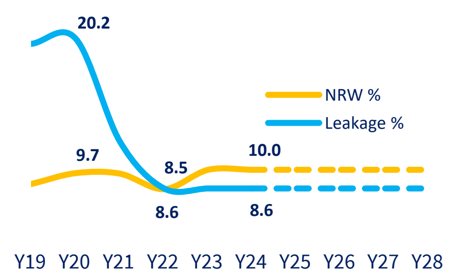


Source: Company Data, Team Analysis

With EBITDA, EBIT, and net profit margin exceeding its regional peer's average in FY22, PWSA's average profitability has fluctuated over the past five years **(Figure 23)**. With better water meter management and quick pipe replacement, PWSA reduced its non-revenue water (NRW) and leakage ratios from 9.8% to 8.5% and 20.2% to 8.6%, respectively, from FY20-22 **(Figure 24)**. With the introduction of e-payment and bank payment, the collection ratio rose to 95.0% in FY22 despite the COVID-19 epidemic. The greatest operating expenses compared to sales for PWSA are power *(FY18 15% versus FY22 10% of sales)* due to renewable energy and scheduling water processes, and personnel compensation *(23% vs 20% of sales)*. Due to its ability to extract vertical synergies and expand capacity to 100% utilization, we believe PWSA can maintain operational effectiveness and growth without jeopardizing profitability margins. However, with only 3% of its staff skilled, most PWSA personnel are recent high school graduates and receive short-term training, leaving the company unable to handle its rapid service coverage increase.

CONTINUED CAPITAL EMPLOYED FAILED TO CREATE SHAREHOLDER VALUE

Figure 24: NRW and Leakage Ratios



Source: Company Data, Team Analysis

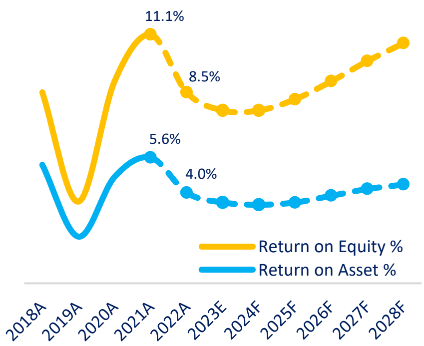
PWSA's ROE/ROIC improved throughout FY19-22 but was variable **(Figure 25)**. ROE and ROIC dropped to 8.5% and 4.4% in FY22 from 11.1% and 6.4% in FY21. In FY18-22, return ratios were continuously above industry average. Revenue growth, cost reduction, and process automation have pushed this. We expect PWSA's new water treatment facility, Phnom Penh and Takeo city coverage area extension, and operational efficiency improvements will drive net margin expansion and improve average ROE and ROIC. In FY23E, PWSA's ROE of 7.7% and ROIC of 4.2% are below its 15.2% cost of equity and 11.8% WACC. PWSA's cost of capital and rise in capital utilized indicate that the company is not investing in high-return investments. Reinvesting capital has yielded the same dismal return for PWSA. Based on present performance, we expect the PWSA's earnings to slowly increase after the new water treatment facility is completed.

HIGH DEPENDENCY ON DEBT FINANCING TO SUPPORT FUTURE EXPANSION

PWSA's D/E increased from 69.7% *(FY21)* to 79.4% *(FY22)* compared to its peer's median 53.1% with a continuous increase since FY18 from 36.4% and dropping interest coverage by 22.4x in FY22, indicating a risky capital structure. PWSA borrowed USD 350m from France and South Korea to invest in big water treatment projects in FY22. This raises D/EBITDA from 3.8x *(FY21)* to an alarming 5.5x *(FY22)* compared to peers' 3.8x. This affects the company's creditworthiness and viability. The Altman Z-score model reveals the company's financial health and its likelihood of bankruptcy without government intervention, supporting our analysis. In FY22, the Z-score was 0.63, below the 1.8 crisis zone since FY17, indicating that the company may file for bankruptcy and is having trouble paying its debts. It proposes the corporation decrease costs, rethink expansion plans, and change debt management.

INACCUARY OF REPORTED EARNINGS

Figure 25: ROE and ROA



Source: Company Data, Team Analysis

From the testing conducted on PWSA accuracy financial performance based on Beneish M-Score which is resulted a higher score than the benchmark of -2.2 since FY17, except in FY19 displayed a lower M-Score of -3.7 compared to benchmark threshold, suggesting a remote chance of falsifying its reported earnings. With overall sales growth falling by 18.3%, this one stick out as having the lowest net profit margin *(15.4%)*. Continuously, starting from FY20, calculated M-Score has consistently greater than the benchmark. As in recently FY22, PWSA audited financial statements show M-Score of -2.1 which is remained above the norm and fell between a potential area of manipulated reported earnings.

VALUATION

Figure 26: Terminal Growth Rate

Variables	Avg. Rate	Weighted
Inflation Rate	3.0%	25.0%
Cambodia Real GDP Growth	5.1%	25.0%
Phnom Penh Population Growth	3.1%	50.0%
Terminal Growth Rate	**3.6%**	

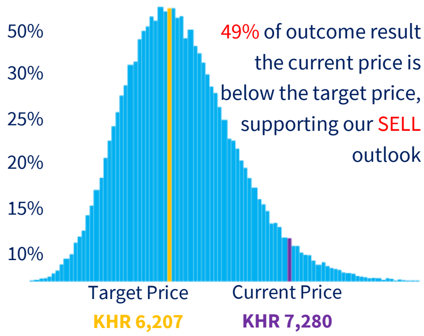
Source: IMF, Team Analysis

Figure 27: Cost of Equity

Variables	Rate	Basis
US Risk Free Rate	4.0%	5Y US treasury bond yield
US Equity Risk Premium	4.6%	NYU Stern
Cambodia Country Risk	8.0%	NYU Stern
PWSA Regeared Equity Beta	0.68	Bottom-up Risk Adj.
Cost of Equity	**15.2%**	**CAPM**

Source: Team Analysis

Figure 28: Monte Carlo Simulation



Source: Team Analysis

Figure 29: Scenario Analysis on DCF-FCFE

Variables	Bear	Base	Bull
Water Tariff (៛)	1,100	1,300	1,500
Cost of Equity	15.2%	15.2%	15.2%
Target Price (៛)	2,288	6,207	9,775
Upside/(Downside) Risk	-69%	-15%	34%

Source: Team Analysis

We reiterate a **SELL** recommendation for PWSA with a 12-month target price of KHR 6,207 per share, representing a 15% downside risk based to closing price of KHR 7,280 per share as of 31 December 2023. We conducted a Discounted Cash Flow *(DCF)* analysis based on a forecasted 5-years of Free Cash Flow to Equity which gave us a **SELL** recommendation. To confirm the robustness of our DCF model and take into consideration potential investment risk, we have performed a sensitivity analysis and Monte Carlo simulation. Furthermore, we triangulate our target price by using other valuation approaches such as Dividend Discount Model *(DDM)* and relative valuation *(using P/E)* which all supported our **SELL** recommendation.

DCF VALUATION

PWSA is a highly-leverage company, financing most of its CAPEX using debt. Additionally, PWSA profitability has very volatile, fluctuating year-by-year which affects the dividend payout and retained earnings available to support business operations and expansion. Therefore, the intrinsic value is estimated through the FCFE of the DCF model with the explicit forecast period from FY23-FY27 **(Appendix O)**. The intrinsic value of KHR 6,207 is based on the present value of the FCFE in the forecast period and a terminal year at FY28 using a terminal growth rate of 3.6% and a cost of equity of 15.2% **(Figure 26, 27 & Appendix P)**.

TERMINAL GROWTH

We estimate the terminal growth rate of PWSA using a perpetual growth approach which gave us a rate of 3.6% from FY28 afterward. The terminal growth rate is determined based on the weighted average of three main factors namely *(1)* Cambodia inflation rate, *(2)* Cambodia GDP growth rate, and *(3)* Phnom Penh population growth rate. A breakdown of the inputs is, Cambodia's inflation rate is reported by IMF at a forecast of 3.0% in FY24 onwards, the projected population growth in Phnom Penh city is at an average growth rate of 3.1% from FY18-FY28 by United Nations Projection *(UN)*, and the forecasted GDP growth rate for Cambodia is 5.1% by IMF and World Bank **(Figure 26)**.

COST OF EQUITY *(Ke)*

The cost of equity *(Ke)* is 15.2% using the Capital Asset Pricing Model *(CAPM)*, adjusted to the country risk premium. To capture the opportunity cost in the CAPM model, we used a developed country equity risk premium of 4.6% *(US implied equity risk premium by NYU Stern)*, a 5-years US government risk free rate of 4%, all of which are adjustment by Cambodia country risk premium of 8%, and PWSA levered beta of 0.68 **(Figure 27)**.

BETA: Our CAPM model uses an asset beta of 0.37 from emerging market water supply companies, which was then re-geared by taking into account PWSA's financial risk with the recent debt-to-equity ratio of 104% based on FY23-Q3.

SENSITIVITY ANALYSIS

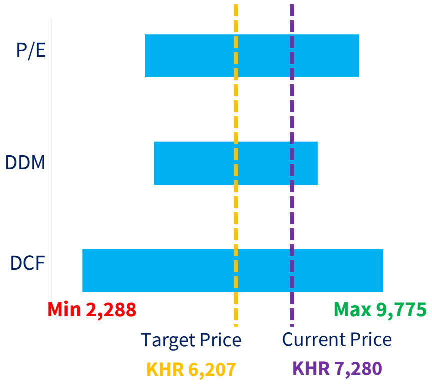
The most sensitive variables to our forecast of PWSA financial performance is revenue growth rate and the required rate of investor expected return. Thus, we have conducted a sensitivity analysis to illustrate how these factors can set the increase/decrease in target price if it changes. In order to shift our recommendation from **SELL** to **BUY** **(Appendix Q)**, either Ke should decrease to 14.2% or less, or terminal growth rate shall increase to 4.6% or more with the assumption of only one factor change at a time.

SCENARIO ANALYSIS

MONTE CARLO SIMULATION: We have conducted a Monte Carlo simulation to examine the fluctuated of PWSA's share price from the changes in Ke, terminal growth rate, water sales revenue and the operating costs **(Appendix R)**. After running 100k trials share price with the key variables **(Figure 28)**, the result of the trial shows that there is only 3.8% probability that the actual market price will exceed the target price of KHR 6,207, 46.3% chance of the simulation suggest a hold recommendation, and 49.9% probability of result suggesting a **SELL** recommendation which is consistent with our DCF model. Therefore, under these circumstances, we believe that PWSA's current share price is being overvalued.

BULL-BEAR CASE: As PWSA's financial performance is strongly affected by the changes of water tariff, we have conducted a bull-bear scenarios by increasing tariff from KHR 1,300/m^3 to KHR 1,500/m^3 for the bull case, and decreasing tariff by KHR 300 to KHR 1,100/m^3 in DCF model. Thus, bull case gave an upside risk of 34%, and a downside risk of 69% in bear case **(Figure 29)**. Moreover, we also conducted a bull and bear case for DDM by changing the dividend that PWSA committed to distribution to the investors and remained others factor unchanged **(Appendix K)**. We assume PWSA's commitment to pay dividend to investors is increased to 20% of its earnings in bull scenario, it resulted a upside risk of 12%. However, for bear case, we assume that the dividend PWSA's committed to pay is going to drop to 10% of its earnings, in which it gave a downside risk of 44%. As a result, our computation bull and bear case in DDM is supported the assumption in DCF-FCFE model. Thus, the movement of water tariff and dividend distribution has significantly impact on PWSA financial performance and profitability to maximize shareholder wealth.

Figure 30: Football Field Share Price Projection



Source: Bloomberg, Team Analysis

DIVIDEND DISCOUNT MODEL (DDM)

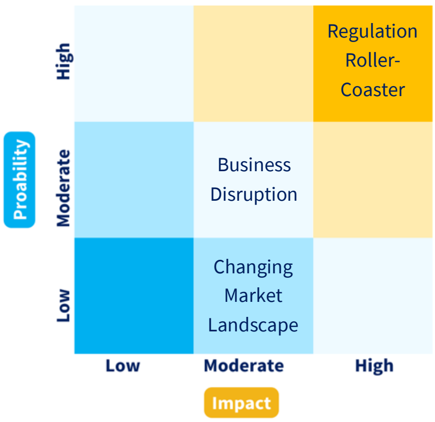
To validate on our DCF-FCFE valuation, the DDM is utilized as PWSA has paid consistent dividend to its shareholders since flotation and is committed to continue paying 15% payout ratio from its earnings. In perpetuity, the model assumes a steady dividend distribution. We expect PWSA to maintain its dividend payout ratio commitment in the future, hence, the use of the model to support our target price. Under the projection, using a terminal growth rate of 3.6% over the forecast period between FY23-FY27, and a 15.2% cost of equity, we arrived at a target price of KHR 6,106 per ordinary share of PWSA which resulted in a downside risk 16%, thus, supporting our **SELL** recommendation provided by the DCF-FCFE model.

RELATIVE VALUATION | OVERVALUED AMONG PEERS IN SOUTHEAST ASIA

Additionally, we conduct relative valuation using different multiples such as P/E ratio and EV/EBITDA ratio. The peer group comprises of major and regional water supply companies within Southeast Asia, similar average annual growth rate of economic growth FY13-22 with comparable size and operations. However, due to the lack of publicly listed water supply companies in Cambodia, the regulator nature of the business, economic environment, different financing and shareholder structure, we believe that the relative valuation method is inappropriate for the valuation of PWSA. Nevertheless, as a useful comparison on our target price, the peer comparison of P/E multiple based on the Trailing 12-month (TTM) of FY22, EPS show a relative value of KHR 6,406 based on a peer average of 5.15x, resulting in a downside risk of 12% **(Figure 30 & Appendix S)**, which also supported our SELL recommendation given by the DCF-FCFE model.

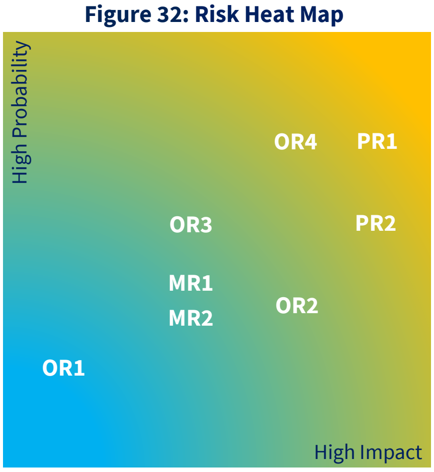
INVESTMENT RISKS

Figure 31: Risk Matrix



Source: Team Analysis, Company Data

Figure 32: Risk Heat Map



Source: Team Analysis

The regulatory rollercoaster, business disruption, and financial risk are the top three investment risks for PWSA **(Figure 31)**. PWSA is exposed to higher risk **(Figure 33)** due to its highly competitive business and some mitigating factors. Despite the fact we firmly recognize these risks have the power to negatively affect profitability and lower investment return, we have identified high probability, high impact risks **(Figure 32)**.

POLITICAL RISK | UNPREDICTABLE REGULATORY ENVIRONMENT

Probability: High, Impact: High

PR1 - STRINGENT RESTRICTIONS IN RATE SETTING: PWSA faces significant risks due to government regulations on water tariffs, limiting its efficiency in operating management. Increases in political interference encroaching on PWSA independence and forces the company to adapt to the changes in political climate and changes of rules governing water management, as an increase in water tariff could negatively impact political will and take issue against government policies, further compromising investor expectations.

Mitigation: PWSA should continue to consult with the government and propose a tariff adjustment to secure financial security and improve service quality. They aim to reduce loan dependency by introducing cost-cutting techniques with the ambition to adapt itself to Industry 4.0 with the help of information technology that assists in hydraulic works, NRW reduction and water production which drives PWSA performance economically. They also have a SCADA monitoring system for water treatment plants and variable speed distribution pumps as a response to cost control.

PR2 - COMPLIANCE RISK: PWSA is subject to regulatory oversight by the Cambodian government and is required to abide by a number of laws and guidelines, such as those pertaining to financial reporting, labor legislation, WHO water quality standards, and permits for water extraction.

Mitigation: PWSA needs to conduct risk assessments on a regular basis in order to identify possible compliance issues. Revising and assessing compliance policies and processes on a regular basis to take into account changes of laws, rules, and industry standards.

Figure 33: Summary of Key Risks and Mitigations

Risks	Mitigations
Political Risk	
P1: Rate Setting Risk	Propose water tariff adjustment
	Reduce loan dependency
P2: Compliance Risk	Revise and access compliance policies
Operational Risk	
O1: Cyberattack Risk	Enhance their IT systems
O2: Plant and Equipment Breakdown Risk	Has periodic inspection
	Use maintenance tools
O3: Water Quality Risk	Prevent raw water quality from deteriorating
	Preserves water
O4: Financing Risk	Diversify revenue stream
	Has additional borrowings
Market Risk	
M1: Foreign Exchange Risk	Invests in money market instruments
	Do predictive analysis
M2: Inflation Risk	Use bidding approach
	Select best resources

Source: Team Analysis

OPERATIONAL RISK | BUSINESS DISRUPTION

Probability: Moderate, Impact: Moderate

OR1 – UNCERTAINTY OF CYBERATTACK: With cyber insecurity remains at the 4th global concern according to World Economic Forum, PWSA's increasing dependence on automation and technology to run an efficient water supply raises the possibility of cyberattacks targeting vital infrastructure, including systems for billing, distribution, and control of water intake.

Mitigation: In addition to depending on outside sources to mitigate the risk, companies have to enhance their systems for the detection and prevention of intrusions. Additionally, teach staff members about potential threats and best practices.

OR2 – UNPLANNED BREAKDOWN OF PLANT AND EQUIPMENT: Failure of equipment, transmission or distribution lines can cause unexpected disruptions in the distribution and generation businesses. This widespread damage could also result in a considerable rise in unanticipated repair expenses.

Mitigation: To minimize this possibility, PWSA should do periodic inspection and maintenance on all plants and equipment. In addition, make use of predictive maintenance tools like sensors and monitoring systems to find early indicators of equipment breakdown.

OR3 – WATER QUALITY AND CONTAMINATION RISK: The quality of raw water would be impacted by ongoing hydropower construction of Lao and China in the upstream of the Mekong River and an increase in pollutants entering surface water from sewage treatment plants. Furthermore, it is anticipated that a greater amount of wastewater from residential and commercial properties would enter rivers, raising worries about the long-term quality of drinking water.

Mitigation: Although PWSA is not in charge of preserving water quality, the company needs to strive to prevent raw water quality from deteriorating. In addition to working with local authorities to preserve water sources, PWSA can put protective measures in place for the water sources around the water intake facilities.

OR4 –FINANCING RISK: PWSA mainly uses debt to finance the business operation in different foreign currencies. The company plans to get more in the future to finance the new treatment plants. Even if the individual interest rate is low, the aggregate amount of it is significant. Therefore, the company is responsible for paying more interest cost. PWSA accounts for liquidity problems if there is no proper strategy.

Mitigation: PWSA shall diversify the revenue stream such that currently they have construction service contracts with third parties in order to increase income to be able to settle with the periodic interest costs. Moreover, PWSA shall take into consideration additional borrowings to ensure the level of debt burden is under control.

MARKET RISK | BALANCING ACT IN A CHANGING MARKET LANDSCAPE

Probability: Low, Impact: Moderate

MR1 – FOREIGN EXCHANGE RISK: PWSA is mainly operated in KHR currency, in which it is subject to exchange rate risk, especially in relation to major currencies used in international trading and financing, such as the US Dollar, Japanese Yen, European Euro, and Special Drawing Rights. Exchange rate fluctuations affect the price of imported raw materials and raise the cost of debt that are in foreign currencies.

Mitigation: As PWSA has several unhedged investments in foreign currency, the interest received could offset with the debt's interest payment. Moreover, PWSA shall make better investments in money market instruments and do predictive analysis for future transactions with forward contracts which can provide PWSA certainty estimate of future costs to reduce the fluctuation of foreign exchange rate risk.

MR2 – INFLATIONARY ENVIRONMENT: With the expected rise in inflation and uncontrolled over monetary policy of NBC, PWSA may face challenges in sustaining profitability in an environment of rising costs. With its fixed tariff and high price of operating cost, PWSA may have trouble sustaining profit margin.

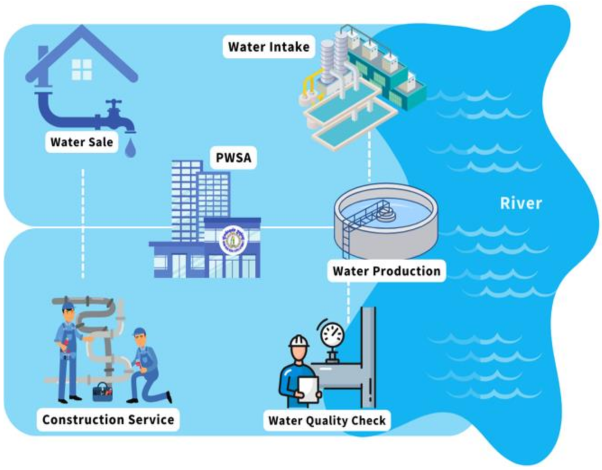
Mitigation: PWSA shall keep using the bidding approach to obtain a competitive quoted price for each purchase order, as well as proactively selecting resources to repurchase and how best to use them.

LIST OF APPENDICES

APPENDIX A – GLOSSARY

ADB	Asian Development Bank	GDP	Gross Domestic Products
AFD	Agence Française de Développement	IMF	International Monetary Fund
BOD	Board of Directors	MEF	Ministry of Economic and Finance
BV	Book Value	MISTI	Ministry of Industry, Science, Technology, and Innovation
CAGR	Compound Annual Growth Rate	PWSA	Phnom Penh Water Supply Authority
CAPEX	Capital Expenditure	PPE	Property, Plant and Equipment
CAPM	Capital Asset Pricing Model	P/E	Price-to-Earning
CSX	Cambodia Securities Exchange	QoQ	Quarter on Quarter
DCF	Discounted Cash Flow	ROE	Return on Equity
EBITDA	Earnings before Interest, Tax, Depreciation & Amortization	ROIC	Return on Invested Capital
D/EBITDA	Debt-to-EBITDA Ratio	WB	World Bank
EIB	European Investment Bank	YoY	Year on Year
FCFE	Free Cash Flow to Equity	YTD	Year to Date
FDI	Foreign Direct Investment	FY	Financial Year
D/E	Debt-to-Equity Ratio	D&A	Depreciation and Amortization
SDG	Sustainable Develop Goals	ESG	Environmental, Social, Governance
WHO	World Health Organization	WACC	Weighted Average Cost of Capital

APPENDIX B – BUSINESS MODEL



Core Business: PWSA processes and distributes clean water in Phnom Penh, offers construction services for domestic and commercial customers, and controls water loss to maintain total water supply.

Revenue Segment: PWSA has 3 main revenue streams such as:

- **Water Sale:** distribution to domestic and commercial connections
- **Construction Service:** expand distribution networks for construction company.
- **Others:** maintain water charges, connections materials and penalty.

Customer base: The customers of the company include domestic household, commercial company, administrative, wholesalers, RDE representative, standpipe, and room rental.

APPENDIX C – VERTICALLY INTEGRATED SUPPLY CHAINS

Water Intake: PWSA obtains its raw water from three distinct sources: the Mekong River, the Tonle Sap River, and the Tonle Bassac River. The raw water intake from the river is done through the transmission pipelines at each pumping station.

Procurements: PWSA imports its pipes and raw material for water treatment from supplier partners abroad, which include Malaysia, China, Thailand, and Japan, etc. The procurement is involved an auction process, and contract with low-cost suppliers with high quality to compete on market prices.

Water Production: Prior to distributing clean water to customers, PWSA uses six stages for the water treatment intake process. These phases are completed inside each plant and are managed by PWSA's staff who got proper training and follow standards operating procedures (SOP). The receiving basin, flocculation basin, sedimentation basin, filtration basin, stirred basin, and clean water reservoir are the treatment steps.

Connection: The water is transferred from PWSA to residential and commercial through the main transmission pipes.

Maintenance: PWSA makes a significant effort in identifying water loss, sealing any leaks in their pipes, and freely repairing any damaged meters to minimize NRW. The technique of detecting leaks is determined using technological equipment that they have adopted.

APPENDIX D – ESG SCORECARD

PILLARS	CATEGORIES	THEMES	SCORES	JUSTIFICATION
ENVIRONMENTAL (40%)	Emission (15%)	Greenhouse Emission	8.0	PWSA's ESG reports show no pollutant concentration exceeds air quality guidelines, with water treatment plants implementing inverters and solar panels to reduce CO2 emissions.
		Wastewater	8.0	PWSA's ESG report indicates no complaints from the Ministry of Environment or the public regarding the treatment of sludge and wastewater discharged from its facilities in the Sap River.
		Biodiversity	6.0	The treatment of sludge discharged into rivers adheres to national wastewater standards, ensuring no impact on biodiversity.
		Environmental management system	7.0	Although no specific environmental management system had been disclosed, PWSA has been licensed by the Ministry of Environment and adheres to national standards, using advanced technology for water leak detection and management of their constructions
	Innovation (7%)	Service innovation	7.0	PWSA hasn't yet stated any eco-designed services, but they do offer workshops on water conservation approaches and have introduced data transmitters to track online data for significant pipeline leaks, which help to lower the water loss rate and, disseminate customer the coming launch of PPWSA Mobile Apps.
		Green revenues, research, and development (R&D), and capital expenditures (CAPEX)	6.0	PWSA is implementing smart water management strategies to reduce NRW, improve efficiency, and enhance water quality through laboratory testing and demand through innovative technologies like solar panels, GIS, SCADA, and Sense water.
	Resource use (18%)	Water	8.0	PWSA's unlimited natural capital, including Tonle Sap, Mekong River, and Bassac River, has proven non-polluter in their water treatment facility sludges.
		Land use	6.0	Land filling on Koh Norea affects Niroth water intakes, affecting production costs. PWSA releases data on pipe replacement frequency, but lacks details on pipeline depth and land coverage methods.
		Energy	7.0	PWSA's operations heavily rely on EDC, impacting the environment and financial prospects despite adding solar panels for Phum Prek Water treatment and Bakheng Water treatment Plant.
		Environmental Total Score =	2.8	
SOCIAL (30%)	Community (5%)	Equally important to all industry groups, hence a median weight of five is assigned to all	10.0	PWSA has demonstrated its dedication to providing communities with access to clean water by implementing significant social initiatives, including "Clean Water for the Poor" since 1999 and other social activities
	Human rights (5%)	Human rights	8.0	PWSA upholds human rights by granting employment, education, and promoting clean water awareness, offering alternative payment plans and subsidies to those in need.
	Product responsibility (10%)	Responsible marketing	6.0	PWSA, the sole water supply company in Phnom Penh and Takhmao City, should enhance its social media presence.
		Service quality	9.0	The company's water has undergone over 50 laboratory tests and treatment procedures in accordance with WHO regulations and the Drinking-Water Quality, 4th Edition 2011, standard.
		Data privacy	7.0	PWSA disclosed information with the consent of its top executives and directors, adhering to appropriate codes of conduct, and misinterpreting these codes can result in penalties.
	Workforce (10%)	Diversity and inclusion	8.0	PWSA, with 1,291 employees, primarily males (83%), is committed to ensuring clean water access for all households, including low-income families, in Q2-FY23.
		Career development and training	9.0	PWSA has provided training to new employees on work processes and urban development, but faces a shortage in environmental impact training for climate change impact.
		Working conditions	8.0	Employees adhere to internal regulations, working 8 hours daily, divided into four rules, uniforms, and management hierarchy. Small bonuses for overtime hours are not motivational incentives.
		Health and safety	10.0	PWSA offers NSSF, health insurance, and pension scheme to all employees, but lacks safety information during construction. In addition, they provide professional trainings for employees.
		Social Total Score =	2.5	
GOVERNANCE (30%)	CSR strategy (5%)	CSR strategy	7.0	PWSA has made a significant contribution to society by providing low-income families with access to cleaning water by charging prices based on their financial status.
		ESG reporting and transparency	4.0	PWSA only published the ESG report once during 2018 and there is no more information for the year after yet. However, the company has considered in its future business plan for sustainable business practices
	Management (10%)	Structure (independence, diversity, committees)	5.0	The Prakas on Corporate Governance for Listed Public Enterprise, Article 11 of SECC, mandates a board of 7 members, including an Independent Director and Non-Executive Director. PWSA's board,

				despite diverse education backgrounds and positions in various misinterpretations, lacks gender diversity in management, with all board members being males, composed only 1 ID and 1 NED.
		Remuneration & Compensation	7.0	PWSA has disclosed the total remuneration for directors, executive directors, senior officers, and top 5 employees, with no disclosure for individual employees yet.
	Shareholders (15%)	Shareholder rights	8.0	PWSA ensures equal rights for all shareholders, including minority ones, including participation in annual meetings, information disclosure, dividends, voting rights, and remaining assets post-dissolution, despite MEF's 85% ownership.
		Takeover defenses	2.0	There is no disclosure related to takeover defenses on PWSA.
		Governance Total Score =	**1.6**	
		Overall Score =	**6.9/10.0**	

APPENDIX E – CONSUMER SURVEY

Our survey was conducted to obtain the firsthand thoughts on water consumptions patterns of consumers in Phnom Penh as a part of our understanding of PWSA as a part of our ESG and competitive analysis. We selected 63 respondents from 14 Districts as the sample of our Phnom Penh population.

60% has low water pressure

54% use water pumps every day.

46% rarely have bad water quality

80% prefers water tariff KHR 1,000/m^3

Level of Satisfaction with PWSA Services

Good Strategy for Environment Mitigation
60%

Satisfaction with Current Water Tariff
87%

Satisfaction on Service Quality
80%

Overall Satisfaction of Service Provided
85%

Highlighted Comment from respondents

"In FY23, Sen Sok District has experienced low water pressure due to the public water shortage. Some household has complaint to PWSA related to the issue, and PWSA has quickly solved the problem."

"I would suggest PWSA immigrate to digital billing format to cut-down the usage of paper and advance development system."

"The company should improve the low water pressure across the coverage areas."

APPENDIX F – GOVERNANCE SCORECARD

CRITERIA	DESCRIPTION	RATING	JUSTIFICATION
	BOARD STRUCTURES		
Independence	Board of directors must be independence, willing to effectively scrutinize strategy and act in the best interest of shareholder	2	There are 7 board members consist of 1 non-executive director and 1 independent director which follows Cambodia Corporate Governance Code. However, it neglects the global practices.
Committee	Establish Audit, Remuneration, Nomination and Risk Management Committee	3	There are established Audit, Compensation and Nomination Committee.
Diversity	The board must consist of difference educational background as well as race and gender diversity	3	The seven board members comes from Cambodia with all male representative. Members are held in various ministries and government department, a majority of them held different academic backgrounds.
Directorship	Reasonable number of the boards	2	The board has followed Cambodia Corporate Governance Code, however fail to satisfy global practices.
Competence	Directors should add value through skills and maintain level of competency in the company field	3	Minority of the board has long-term experiences related to the company's field such as deputy chief of waterworks, in-charge of water treatment construction and production of water supply.
Role delegation	Role of director general and chairman are separate	4	The director general is H.E Long Naro and chairman is H.E Sim Sitha
Board attendance	Adequate attendance at the board and committee meetings	3	Out of 5 meetings only 2 out of seven members board were absent during all meeting held.
	AVERAGE SCORE =	**2.86**	
	CORPORATE MANAGEMENT		

Code of ethics	Company's actions indicate a commitment to an appropriate ethical framework	4	Board of directors will determine the non-compliant acts, considering the facts and the circumstances related to those acts
Compensation	Executives' compensation is aligned with company culture and strategy, appropriate incentives and profit-linked performance	3	Company provides bonus and incentive however, remuneration is internally regulated, and that approval of this remuneration does not correspond to the director's performance measures.
Performance metrics	Company communicates and discloses its financial and nonfinancial performance in a consistent and transparent manner	2	Company discloses financial performance is publicly available but lack information relates to non-financial performance indicator
Performance metrics	Environmental, social, and governance–related aspects, risks, and opportunities are being handled by the company	2	Lack of ESG disclosure by the company
	AVERAGE SCORE =	**2.75**	
SHAREHOLDER RIGHTS			
Voting Rights	One share, one votes	4	Company ordinary shares has 1 vote for 1 share
Information Rights	Shareholders right to receive information disclosed by PWSA	3	Shareholder are entitled to access corporate books, annual general meeting and reports in an appropriate manner.
Meeting Rights	Shareholders has the right to attend annual general meetings	3	The voting rights in the general shareholder meeting according to the instruction of participating in the general shareholder meeting.
Dividend Rights	Right to receive dividend base on proportion of share's hold	4	The rights in receiving the dividend declared by the PPWSA according to the shareholding proportion of shareholders.
Minority Rights	The right and interest of minority shareholders must be equally with majority shareholders.	1	Minority shareholders have the right to receive information with privileges as majority shareholders. However, the majority shareholders are owned by MEF, the right to implement major decision would not be in the interest of minority shareholders.
	AVERAGE SCORE =	**3.00**	
TRANSPARENCY AND DISCLOSURE			
Understandable	Disclosure should be in a user-friendly format, easy to use and understand by external user	3	Company annual reports is understandable and user-friendly
Political Affiliation	Company should disclose any political affiliation and monetary contribution	1	PWSA has not disclosed sufficient information relates to political affiliation
Selection of Auditor	Company should allow shareholder in the selection of external auditor	3	The appointment, reappointment, removal, and fees of the external auditor is recommended by the audit committee, approved by the Board. The audit company selection for every 2 years.
Integrity of Financials	Company's financials should have integrity. Items that raise concern include certain restatements, material weaknesses and irregularities	3	The external auditor is accredited by KICPAA. Statements are publicly disclosed that is understandable and there were no excessive paid for non-audit work
	AVERAGE SCORE =	**2.50**	

APPENDIX G – BOARD OF DIRECTORS

H.E Sim Sitha
Chairman

H.E Long Naro
Member

H.E Mey Vann
Member

H.E Noun Pharat
Member

Mr. Na Moravin
Member

Mr. Nam Channtry
Member

Mr. Sreng Samork
Member

NAME	POSITION	MEMBER SINCE	RESIDENT	EDUCATION	INDEPENDENT	WORK EXPERIENCE
H.E Sim Sitha	Chairman	2012	Cambodia	- Master's degree in business administration from University of Management and Economics **(Cambodia)**	No	Secretary of State, Ministry of Industry, Science, Technology and Innovation.

H.E Long Naro	Member	2012	Cambodia	- Mechanical Engineer Certificate from "Georgi Dimitroff" Glauchau **(East Germany)** - Master's degree in business administration from the Charles Sturt University **(Australia)**	No	Delegation of the Royal Government of Cambodia in Charge of The Director General of PWSA
H.E. Mey Vann	Member	2014	Cambodia	- Master's degree Economic Policy from the University of D'AUVERGNE (France) - PhD in Business Economics from PRESTON University (USA)	No	Secretary of State, Ministry of Economy and Finance
H.E. Nuon Pharat	Member	2017	Cambodia	- Bachelor of Laws in Public and Private Sector in 2001 at the Royal University of Law and Economics (Cambodia) - Master's degree in Judicial and Criminal Science at Jean Moulin Lyon3 (France)	No	Deputy Governor of the Board Governors of Phnom Penh
Mr. Ma Noravin	Member	2012	Cambodia	- Bachelor's degree in hydrology from the Institute of Technology of Cambodia - Master's degree in socio-environmental engineering (Japan)	No	Director of the Department of Production and Water Supply, representing PWSA's employees
Mr. Nam Channtry	Non-executive Director	2022	Cambodia	- Bachelor of Business Administration in Accounting and Finance from Build Bright University (Cambodia) - Master's degree in business administration specialized in Financial Management from Royal University of Law and Economics (Cambodia)	Yes	Non-executive director representing to private shareholders
Mr. Sreng Samork	Independent Director	2022	Cambodia	- Bachelor of Science, Electrical Engineering from California State of University of Long Beach (USA) - Master's degree in international business administration from West Coast University (USA)	Yes	N/A

APPENDIX H – PORTER's FIVE FORCES ANALYSIS

BARGAINING POWER OF SUPPLIER – HIGH (4/5)

- PWSA's policy of purchases a raw material for water treatment and business operation is based on bidding system by involving from more than one supplier from various countries.

- Water processing is operated based on the use of power; electricity. Thus, in Cambodia, the biggest power supplies are EDC, who provide electricity to PWSA. Hence, the combine suppliers given PWSA a moderate bargain power of supplier.

BARGAINING POWER OF BUYER – LOW (1/5)

- With the long establishment, high switching costs, and restricted coverage location, PWSA's competitor might not be an option for customers in Phnom Penh and TaKhmao

- Some customers may be able to bargain over contract terms and costs, especially if they are municipalities or industrial users

- The essential nature of water supply often limits customer power to some extent, thus, restricting customer power.

COMPETITIVE RIVALRY – LOW (2/5)

- Regulated water tariff and advanced technological know-how serves as a competitive advantage of PWSA's operation

- PWSA obtained service coverage areas license and financial freedom to invest in infrastructure since it is a state-owned company, were private operator would not access to PWSA market share.

- Moreover, its competitors lack of capacities and resources to really threaten PWSA.

- Thus, there is low competitive rivalry.

THREAT OF NEW ENTRANT – LOW (1/5)

- Clean water supply industry required large investment costs combined with the high
- This industry is highly regulated and strict operation license requirement
- Therefore, PWSA has guarantee coverage zone as regulated
- With the economies of scale and long-standing user connections, it's challenging for newcomers compete in the market.

THREAT OF SUBSTITUTES – LOW (1/5)

- Clean water is an essential need for daily living, and has only few substitutes

- Conventional wells, pump wells, rainwater harvesting systems, river water, etc. are substitute water sources

- However, those substitute sources are not clean and safe as standards treated clean water provided by PWSA
- Therefore, threat of substitutes to PWSA is determined as low.

APPENDIX I – SWOT ANALYSIS

Strengths

- **Significant low NRW -** PWSA ranked second after Singapore of low Non-Revenue Water (NRW) status in South East Asia due to efficient operations and new monitoring program implementation**.**
- **Water production and collection -** PWSA can utilize clean water that is available 24/7. Billing and collection ratio is above 90%, which increases efficiency due to introducing mobile billing.
- **Water resources-** PWSA can obtain the raw water at sources in adequate volume and for free of charge.
- **Competitors –** PWSA does not have direct competitor in the Phnom Penh market.

Weaknesses

- **Insufficiency water capacity supply-** PWSA is unable to generate its clean water to meet the demand of Phnom Penh, including suburban areas.
- **Unsustainable capital structure -** PWSA heavily relies on loans and grants to sustain its operations, leading the company to have more debt than capital.
- **Governmental board of directors -** most of the company directors are government officials and not diversified in terms of independence.
- **Lack of customer satisfaction- consumers** are dissatisfied with the clean water used due to low water pressure whether in central or suburban areas.

Opportunities

- **Expansion-** Phnom Penh is likely to expand, so there is potential for future service coverage expansion plans of PWSA with new water treatment plant developments.
- **Population growth - increase** in Phnom Penh population, raises the demand for clean water and increase in water connections.
- **External Relationship -** PWSA has the access to seek financial support from the international communities with low interest rates.

Threat

- **Government Regulations -** The water tariff of PWSA is subjected to government regulations which are unpredictable and not able to sustain its business in the long term.
- **Economic downturn - Lack** of investments due to changes in economic circumstances with slow recovery.
- **Instability in foreign exchange rate-** Due to different currency translations, while PWSA uses KHR as its currency, the company will face loss in currency translation, causing the company to decrease its revenue.

APPENDIX J – WATER TARIFF ADJUSTMENTS

Table 1

2001: 1st Tariff Adjustment

Consumer Category	m^3/month	KHR/m^3
Domestic	0 – 7	550
	8 – 15	770
	16 – 50	1,010
	> 50	1,270
Administration	Flat Rate	1,030
Commercial & Industrial	< 100	950
	101 – 200	1,150
	201 – 500	1,350
	> 500	1,450

Table 2

2020: 2nd Tariff Adjustment

Consumer Category	m^3/month	KHR/m^3
Domestic	0 - 7	400
	8 - 15	720
	16 - 25	960
	26 - 50	1,250
	51 - 100	1,900
	> 100	2,200
Administration	Flat Rate	2,500
Commercial & Industrial	0 - 15	950
	16 - 45	1,100
	46 - 100	1,400
	101 - 200	1,700
	201 - 500	2,100
	> 500	2,400

PWSA's water tariff is set under the government regulated which is only revised twice time from FY00 until present date.

Approximate twenty-five-year of operation, the first adjustment of water tariff is in FY01 **(Table 1)**, and the second adjustment is in FY20 **(Table 2)**, in which the tariff is being revised on all of the revenue segments.

As per average water tariff adjustment of each segment, it is increased by KHR 390/m^3 for domestic segment, KHR 1,470/m^3 for administration segment, and KHR 475/m^3 for commercial & industrial segment.

APPENDIX K – SCENARIO FORECAST ASSUMPTION

DCF Model - Base Case Scenario:

Water sales revenue: 6% average GDP growth rate, 3% average population growth rate in Phnom Penh, 8.8% average production capacity growth rate, and based on KHR 1,300/m^3 tariff, are the factors that determine the revenue schedules for FY23–28. We take a weighted average of 6.4% growth from FY23–24, increase by 3% in FY25, and increase by 5% from FY26–28 based on the future growth plan of PWSA.

Construction service revenue: based on an average growth rate of 5.7% for construction services as a proportion of water sales.

Other income: Predicted to grow at a steady average rate of 4.5% based on the GDP growth rate of Cambodia.

Electricity: due to efforts in renewable energy policy for its new water treatment plant project and its downward trend since FY20 we assume it is going to cut costs in the forecast period.

Depreciation and amortization: based on the opening balance of tangible and intangible assets as well as historical trends, we assume a steady rise in depreciation and amortization.

Employee benefit: based on the new minimum wage and PWSA policy, we assume benefits for employees will grow by 3% in FY23 and 8% yearly in FY24–28.

Other operating costs: we assume the other operating cost including raw material for water treatment, raw material for water connection, repairs & maintenance, construction service expenses, and other costs are steadily growth based on the historical trend.

Income tax rate: we assume based on the statutory tax rate.

CAPEX growth: based on the master plan of PWSA is going to expand new water treatment plant, we assume CAPEX will increase more.

Trade and other receivables: based on the company disclosure, we expected the average collecting period is 35 days.

Short term investment: as there is a expansion plan, we assume PWSA more likely to slow down in investing in the short term investment.

Dividend: based on the disclosure that PWSA is committed to distribute 15% of its earnings to the investors.

Other non current payables: we assume it is constantly growth based on the reported historical growth trend.

Bull Case Scenario: We kept the assumption of all accounts remain constant except the water tariff which is the significant impact factor to the PWSA's revenue and net profit.

- Average water tariff increased by KHR 200/m^3 from KHR 1,300/m^3 to KHR 1,500/m^3 for domestic segment.

Bear Case Scenario: We kept the assumption of all accounts remain constant except the water tariff which is the significant impact factor to the PWSA's revenue and net profit.

- Average water tariff decreased by KHR 200/m^3 from KHR 1,300/m^3 to KHR 1,100/m^3 for domestic segment.

Monte Carlo Simulation: All assumptions remained the same except:

- The annual revenue from water sales and the 4 main sensitive cost items such as electricity, employees benefit, and raw materials for household connections and water treatment are randomly selected from normal distributions based on those line items' historical arithmetic averages and standard deviations.
- Terminal growth rate is randomly selected from a normal distribution based on the arithmetic average and standard deviation of inflation rate, Cambodian population growth, and Phnom Penh population growth.
- Cost of equity is randomly drawn from a normal distribution based on the arithmetic average and standard deviation of the firm's cost of equity.

DDM Model - Base Case Scenario:

- Dividend: we assume PWSA is committed to pay dividend to shareholder at a rate of 15% of the earnings
- Discounted factor (Ke): 15.2% **(Appendix P)**
- Terminal growth rate: 3.6% growth rate at terminal year FY28.

Bull Case Scenario: All factors are kept unchanged except the dividend as it is the main factor impact on the DDM valuation.

- Dividend: we assume PWSA is committed to pay 20% dividend of the earnings to shareholders.

Bear Case Scenario: All factors are kept unchanged except the dividend as it is the main factor impact on the DDM valuation.

- Dividend: we assume PWSA is committed to pay 10% dividend of the earnings to shareholders.

APPENDIX L – INCOME STATEMENT

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Revenue											
Sales	206	194	282	282	300	319	339	371	413	461	513
Construction Service Fee	8	3	23	26	25	26	28	29	31	33	35
Other Income	51	17	19	58	21	21	22	23	24	25	27
Total Revenue	**265**	**216**	**324**	**369**	**346**	**367**	**390**	**424**	**469**	**519**	**574**
Expenses											
Depreciation and Amortization charges	-43	-50	-50	-55	-59	-77	-84	-92	-100	-110	-121
Electricity Costs	-39	-38	-37	-36	-35	-34	-34	-33	-32	-32	-31
Employee Benefits Expense	-54	-51	-56	-64	-70	-72	-78	-84	-91	-98	-106
RM for Water Treatment	-7	-8	-10	-9	-12	-12	-12	-13	-14	-14	-15
RM for Household Water Connections	-3	-3	-2	-3	-5	-5	5	-6	-6	-7	-7
Repairs and maintenance	-8	-7	-8	-7	-8	-8	-8	-8	-9	-9	-9
Construction service expense	-6	-3	-18	-22	-17	-17	-17	-18	-18	-19	-19
Other operating expenses	-9	-8	-8	-15	-11	-12	-12	-12	-13	-13	-14
Operating profit	**95**	**52**	**129**	**157**	**125**	**129**	**138**	**157**	**185**	**217**	**253**
Finance income	17	9	4	13	18	18	19	20	21	22	23
Finance costs	-16	-11	-13	-5	-12	-17	-19	-21	-24	-27	-31
Profit before tax	**95**	**49**	**121**	**166**	**130**	**131**	**139**	**156**	**183**	**212**	**245**
Income tax	-19	-16	-32	-36	-22	-26	-28	-31	-36	-42	-49
Profit for the year	**76**	**33**	**88**	**129**	**108**	**104**	**111**	**125**	**146**	**170**	**196**

APPENDIX M – BALANCE SHEET

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Assets											
Property, Plant, Equipment	1,216	1,374	1,574	1,894	2,203	2,420	2,660	2,922	3,211	3,528	3,876
Intangible Assets	14	13	13	12	12	10	9	8	7	6	5
Inventories	97	104	79	144	153	161	167	174	181	188	196
Trade and Other Receivables	18	16	26	25	28	35	37	41	45	50	55
Contract Assets	46	10	43	66	93	87	92	97	103	109	115
Loan to Employees	5	8	8	8	8	8	8	8	8	8	8
Short-Term Investments	34	18	18	68	126	135	143	163	164	171	188
Cash and Cash Equivalents	13	55	100	90	61	44	35	13	14	16	17
Total Assets	**1,449**	**1,604**	**1,865**	**2,307**	**2,684**	**2,901**	**3,151**	**3,425**	**3,732**	**4,075**	**4,460**
Equity											

Share Capital and Share Premium	541	541	541	619	621	621	621	621	621	621	621
Reserves	285	339	352	418	543	543	543	543	543	543	543
Retained Earnings	74	33	88	129	108	197	278	361	453	555	668
Liabilities											
Borrowings	286	304	517	790	986	1,085	1,226	1,386	1,566	1,769	1,999
Deferred Government and Other Grant	23	21	19	17	69	71	73	76	78	80	83
Deferred Tax Liabilities	45	59	62	72	77	82	92	103	116	130	145
Other Payables	57	65	65	69	77	81	86	91	97	103	109
Trade and Other Payables	82	197	156	142	155	169	177	185	195	205	216
Borrowings	42	33	31	23	23	25	27	31	36	41	47
Contract Liabilities	37	3	4	2	4	7	7	7	8	8	9
Current Tax Liabilities	14	8	28	24	20	20	20	20	20	20	20
Total Equity and Liabilities	**1,449**	**1,604**	**1,865**	**2,307**	**2,684**	**2,901**	**3,151**	**3,425**	**3,732**	**4,075**	**4,460**

APPENDIX N – CASH FLOW STATEMENT

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Cash Flows from Operating Activities:											
Profit Before Tax	96	49	121	166	131	131	139	156	183	212	245
Adjustments for:											
Amortization of Intangible Assets	2	2	2	2	2	2	2	2	2	2	2
Depreciation of PPE	41	48	48	53	57	75	82	90	99	108	118
Amortization of Deferred Gov. & Grants	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Finance Income	-17	-9	-1	-3	-5	-7	-4	-4	-5	-5	-5
Finance Cost	16	12	5	6	9	4	6	6	6	6	6
Net Unrealize Foreign Exchange loss/(gain)	-	-	10	-11	1	-82	39	42	46	50	51
OP Before Changes in Working Capital	**139**	**98**	**183**	**181**	**194**	**121**	**262**	**290**	**329**	**371**	**417**
Increase in Inventories	-32	-7	29	-72	-90	-8	-6	-7	-7	-7	-7
(Increase)/Decrease in Trade & Other AR	25	2	-11	1	-2	-7	-2	-3	-4	-5	-5
Decrease in Trade and Other Payables	29	96	-89	5	9	14	8	9	9	10	11
Increase in Contract Assets	-46	36	-30	-23	-27	6	-5	-5	-6	-6	-6
Increase/(Decrease) in Contract Liabilities	0.04	3	0.74	-2	-3	-2	-0.38	-0.40	-0.43	-0.45	-0.48
Increase in Refundable Water Deposits	5	6	4	4	7	5	5	5	5	6	6
Net Cash from Operations	**92**	**233**	**79**	**95**	**94**	**218**	**260**	**288**	**326**	**368**	**415**
Income Tax Paid	-7	-8	-10	-25	-22	-26	-28	-31	-37	-42	-49
Net Cash from Operating Activities	**83**	**225**	**69**	**69**	**72**	**102**	**233**	**257**	**290**	**326**	**366**
Cash Flows from Investing Activities											
Purchase of PPE	-162	-200	-196	-290	-282	-292	-321	-353	-388	-426	-468
Purchase of Intangible Assets	-27	-203	-304	-1133	-390	-363	-318	-278	-243	-213	-186
Interest Received	2	1	1	2	3	3	2	2	2	2	2
(Increase)/decrease in ST Investment	63	16	-0.53	-50	-58	-9	-7	-20	-0.89	-8	-16
Net Cash Used in Investing Activities	**-99**	**-186**	**-199**	**-343**	**-288**	**-301**	**-327**	**-371**	**-387**	**-432**	**-482**
Cash Flows from Financing Activities											
Dividends Paid	-6	-3	-26	-3	-4	-16	-29	-42	-54	-68	-83
Drawdown of Borrowings	73	47	234	303	218	228	143	163	185	209	236
Interest Paid	-8	-5	-1	-7	-7	-8	-6	-6	-7	-7	-7
Repayments of Borrowings	-46	-37	-32	-28	-21	-22	-23	-24	-25	-26	-28
Net Cash from Financing Activities	**13**	**3**	**175**	**263**	**187**	**181**	**85**	**91**	**98**	**107**	**118**
Net Decrease in Cash & Cash Equivalents	-3	42	44	-10	-28	-17	-9	-22	1	1	2
Begin Cash and Cash Equivalents	16	13	55	100	90	61	44	35	13	14	16
Ending Cash and Cash Equivalents	**13**	**55**	**100**	**90**	**61**	**44**	**35**	**13**	**14**	**16**	**17**

APPENDIX O – DISCOUNTED CASH FLOW MODEL

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Free Cash Flow to Equity (FCFE)											**Terminal Year**
Net Profit	76	33	88	129	108	105	111	125	146	170	196
Add: Depreciation and Amortization	43	50	50	55	59	77	84	92	100	110	121
Less: CAPEX	-162	-200	196	-290	-282	-293	-322	-353	-388	-426	-468
Add: Change in Working Capital	-21	148	-56	-104	-24	-7	-5	-6	-7	-7	-8
Add: Net Debt	27	11	202	275	197	206	121	139	159	182	208
FCFE	**-36**	**42**	**89**	**65**	**60**	**103**	**-12**	**-3**	**11**	**29**	**51**
Present Value of FCFE						**89**	**-9**	**-2**	**6**	**14**	**441**

Terminal Growth Rate	3.6%
Total Present Value of FCFE (in million)	540,000
Number of Shares (in million)	87
Intrinsic Value	KHR 6,207
Current Share Price as @ 31 Dec 2023	KHR 7,280
Upside/(Downside) Risk	-15%

Source: Company Data, Team Analysis

In our DCF computation, we use a perpetuity growth approach other than exiting multiple. The perpetuity growth approach is more appropriate to PWSA due to the company is an ongoing business operation with an expectation of continuing stable growth rate in the future. Therefore, in our DCF model, we determined a terminal growth rate of 3.6% starting from FY28 based on three factors such as a Cambodia's forecast inflation rate, Cambodia GDP growth, and Phnom Penh population growth rate from World bank's forecast.

APPENDIX P – WACC COMPUTATION

Cost of Debt (Kd)	
Interest Coverage	10.3x
Synthetic Rating	AA
Synthetic Rating Spread	0.85%
Country Default Spread	5.99%
US Risk Free Rate	4.00%
Tax Rate	20.00%
Cost of Debt	**8.7%**

PWSA's Equity Beta	
Industry Asset Beta	0.37
% of Equity (Book Value)	48.9%
% of Debt (Book Value)	51.1%
Tax Rate	20.0%
PWSA Equity Beta	**0.68**

Cost of Equity (Ke)	
US Risk Free Rate	4.0%
US Equity Risk Premium	4.6%
Cambodia Country Risk	8.0%
PWSA Equity Beta	0.68
Cost of Equity	**15.2%**
WACC	**11.8%**

Cost of debt: Given 10.3x interest coverage in FY22, PWSA has an AA synthetic rating with 0.85% spread. We used 5-years US treasury bond yield of 4% and covert the risk associate in Cambodia with country default spread of 5.99% and Cambodian tax rate 20% in computing the cost of debt which result in 8.7%.

Cost of equity: Through the US risk free rate 4% and equity risk premium 4.6%, plus take into consider of Cambodia country risk 8%, and the re-geared of equity beta 0.68, using CAMP model we arrived cost of equity at 15.2%.

WACC: Based on the weighted of the equity and debt with its required rate of return, it gives PWSA an overall WACC 11.8%.

APPENDIX Q – SENSITIVITY ANALYSIS

Cost of Equity \ Terminal Growth Rate	0.6%	1.6%	2.6%	3.6%	4.6%	5.6%	6.6%
11.2%	6,755	7,334	8,048	8,950	10,125	11,721	14,013
12.2%	6,258	6,737	7,316	8,030	8,932	10,107	11,703
13.2%	5,838	6,241	6,720	7,298	8,012	8,914	10,089
14.2%	5,477	5,821	6,224	6,703	7,282	7,995	8,897
15.2%	5,164	5,461	5,804	6,207	6,686	7,265	7,979
16.2%	4,890	5,148	5,445	5,789	6,191	6,670	7,249
17.2%	4,647	4,875	5,133	5,430	5,773	6,176	6,655
18.2%	4,431	4,633	4,860	5,118	5,415	5,759	6,161
19.2%	4,237	4,417	4,618	4,846	5,104	5,401	5,744

Cost of Equity \ Changes in Water Tariff	85%	90%	95%	100%	105%	110%	115%
11.2%	3,519	5,329	7,140	8,950	10,760	12,570	14,380
12.2%	3,158	4,782	6,406	8,030	9,654	11,277	12,901
13.2%	2,874	4,349	5,824	7,298	8,773	10,248	11,723
14.2%	2,643	3,996	5,349	6,703	8,056	9,409	10,762
15.2%	2,452	3,704	4,956	6,207	7,459	8,711	9,962
16.2%	2,292	3,458	4,623	5,789	6,954	8,119	9,285
17.2%	2,156	3,247	4,338	5,430	6,521	7,612	8,703
18.2%	2,039	3,065	4,092	5,118	6,145	7,172	8,198
19.2%	1,936	2,906	3,876	4,846	5,815	6,785	7,755

We conducted sensitivity analysis to evaluate the impact of the sensitive factors to our target price. The most sensitive factor of PWSA target price is the changes of water tariff, cost of equity, and terminal growth rate. With terminal growth rate, Ke, and changes in average water tariff; 3.6%, 15.2%, and KHR 1,300, our target price is KHR 6,207.

By keeping growth rate constant, 1% increase of Ke, the target price will by 6.7%, but if Ke decrease by 1%, target price will increase by 8%. However, the 1% growth rate will lead to a 7.7% increase of target price, while 1% decrease of growth rate, the target price is going to drop by 6.5% with the unchanged Ke.

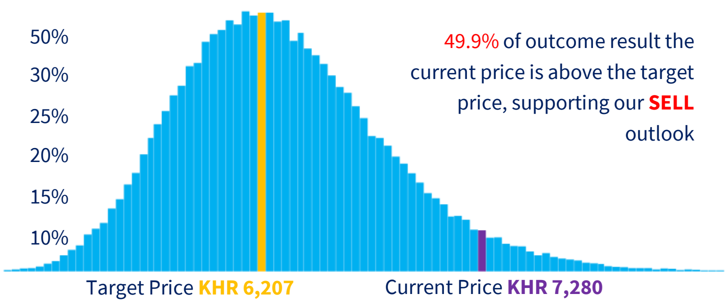
On the other hand, if water tariff increase/decrease by 5%, our target price will rise/drop by 20.2%. As a result, the changes of those three factors have a significant impact on the movement of the intrinsic value and can shift our recommendation from **SELL** to **BUY**.

APPENDIX R – MONTE CARLO SIMULATION

To assess the fluctuate probability of PWSA's share price move with the uncertainty factors, we perform a Monte Carlo simulation. In our testing, we considered on the following main factors:

1. Cost of equity
2. Terminal growth rate
3. Water sales revenue
4. Electricity costs
5. Employee benefits expense
6. Raw materials for water treatment
7. Raw material for household water connection

The mean, median, and standard deviation for these parameters is computed based on the historical data and our team analysis of PWSA performance.



Simulation Statistics Summary	
Input Trials	100,000
Mean	6,253
Median	6,205
Standard Deviation	523
Max	9,761
Min	4,689
Coefficient of Variation	8%
Target Price	KHR 6,207
Market Price	KHR 7,280

Source: Team Analysis

Result: After we input 100,000 trials, we observed that there is 49.9% of all outcomes yield PWSA stock is overvalue, which cementing our **SELL** recommendation. However, only 3.8% chance can shift to a **BUY** recommendation.

APPENDIX S – RELATIVE VALUATION

Peers	Country	Ticker	Price	EPS	P/E
Ben Thanh Water Supply JSC	Vietnam	BTW	VND 35,400	VND 4,33	6.20x
Thu Duc Water Supply JSC	Vietnam	TDW	VDN 45,500	VND5,597	6.39x
Long Khanh Water Supply JSC	Vietnam	LKW	VND 30,000	VND 5,763	6.59x
SIIC Environment Holdings Ltd.	Singapore	SIIC	SGD 0.19	SGD0.30	3.15x
China Everbright Water Ltd	Singapore	CEWL	SGD 0.21	SGD 0.35	3.09x
Manila Water Company	Philippines	MWC	PHP 18.60	PHP 2.53	7.37x
PBA Holdings BHD	Malaysia	PBAH	MYR 1.70	MYR 0.21	3.26x
				Average:	**5.15x**
Phnom Penh Water Supply Authority	**Cambodia**	**PWSA**	**KHR 7,280**	**KHR 1,244**	**5.85X**

Source: Company Data, Bloomberg, Team Analysis

Relative Multiple	P/E Multiple
Relative Equity Value	6,406
PWSA Share Price	7,280
Upside/(Downside) Risk	-12%
Recommendation	**SELL**

With the peer's selection, we choose some company in Southeast Asia that operate in water supply industry. The relative multiple is calculated based on historical FY22 data.

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