រដ្ឋាករទឹកស្វយ័តក្រុងភ្នំពេញ

PHNOM PENH WATER SUPPLY AUTHORITY

Not Every Drop Is Valuable

TEAM A

Sarom Sothida

Oum Vouthraboth

Pich Sokha Lakshmi

Ea Suypheng

Yim Arngy

TEAM OVERVIEW

CamEd Business School

Candidates and Advisor

1. **Oum Vouthrabot**
   Senior Student
   Bachelor of Accounting and Finance
2. **Ea Suypheng**
   Senior Student
   Bachelor of Accounting and Finance
3. **Yim Arngy**
   Senior Student
   Bachelor of Accounting and Finance
4. **Pich Sokha Lakshmi**
   Senior Student
   Bachelor of Accounting and Finance
5. **Sarom Sothida**
   Senior Student
   Bachelor of Accounting and Finance

Advisor

Muhammad M. Ma’aji
Professor of Finance
CamEd Business School

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COMPANY BACKGROUND

Facts & Figures

2nd lowest
NRW in Southeast Asia

239M m^3
Water Capacity

467K
Water Connections

1360
Employees

8
Water treatment plants

Phnom Penh Water Supply Authority (PWSA)

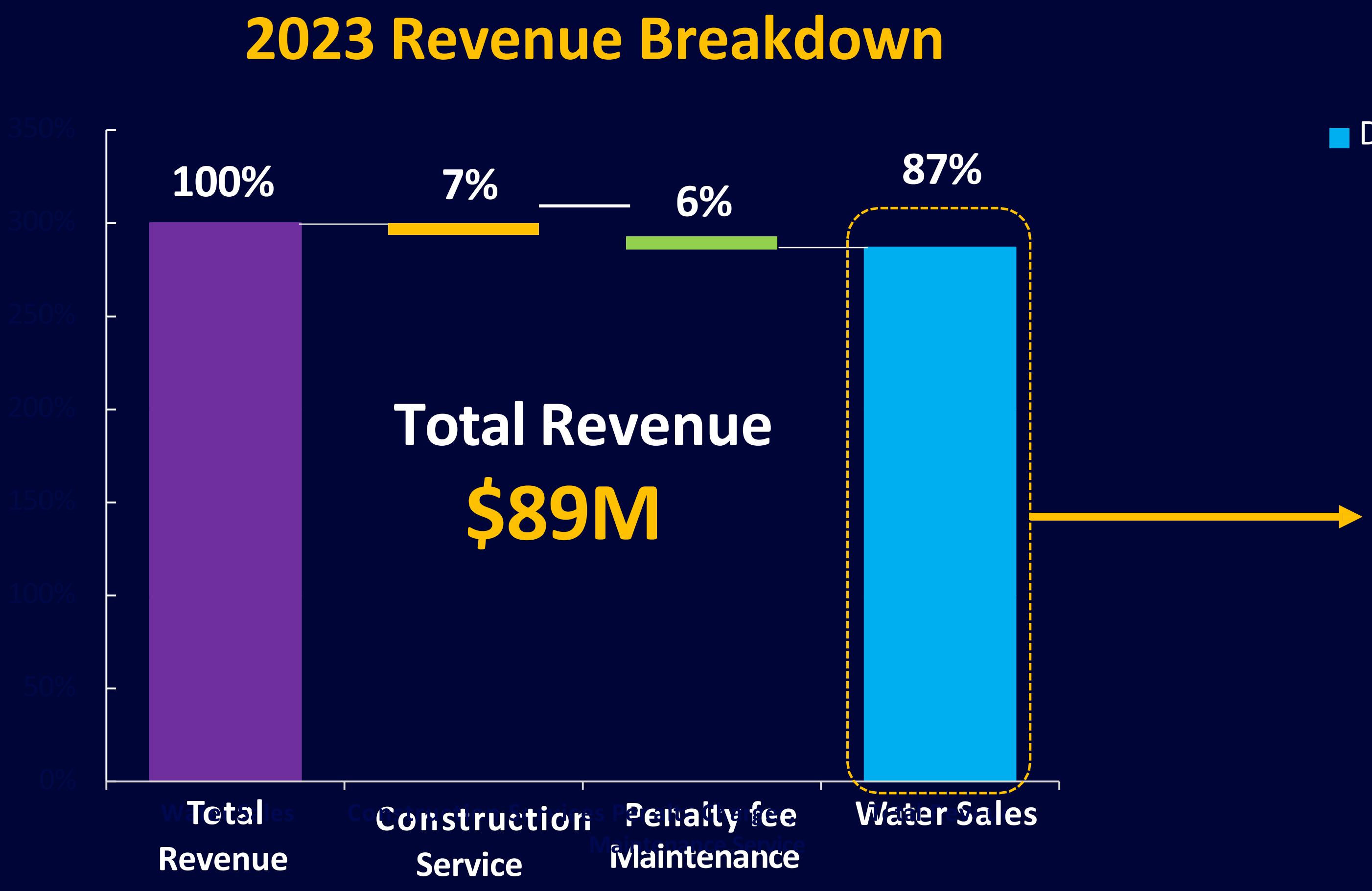
Ministry of Economy and Finance (MEF)

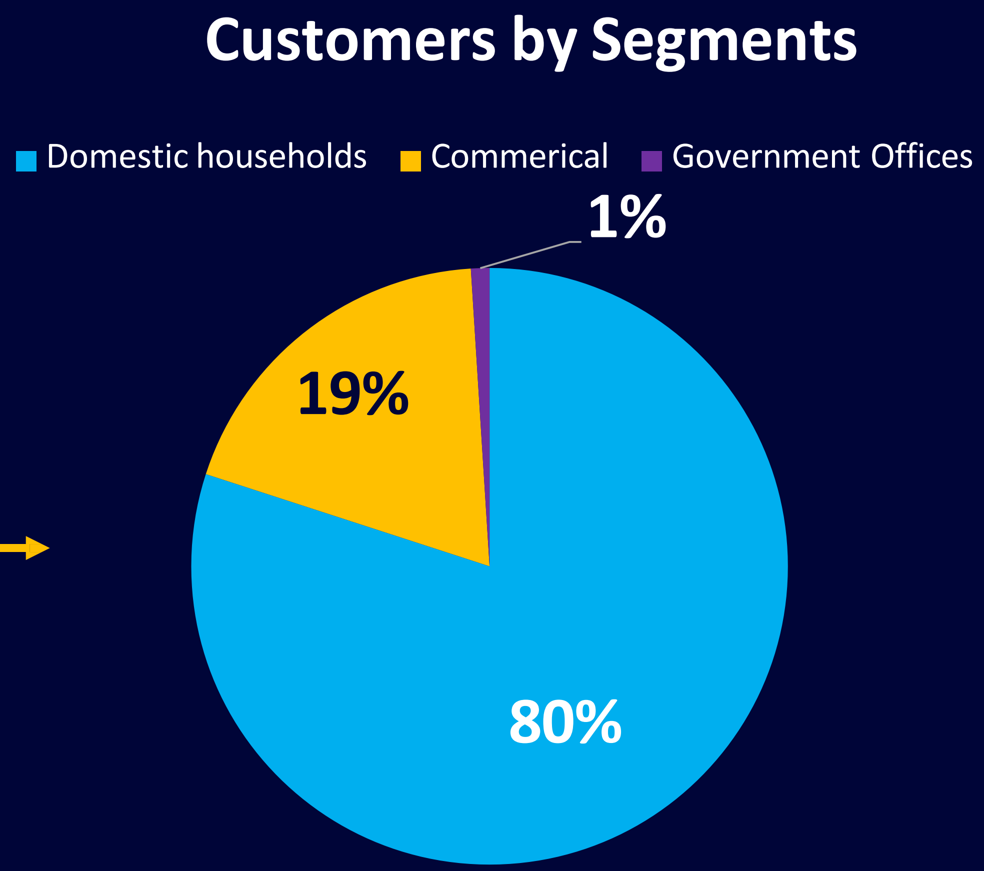
"Financial Supervisor"

Ministry of Industry, Science, Technology & Innovation (MISTI)

"Technical Supervisor "

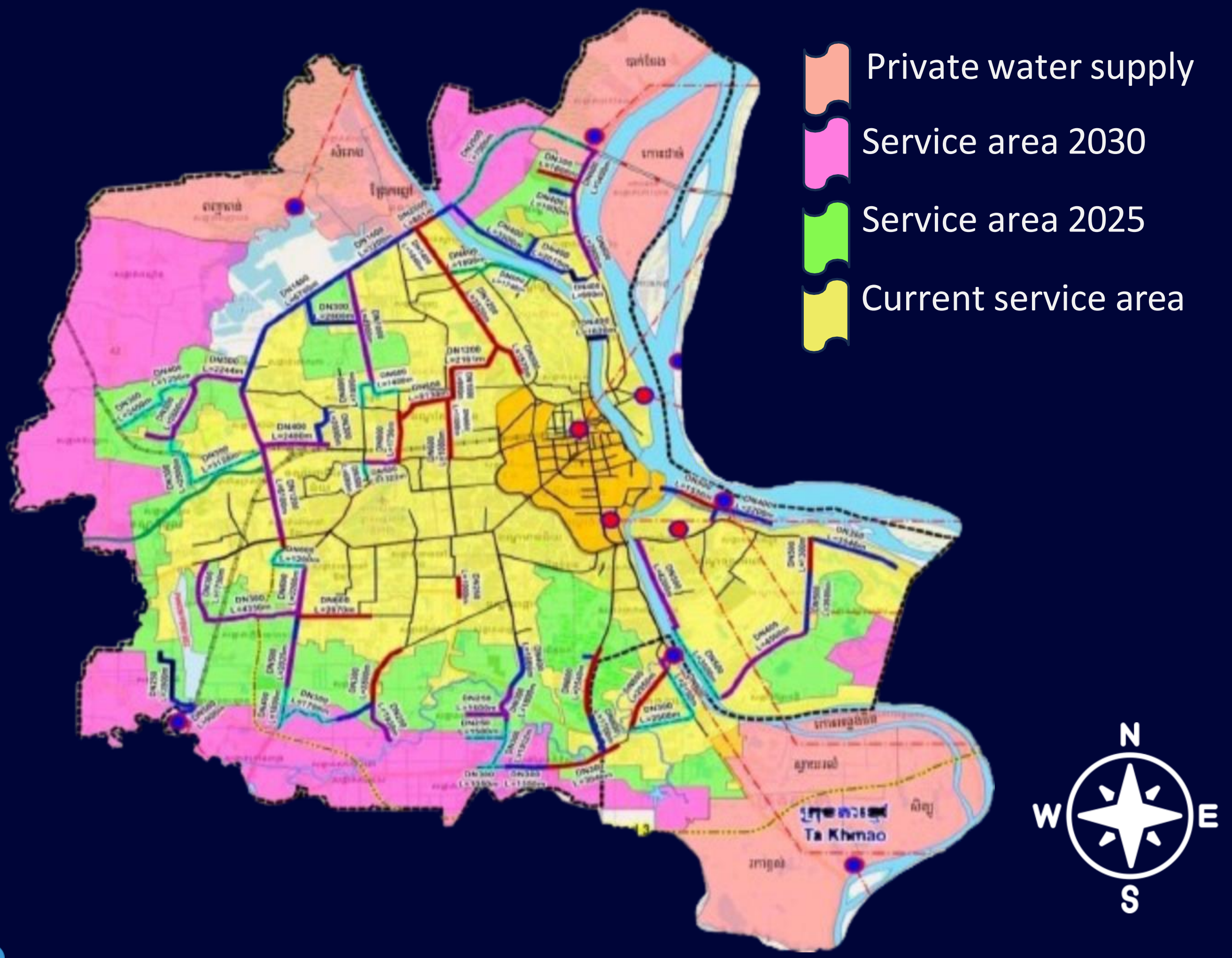
COMPANY BACKGROUND





INDUSTRY ANALYSIS AND COMPETITIVE POSITIONING

Phnom Penh and Takhmao Map



Barriers to entry

- Large Capital Investment
- Highly regulated water tariff
- Difficulty to secure licenses

CONSUMER SATISFACTION SURVEY

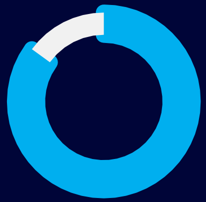

60% have low water pressure


54% use water pumps every day


54% have bad water quality


80% believe the water tariff rate is high


60% thinks PWSA has good environment mitigation


87% are satisfied with overall service

Highlighted comments 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."

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

ESG SCORING

	CATEGORIES	SCORE	WEIGHT
ENVIRONMENT	Solar panels Good use of water resources Wastewater Green house emission	2.8/4	40%
SOCIAL	Water incentives Programs Service Quality Equalities Career development & training	2.5/3	30%
GOVERNANCE	CSR Strategy Shareholders' rights Remuneration Compensation	1.6/3	30%

EXCEPT

- Relies heavily on EDC
- Sludge discharge may affect biodiversity

ESG SCORING

	CATEGORIES	SCORE	WEIGHT
ENVIRONMENT	Solar Panels Good Use Of Water Resources Wastewater Green house emission	2.8/4	40%
SOCIAL	Water incentives programs Service quality Equalities Career development & training	2.5/3	30%
GOVERNANCE	CSR Strategy Shareholders' rights Remuneration Compensation	1.6/3	30%

EXCEPT

- Low water pressure
- Water Impurity from rusty distribution network

ESG SCORING

	CATEGORIES	SCORE	WEIGHT
ENVIRONMENT	Solar Panels Good Use Of Water Resources Wastewater Green house emission	2.8/4	40%
SOCIAL	Water incentives Programs Service Quality Equalities Career development & training	2.5/3	30%
GOVERNANCE	CSR strategy Shareholders' rights Remuneration Compensation	1.6/3	30%

EXCEPT

- Lack of independence, diversity and transparency
- Social goal-oriented rather than shareholder's interest

ESG SCORING USING REFINITIV

	CATEGORIES	SCORE	WEIGHT
ENVIRONMENT	Solar Panels Good Use Of Water Resources Wastewater Green house emission	2.8/4	40%
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SDG

OVERALL SCORE

6.9/10

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INVESTMENT HIGHLIGHT

SELL

RECOMMENDATION

TARGET PRICE
KHR 6,207 (USD 1.55)

DOWNSIDE RISK
15%

CLOSING PRICE
KHR 7,280 (USD 1.82)

- REGULATION PREVENTS PWSA FROM ADJUSTING TARIFF
- SLOW RECOVERY IN THE REAL ESTATE MARKET POSES RISK TO RETURNS ON INVESTMENT IN EXPANSION AREAS
- EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER’S INTEREST

INVESTMENT SUMMARY

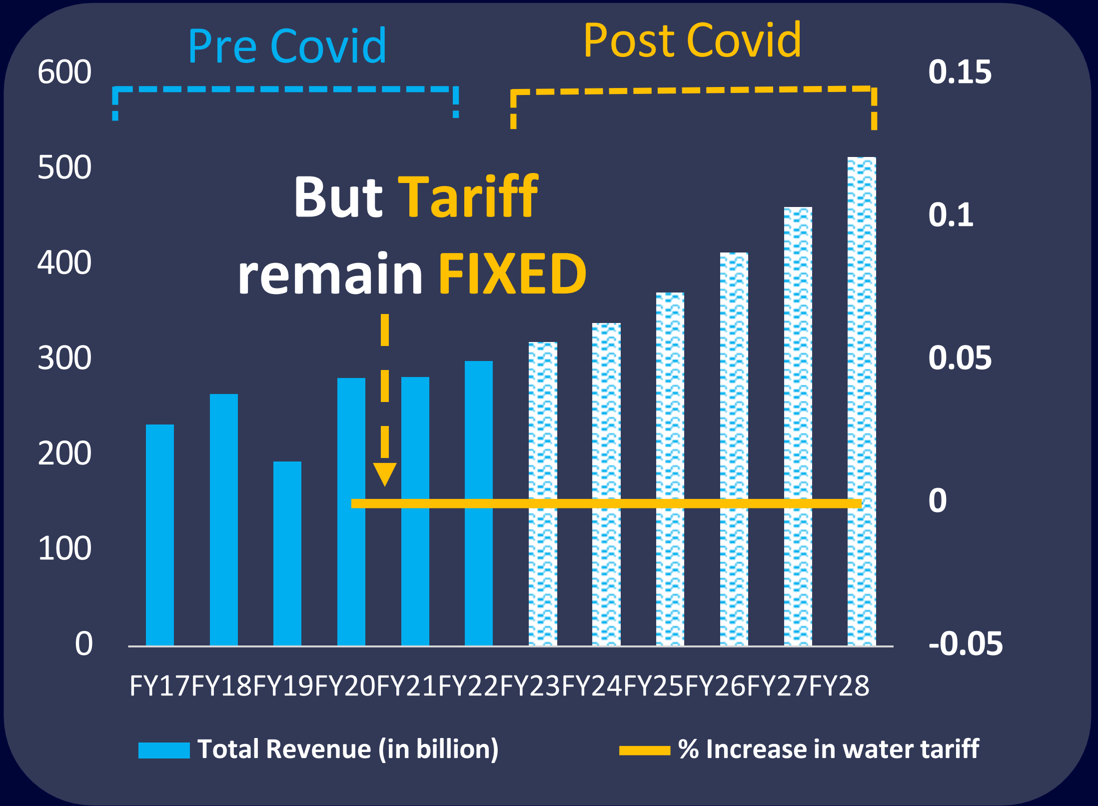
REGULATION PREVENTS PWSA FROM ADJUSTING TARIFF

SLOW RECOVERY IN THE REAL ESTATE MARKET POSES RISK TO RETURNS ON INVESTMENT IN EXPANSION AREAS

EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST

TARIFF CONSTRAINT : INCREASE CONNECTIONS AMIDST FIXED TARIFFS

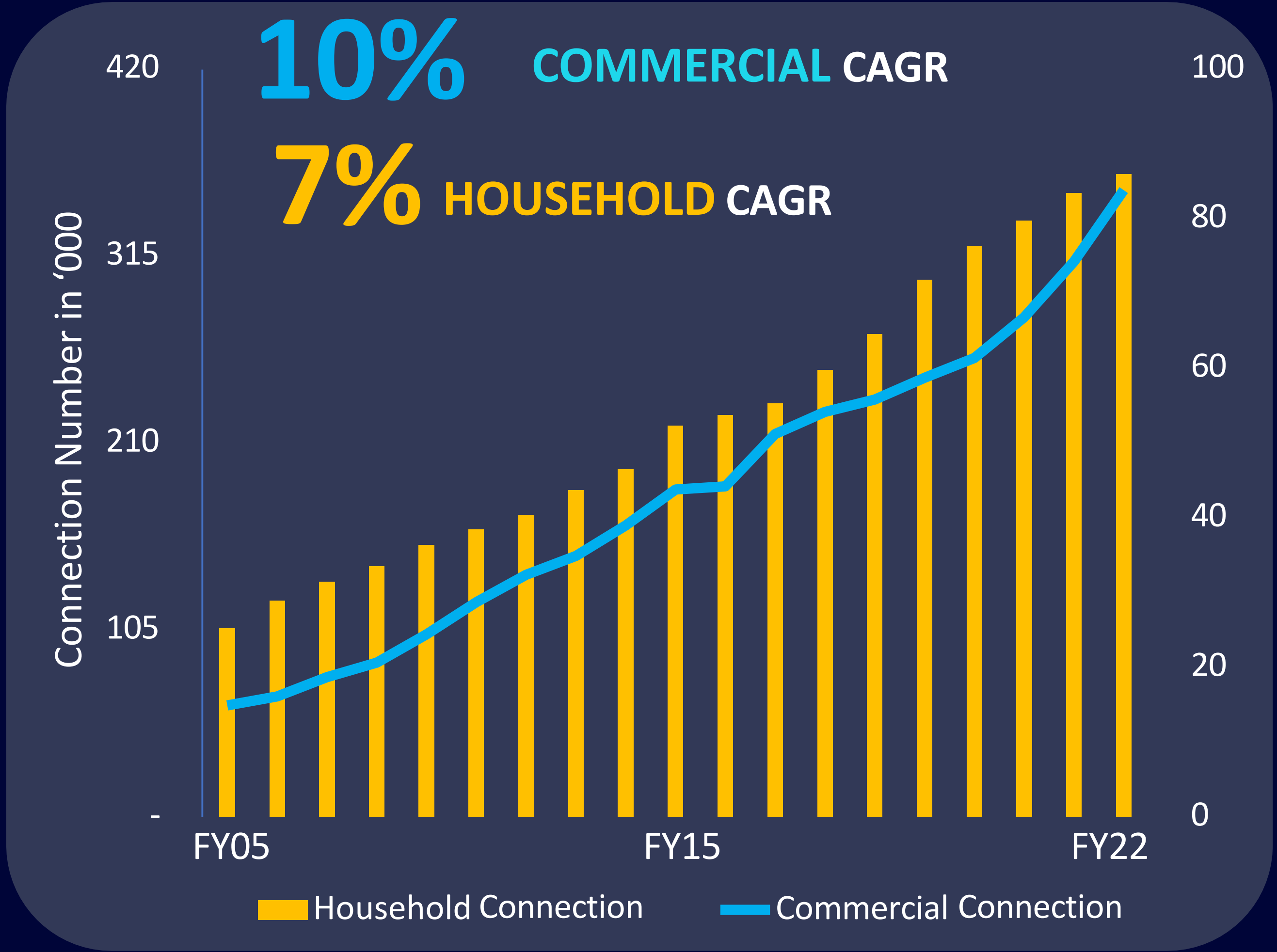
Unable to increase tariff, expansion is the only strategic option



Revenue grew at **8%** CAGR over the last five years.

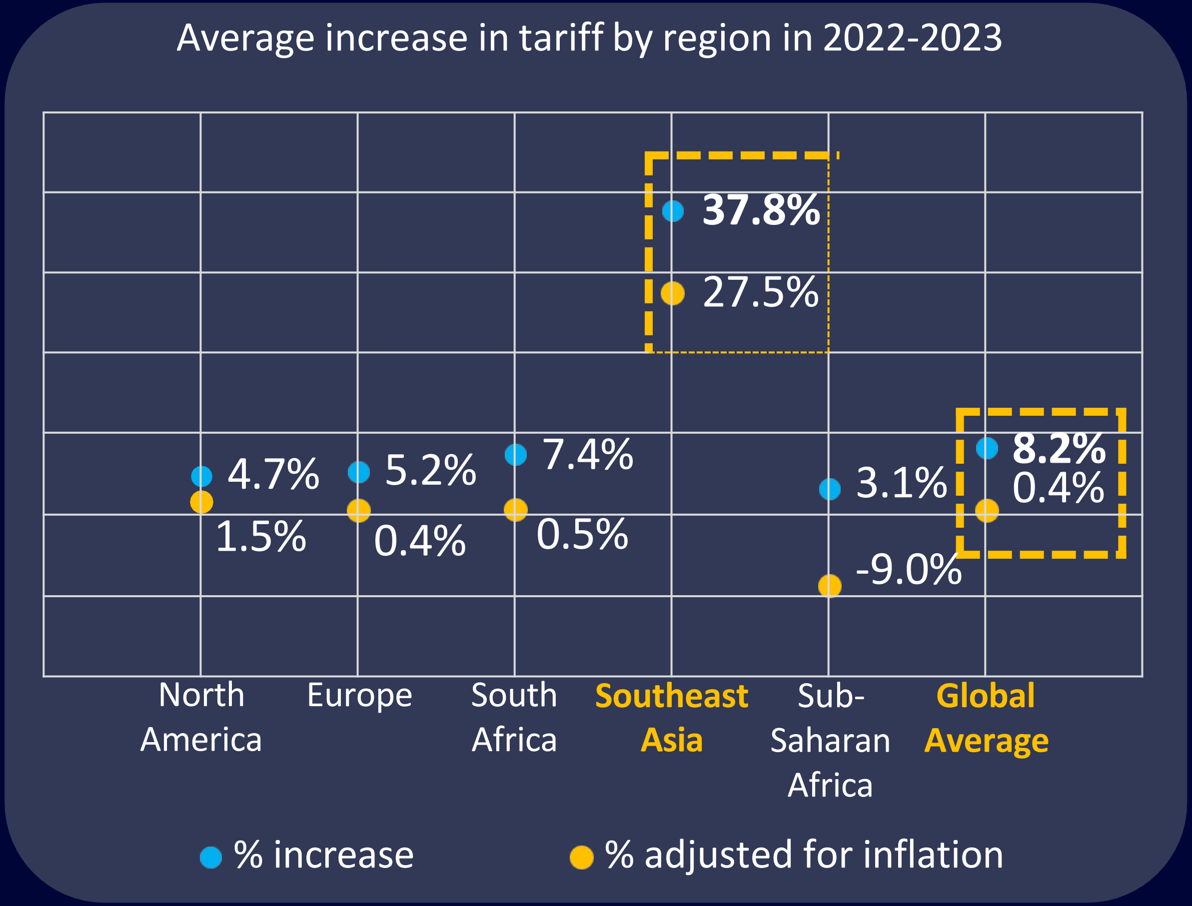
Source: Company Data, Team Analysis

Increase connection simultaneously with revenue

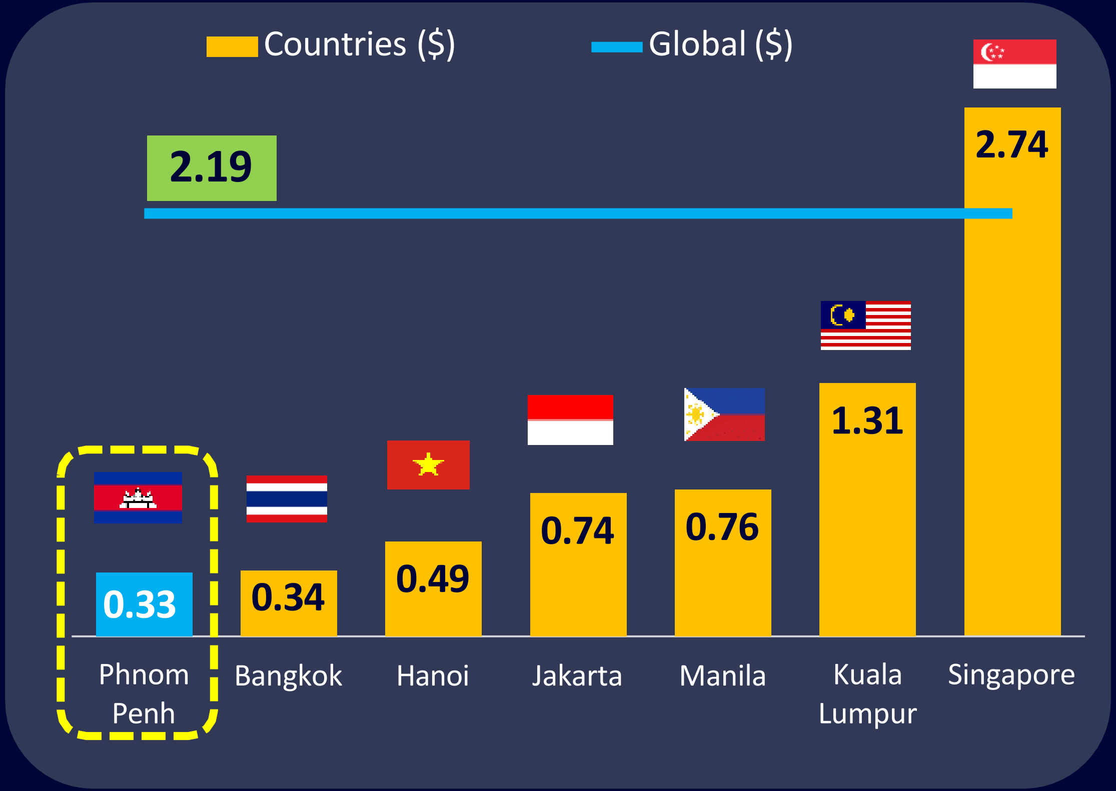


TARIFF CONSTRAINT : TARIFF ELSEWHERE IS INCREASING

Constantly changing of other regulator worldwide



Below peer's average and globally



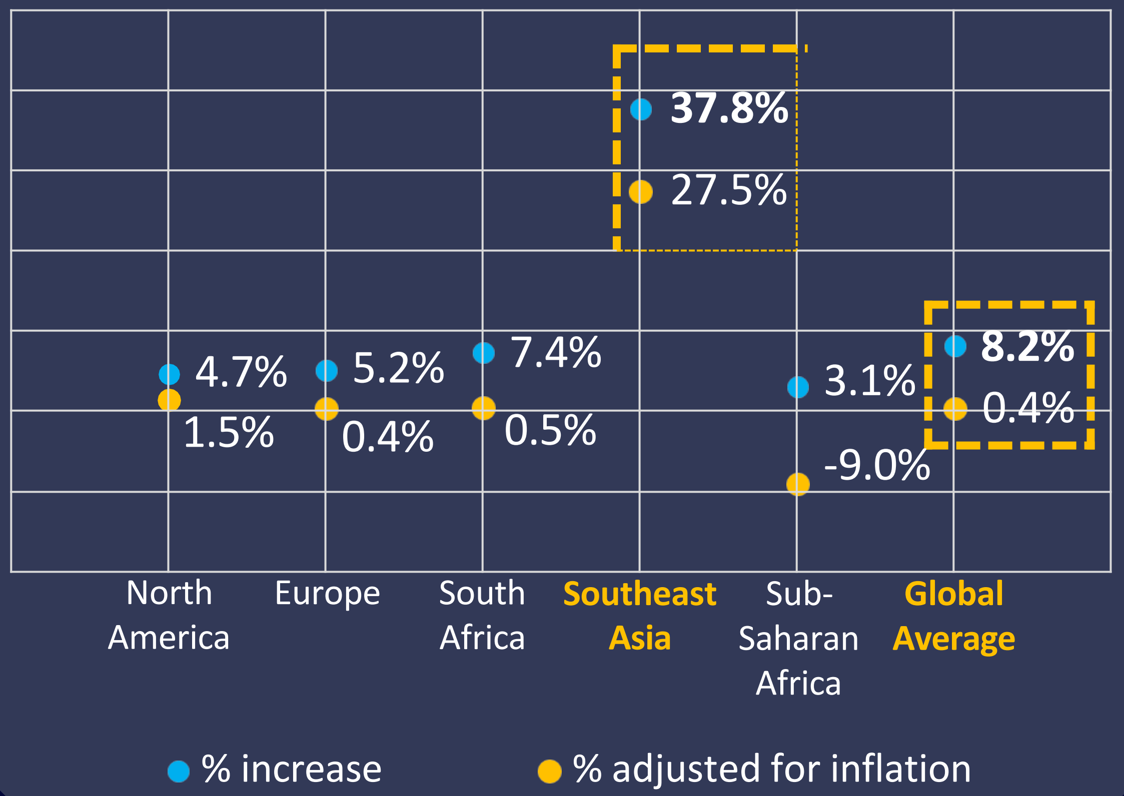
LOWEST in Southeast Asia

Source: Business Time, Team Analysis

TARIFF CONSTRAINT : TARIFF ELSEWHERE IS INCREASING

Constantly changing of other regulator worldwide

Average increase in tariff by region in 2022-2023



Recent government announcement for popular supports

ANNOUNCEMENT	EFFECTIVE DATE
Increase Minimum Wage	01-Jan-2024
Reducing Electricity Tariff	05-Dec-2023
Offering Tax Incentives	01-Jan-2024
Delay Capital Gain Tax	17-Nov-2023
Government For Agriculture Price	01-Jan-2024

Source: Business Time, Team Analysis

INVESTMENT SUMMARY

REGULATION PREVENTS PWSA FROM ADJUSTING TARIFF

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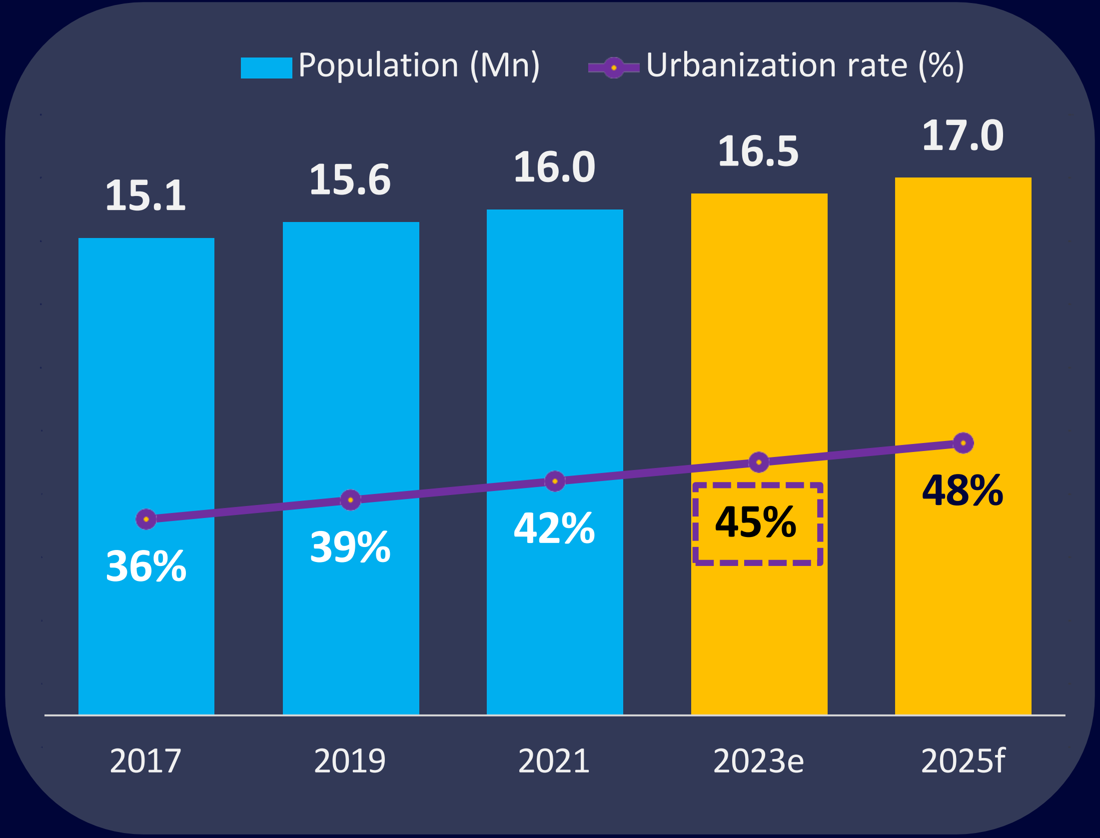
EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER’S INTEREST

SLOW RECOVERY IN THE REAL ESTATE MARKET : RISING URBANIZATION

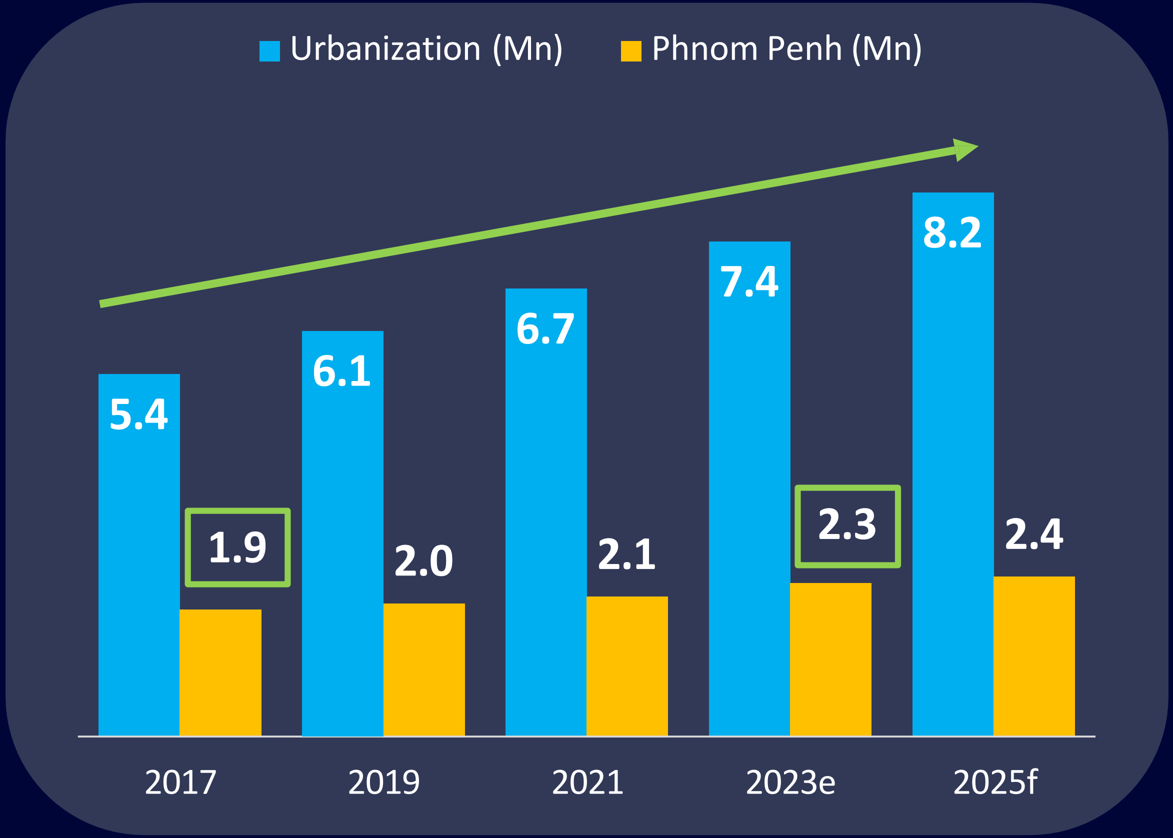
Cambodia Urbanization Rate



Rising urbanization rate in Cambodia

Source: IMF, Team Analysis

Cambodia Rising Capital Population

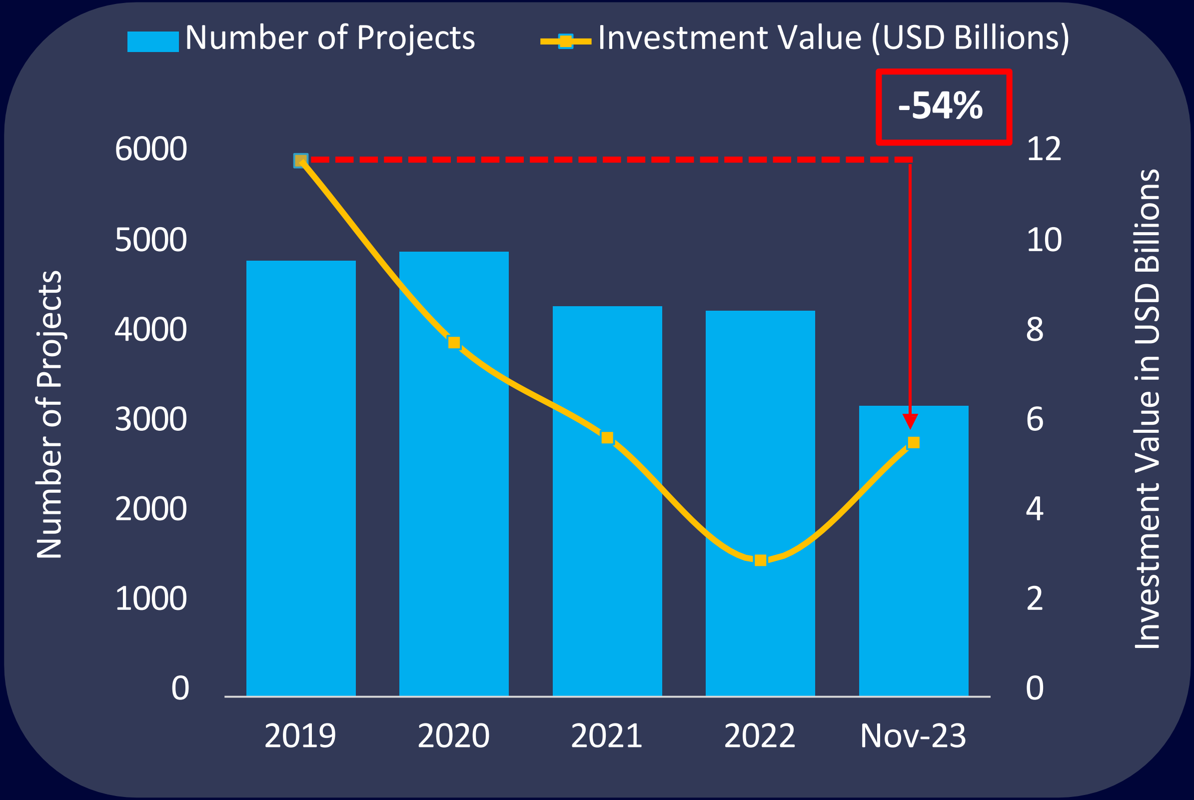


Leads to an increase in population in the capital city

Source: World Population Data, Team Analysis

SLOW RECOVERY IN THE REAL ESTATE MARKET : LOWER INVESTMENTS INTO REAL ESTATE

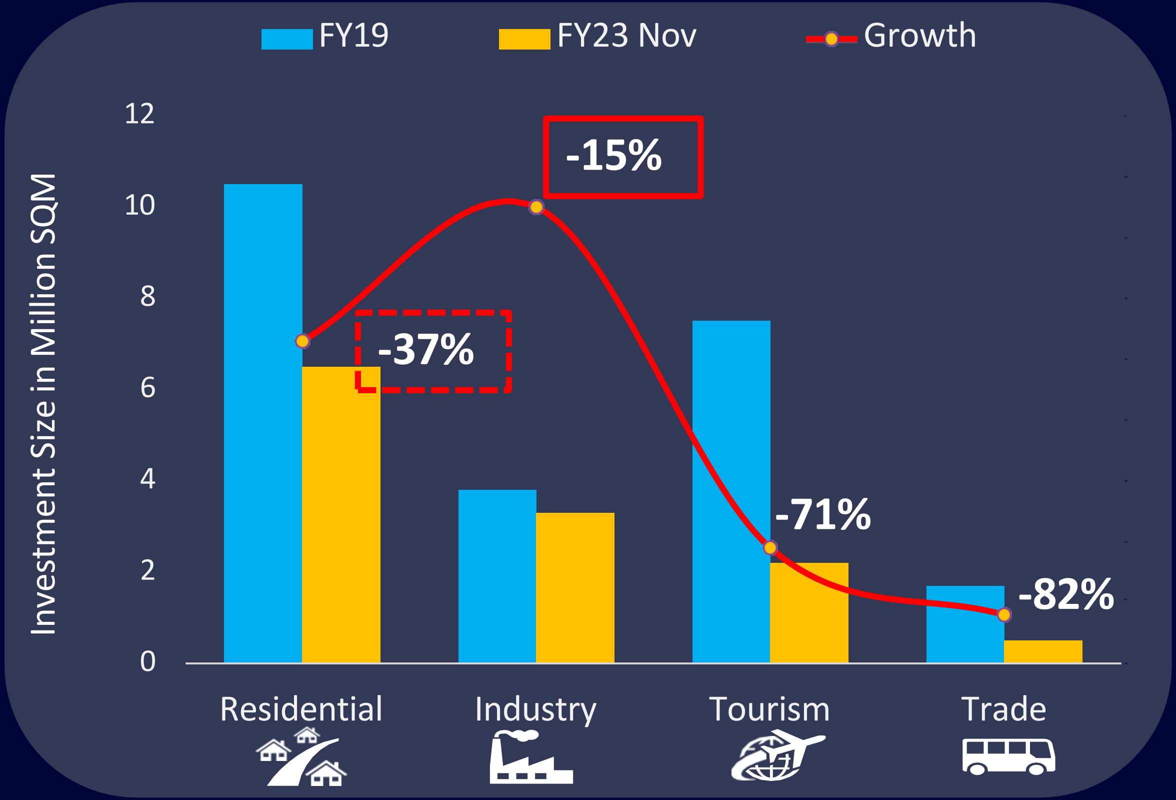
FDI Investment into Construction



The decline of China's economy has led to a decrease in FDI, especially in the real estate sector.

Source: CBRE Cambodia, Team Analysis

FDI Investment into Construction by Sectors

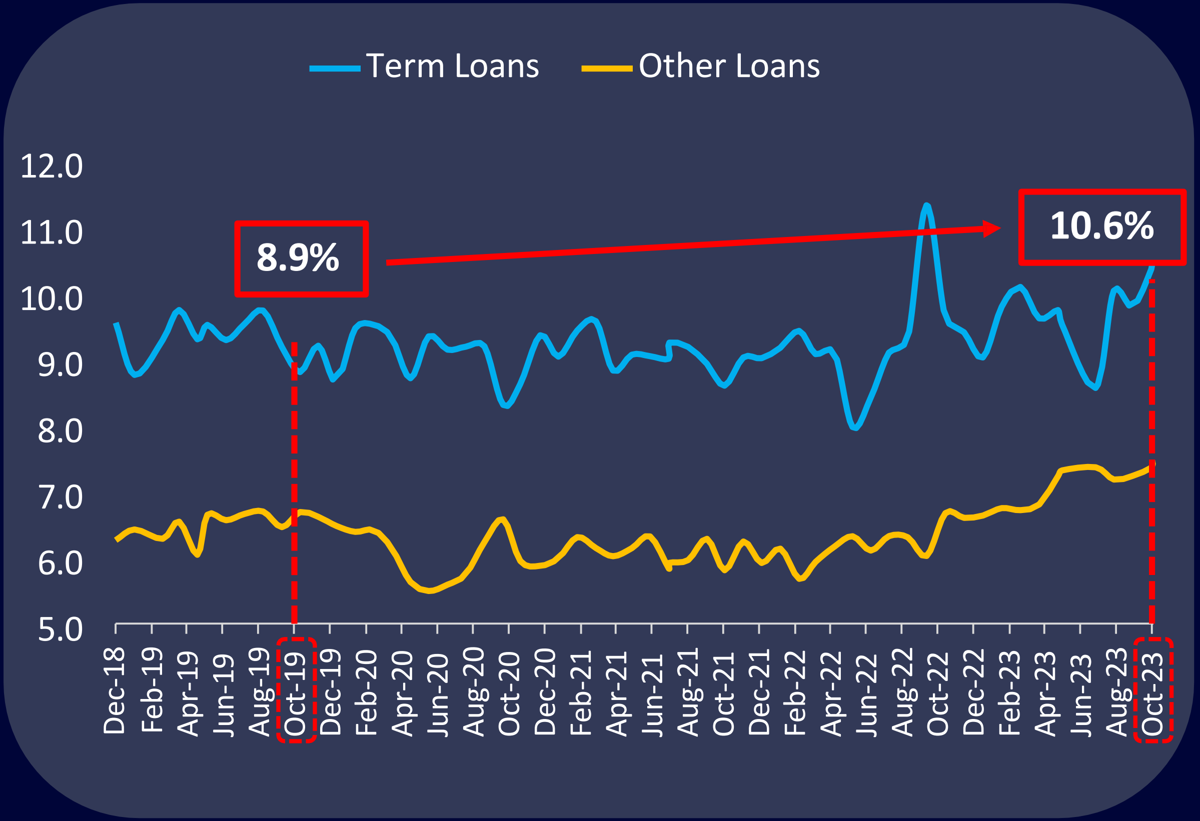


This caused a reduced in investment sizes across all sub-sectors.

Source: CBRE Cambodia, Team Analysis

SLOW RECOVERY IN THE REAL ESTATE MARKET : UNAFFORDABLE FINANCING

Interest Rate on New Loans in USD (in %)

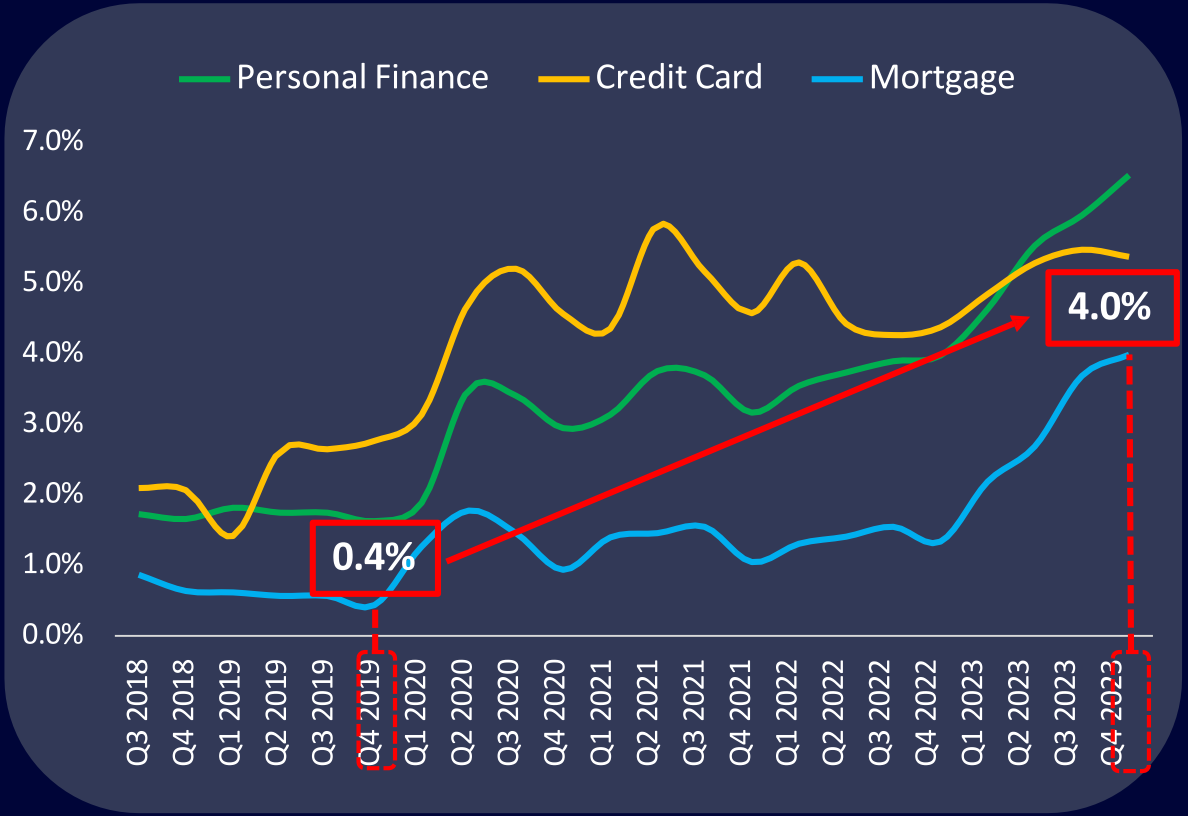


With the significant rise of interest rate,

Source: NBC, Team Analysis

Ratio of Late Loan Repayment

**30 days past due date*



The ratio of late repayment of mortgages has increased over the past year.

Source: CBC, Team Analysis

INVESTMENT SUMMARY

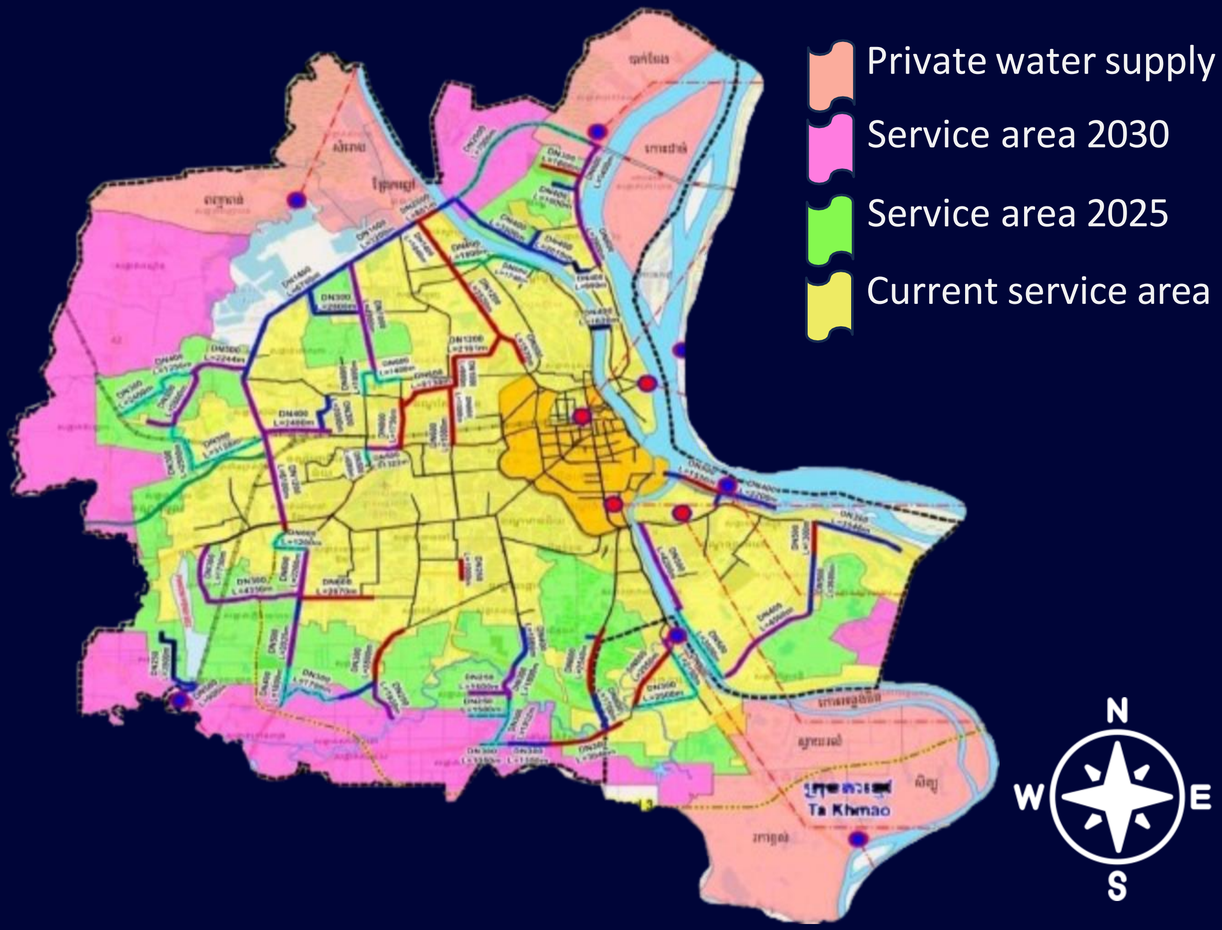
REGULATION PREVENTS PWSA FROM ADJUSTING TARIFF

SLOW RECOVERY IN THE REAL ESTATE MARKET POSES RISK TO RETURNS ON INVESTMENT IN EXPANSION AREAS

EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST

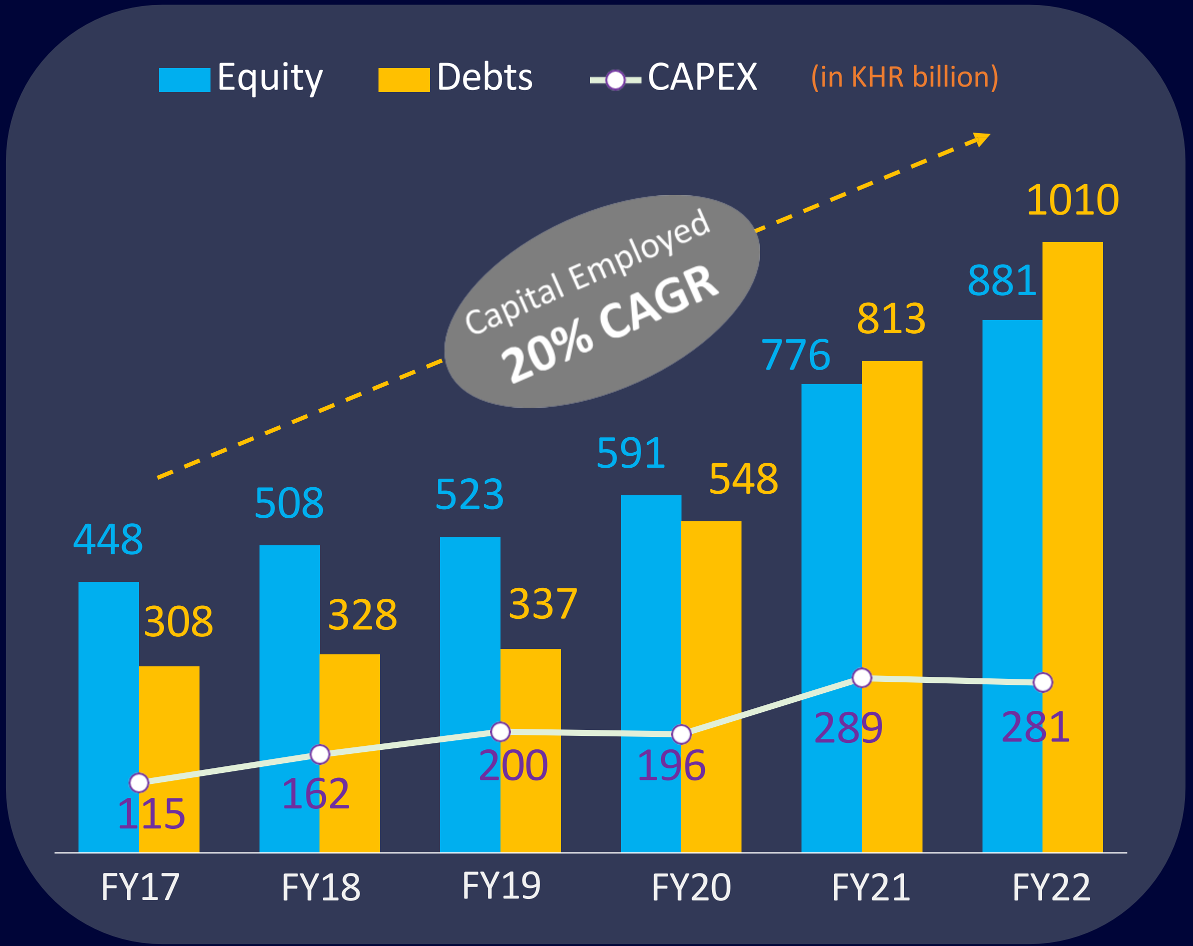
EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST

Phnom Penh and Takhmao Map



PWSA expansion plan to fully servicing all areas in Phnom Penh and Takhmao city by 2030

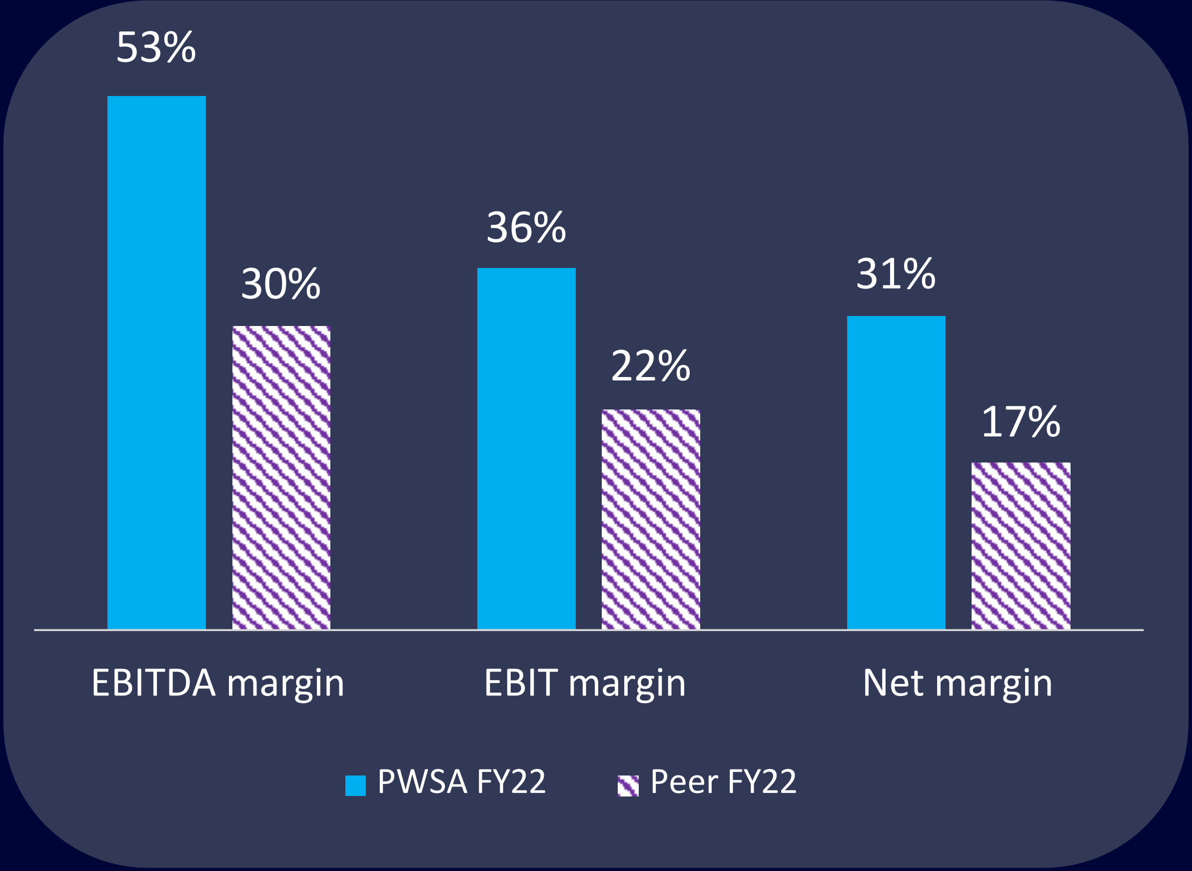
Capital Structure Expansion



Source: Company Data, Team Analysis

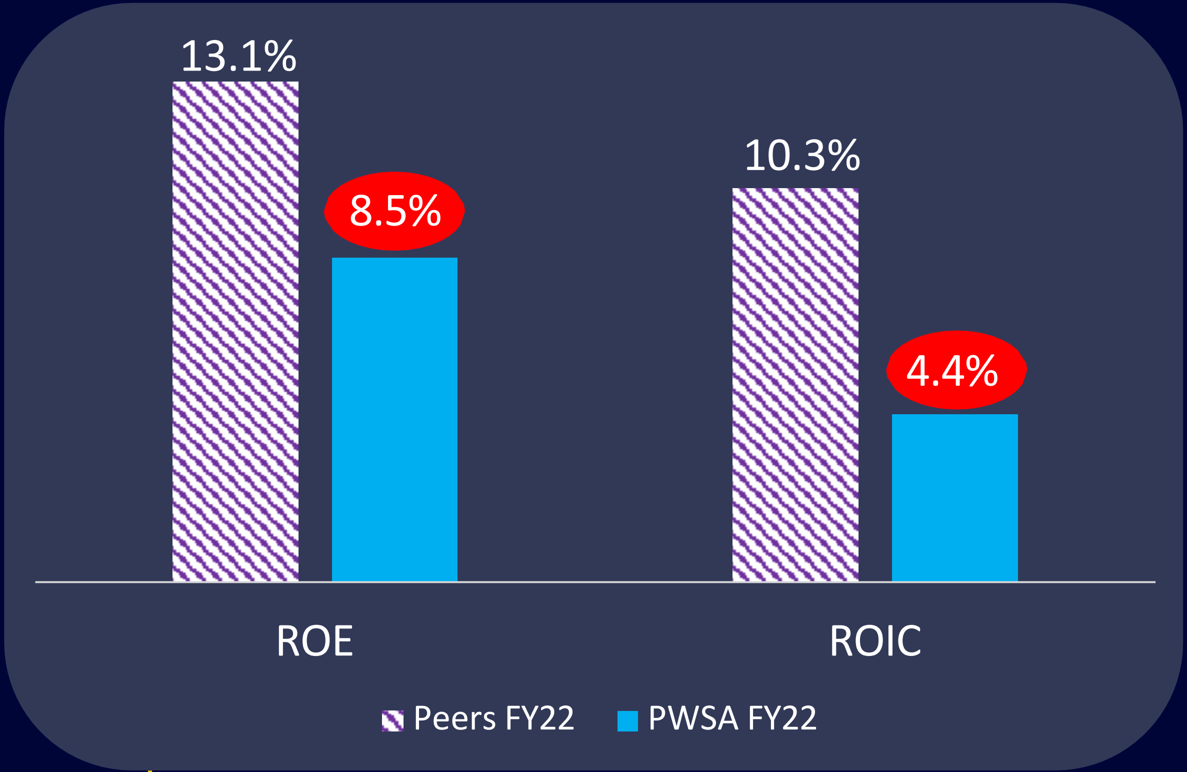
EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST

FY22 Profitability Ratios Performed better compared to peers



Source: Company Data, Team Analysis

Failing of PWSA's Returns in FY22



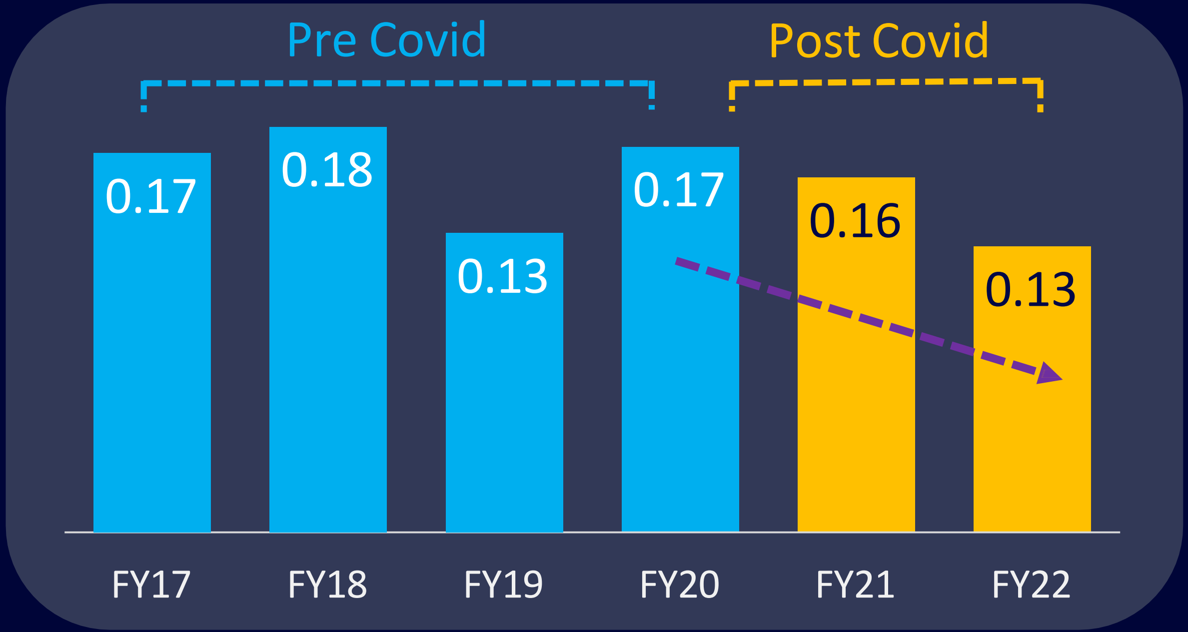
ROE < Project KE **15.2%**

ROIC < WACC **11.8%**

Source: Company Data, Team Analysis

EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST

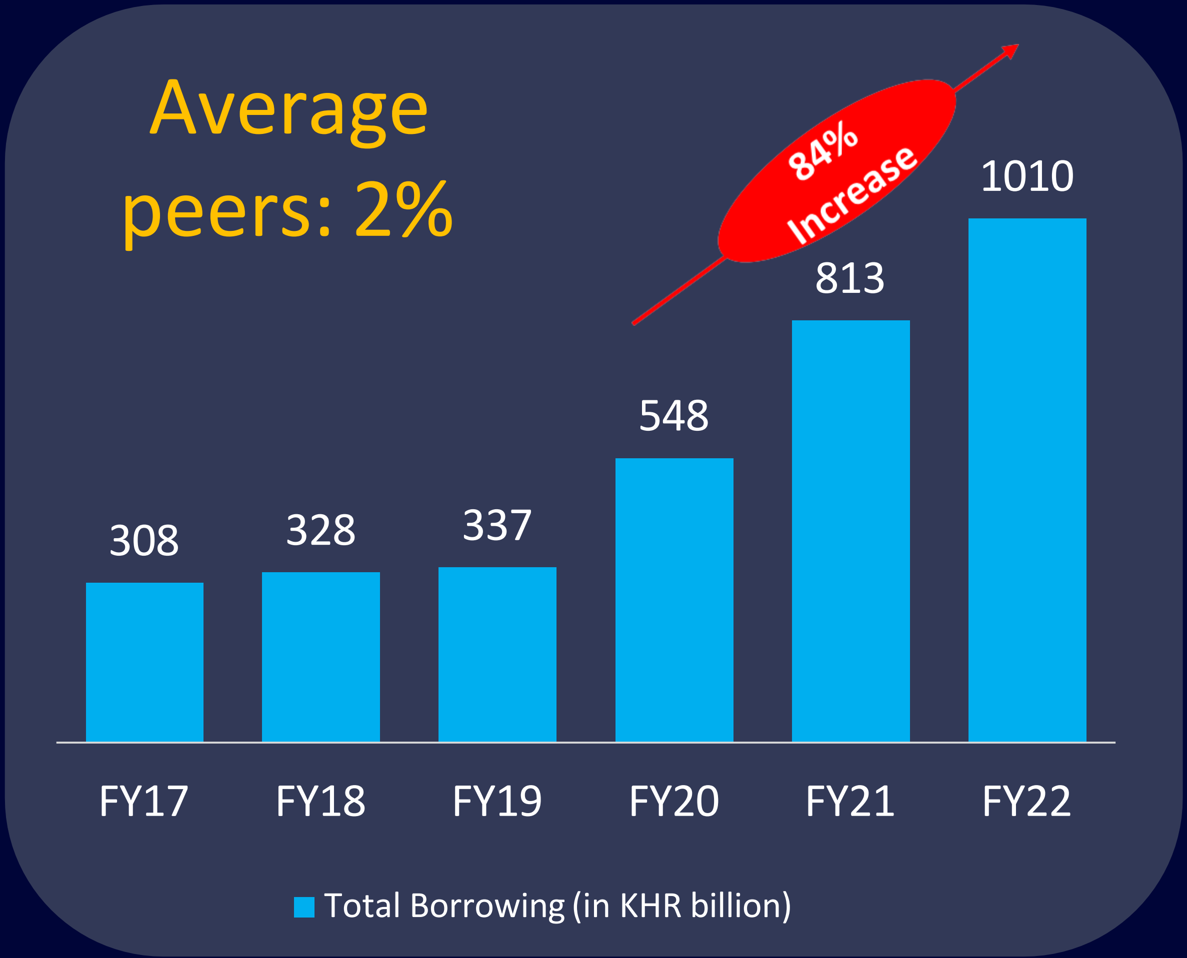
Inefficient Asset Utilization



Historically FY22, **PWSA** only generate **13 cents** for every one dollar invested in assets, while regional peers generating **79 cents**

Source: Company Data, Bloomberg, Team Analysis

Mounting debt, leading to higher burden



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VALUATION – DISCOUNTED CASH FLOW

DCF – FCFE MODEL

Cost of equity
15.2%

- Risk free rate :	4.0%
- US equity risk premium :	4.6%
- Cambodia country risk :	8.0%
- Re-geared beta :	0.68

Terminal growth rate
3.6%

- Phnom Penh population growth
- Cambodia GDP growth
- Inflation rate

Target price
KHR 6,207 (USD 1.55)

15%
Downside risk

Source: Team Analysis

SENSITIVITY ANALYSIS – FROM SELL ➡ BUY

Terminal Growth Rate

Cost of Equity	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

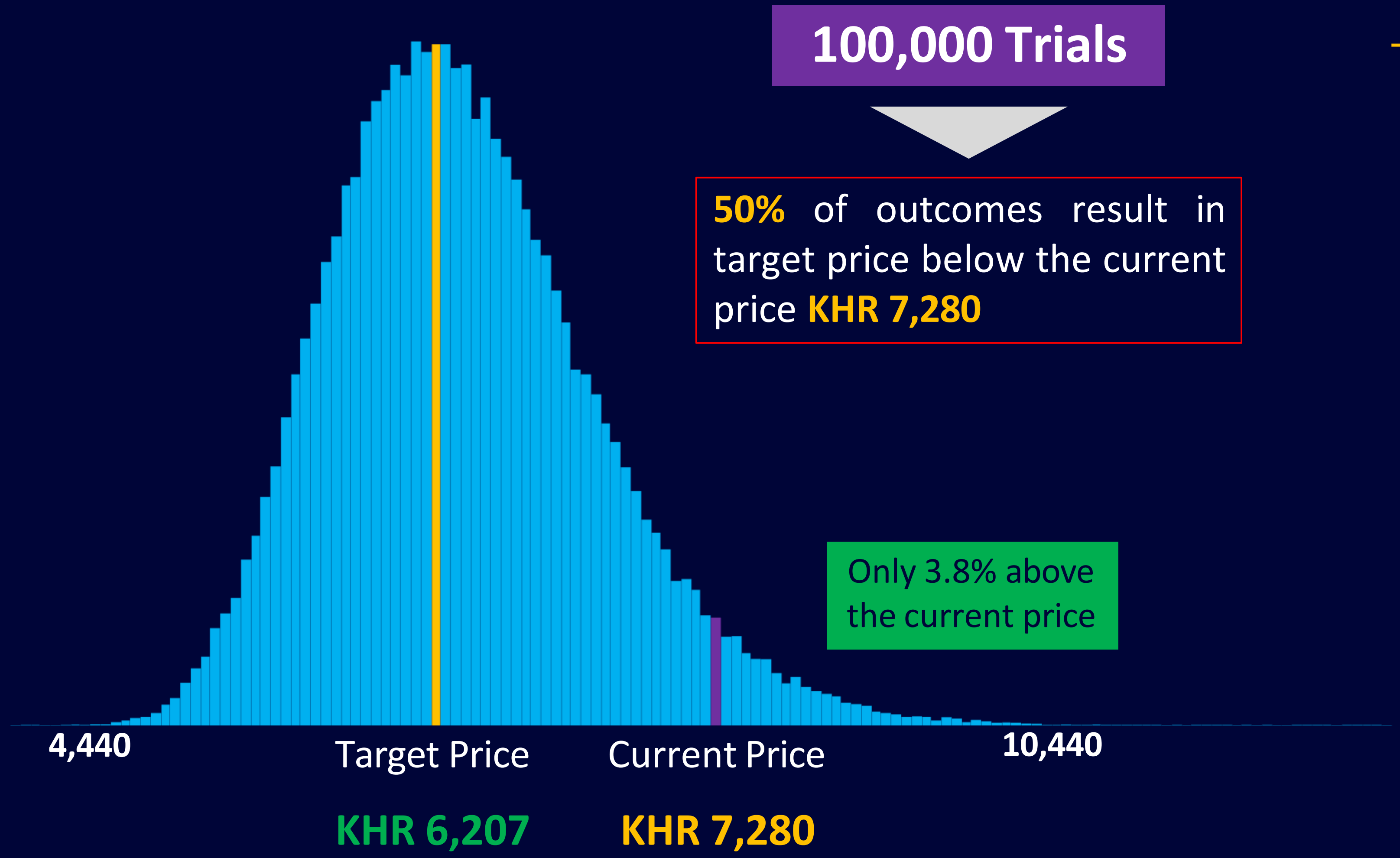
Changes in Water Tariff

Cost of Equity	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

BUY	**KHR 8,008**	**> 10%**
HOLD	**KHR 6,552 – KHR 8,008**	**± 10%**
SELL	**KHR 6,552**	**< 10%**

Source: Team Analysis

MONTE CARLO SHOWS LIMITED UPSIDE AND LIMITED DOWNSIDE



Monte Carlo Simulation

Key variables:

- Cost of equity
- Terminal growth rate
- Water sales revenue
- Electricity costs
- Employee benefits expense
- RM for water treatment
- RM for household water connection

Source: Team Analysis

SCENARIO ANALYSIS ILLUSTRATE DOWNSIDE RISK

Bear Case

The decrease of average regulatory tariff by **KHR 100**

Target price **KHR 4,160** (USD 0.57)

Representing 43% downside risk

Target Price
KHR 6,207
(USD 1.55)
-15%

Strongly dependent on water tariff

Bull Case

The **increase** of average regulatory tariff by **KHR 200**

Target price **KHR 9,775** (USD 2.44)

Representing **34%** upside risk

Source: Team Analysis

RELATIVE VALUATION CONFIRMED OUR DCF RECOMMENDATION

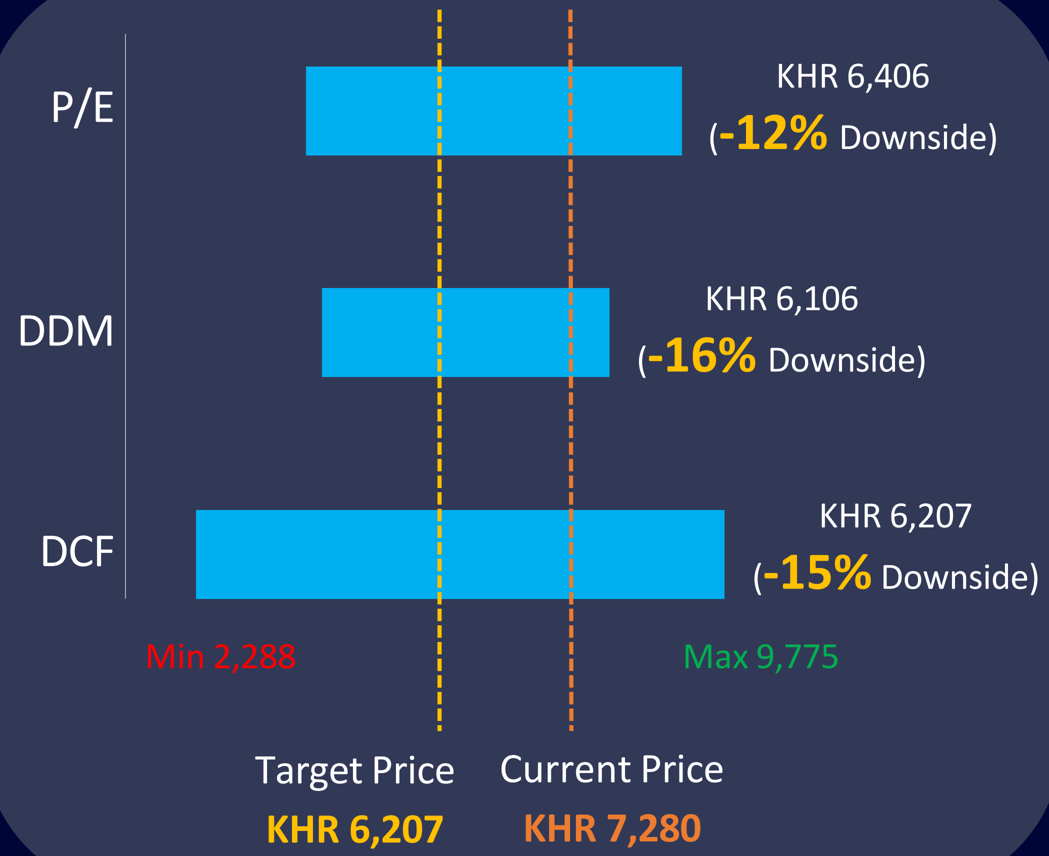
Relative Valuation

Peer Group	FY22 Average Peer P/E
Ben Thanh Wasuco JSC, Thuduc Water, Manila Water, Công ty Cổ phần Cấp nước Long Khánh Đồng Nai, Everbright Water, PBA, SIIC	5.15x
	PWSA P/E 5.85x

Selected base:

- Geographical Area
- Risk Profile
- Market Position

Valuation Summary



Source: Company Data, Bloomberg, Team Analysis

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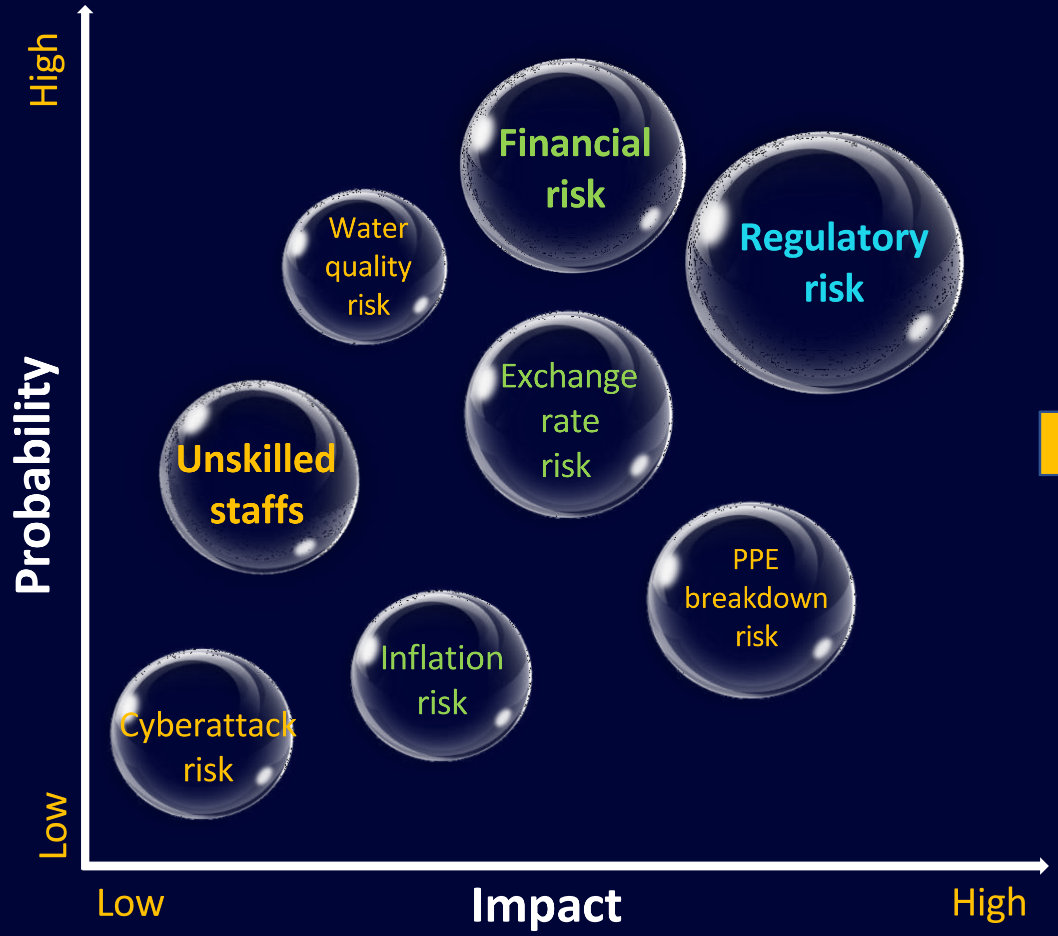
INVESTMENT RISK



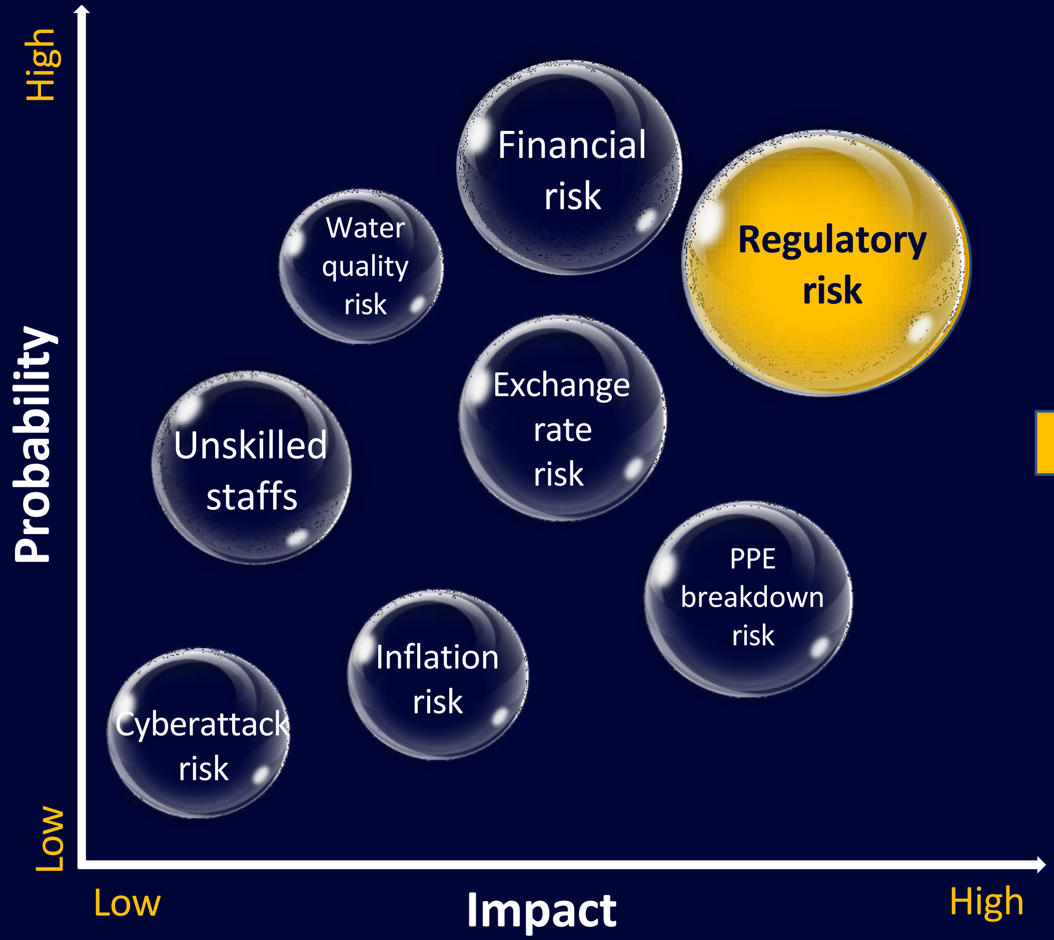
RISK SUMMARY

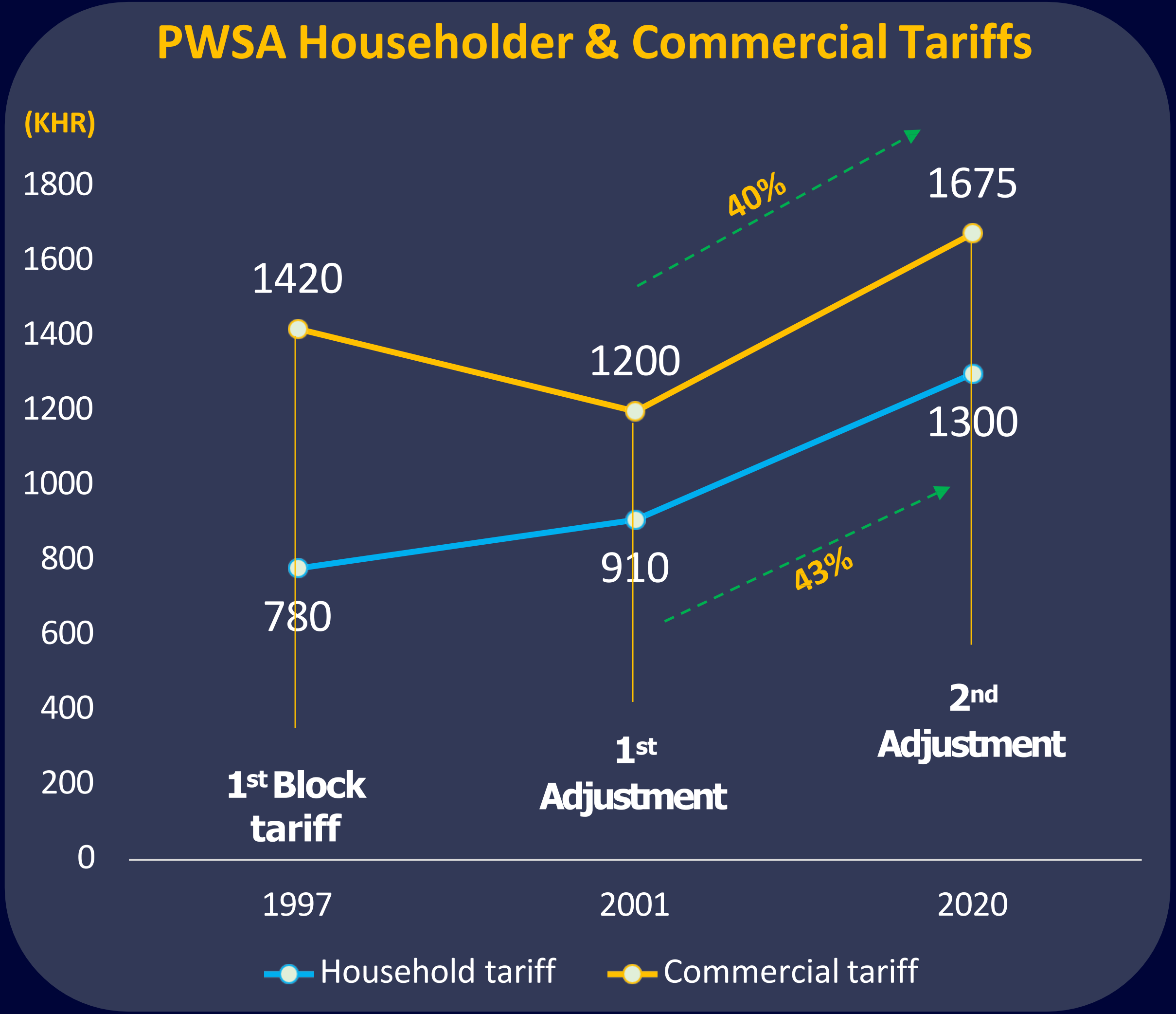
Political Risk: Stagnant tariff squeeze revenue growth

Operational Risk: Favorable efficiency but overstaffed with under skilled

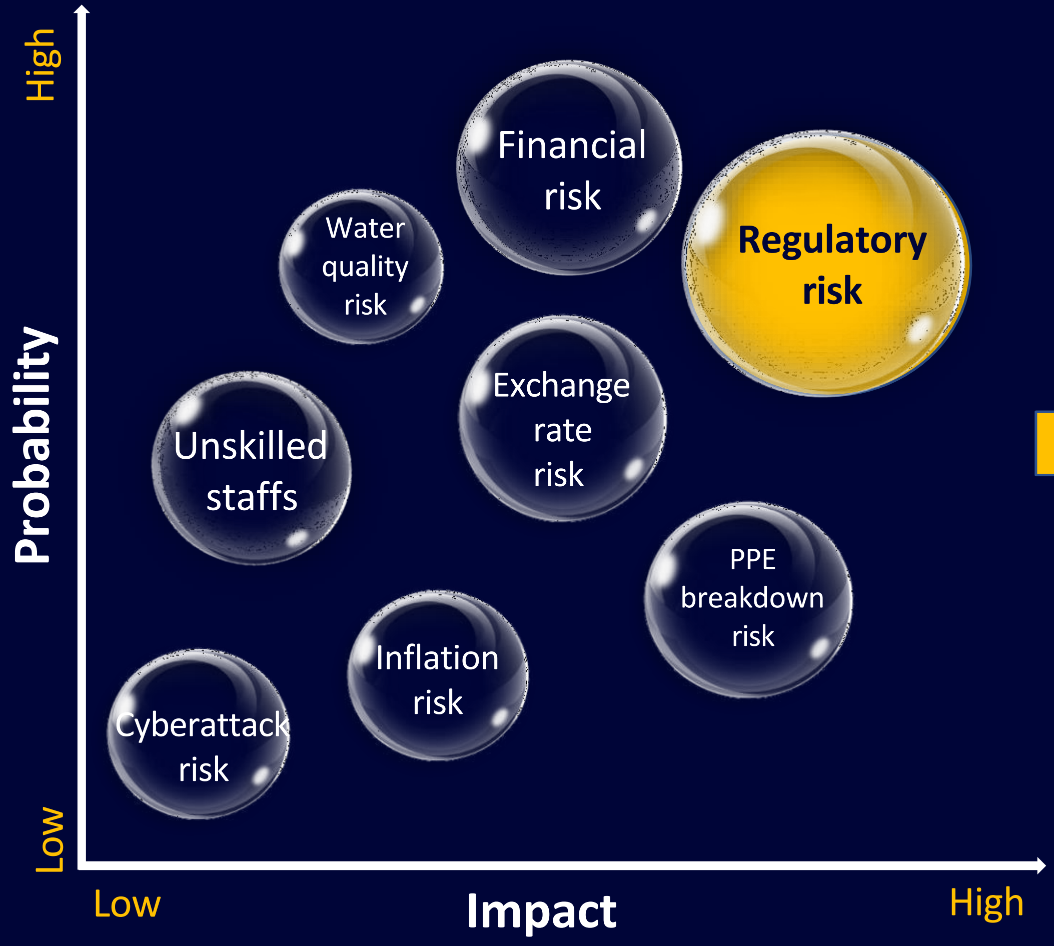
Market risk: Rising inflation and uncontrolled monetary policy.

INVESTMENT RISK : WATER TARIFF IN CAMBODIA IS REGULATED





INVESTMENT RISK : WATER TARIFF IN CAMBODIA IS REGULATED



Rising Inflation

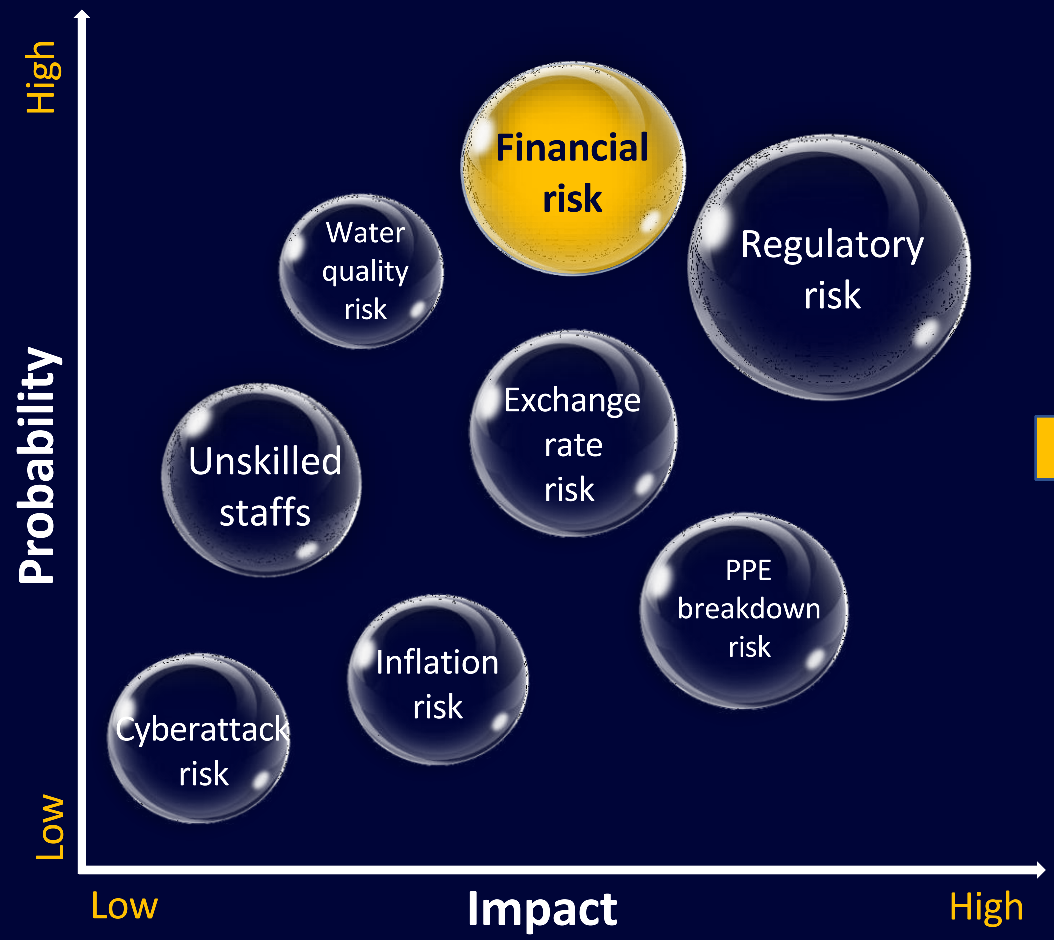
Service Expansion

Rising OPEX

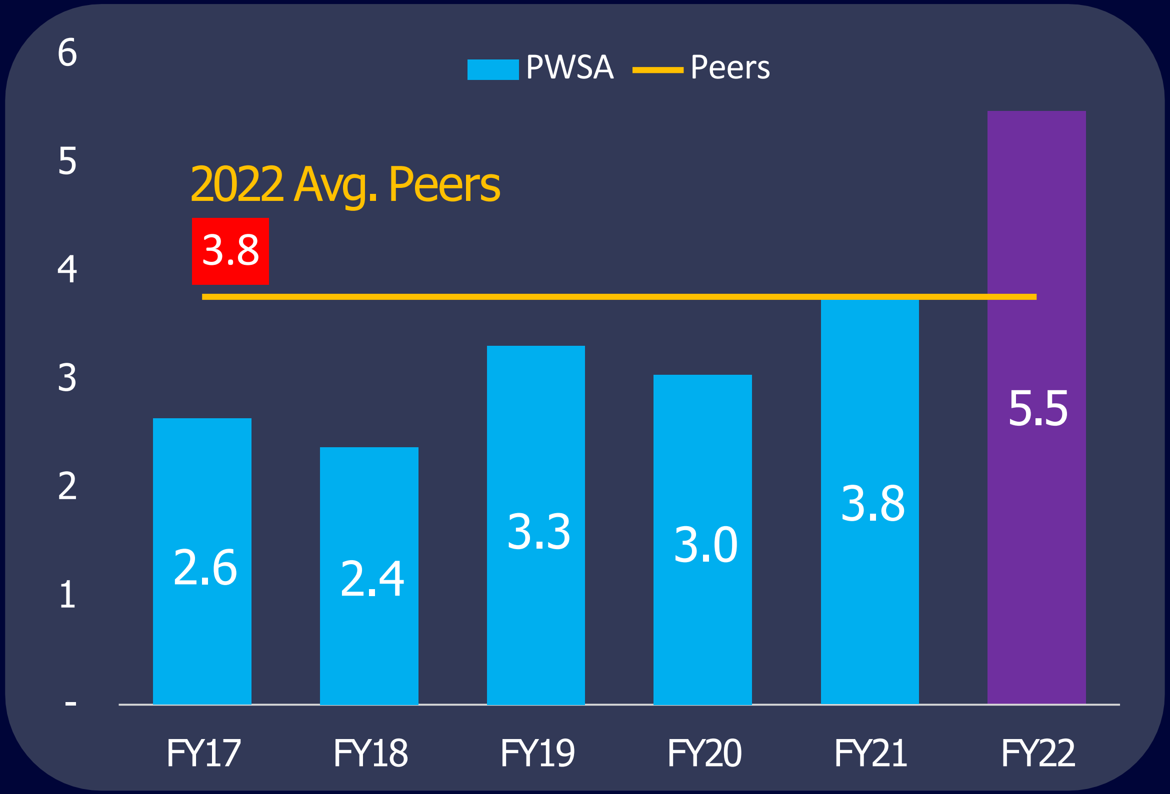
Rising Debt

ROE of 8.5% < Cost of Equity of 15.2%

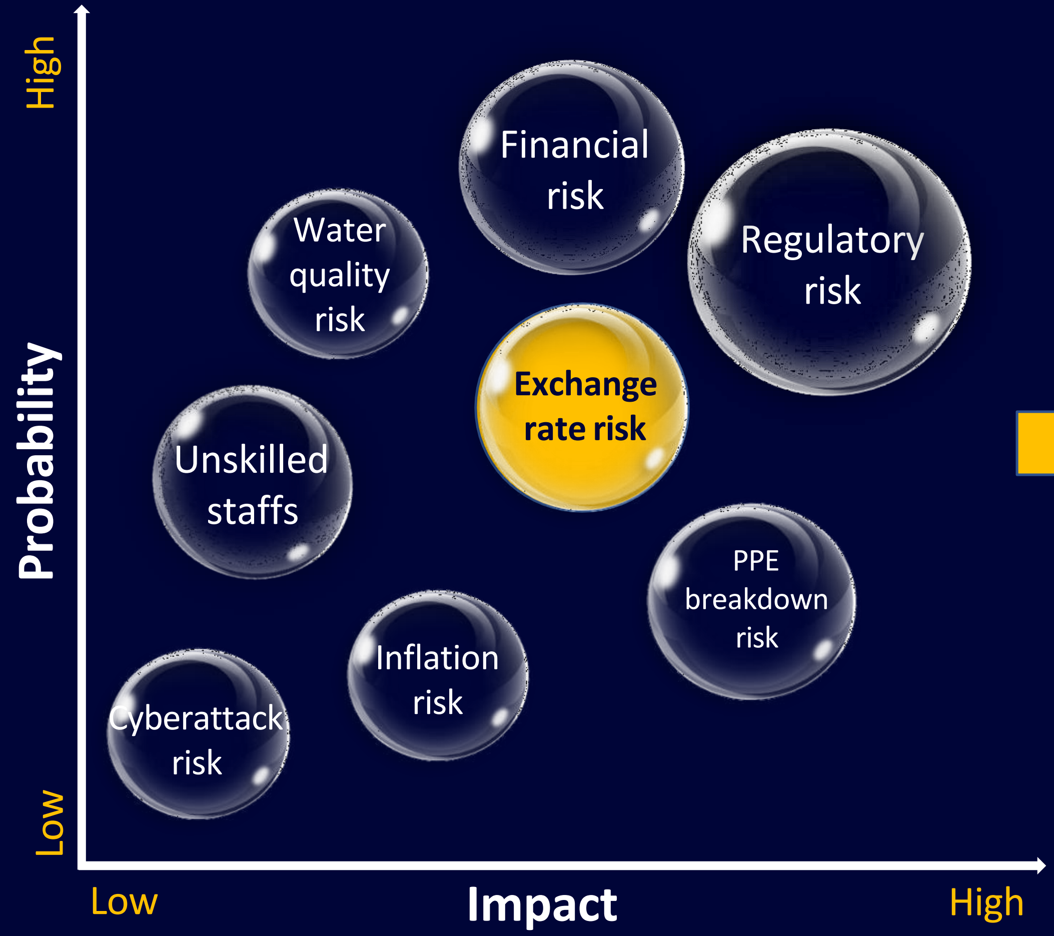
INVESTMENT RISK : FINANCIAL RISK



PWSA Debt to EBITDA compared to its regional peers



INVESTMENT RISK : EXCHANGE RATE RISK



USD 245 million of loans

Affected by Exchange Fluctuation

Over 26Y maturity

USD 870 thousand

Exchange Loss in 2022

2.8% of EBIT

IT IS AN ESSENTIAL NEED, BUT NOT EVERY DROP IS VALUABLE !

A

SELL

RECOMMENDATION

Target Price

KHR 6,207

15%

Downside risk

- **REGULATION PREVENTS PWSA FROM ADJUSTING TARIFF**
- **SLOW RECOVERY IN THE REAL ESTATE MARKET POSES RISK TO RETURNS ON INVESTMENT IN EXPANSION AREAS**
- **EXPANSION STRATEGY MISALIGNED WITH SHAREHOLDER'S INTEREST**

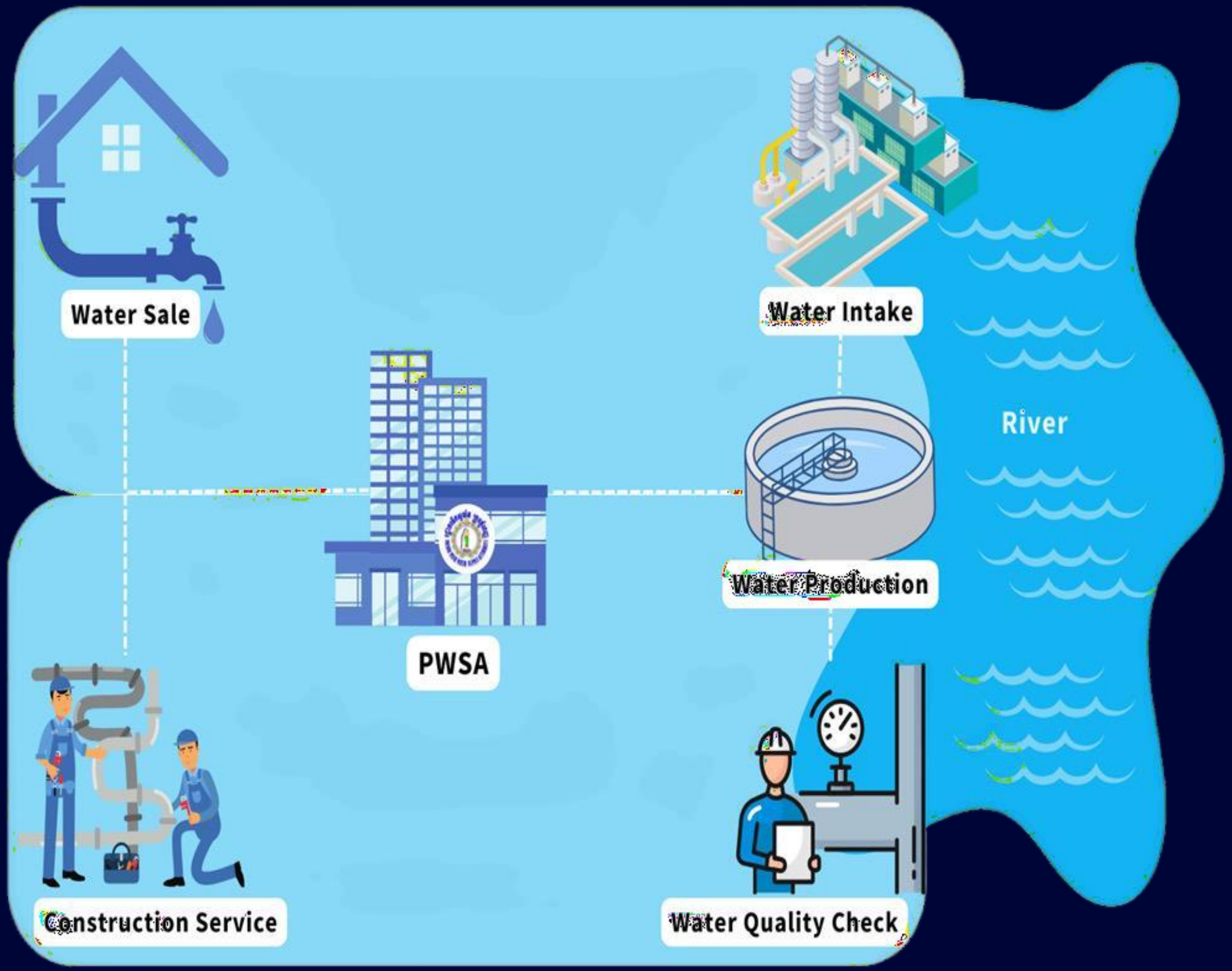
THANK YOU

LIST OF APPENDICES

APPENDIX 1 - GLOSSARY

ADB	Asian Development Bank	GDP	Gross Domestic Product
AFD	Agence Française de Développement	IMF	International Monetary Fund
BOD	Board of Directors	MEF	Ministry of Economy 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-Earnings Ratio
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 Development Goals	ESG	Environmental, Social, and Governance
WHO	World Health Organization	WACC	Weighted Average Cost of Capital

APPENDIX 2 - 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:** Water distribution to domestic and commercial connections
- **Construction Service:** **E**xpand 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 3 - 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 4 - ESG SCORE CARD

Environmental

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 CO_2 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.
	Environment Total Score =		**2.8**	

APPENDIX 4 - ESG SCORE CARD


Social

PILLARS	CATEGORIES	THEMES	SCORES	JUSTIFICATION
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**	

APPENDIX 4 - ESG SCORE CARD

Governance

PILLARS	CATEGORIES	THEMES	SCORES	JUSTIFICATION
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 5 – 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 Service

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 6 – 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	

APPENDIX 6 – GOVERNANCE SCORECARD

CRITERIA	DESCRIPTION	RATING	JUSTIFICATION
COPORATE STRUCTURE			
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 align 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	

APPENDIX 6 – GOVERNANCE SCORECARD

CRITERIA	DESCRIPTION	RATING	JUSTIFICATION
SHAREHOLDER STRUCTURE			
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	

APPENDIX 6 – GOVERNANCE SCORECARD

CRITERIA	DESCRIPTION	RATING	JUSTIFICATION
TRANSPARENCY AND SHAREHOLDER STRUCTURE			
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 irregulatories	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 7 – BOARD OF DIRECTORS

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

APPENDIX 7 – BOARD OF DIRECTORS

NAME	POSITION	MEMBER SINCE	RESIDENT	EDUCATION	INDEPENDENT	WORK EXPERIENCE
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 8 – PORTER 5 FORCES

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 specialization makes its unfavorable to enter the market.
- 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 9 – SWOT ANALYSIS

Strengths

- **Significant low NRW -** PWSA maintains its 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 10 – WATER TARIFF ADJUSTMENT

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 11 – 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/m³ 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 the 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 the historical trends, we assume there will be a steady rise in depreciation and amortization.

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

- **Other operating costs:** We assume that the other operating cost, including raw material for water treatment, raw material for water connection, repairs & maintenance, construction service expenses, and other costs, will steadily grow based on the historical trends.

- **Income tax rate:** We assume based on the statutory tax rate.

APPENDIX 11 – SCENARIO FORECAST ASSUMPTION

DCF Model - Base Case Scenario:

- **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's disclosure, we expected the average collecting period is 35 days.
- **Short-term investment:** As there is a future expansion plan, we assume PWSA is more likely to slow down in investing in short term investments.
- **Dividend:** Based on the disclosure that PWSA is committed to distribute 15% of its earnings to their investors.
- **Other non-current payables:** We assume that it will grow at a constant rate based on the reported historical growth trend.

APPENDIX 11 – SCENARIO FORECAST ASSUMPTION

DCF Model - Base Case Scenario:

Bull Case Scenario: We kept the assumption of all accounts to remain constant except for water tariff which is a significant impact factor to 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 to remain constant except for the water tariff which is a 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 four main sensitive cost items such as electricity, employees benefits, and raw materials for household connections, and raw materials for 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.

APPENDIX 11 – SCENARIO FORECAST ASSUMPTION

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 for dividend as it is the main factor that impacts 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 for dividend as it is the main factor that impacts on the DDM valuation.

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

APPENDIX 12 – 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 13 – 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 14 – 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

APPENDIX 14 – CASH FLOW STATEMENT

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
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 15 – DISCOUNTED CASH FLOW-FCFE

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 FCFC (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%**

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 16 – 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 premium of 8%, and the re-geared of equity beta 0.68, using CAPM 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 17 – 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.

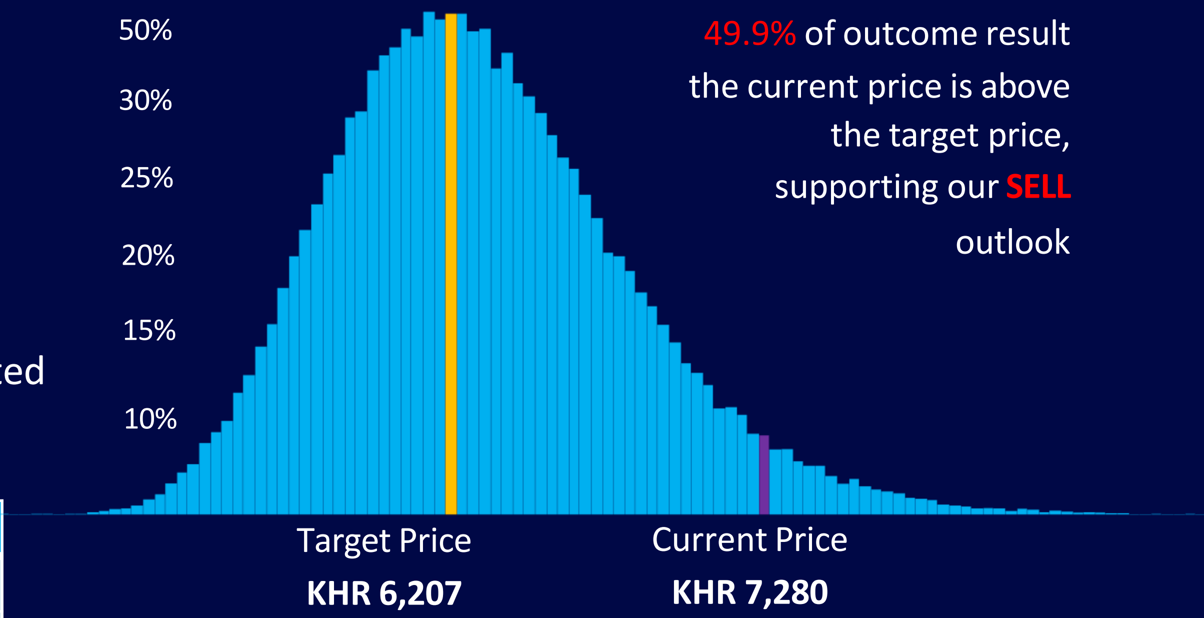
On the other hand, if water tariff increase/decrease by 5%, our target price will rise/drop by 20.2%. As a result, the changes of those three factors have a significant impact on the movement of the intrinsic value and can shift our recommendation from **SELL** to **BUY.**

APPENDIX 18 – 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 materials 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

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 19 – 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**

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.

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

Relative Multiple	Dividend yield Multiple
Relative Equity Value	6,406
PWSA Share Price	7,280
Upside/(Downside) Risk	-43%
Recommendation	**SELL**

APPENDIX 20 – DIVIDEND DISCOUNTED MODEL

Unit (KHR billion)	2018A	2019A	2020A	2021A	2022A	2023E	2024F	2025F	2026F	2027F	2028F
Dividend Discounted Model (DDM)											**Terminal Year**
Dividend	6	3	25	3	4	16	29	42	54	68	83
Discount Factor						0.87	0.75	0.65	0.57	0.49	0.43
Present Value of FCFE						**14**	**22**	**27**	**31**	**34**	**36**

Total Present Value of FCFC (in million)	163,779
Terminal year present value (in million)	367,306
Total Equity value (in million)	**531,085**
Number of shares (in million)	87
Intrinsic Value	KHR 6,106
Current Share Price as @ 31 Dec 2023	KHR 7,280
Upside/ (Downside) Risk	**-16%**
Recommendation	**SELL**

APPENDIX 21 – BENEISH M SCORE

Variables	2017A	2018A	2019A	2020A	2021A	2022A
	Values					
DSRI	1.09	1.26	0.51	1.70	1.16	1.42
GMI	0.95	0.97	1.11	0.86	0.97	1.06
AQI	2.28	2.53	0.85	0.84	0.77	0.83
SGI	1.18	1.14	0.82	1.50	1.14	0.94
DEPI	1.05	0.93	0.98	1.12	1.10	1.08
SGAI	0.93	0.97	1.18	0.79	0.96	1.11
TATA	0.00	0.01	-0.11	0.03	0.04	0.02
LVGI	1.08	1.07	1.16	1.16	1.08	1.04

	2017A	2018A	2019A	2020A	2021A	2022A
	M-Score					
	-3.84	-3.68	-4.37	-3.27	-3.77	-3.53
	0.50	0.51	0.59	0.45	0.51	0.56
	0.92	1.02	0.34	0.34	0.31	0.33
	1.05	1.02	0.73	1.34	1.02	0.84
	0.12	0.11	0.11	0.13	0.13	0.12
	-0.16	-0.17	-0.20	-0.14	-0.16	-0.19
	-0.01	0.04	-0.50	0.15	0.18	0.09
	-0.35	-0.35	-0.38	-0.38	-0.35	-0.34
Total	**-1.77**	**-1.50**	**-3.69**	**-1.38**	**-2.14**	**-2.12**

Beneish M-Score analysis is used by our team to identify whether PWSA has manipulated its earnings. We have used M-Score 8-variable model. To interpret the result, Beneish suggests that if M-Score is higher than -2.22, than the firm is likely to manipulate its earnings.

Formula M-score= -4.84 + 0.92 * DSRI + 0.528 * GMI + 0.404 * AQI + 0.892 * SGI + 0.115 * DEPI – 0.172 * SGAI + 4.679 * TATA – 0.327 * LVGI

DSRI = (Net receivables 1/Sales 1)/(Net receivables 0/Sales 0)
GMI = [Sales 0-COGS 0)/Sales 0]/[(Sales 1-COGS 1)/Sales 1]
AQI = [1-(Current Assets 1+PPE 1+Securities 1)/Total assets 1]/[1-(Current Assets 0+PPE 0+Securities 0)/Total assets 0]
SGI = Sales 1/Sales 0
DEPI = [(Depreciation 0/PPE 0+Depreciation 0)/(Depreciation 1/PPE 1+Depreciation 1)]
SGAI = (SG&A Expense 1/Sales 1)/(SG&A Expense 0/Sales 0)
LVGI = [(Current liabilities 1+Total long term debt 1)/Total assets 1]/[(Current liabilities 0+Total long term debt 0)/Total assets 0]
TATA = (Income from the continuing operations 1-Cash flow from the operations 1)/Total assets 1

Component of Beneish M-Score:

- Days Sales in Receivables Index (DSRI)
- Sales, General, and Administrative expenses Index (SGAI)
- Sales Growth Index (SGI)
- Total Accruals to Total Assets (TATA)
- Gross Margin Index (GMI)
- Asset Quality Index (AQI)
- Depreciation Index (DEPI)
- Leverage Index (LVGI)

Source: https://www.wallstreetmojo.com/beneish-m-score/

APPENDIX 22 – ALTMAN Z SCORE

INPUT VARIABLES (in KHR '000)	2016	2017	2018	2019	2020	2021	2022
Current Asset	259,091,132	232,515,292	219,402,899	216,901,355	277,932,837	400,411,277	469,004,374
Current Liabilities	78,253,949	114,068,113	138,875,106	240,805,594	218,752,494	191,252,653	202,370,213
Total Liabilities	477,757,804	522,886,991	550,070,729	690,639,283	882,565,483	1,140,177,961	1,411,922,828
Total Asset	1,297,729,600	1,362,011,777	1,449,408,815	1,604,343,922	1,864,618,140	2,306,806,174	2,684,135,875
Retained Earning	49,273,104	33,067,826	73,607,168	33,291,913	88,351,845	129,273,917	108,185,865
Revenues	198,179,874	232,893,089	265,093,293	216,496,816	324,367,856	369,145,257	346,178,156
Operating profit	57,469,473	79,486,598	94,871,231	51,974,444	129,586,672	157,096,301	124,882,842
Market Cap	356,590,000	364,814,200	365,287,300	521,839,000	530,536,300	622,727,800	657,517,100
Working Cap	-8,180,484	-8,180,484	-21,051,927	148,132,930	-55,857,111	-103,911,546	-23,779,668

DERIVED VARIABLES							
A. Working Cap/Total Assets	0.008	0.007	0.017	0.111	0.036	0.054	0.011
B. Retained earning/Total Assets	0.053	0.034	0.071	0.029	0.066	0.078	0.056
C. Operating Profit/Total Assets	0.146	0.193	0.216	0.107	0.229	0.225	0.154
D. Market Cap/Total Liabilities	0.448	0.419	0.398	0.453	0.361	0.328	0.279
E. Revenue/Total Asset	0.153	0.171	0.183	0.135	0.174	0.160	0.129
OUTPUT:	**0.807**	**0.823**	**0.886**	**0.835**	**0.866**	**0.845**	**0.629**

Formula: (1.2*A) + (1.4*B) + (3.3*C) + (0.6*D) + (1.0*E)

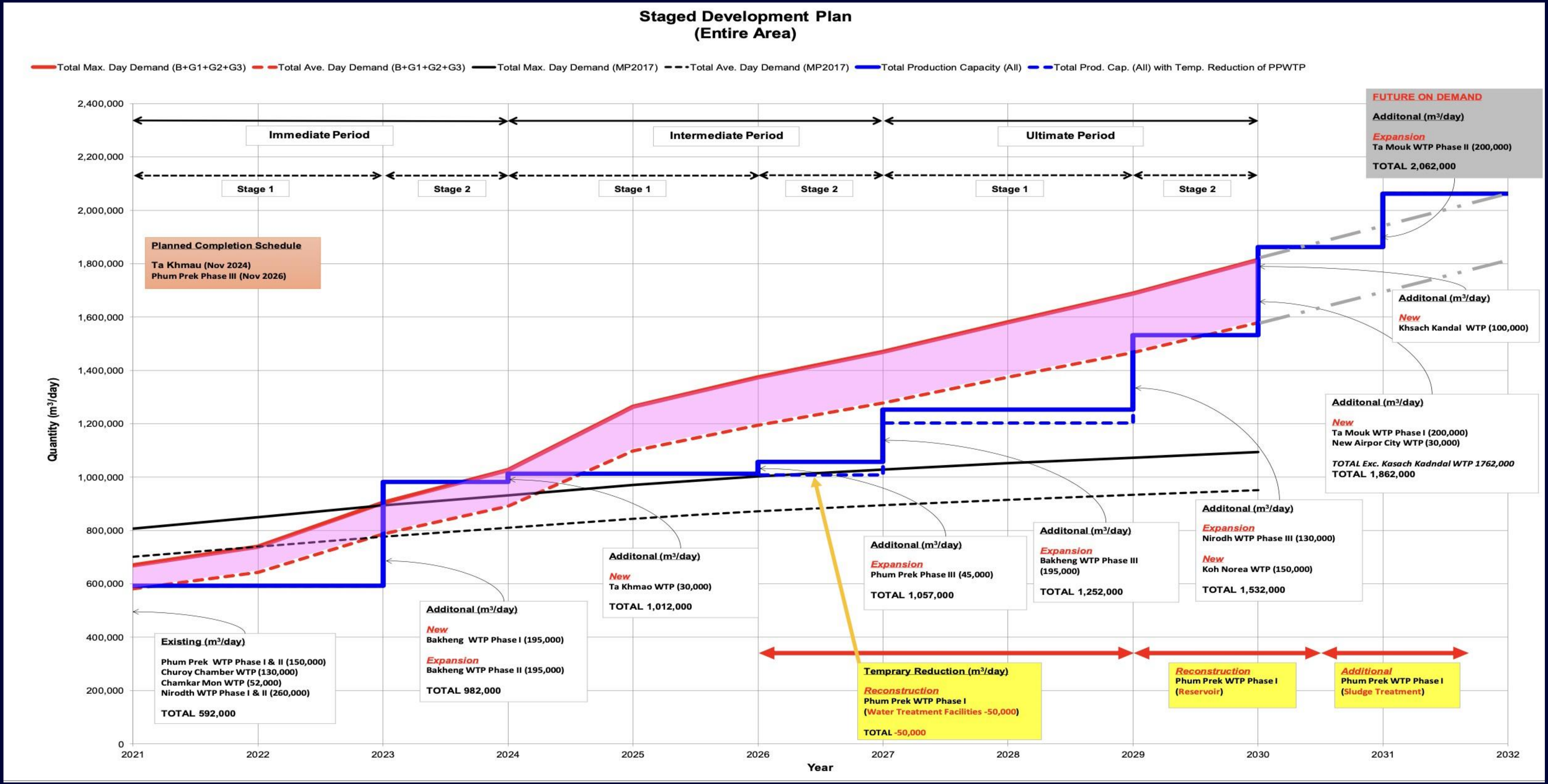
	A	B	C	D	E
Variables:	1.2	1.4	3.3	0.6	1.0

The Altman Z-Score Analysis indicates a company's financial health and, consequently, the probability of firm close to bankruptcy. With the specified formula, the indicator shows a score, in which below of 1.80 indicates a firm is said to be in the "distress zone" and has a very high probability of reaching the stage of bankruptcy. If the score is between 2.99 and 1.81, this show that the firm is in the "grey zone" and has moderate probability for bankruptcy, and if the score is greater than 2.99, then the firm is said to be in the "safe zone" which has a negligible probability of filing bankruptcy.

APPENDIX 23 – 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%

APPENDIX 24 – PWSA MASTER PLAN



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APPENDIX 25 – REFERENCES

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