KRChoksey | INSTITUTIONAL

VA Tech Wabag Ltd

Initiating Coverage

28th February, 2018

VA Tech Wabag Ltd

Africa, India and LATAM markets to drive further growth

CMP	Target	Potential Upside	Market Cap (INR Mn)	Recommendation	Sector
INR 550	**INR 722**	**31%**	**30,490**	**Buy**	**Utilities – Water & Sewage**

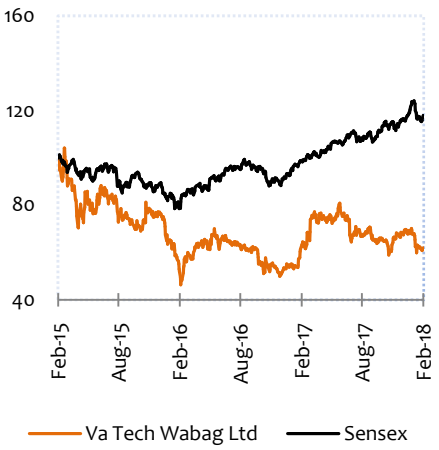
Company Overview

Incorporated in 1995, VA tech Wabag (VATW) is one of the leading players in water treatment space with presence in over 15 countries. The company along with its 17 subsidiaries provides EPC and O&M solutions to Municipal and Industrial clients. It offers solutions for drinking water treatment, industrial water treatment, sea & brackish water desalination, municipal waste-water treatment, sludge treatment and so on. VATW commands nearly 14% market share in India as well as a strong foothold in Europe, Middle East, Africa and South-East Asia. VATW has recently forayed into LATAM market and foresees huge market potential for its services in this region. It's R&D centres are located in Switzerland, Austria and India enabling VATW to provide customized water treatment solutions to clients along with securing 100 patented technologies.

MARKET DATA

Shares outs (Mn)	54
EquityCap (INR Mn)	109
Mkt Cap (INR Mn)	30490
52 Wk H/L (INR)	749/529
Volume Avg (3m K)	130
Face Value (INR)	2
Bloomberg Code	VATW IN

SHARE PRICE PERFORMANCE



MARKET INFO

SENSEX	34184
NIFTY	10493

Investment Rationale

India Wastewater Treatment – the low hanging fruit:

India constitutes nearly 16% of the global population with only 4% of the total fresh water resources, which places India in the list of Water Scarce nations. Further, the situation is likely to get worse due to estimates that the population will grow from 1.2bn in 2010 to 1.6bn in 2030. Increasing urbanization (from 30% in 2010 to 50% in 2030) will lead to more demand for basic amenities like water supply, sewerage and solid waste management. In terms of the wastewater data, industry reports suggest that about 38,255 MLD (million litters per day) of wastewater is generated in urban India with a population of more than 50,000, which is around 70% of the urban population while India's municipal wastewater treatment capacity is estimated at about 12,000 MLD. This clearly states that, urban India can treat only 30% of the waste water, while the rest is released into the ground or into open drains *(Delhi, Maharashtra, Gujarat, West Bengal are among the top states that generate higher water wastage)*. According to various industry reports, it is estimated that India's urban wastewater generation may cross 120,000 MLD by 2051, while rural India will generate about 50,000 MLD, making it inevitable for the government to come up with a clear roadmap for wastewater treatment infrastructure in the immediate future.

Additionally, the demand for water is poised to increase further owing to industrialization and irrigation. According to global water resource report, the demand for water in India is estimated to increase to 1500 bcm (billion cubic meters) p.a., while the supply will account not more than 740 bcm p.a. by 2030. This clearly indicates the government has to make investments toward water recycling, reuse, sewage and sludge treatment in the near coming years.

In Oct'17, the environment ministry tweaked standards for four parameters that determine water quality: pH value, which captures the level of acidity, Bio-Chemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and Fecal Coliform (FC). Fecal coliform bacteria like the dreaded strain of E. Coli is found in the intestines of warm-blooded animals. The new standard is less than 1000 (Most Probable Number per 100 millilitre, MPN/100ml) for STPs across the country. The new rules will apply to all plants that are commissioned after June'19, and all existing plants have to comply with them within five years. In terms of the STP capacity, only three out of India's 28 states and union territories in India can meet their demand for sewage treatment. In terms of the sewage generated, it has been observed that major source of pollution in the Ganga is sewage, however, the same has never been treated due to inadequate STP network. To curb this, the government increased its FY18 budgetary allocation to the Water Resources, River Development and Ganga Rejuvenation by 11%. Of the total amount, INR 68bn shall be allocated to the Ministry and INR 22bn to Namami Gange

SHARE HOLDING PATTERN (%)

Particulars	Dec 17	Sep 17	Jun 17
Promoters	24.69	24.72	24.73
FIIs	25.82	26.71	26.69
DIIs	20.69	25.01	24.58
Others	28.79	23.58	24.01
Total	100	100	100

12%

Revenue CAGR between FY17-20E

17%

PAT CAGR between FY17-20E

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programme. This could lead govt to increase the coverage of STPs in Ganga, which is considered to be less than 30% of the overall sewage generated (4800 MLD). This is also evident from the fact that the government has approved adding 933 MLD capacity STPs, and enhance the functioning of existing plants to treat another 1,091 MLD. **We believe such policies are a welcome step and open up huge opportunities for water treatment players like VATW in the medium to long term.**

Desalination – the time is now!

India is the world's largest user of groundwater (more than that of the US and China) with its groundwater levels falling since the 1980s. The fact that groundwater irrigation in India supports livelihoods of over 26 crore farmers and laborers, the benefits have come at a huge cost of increased pressure on groundwater reserves. Adding to the severity of the problem is a rising population, rapid industrialization and improving standards of living resulting in higher demand for water. To address the rising gap between water demand and supply, the government is focusing on water reuse and recycling along with alternative methods such as desalination. Desalination is the process of recovering pure water from saline water with the use of various technologies.

India being the world's second most populous nation, falls in the category of water stressed countries with less than 1700 cubic meter water per capita per year. Rise in per capita water consumption due to rapid industrialization and better standards of living are acting as catalysts for growth of the desalination market in India. India's water crisis is being magnified due to depleting ground water resources and lack of water conservation initiatives, resulting in higher demand for drinking water and the widening supply gap in India. Further adding to the crisis is the large scale economic development which is resulting in huge infrastructure push as well as technological developments in the desalination technology are some factors supporting growth of desalination plant market in India. It is also estimated the Indian Desalination Plant market will grow from USD 0.82bn in 2015 to USD 2.83bn in 2021E. The growth is mainly driven by increasing water demand from paper and pulp industries, textiles, fertilizers and so on which constitute more than 50% of Indian desalination market. Increased pace of industrialization has resulted in an increase in overall water consumption.

Given VATW's dominant position in the desalination market (among top 10 players globally for desalination) and the company has successfully executed desalination projects in the past, the probability of winning more contracts in the future remains strong. Moreover, if the company is successful in receiving orders, it could receive O&M orders as well for the maintenance of these plants resulting in margin expansion as O&M division enjoys higher margins.

Major global cities inching towards a water negative future:

While agriculture accounts for 70% of the world's water use, future projections from the Organisation for Economic Cooperation and Development indicate that energy and industrial activities are the fastest-growing sources of future water demands. Companies and countries should be looking for partners and solutions that address these growing water and energy demands, including efficiency and re-use. These are more cost-effective means of meeting needs compared to investments in supply solutions like desalination and new power plants. The world faces a future of extreme water variability. Water risks and supply disruptions are already affecting business in California, China, India, and elsewhere. From Sao Paulo to Los Angeles, cities around the world have made headlines due to severe droughts intensified by climate change and exacerbated by poor water management. In terms of water technology trends, there is a clear shift to making existing technologies, such as the notoriously energy-intensive seawater desalination, cheaper and more efficient. **Hence, it is safe to assume that the growth for desalination plants and similar technologies will experience a significant boost in the years to come. We believe that since VATW is already present in most water-stressed geographies, it will be among the key beneficiaries of growth from this space.**

VA Tech Wabag Ltd

Valuation & Recommendation

VA Tech is considered as one of the most prominent player in the waste water treatment industry with a market share of ~14%. The company's R&D centres located in Europe have helped it to have more than 100 patents, which in turn assisted company to garner strong order flows in the past. In terms of the technology offerings, it provides solutions ranging from zero liquid discharge to desalination unlike its peers and hence, we believe this could offer the company an upper hand in terms of future order activities. In terms of domestic market, government has announced stringent norms for sewerage treatment plants recently, which we believe could augur well for the industrial order flows and VATW being the strongest player is poised to receive large orders in the coming period. For municipal orders intake, we expect increase in the budget outlay for 'Namami Gange' could see some uptick in short term. Further, BMC (Brihanmumbai Municipal Corporation) also plans to come up with STP orders estimated at approximately INR 45bn. VATW being a leader in STP can garner large orders going ahead. The company already has the L1 status in more than INR 15bn worth of contracts, of which management expects a majority to get finalized in Q4FY18. Any positive development could improve revenue visibility for FY19 & FY20. Apart from domestic market, VATW has also entered into Latin America and some other parts of Africa last year, which we believe are key growth markets for waste water treatment in medium to long run. VATW is a renowned name in the international market and thus, possibility of winning large orders cannot be overlooked. Taking all this into consideration, we expect the company to get more than INR90bn of orders over the next 2 years, which could improve revenue visibility of the company going ahead. The revenue is expected to grow at ~12% CAGR over FY17-20. In terms of operational performance, we believe majority of Wabag India orders are in execution phase and the revenue share for Wabag India is likely to increase over the next 2 years. Further, Wabag India has higher margins as compared to Wabag Overseas, which could potential improve group OPM. We expect OPM to expand by ~139bps over FY17-20E. PAT is expected to increase at 17% CAGR over the same period.

In terms of peer comparison, we believe Suez is a close competitor of the company given its presence in nearly all technologies offered by VATW. Hence, we have considered Suez for comparison. In terms of financial performance, revenue for Suez grew at mere 0.4% over CY12-16, while VATW reported a growth of 19% over FY13-17. EBITDA & PAT grew at a CAGR of 20% & 17% respectively, for VATW as against mere 1.5% & 8.8% for Suez. Further, return ratios are also favorable for VATW with average ROE & ROCE at 11.8% & 20.6% as against 7.8% & 12.3% for Suez. This places VATW among the leaders in the waste water treatment industry.

In terms of valuations, we have valued the company on P/E basis. At CMP of INR 550, the stock is trading at 14.2x on FY19E and 11.4x on FY20E of our earnings estimates. The stock has been historically trading at medium multiple of ~17x on 1 yr fwd and ~12x 2yr fwd P/E band. However, valuations improved at the time of NDA victory on the expectations of uptick in the order activity. We expect more wastewater treatment order to be announced before next election and hence, players like VATW are expected to benefit from this process. This, in turn, could improve valuations of the company and hence, valuing the company at 15x on FY20E earnings of INR 48.1, we have a target price of INR 722, potential upside of 31% from CMP of INR 550. We have 'BUY' rating on the stock.

Exhibit 1: Key Financials

Particulars (INR bn)	FY13	FY14	FY15	FY16	FY17	FY18E	FY19E	FY20E
Net Revenue	16.2	22.4	24.4	25.2	32.2	36.3	40.0	45.6
EBITDA	1.5	2.1	2.1	2.4	3.1	3.5	4.1	5.0
Adj.PAT	0.9	1.1	1.1	0.9	1.0	1.7	2.2	2.7
Adj. EPS	16.9	21.1	20.2	16.2	18.7	31.4	38.6	48.1
OPM	9.5%	9.3%	8.7%	9.6%	9.6%	9.5%	10.3%	11.0%
NPM	5.6%	5.1%	4.5%	3.5%	3.2%	4.8%	5.4%	5.9%
PE (x)	32.6	26.1	27.2	34.0	29.5	17.5	14.2	11.4

Source: Company, KRChoksey Research

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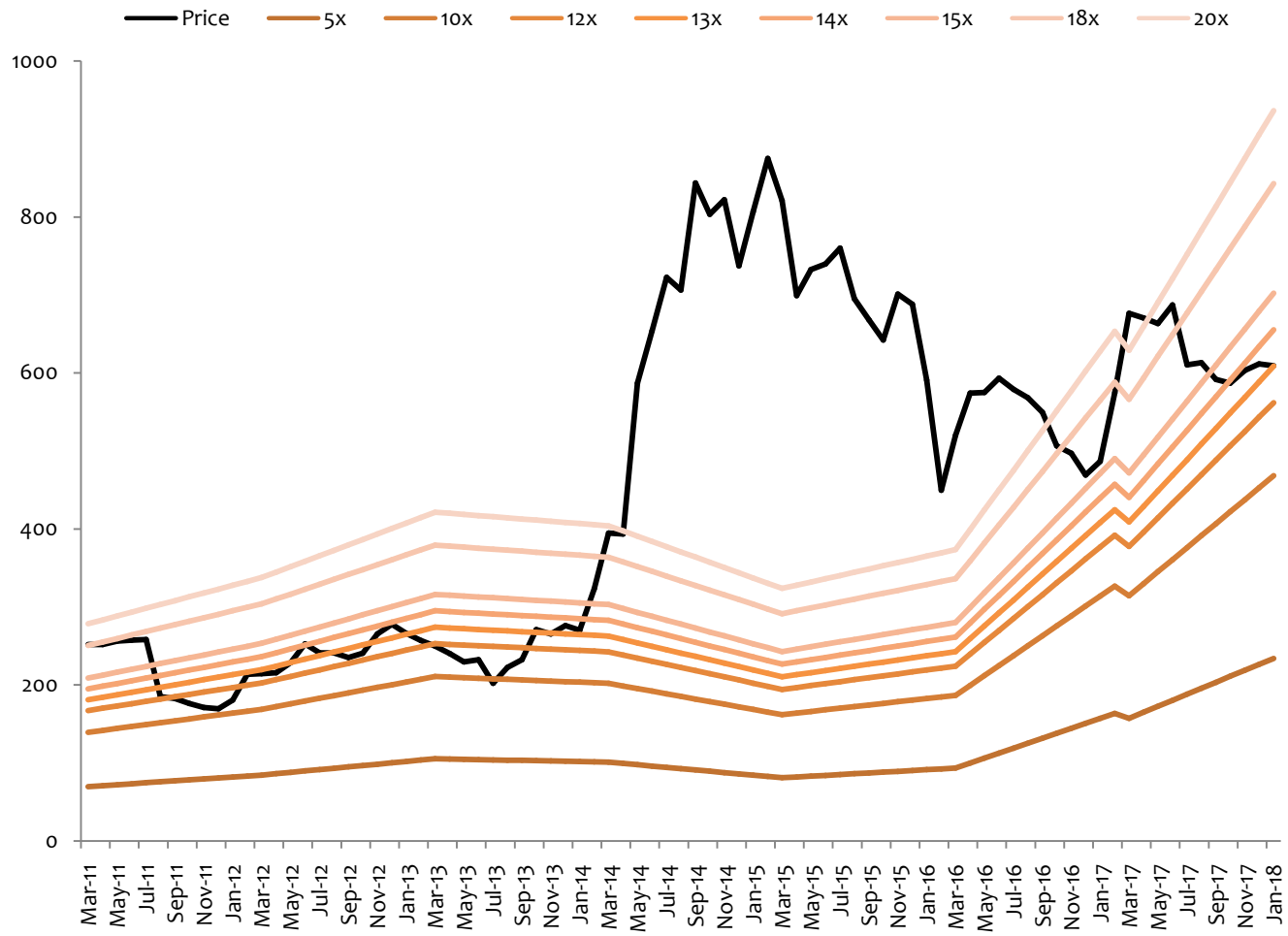
VA Tech Wabag Ltd

Exhibit 2: PE Band – 1 Year forward



Source: Company, KRChoksey Research

Exhibit 3: Peer Comparison – Key Financials

Particulars	VA Tech Wabag	Suez Environment*	Ion Exchange
Net Revenue (CAGR)	19%	0.4%	5%
EBITDA (CAGR)	20%	1.5%	12%
Adj.PAT (CAGR)	17%	8.8%	19%
Average OPM	9.3%	14.3%	6.0%
Average NPM	4.5%	2.4%	1.6%
Average ROCE	20.6%	12.3%	16.9%
Average ROE	11.8%	7.8%	8.8%

**Suez Environment (In Euro Mn), Suez CAGR between CY12-16, while VA tech & ION exchange between FY13-17*
Source: Company, KRChoksey Research

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Quick Business Snapshot

Business Model

Incorporated in 1995, VA tech Wabag (VATW) is one of the leading players in water treatment space with presence in over 15 countries. The company along with its 17 subsidiaries provides EPC and O&M solutions to Municipal and Industrial clients. It offers solutions for drinking water treatment, industrial water treatment, sea & brackish water desalination, municipal waste-water treatment, sludge treatment and so on. VATW commands nearly 14% market share in India as well as a strong foothold in Europe, Middle East, Africa and South-East Asia. VATW has recently forayed into LATAM market and foresees huge market potential for its services in this region. It's R&D centres are located in Switzerland, Austria and India enabling VATW to provide customized water treatment solution to clients along with securing over 100 patented technologies.

Strategic Positioning

- One of the key strategic advantages for VATW is its asset-light business model
- The company undertakes jobs such as design & engineering, technology procurement, project management and O&M in-house since these are high-margin, low capital intensive in nature.
- Alternatively, the company outsources civil construction jobs since these are low-margin and capital intensive in nature.

Competitive Edge

- A vast geographical reach and a wide business portfolio allow the company to remain de-risked, thereby, resulting in the overall business to remain unaffected.
- Additionally, the company prefers to undertake orders from multilateral agencies such as the World Bank, since there is little hassle in receiving funding. This enables the company to focus on faster project execution, resulting in improved earnings potential.

Financial Structure

- Revenues grew at a CAGR of ~17% over FY12-17, owing to decent order intake from municipalities.
- EBITDA increased at a CAGR of ~19% over FY12-17 with average OPM of ~9.3%.
- PAT was up by ~18% CAGR over FY13-17 with average NPM of ~5%.

Key Competitors

- Suez, Veolia, Ion Exchange, GE Water, L&T, IVRCL, Thermax and Hindustan Dorr Oliver are some of the key players in this space.

Entry Barriers

- A large chunk of the overall business is derived from government institutions such as municipalities as well as multilateral agencies such as World Bank. It is important for players in this space to operate a certain scale and credibility to be able to win orders from such agencies.
- Additionally, the industry is technology heavy, thereby, demanding considerable amount of capital expenditure to be incurred for research and development purposes. Such factors create an entry barrier for any new players.

Client Base

- Prestigious clientele including the likes of Reliance, IOCL, Petronas, OMV Petrom and large clients in Saudi Arabia and Indonesia to name a few.

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VA Tech Wabag Ltd

Company Background:
Incorporated in 1995, VA tech Wabag is a market leader in water technology market. It is a leading multinational player with a workforce of over 2,000 people and presence in more than 15 countries. Since 1996, Wabag has built over 800 water & wastewater plants worldwide and managed more than 2300 projects. The company has invested heavily on developing various waste water treatment technologies to provide customized solutions to various clients, enabling it to hold more than 100 patents for water solutions as of FY17. The company has a strong foothold in the India market with ~14% market share. While for the overseas market, it has established presence across Middle East, North Africa, Europe and South-East Asia through 17 subsidiaries across 4 continents. The R&D centers of the company are located in India, Austria and Switzerland.

VA tech provides technology for water solutions along with more emphasis towards design & engineering, while it outsources the civil & construction works. This helps company maintain an asset light model, which helps it to outpace other industrial players in terms of ROCE (avg 20% against industry avg of 10-12%). The company also provides operation & maintenance (O&M) services to the clients, which are margin lucrative and provides cushion to the consol OPM. The segment carries margin between 18-20%, which is almost double than the EPC margin of 8-10%.

To get foothold across both business segments in water industry i.e. EPC and O&M, the company has divided business divisions into two geographies, which provides water solutions to end users across the globe. The segments are known as Wabag India and Wabag Overseas. Further, the business model has been reclassified among cluster based approach to attain synergies as a whole. The four clusters have been named as (I) India cluster (II) Europe Cluster (III) Middle East & Africa Cluster and (IV) Latin America cluster. The scope of the work includes providing comprehensive and customized water solutions in the area of drinking water and wastewater management. The different clusters focus on different countries, enabling them to achieve efficiency as a whole.

Exhibit 4: Business Model

Design & Engineering	Technology	Civil Construction (Outsourced)	Operation & Maintenance
• Critical for cost optimization • Approvals to match customer requirements	• In-house to ensure compliance with designs • Combination of Proprietary & Bought out technology • Testing, Quality Control	• Outsourced to dedicated contractors • Ensures asset light model • Allows to focus on core cometencies	• In-house to ensure quality performance • High plant operation efficiency • Least downtime • High EBITDA segment

Exhibit 5: Cluster-wise Focus Markets & Key Target Sectors

India Cluster	Europe Cluster	Middle East & Africa (MEA) Cluster	Latin America (LATAM) Cluster
• **Focus Markets:** Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Thailand and Vietnam • **Key Target Sectors:** Industrial and Municipal	• **Focus Markets:** Austria, Czech Republic, Romania, Switzerland and Turkey • **Key Target Sectors:** Industrial and Municipal	• **Focus Markets:** Bahrain, Egypt, Iran, Libya, Namibia, Nigeria, Oman, Qatar, Saudi Arabia, Tanzania and Tunisia • **Key Target Sectors:** Municipal EPC and O&M for water desalination and brackish water projects, sewage treatment plants and industrial projects	• **Focus Markets:** Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Uruguay • **Key Target Sectors:** Industrial and Municipal

Source: Company, KRChoksey Research

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Exhibit 6: Cluster Map

Source: Company, KRChoksey Research

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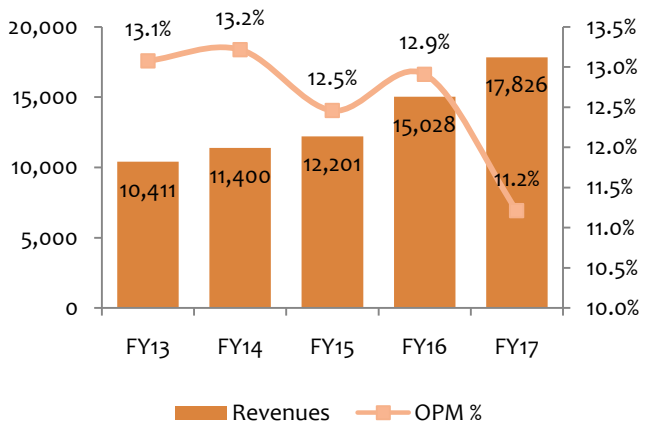
The company has divided its business into two divisions i.e. (i) Wabag India and (ii) Wabag Overseas. These units provide various water solution services *(EPC, O&M)* to different municipalities and industries across the globe. The margin profile for both divisions are different. India division enjoys EPC margin between 9-10% and O&M margin of 18-20%, whereas India international units carry EPC margins between 7-8% and O&M margins of 14-16%. On the other hand, Wabag Overseas has EPC margins between 4-5% and O&M margins of 8-10%.

Wabag India:
Wabag India offers the entire Wabag group portfolio in the areas of municipal and industrial water & wastewater treatment. The company has entered into Africa region last year, which we believe is a key growth market for the group in medium to long run.

In terms of the order intake, it grew at a CAGR of 20% over FY13-17, largely led by robust uptick in the industrial order flows (+70% YoY) last year. We believe execution of those contracts could ramp up in the next year and hence, improvement in the revenue share to the overall revenue is expected. The Wabag India revenue (~55% of overall revenue) increased at a CAGR of 14% over FY13-17, impacted because of sluggish order flows between FY12-14. The order book of the segment at the end of Q3FY18 stands at INR 45.7bn representing a book to bill of ~2.3x. EPC and O&M constitute ~50% & ~20% to the overall order backlog. Going ahead, we expect faster execution for the projects like Polgahawela – Sri Lanka and Koyambedu – Chennai to improve revenue visibility of the cluster. Further, we expect inching up of revenue share from Wabag India to expand OPM for the entire group given the former enjoys higher margins as compared to Wabag overseas.

Exhibit 7: Wabag India revenues (INR mn)



Source: Company, KRChoksey Research

Exhibit 8: Geographical revenue split (INR mn)

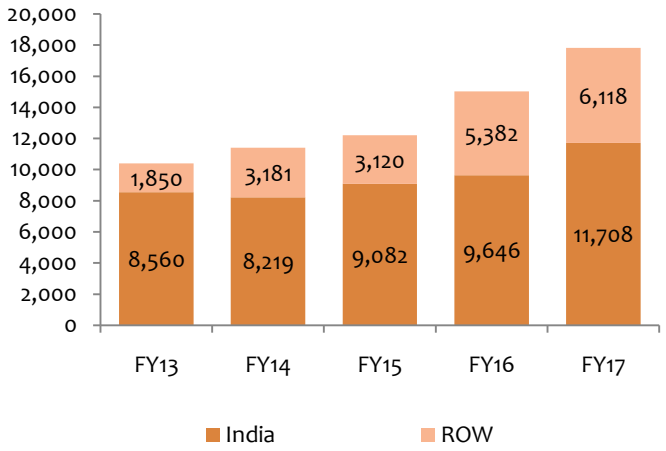
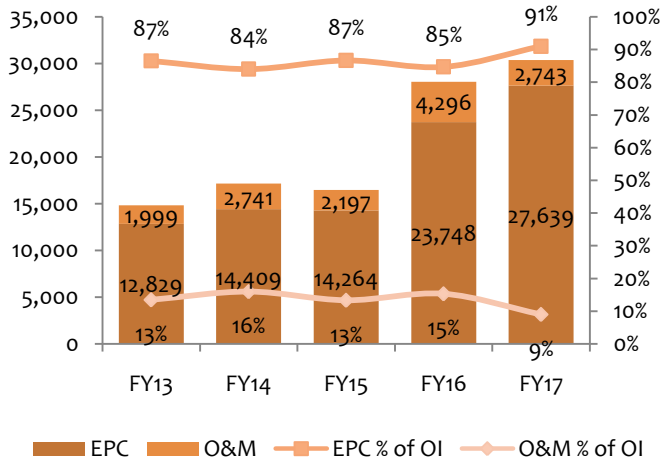


Exhibit 9: Order intake break up (INR mn)



Source: Company, KRChoksey Research

Exhibit 10: Order intake break up (INR mn)

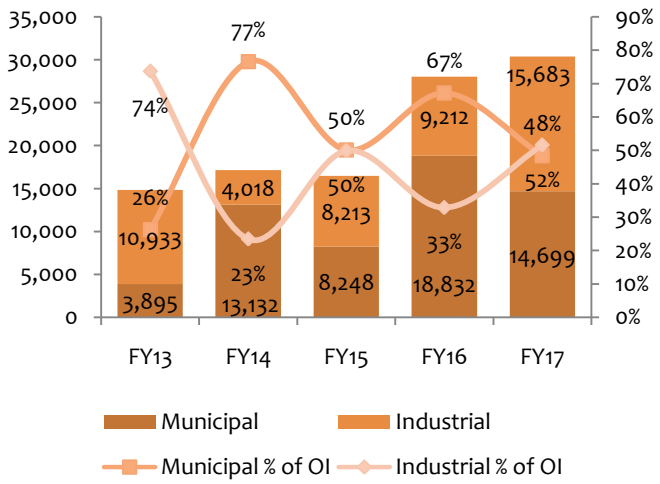


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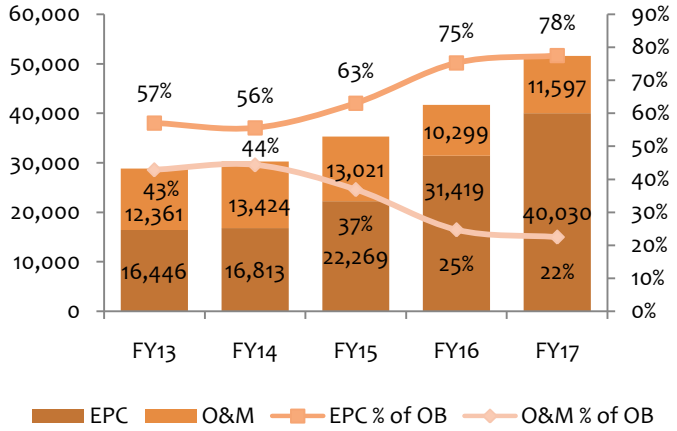
Exhibit 11: Order backlog break up (INR mn)



Source: Company, KRChoksey Research

Exhibit 12: Order backlog break up (INR mn)

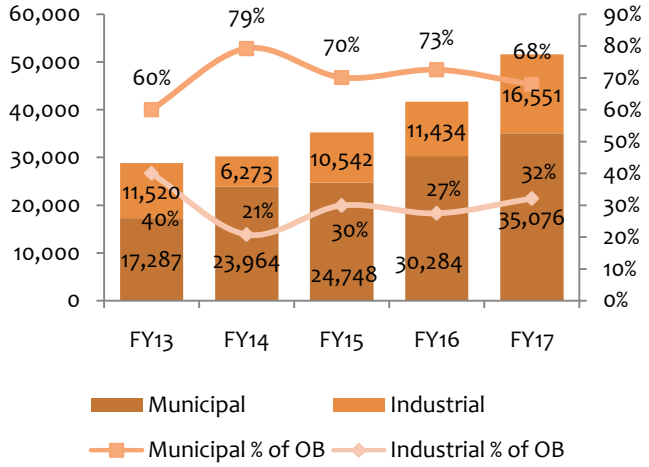
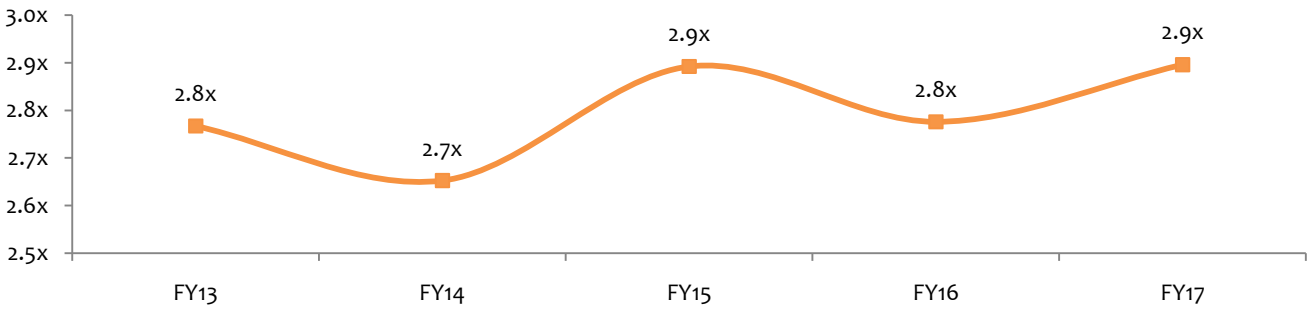


Exhibit 13: Book to bill (x)

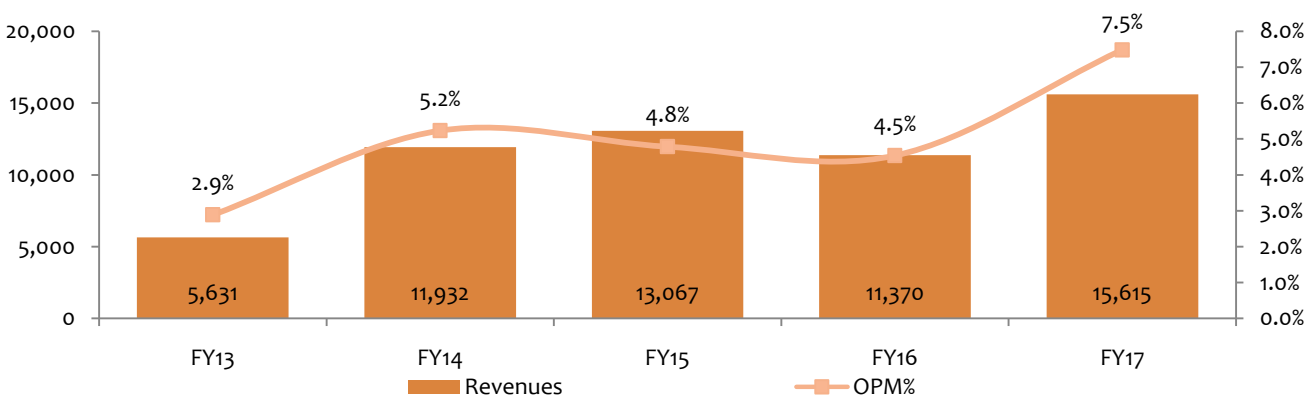


Source: Company, KRChoksey Research

Wabag Overseas:

Wabag overseas also provides waste water treatment to the Europe cluster, Latin America, Middle East clusters etc. The wabag overseas order flows have been largely dependent on crude oil prices given the large portion of orders are derived from Middle East. The order intake for Wabag Overseas fell by 75% YoY in FY17 primarily on account of subdued oil prices. The overseas revenue increased at a CAGR of 26% between FY13-17, largely led by robust order intake (+51% CAGR) between FY13-16. The order backlog at the end of Q3FY18 stands at INR 19.5bn represents book-bill of ~1.3x. EPC and O&M constitute ~28% & ~2% of overall order backlog. Going ahead, a key thing to watch out for overseas market will be execution of Desalination & STP in Saudi Arabia.

Exhibit 14: Wabag Overseas Revenues (INR mn) & OPM (%)



Source: Company, KRChoksey Research

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Exhibit 15: Order intake break up (INR mn)

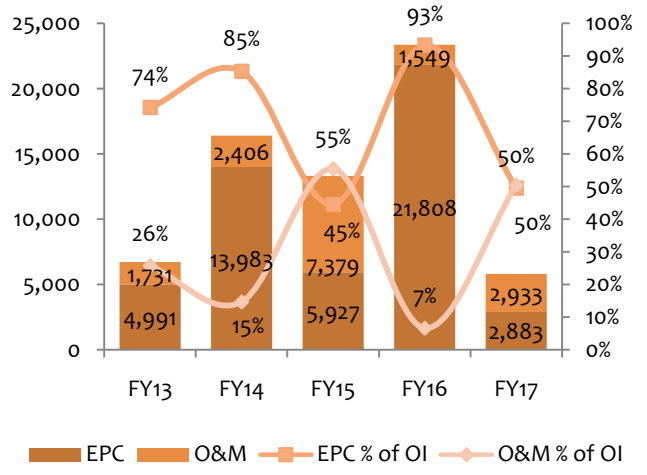


Exhibit 16: Order intake break up (INR mn)

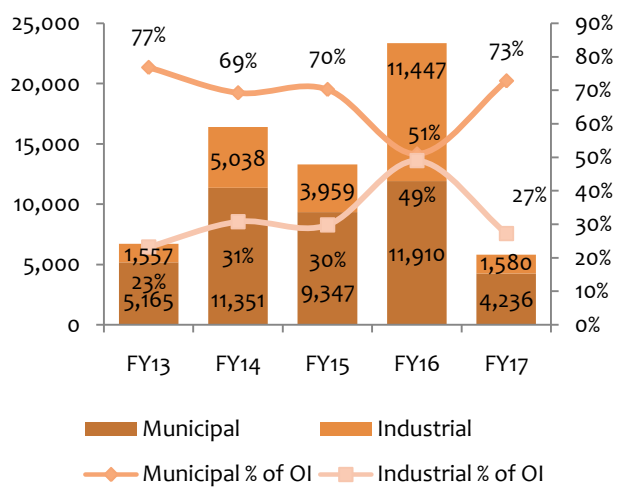


Exhibit 17: Order backlog break up (INR mn)

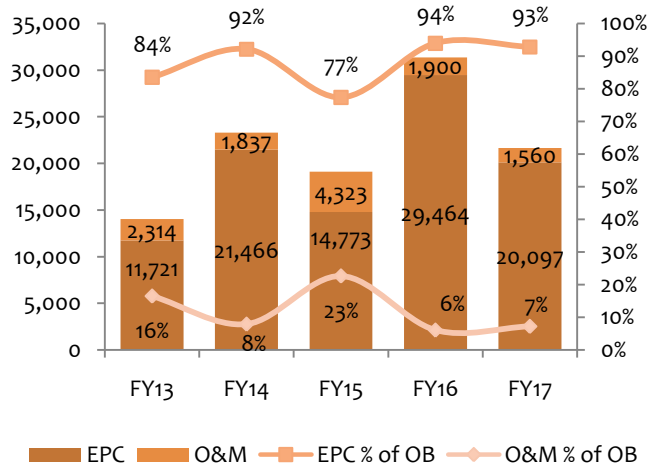


Exhibit 18: Order backlog break up (INR mn)

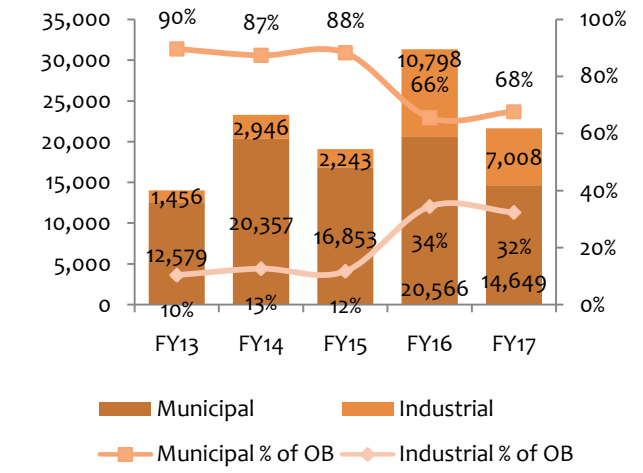
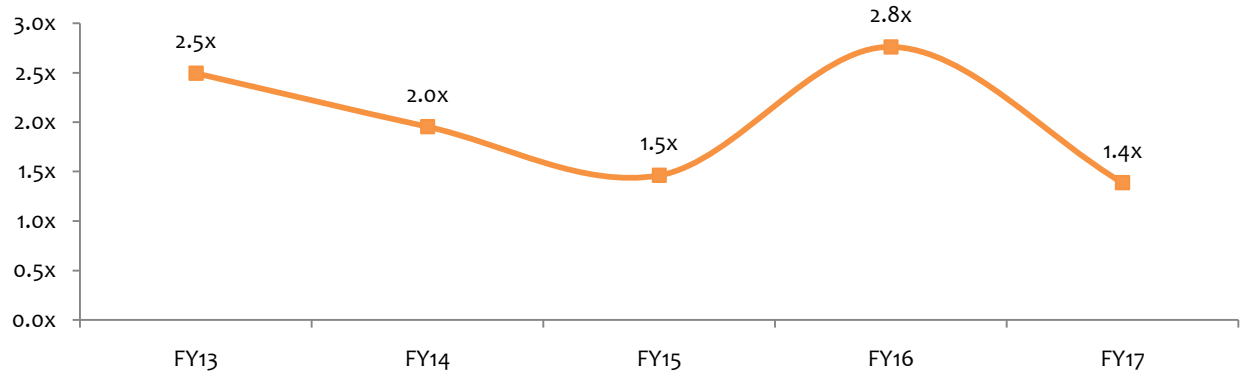


Exhibit 19: Book to Bill (x)



Source: Company, KRChoksey Research

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VA Tech Wabag Ltd

Exhibit 20: Performance Range

Drinking Water Treatment
- Ground Water Treatment
- Surface Water
- Sea & Brackish Water Desalination
- Treated Wastewater (Potable Water Reuse)

Industrial Water Treatment
- Process Water
- Boiler Feed Water
- Service Water

Municipal Wastewater Treatment

Industrial Wastewater Treatment
- Aerobic Biological Processes
- Anaerobic Biological Processes
- Chemical-physical Processes

Sludge Treatment
- Sludge Disintegration

Operations & Maintenance
- BOOT – Build Own Operate Transfer
- Consulting
- DBO – Design Build Operate
- Operational Management Concepts
- O&M Plant Operation/Outsourcing

Processes & Technology
- NEREDA
- Ion Exchange
- Membrane Filtration
- MARAPUR
- Reverse Osmosis

Source: Company, KRChoksey Research

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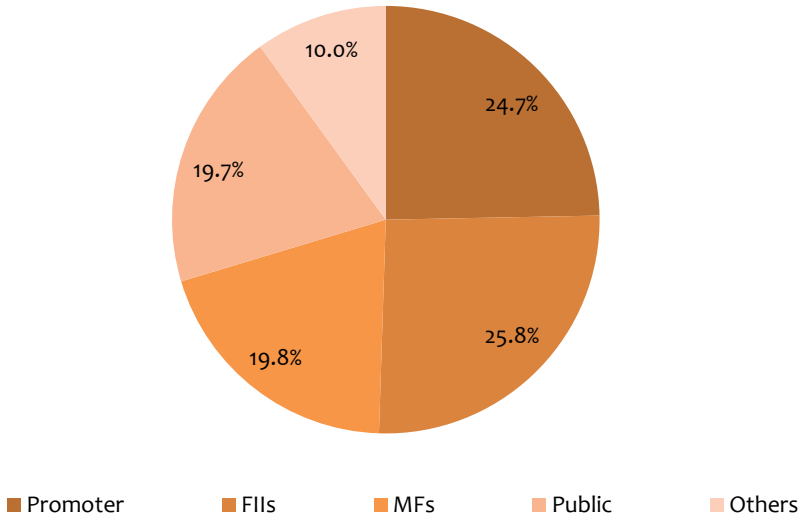
VA Tech Wabag Ltd

Exhibit 21: Shareholding Structure (as of Sep 2017)



Source: Company, KRChoksey Research

Exhibit 22: Top 5 Fund Holdings (As of Dec 2017)

Fund Name	Market Value (INR Cr)	No. of Shares
SBI Mutual Fund	257.89	4223154
IDFC Mutual Fund	197.79	3238994
Sundaram Mutual Fund	68.74	1125698
Birla Sun Life Mutual Fund	53.68	879101
Canara Robeco Mutual Fund	30.09	492685

Source: Company, KRChoksey Research

Exhibit 23: Management Details

Name	Designation	Executive / Non-Executive
B D Narang	Chairman	Non-Executive
Rajiv Mittal	Managing Director	Executive
Sumit Chandwani	Independent Director	Non-Executive
Jaithirth Rao	Independent Director	Non-Executive
Revathi Kasturi	Independent Director	Non-Executive
Malay Mukherjee	Independent Director	Non-Executive

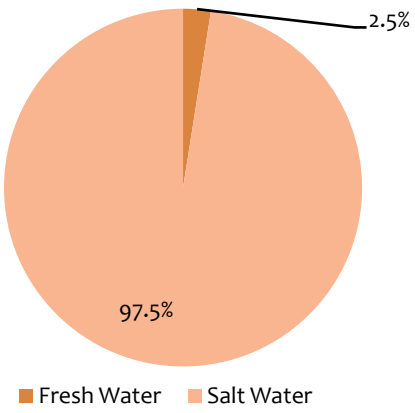
Source: Company, KRChoksey Research

VA Tech Wabag Ltd

Wastewater Treatment Industry

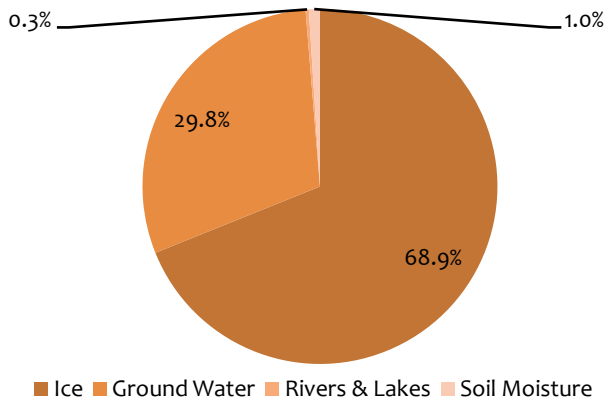
Industry data suggests that, the world's water reserves consist around 2.5% of freshwater and around 97.5% of saline water. Out of the 2.5% freshwater, only 0.3% is easily accessible and remaining 99.7% of fresh water is available in both glaciers and deep ground water. Hence, this leaves limited availability of water for consumption across the globe.

Exhibit 24: Global Water Composition (%)



Source: Industry, KRChoksey Research

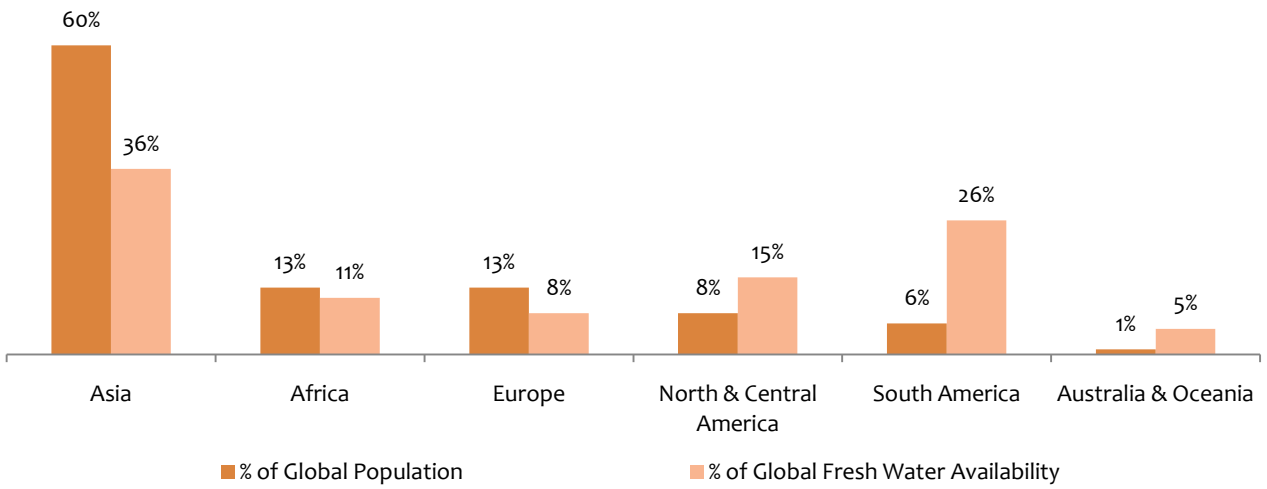
Exhibit 25: Composition of Fresh Water Sources (%)



Source: Industry, KRChoksey Research

Further, despite fresh water being available to the tune of 0.3%, the distribution of water resources is not equal around the world. North America enjoys 15% of the global water supply for only 8% of the global population, whereas Asia has limited water availability of 36% of global water supply against 60% of the global population. Moreover, the usage of water has also increased among various industries in high income countries, which ranges from 10% in low-middle income countries to 59% in high income countries. This has created further strain on the reservoir level for water deficit countries. It is estimated that 31 countries with 8% of the world's population (mostly in Africa and the Middle East) have water shortages presently, while the figure is likely to rise to 48 countries and 35% of world population by 2025. Major nations in the list are India, Ethiopia, Nigeria, Kenya and Peru. Hence, there has been an outcry in these countries which are having limited water reservoirs and have planned programs for waste water treatments like STP, WWTP and so on in recent years, which can help them to bridge the gap of being a resource scarce to resource rich country.

Exhibit 26: Global Population and Global Distribution of Fresh Water (%)



Source: Industry, KRChoksey Research

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VA Tech Wabag Ltd

The global water industry size is expected to grow tremendously due to imminent surge in demand from urban house-holds coupled with industrialization. The growth will be largely driven by manufacturing, thermal electricity generation and domestic usage and the prominent water markets in the near future would be Egypt, Vietnam, India, Canada and Saudi Arabia. Concurrently, as per reports, the industrial water treatment and recycling market is expected to grow by over 50% over the next few years, from around US$ 7bn in 2015 to almost US$ 11bn in 2020.

Exhibit 27: Top 10 Growth Markets for Water

Countries	Expected CAGR between FY14-20 (%)	VA Tech Presence
Egypt	56%	Yes
Vietnam	30%	Yes
India	21%	Yes
Canada	19%	No
Saudi Arabia	16%	Yes
Oman	10%	Yes
Spain	9%	Yes
Australia	9%	No
Indonesia	9%	Yes
Peru	9%	Yes

Source: Industry, KRChoksey Research

India faces acute water shortage due to higher demand and lack of infrastructure to treat wastewater. According to industry reports, most of the wastewater in India is never treated before being discharged into the water bodies. This pollutes the water, which results it to unsafe for consumption. This has also resulted water shortages in the country. Industry data suggests that as against the requirement of 140 litres per capita water per day, urban India receives only 105 litres of water/day, while rural India has been facing worse situation than the urban India. Further the situation is likely to get worsen on account of more urbanization and industrial growth likely to happen going ahead. It is estimated that the urban population will increase to 600 million by 2031—twice as much as in 2011, while consumption of industrial water will increase from 6% to 18% by 2050. Hence, this will eventually increase the use of water but since the country is already facing water shortages, municipalities and industries will have to push harder for the development of waste water treatment plants in the near to short term. **We believe this will provide opportunities to water treatment players like VA tech to gain additional market share going ahead.**

VA Tech Wabag Ltd

Investment Rationale:

India Wastewater Treatment – the low hanging fruit:

Despite the government's keen interest, infrastructure development for sewage and wastewater treatment has not kept pace with wastewater generation in India. As a result, vast amounts of polluted water is being discharged into natural waterways. Going forward, we expect this gap in infrastructure to push the government to increase spending.

India constitutes nearly 16% of the global population with only 4% of the total fresh water resources, which places India in the list of Water Scarce nations. Further, the situation is likely to get worse due to estimates that the population will grow from 1.2bn in 2010 to 1.6bn in 2030. Increasing urbanization (from 30% in 2010 to 50% in 2030) will lead to more demand for basic amenities like water supply, sewerage and solid waste management. In terms of the wastewater data, industry reports suggest that about 38,255 MLD (million litters per day) of wastewater is generated in urban India with a population of more than 50,000, which is around 70% of the urban population while India's municipal wastewater treatment capacity is estimated at about 12,000 MLD. This clearly states that, urban India can treat only 30% of the waste water, while the rest is released into the ground or into open drains *(Delhi, Maharashtra, Gujarat, West Bengal are among the top states that generate higher water wastage).* According to various industry reports, it is estimated that India's urban wastewater generation may cross 120,000 MLD by 2051, while rural India will generate about 50,000 MLD, making it inevitable for the government to come up with a clear roadmap for wastewater treatment infrastructure in the immediate future.

Additionally, the demand for water is poised to increase further owing to industrialization and irrigation. According to global water resource report, the demand for water in India is estimated to increase to 1500 bcm (billion cubic meters) p.a., while the supply will account not more than 740 bcm p.a. by 2030. This clearly indicates the government has to make investments toward water recycling, reuse, sewage and sludge treatment in the near coming years.

Exhibit 28: Wastewater Treatment Capacity in India

	Wastewater Generated (MLD)	Wastewater Treated (MLD)	%
Metros	15,644	8,040	51%
Class 1 cities	19,914	3,514	18%
Class 2 cities	2,697	234	8%
Total	38,255	11,788	31%

Source: Industry data, KRChoksey Research

In Oct'17, the environment ministry tweaked standards for four parameters that determine water quality: pH value, which captures the level of acidity, Bio-Chemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and Fecal Coliform (FC). Fecal coliform bacteria like the dreaded strain of E. Coli is found in the intestines of warm-blooded animals. The new standard is less than 1000 (Most Probable Number per 100 millilitre, MPN/100ml) for STPs across the country. The new rules will apply to all plants that are commissioned after June'19, and all existing plants have to comply with them within five years. In terms of the STP capacity, only three out of India's 28 states and union territories in India can meet their demand for sewage treatment. In terms of the sewage generated, it has been observed that major source of pollution in the Ganga is sewage, however, the same has never been treated due to inadequate STP network. To curb this, the government increased its FY18 budgetary allocation to the Water Resources, River Development and Ganga Rejuvenation by 11%. Of the total amount, INR 68bn shall be allocated to the Ministry and INR 22bn to Namami Gange programme. This could lead govt to increase the coverage of STPs in Ganga, which is considered to be less than 30% of the overall sewage generated (4800 MLD). This is also evident from the fact that the government has approved adding 933 MLD capacity STPs, and enhance the functioning of existing plants to treat another 1,091 MLD.

Exhibit 29: Standards that determine water quality

Parameter	Standard	Scope
pH	6.5-9	Everywhere in the country
Bio-Chemical Oxygen Demand (BOD)	Not to exceed 20	For metro areas and all state capitals barring Himachal Pradesh, Uttarakhand, Jammu & Kashmir and Union Territory of Andaman & Nicobar Islands, Dadar & Nagar Haveli, Daman & Diu and Lakshadweep Islands
	Not to exceed 30	Other areas
Total Suspended Solids	Less than 50	For metro areas and all state capitals barring Himachal Pradesh, Uttarakhand, Jammu & Kashmir and Union Territory of Andaman & Nicobar Islands, Dadar & Nagar Haveli, Daman & Diu and Lakshadweep Islands
	Less than 100	Other areas
Fecal Coliform (FC)	Less than 1000	Everywhere in the country

Metro cities are Mumbai, Delhi, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Pune
Source: Industry data, KRChoksey Research

The opportunity size of STP in India is estimated to be INR 3 trillion, which could provide large opportunities to the players like VATW in medium to long run. Various municipalities have started awarding reuse projects on PPP (Public Private Partnership) and DBO (Design Build Operate) models. This is evident from the fact that long pending Mumbai Sewage Disposal Project-II (MSDP-II), comprising six projects, was opened up to bidders in January by Brihanmumbai Municipal Corporation. The World Bank-funded MSDP II is expected to be built at a cost of INR 45bn and would treat waste-water from a 5,483 hectare area across six civic wards, serving up to 35 lakh people. **We believe such policies are a welcome step and open up huge opportunities for water treatment players like VATW in the medium to long term.**

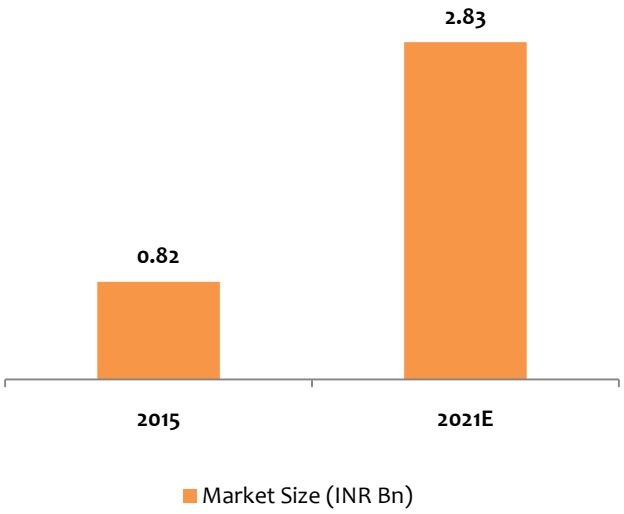
Desalination – the time is now!

India is the world's largest user of groundwater (more than that of the US and China) with its groundwater levels falling since the 1980s. The fact that groundwater irrigation in India supports livelihoods of over 26 crore farmers and laborers, the benefits have come at a huge cost of increased pressure on groundwater reserves. Adding to the severity of the problem is a rising population, rapid industrialization and improving standards of living resulting in higher demand for water. To address the rising gap between water demand and supply, the government is focusing on water reuse and recycling along with alternative methods such as desalination. Desalination is the process of recovering pure water from saline water with the use of various technologies.

India being the world's second most populous nation, falls in the category of water stressed countries with less than 1700 cubic meter water per capita per year. Rise in per capita water consumption due to rapid industrialization and better standards of living are acting as catalysts for growth of the desalination market in India. India's water crisis is being magnified due to depleting ground water resources and lack of water conservation initiatives, resulting in higher demand for drinking water and the widening supply gap in India. Further adding to the crisis is the large scale economic development which is resulting in huge infrastructure push as well as technological developments in the desalination technology are some factors supporting growth of desalination plant market in India. It is also estimated the Indian Desalination Plant market will grow from USD 0.82bn in 2015 to USD 2.83bn in 2021E. The growth is mainly driven by increasing water demand from paper and pulp industries, textiles, fertilizers and so on which constitute more than 50% of Indian desalination market. Increased pace of industrialization has resulted in an increase in overall water consumption.

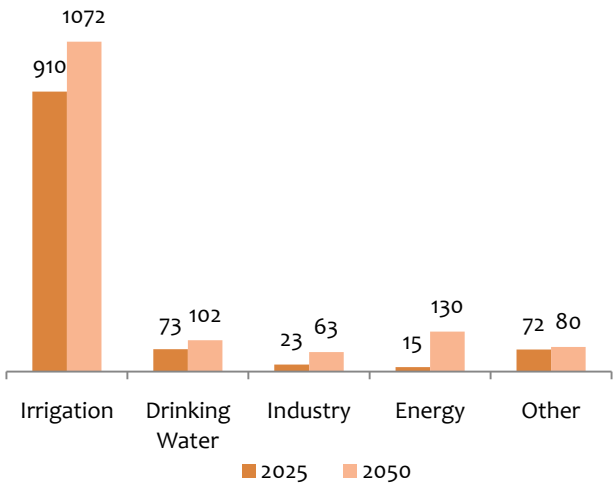
VA Tech Wabag Ltd

Exhibit 30: India Desalination Plant Market Size (INR Bn)



Source: TechSci Research, KRChoksey Research

Exhibit 31: Water Usage by various sectors (Billion Cubic Meters)



Source: National Commission for Integrated Water Resources Development, KRChoksey Research

Various technologies are used for desalination of water, however, in India, membrane based desalination, accounted for more than 50% share of the market in terms of number of plants installed by the end of 2015. The membrane desalination technology is further categorized as RO (Reverse Osmosis) and ED (Electro Dialysis), with RO based desalination process capturing more than 80% of the total membrane based desalination market in India in the same year. Technological advancements such as use of grapheme membrane and carbon nanotubes to lower the membrane cost and increase permeability are also primarily taking place in the RO category. In addition, higher efficiency desalination systems are being developed using nanotech membranes, which offer 800 times more efficiency on account of significantly higher flux and salt rejection. These technological innovations are leading to increasing efficiency and reduction in desalination cost, which is expected to be a huge positive for the desalination market in the coming years.

Given VATW's dominant position in the desalination market (among top 10 players globally for desalination) and the company has successfully executed desalination projects in the past, the probability of winning more contracts in the future remains strong. Moreover, if the company is successful in receiving orders, it could receive O&M orders as well for the maintenance of these plants resulting in margin expansion as O&M division enjoys higher margins.

Major global cities inching towards a water negative future:

While agriculture accounts for 70% of the world's water use, estimates from the OECD indicate that energy and industrial activities are the fastest-growing sources of future water demands. Companies and countries should be looking for partners and solutions that address these growing water and energy demands, including efficiency and re-use. These are more cost-effective means of meeting needs compared to investments in supply solutions like desalination and new power plants. The world faces a future of extreme water variability. Water risks and supply disruptions are already affecting business in California, China, India, and elsewhere. This is true not just for the electric power and water industries, but for customers and suppliers who rely on them. But this is not strictly a supply problem. It is just as much a demand challenge, and innovators should pay attention to opportunities to reduce overreliance on limited fresh water resources. In particular, there is a glaring need to reduce the amount of water needed for energy and the energy needed for water. A case in point is Cape Town, which is running out of water. After three years of intense drought, South Africa's second-largest city is just a few months away from "Day Zero," the day when the city government will shut off water taps for most homes and businesses. The impacts of such a shutdown will be devastating. Citizens will have to wait in long lines at state-managed distribution points to receive a mere 25 liters of water per day, less than half the water needed for one average shower. Although this instance is one of the most extreme, Cape Town is not the only city to suffer from intense water scarcity in recent years. From Sao Paulo to Los Angeles, cities around the world have made headlines due to severe droughts intensified by climate change and exacerbated by poor water management. In terms of water technology trends, there is a clear shift to making existing technologies, such as the notoriously energy-intensive seawater desalination, cheaper and more efficient. **Hence, it is safe to assume that the growth for desalination plants and similar technologies will experience a significant boost in the years to come. We believe that since VATW is already present in most water-stressed geographies, it will be among the key beneficiaries of growth from this space.**

VA Tech Wabag Ltd

Risks & Concerns

Largely exposed to government orders:

VA tech had received total order intake of around 60-65% from both domestic and overseas government. Hence, this envisages an imminent risk to the group. As any slowdown in the order announcements by government agencies can impact the order flows thereby impacting the revenue of the company in future.

Risk of cost overruns:

VA tech being an EPC player, has a dominant position in design and engineering of water projects, while it outsources civil and construction works. As this involves execution risk from third party also, any delay on civil and construction part can eventually hurt timeliness to complete the whole project and eventually lead to cost overruns and financial charges.

Industrial slowdown could be a barrier:

Water is largely used by irrigation, power and steel sectors. Due to sluggish environment in domestic power and steel sectors, the revenue from India industrial segment has been impacted in last 1-2 years. Apart from this, fall in oil prices can further curb investment cycle in Middle East countries and hence, the company could experience lower order intake from overseas market in future.

Political risk:

VA tech operates in more than 30 countries and hence the company is exposed to political risk. Any changes in the government policy can impact the revenue of the company.

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Income Statement (INR Millions)	FY13	FY14	FY15	FY16	FY17	FY18E	FY19E	FY20E
Net Revenues	16187	22386	24351	25162	32191	36344	40029	45620
Cost Of Revenues (incl Stock Adj)	11766	16979	19058	19402	25388	28857	32023	36268
Gross Profit	**4421**	**5407**	**5293**	**5759**	**6804**	**7487**	**8006**	**9352**
Employee Cost	2058	2217	2046	2113	2440	2653	2802	3011
Other Operating Expenses	819	1098	1136	1237	1286	1383	1074	1342
EBITDA	**1544**	**2091**	**2112**	**2409**	**3079**	**3450**	**4130**	**4999**
Depreciation	109	150	109	205	191	179	188	196
Net Interest Exp.	79	124	315	457	526	566	591	599
Forex (gain)/ loss	4	206	17	0	0	0	0	0
Other exceptional items	0	51	0	0	0	0	0	0
EBT	**1352**	**1662**	**1671**	**1747**	**2362**	**2705**	**3351**	**4203**
Taxes	456	526	566	668	667	974	1206	1513
Tax Rate	33.7%	31.6%	33.9%	38.2%	28.2%	36.0%	36.0%	36.0%
Net Income	**896**	**1136**	**1105**	**1079**	**1695**	**1731**	**2144**	**2690**
Adj. NI for parent	903	1,083	1,101	887	1,024	1,738	2,153	2,703
Adj. EPS (INR)	33.8	42.1	20.2	16.2	18.7	31.4	38.6	48.1
Shares Outstanding	26.6	26.6	54.3	54.3	54.3	54.8	55.3	55.7

Source: Company, KRChoksey Research

Balance sheet (INR Millions)	FY13	FY14	FY15	FY16	FY17	FY18E	FY19E	FY20E
SOURCES OF FUNDS								
Share Capital	53	53	109	109	109	110	111	111
Reserves	7100	8356	8162	9094	9822	11296	13050	15351
Minority Interest	19	28	69	82	173	190	211	238
Total Shareholders Funds	**7173**	**8440**	**8340**	**9285**	**10104**	**11596**	**13372**	**15701**
Long Term Borrowings	26	450	693	501	632	474	424	374
Net Deferred Tax liability	2	37	30	31	31	31	31	31
Other long term liabilities	815	1573	607	24	470	470	470	470
Long term provisions	303	214	280	170	136	136	136	136
Current Liabilities and Provisions								
Short term borrowings	796	1133	839	3272	2459	2959	3159	3259
Trade Payables	6890	8620	9807	11787	14001	14917	16648	18724
Other Current Liabilities	1615	2371	2767	3675	5152	4972	4272	4868
Short Term Provisions	1285	1520	864	472	521	597	2410	2746
Total Current Liabilities	10586	13643	14278	19205	22134	23445	26488	29596
Total Liabilities	**18906**	**24357**	**24228**	**29216**	**33506**	**36151**	**40920**	**46307**
APPLICATION OF FUNDS :								
Net Block	511	1192	1913	1755	1744	1565	1477	1381
Capital Work in Progress	324	7	6	24	0	0	0	0
Non-current investments	33	32	27	205	33	33	33	33
Deferred tax assets	115	107	761	608	784	784	784	784
Long term loans and advances	41	10	0	0	0	0	0	0
Other Non Current Assets	1329	1973	98	160	64	64	64	64
Current Assets, Loans & Advances								
Current Investments	0	200	380	118	192	192	192	192
Inventories	405	350	470	976	385	497	657	749
Sundry Debtors	11095	13875	14748	19424	25115	29834	31763	35575
Cash and Bank	2867	3702	3883	3786	2617	596	2993	4160
Loans and Advances	1115	995	235	273	409	497	657	749
Other Current assets	919	1232	1707	1887	2163	2088	2300	2621
Total Current Assets	**16401**	**20353**	**21423**	**26464**	**30881**	**33705**	**38562**	**44045**
Total Assets	**18906**	**24357**	**24228**	**29216**	**33506**	**36151**	**40920**	**46307**

Source: Company, KRChoksey Research

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VA Tech Wabag Ltd

Cash Flow Statement (INR Millions)	FY13	FY14	FY15	FY16	FY17	FY18E	FY19E	FY20E
PBT & Extraordinary	1352	1611	1671	1571	1789	2705	3351	4203
Depreciation	109	150	109	205	191	179	188	196
(Inc) / Dec in Working Capital	(1191)	(838)	(2566)	(3954)	(2568)	(4034)	383	(1308)
Taxes	(343)	(566)	(550)	(531)	(770)	(974)	(1206)	(1513)
Others	891	767	1391	536	1419	591	621	639
Cash from Ops.	**817**	**1124**	**55**	**(2173)**	**61**	**(1533)**	**3336**	**2217**
Purchase of Fixed Assets	(419)	(1033)	(287)	(1517)	(1391)	0	(100)	(100)
Others	17	61	(389)	2483	1999	0	0	0
Cash from Investing	**(403)**	**(972)**	**(676)**	**966**	**608**	**0**	**(100)**	**(100)**
Proceeds from issue of shares	32	15	196	37	14	1	1	1
Borrowings (Net)	(426)	761	224	7290	7215	342	150	50
Others	(260)	(299)	(398)	(5512)	(8493)	(830)	(990)	(1002)
Cash from Financing	**(654)**	**477**	**21**	**1816**	**(1265)**	**(488)**	**(839)**	**(951)**
Net Change in Cash	(239)	629	(599)	609	(596)	(2021)	2397	1167
BF Cash & Bank	3383	2867	3702	3883	3786	2617	596	2993
END Cash & Bank	2867	3702	3883	3786	2617	596	2993	4160

Source: Company, KRChoksey Research

Ratio Analysis	FY13	FY14	FY15	FY16	FY17	FY18E	FY19E	FY20E
Profitability								
Return on Assets (%)	4.8	4.7	4.5	3.0	3.1	4.8	5.3	5.8
Return on Capital (%)	17.2	18.1	20.1	22.0	25.4	25.7	27.3	28.7
Return on Equity (%)	12.6	13.4	13.2	9.6	10.1	15.0	16.1	17.2
Margin Trend								
Gross Margin (%)	27.3	24.2	21.7	22.9	21.1	20.6	20.0	20.5
EBITDA Margin (%)	9.5	9.3	8.7	9.6	9.6	9.5	10.3	11.0
Net Margin (%)	5.6	5.1	4.5	3.5	3.2	4.8	5.4	5.9
Liquidity								
Current Ratio	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5
Quick Ratio	1.5	1.5	1.5	1.3	1.4	1.4	1.4	1.5
Debtor Days	253	227	222	283	286	300	290	285
Inventory Days	9	6	7	14	4	5	6	6
Creditor Days	157	141	147	172	159	150	152	150
Cash Conversion Cycle	85	64	56	96	96	125	110	107
Solvency								
Total Debt / Equity	0.1	0.2	0.2	0.4	0.3	0.3	0.3	0.2
Interest Coverage	18.1	15.7	6.4	4.8	5.5	5.8	6.7	8.0
Valuation Ratios								
EV/EBITDA	8.1	6.0	13.0	12.4	9.9	9.6	7.5	6.0
P/E	16.3	13.1	27.2	34.0	29.5	17.5	14.2	11.4
P/B	2.0	1.7	3.6	3.2	3.0	2.6	2.3	2.0

Source: Company, KRChoksey Research

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