Initiate at Buy, TP INR1,958 and 23% upside

Strong growth prospects in a niche but growing water treatment sector

Action: Initiate at Buy and TP of INR1,958, a 23% upside potential
VA Tech Wabag (VATW) is one of India’s largest water treatment companies, with a strong global presence as well. VATW derives its roots from the Austria-based water business of Siemens, which it acquired in 2007. With rising focus of the government and multi-lateral funding agencies on an escalating water shortage and ~68% of sewage being untreated in India, we think the water treatment sector is poised for secular long-term growth. While constantly-evolving technologies to efficiently capture incremental sources of clean water create an entry barrier in an otherwise fragmented industry, we believe VATW brings in strong project management experience, a global client reference list and technological understanding. Despite the frail financial health of municipalities (its primary customers, which often delay payments), VATW has maintained a debt-free balance sheet and negligible bad debt. We estimate 22% revenue CAGR over FY14-17F and ~18% over the next 10 years. We initiate at Buy and TP of INR1,958 with 23% upside potential. (India market size and details on Ganga cleaning opportunity on page 17-27).

Catalysts: A strong pipeline of orders
- Upcoming award from Tamil Nadu for two new desalination plants, and Mumbai for three sewage treatment plants;
- Ganga cleaning to offer a multi-year waste-water treatment opportunity.

Valuation: Strong growth justifies 23.5x FY16F P/E, initiate with Buy
Trading at 23.5x FY16F P/E, VATW still offers value (comparison table on page 5), given its strong orderbook (TTM book: bill of 2.9x), new order visibility, EPS CAGR of ~30% over FY14-17F, reasonable ROE of ~15% despite being net cash and 10-year revenue CAGR of >18%. Despite 50/50 revenue mix (India/overseas), VATW carries negligible FX risks as most of the cost is in local currency. We value VATW at 22.5x FY17F P/E (fair value range of 15-25x benchmarked to ENGR/NBCC) to derive our TP of INR1,958.

Global Markets Research
27 January 2015

Rating
Starts at Buy

Target price
Starts at INR 1958

Closing price
23 January 2015 INR 1596

Potential upside +22.7%

Anchor themes
VA Tech Wabag is a niche play on the emerging water and waste water treatment opportunity, both in India as well as in other emerging markets. With rising focus on clean water for drinking as well as on better effluent treatment, we believe there is a strong long-term growth opportunity for VATW.

Nomura vs consensus
Our TP is significantly ahead of consensus; however, we note that the stock is not well covered.

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See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.
Key data on VA Tech Wabag

Relative performance chart

Source: Thomson Reuters, Nomura research

Notes:

Performance
(%)
1M 3M 12M
Absolute (INR) 3.8 -1.8 198.1 M cap (USDmn) 702.1
Absolute (USD) 6.9 -2.4 200.3 Free float (%) 70.8
Rel to MSCI India 3.8 -8.6 169.2 3-mth ADT (USDmn) 1.3

Income statement (INRmn)

Year-end 31 Mar
FY13 FY14 FY19F FY16F FY17F
Revenue 16,189 22,386 26,775 33,014 40,563
Gross profit 4,313 5,257 5,933 7,072 8,499
SG&A -824 -1,304 -1,239 -1,391 -1,564
Employee share expense -2,058 -2,217 -2,444 -2,742 -3,197
Operating profit 1,431 1,735 2,250 2,939 3,738
EBITDA 1,540 1,885 2,444 3,159 3,998
Depreciation -109 -150 -194 -220 -261
Amortisation -109 -150 -194 -220 -261

Net interest expense -212 -252 -331 -369 -414
EBIT 1,431 1,735 2,250 2,939 3,738
Arbitrage shares & JCEs 8 6 8 10 12
Minority interests 0 -9 -20 -16 -8

Income (INR)

Earnings before tax 1,360 1,618 2,072 2,810 3,600
Income tax -456 -526 -666 -914 -1,182
Net profit after tax 904 1,092 1,407 1,896 2,418
Minority interests 0 -9 -20 -16 -8

Balance sheet (INRmn)

At 31 Mar
FY13 FY14 FY15F FY16F FY17F
Revenue 16,189 22,386 26,775 33,014 40,563
Gross profit 4,313 5,257 5,933 7,072 8,499
SG&A -824 -1,304 -1,239 -1,391 -1,564
Employee share expense -2,058 -2,217 -2,444 -2,742 -3,197
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EBIT 1,431 1,735 2,250 2,939 3,738
Arbitrage shares & JCEs 8 6 8 10 12
Minority interests 0 -9 -20 -16 -8

EBIT 1,431 1,735 2,250 2,939 3,738
Interest expense -2,058 -2,217 -2,444 -2,742 -3,197
EBIT margin (%) 8.8 7.7 8.4 8.9 9.2
Gross margin (%) 26.6 23.5 22.2 21.4 21.0
EBITDA margin (%) 9.5 8.4 9.1 9.6 9.9
EBIT margin (%) 8.8 7.7 8.4 8.9 9.2
Net margin (%) 5.6 5.1 5.2 5.7 5.9
Effective tax rate (%) 33.5 32.5 32.1 32.5 32.8
Dividend payout (%) 24.1 21.9 18.1 23.0 26.0
ROE (%) na 14.6 14.0 14.3 15.3
ROA (pretax %) na 10.0 10.9 12.2 12.6

Growth (%)
Revenue 38.3 19.6 23.3 22.9
EBITDA 22.4 29.7 29.2 26.6
Normalised EPS 17.5 25.8 35.7 28.1
Normalised FDEPS 17.8 25.8 35.7 28.1

Liquidity (x)
Current ratio 1.51 1.41 1.56 1.58 1.52
Interest cover 6.8 6.9 6.8 8.0 9.0

Source: Company data, Nomura estimates

Cashflow statement (INRmn)

Year-end 31 Mar
FY13 FY14 FY15F FY16F FY17F
EBITDA 1,540 1,885 2,444 3,159 3,998
Change in working capital -169 -324 -715 -597 -44
Other operating cashflow -668 -767 -1,009 -1,289 -1,592
Cashflow from operations 703 795 721 1,273 2,450
Capital expenditure -410 -1,046 -400 -500 -750
Free cashflow 293 -251 321 773 1,700
Reduction in investments 3 -199 200 0 0
Net acquisitions 0 0 0 0 0
Dec in other LT assets 0 0 0 0 0
Inc in other LT liabilities 0 0 0 0 0
Adjustments 132 179 144 230 265
CF after investing acts 429 -270 666 1,004 1,965
Cash dividends -217 -249 -264 -433 -627
Equity issues 2 2 0 0 0
Debt issue -426 761 0 0 0
Convertible debt issue 0 0 0 0 0
Others 56 408 2,224 1,460 491
CF from financial acts -587 922 1,960 1,027 -137
Net cashflow -158 651 2,625 2,031 1,828
Beginning cash 3,983 3,825 4,476 7,101 9,132
Ending cash 3,825 4,476 7,101 9,132 10,961
Ending net debt -3,003 -2,894 -5,191 -7,550 -9,378

Interest cover 6.8 6.9 6.8 8.0 9.0

Source: Thomson Reuters, Nomura research

Days receivable 216.3 215.0 203.8 203.8
Cash & equivalents 3,825 4,476 7,101 9,132 10,961
Net cash 3,825 4,476 7,101 9,132 10,961

Source: Company data, Nomura estimates

Plumtree shares & JCEs 8 6 8 10 12
Minority interests 0 -9 -20 -16 -8

Other LT liabilities -112 -70 -70 -70 -70
Total liabilities 11,818 15,810 17,117 21,088 26,656
Minority interest 19 28 49 64 73
Preferred stock - - - - -
Common stock 54 55 55 55 55
Retained earnings 7,100 8,356 11,682 14,574 16,839
Proposed dividends - - - - -
Other equity and reserves 7,154 8,412 11,737 14,630 16,895
Total shareholders’ equity 18,791 24,250 28,903 35,781 43,624
Free cashflow 293 -251 321 773 1,700
Cashflow from operations 703 795 721 1,273 2,450
Other operating cashflow -668 -767 -1,009 -1,289 -1,592
Change in working capital -169 -324 -715 -597 -44
CF after investing acts 429 -270 666 1,004 1,965
Cash dividends -217 -249 -264 -433 -627
Equity issues 2 2 0 0 0
Debt issue -426 761 0 0 0
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Ending cash 3,825 4,476 7,101 9,132 10,961
Ending net debt -3,003 -2,894 -5,191 -7,550 -9,378

Source: Company estimates

Nomura | VA Tech Wabag 27 January 2015
Focus charts

• Charts below present a snapshot of the key theme presented in this report.
• Please refer to the report, China water and environment - Rising tides lift all boats, published on 28 August 2014 for our China water & environment analyst Thomas Tang’s views.
• Company section on VA Tech Wabag (VATW) begins from page 21 below.

Fig. 1: Water demand-supply gap to reach alarming levels by 2030

Bn cubic metres of water

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>China</th>
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<tbody>
<tr>
<td>Demand (2030)</td>
<td>1,498</td>
<td>744</td>
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<tr>
<td>Supply (2030)</td>
<td>818</td>
<td>619</td>
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</table>

Source: Global Water Resource

Fig. 2: Estimated world water treatment market size

USD bn

<table>
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<th></th>
<th>2007</th>
<th>2016</th>
<th>2025</th>
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<tr>
<td>Equipment</td>
<td>185</td>
<td>142</td>
<td>266</td>
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<tr>
<td>Plants</td>
<td>228</td>
<td>299</td>
<td>360</td>
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<tr>
<td>Services</td>
<td>299</td>
<td>185</td>
<td>44</td>
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</table>


Fig. 3: Opportunity across the value chain: key players and market size in India (E&Y estimates)

USD bn

<table>
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<tr>
<th>Key processes</th>
<th>Key success factors</th>
<th>Companies</th>
<th>Market size</th>
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<tbody>
<tr>
<td>Water collection and treatment</td>
<td>1) Collection of fresh water, 2) Freshwater / groundwater treatment plant, 3) Desalination plant</td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Thermax, Degremont, Ramky Infrastructure, Ion Exchange, VA Tech Wabag</td>
<td></td>
</tr>
<tr>
<td>Distribution and supply</td>
<td>1) Domestic consumers, 2) Industrial consumers</td>
<td>Gammon, Aquatech, Siemens, VA Tech Wabag, Morf, Driplex</td>
<td></td>
</tr>
<tr>
<td>Sewage &amp; sanitation services</td>
<td>Waste water collection, treatment, reuse and disposal</td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Thermax, Degremont, Ramky Infrastructure, VA Tech Wabag</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Subash Projects, Degremont, Ramky Infrastructure, JUSCO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subash Projects, JUSCO, Wipro</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Subash Projects, Degremont, Ramky Infrastructure, JUSCO</td>
<td>12, 1,304</td>
</tr>
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</table>

Source: E&Y report
Fig. 4: VATW: We estimate ~18% revenue CAGR over the next 10 years

<table>
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<tr>
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<th>FY14F</th>
<th>FY24F</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC Market opportunity (INR mn)</td>
<td>33,603</td>
<td>83,558</td>
<td>10%</td>
</tr>
<tr>
<td>O&amp;M Market opportunity (INR mn)</td>
<td>45,764</td>
<td>114,435</td>
<td>10%</td>
</tr>
<tr>
<td>Industrial sector opportunity (INR mn)</td>
<td>31,250</td>
<td>79,421</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total sector opportunity</strong></td>
<td><strong>110,617</strong></td>
<td><strong>277,414</strong></td>
<td><strong>10%</strong></td>
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</table>

VA Tech Wabag India revenues

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<tr>
<th></th>
<th>FY14F</th>
<th>FY24F</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC India - Municipalities</td>
<td>5,937</td>
<td>29,245</td>
<td>17%</td>
</tr>
<tr>
<td>O&amp;M India - Municipalities</td>
<td>3,047</td>
<td>22,887</td>
<td>22%</td>
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<tr>
<td>Industrial</td>
<td>4,556</td>
<td>15,884</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,540</strong></td>
<td><strong>68,017</strong></td>
<td><strong>18%</strong></td>
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VA Tech Wabag Market share

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<th></th>
<th>FY14F</th>
<th>FY24F</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC India - Municipalities</td>
<td>18%</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>O&amp;M India - Municipalities</td>
<td>7%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>15%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12%</strong></td>
<td><strong>25%</strong></td>
<td></td>
</tr>
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</table>

Source: Nomura estimates

Fig. 5: VATW: India orderbook to grow 2.4x by FY17

Source: Company data, Nomura estimates

Fig. 6: …leading to 22% revenue CAGR over FY14-17F

Source: Company data, Nomura estimates

Fig. 7: VATW: Rising O&M revenues positive for EBITDA margins

Source: Company data, Nomura estimates

Fig. 8: …thus, driving a 30% PAT CAGR over FY14-17F

Source: Company data, Nomura estimates
**Fig. 9:** Rising ROEs, despite increasing net cash on books

Net debt is negative, implying net cash on books

Source: Company data, Nomura estimates

**Fig. 10:** VATW to turn FCF-positive in FY15/16F

INR mn

Source: Company, Nomura estimates

**Fig. 11:** Regional valuation comparison

Stock prices in local currency

Source: Bloomberg consensus for Not Rated stocks, Nomura estimates. Note: Prices as on 23 January 2015

<table>
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<tr>
<th>Company</th>
<th>Tickers</th>
<th>Rating (local)</th>
<th>Price (local)</th>
<th>Mkt Cap (bn USD)</th>
<th>FY15F</th>
<th>FY16F</th>
<th>FY17F</th>
<th>PE/F</th>
<th>EV/EBITDA</th>
<th>P/BV</th>
<th>ROE (%)</th>
<th>CAQG (FY14-17F)</th>
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<td>Suez Environment</td>
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<td>16</td>
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<td>64</td>
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<td>Sound Global</td>
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<td>1.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Simplex Infra</td>
<td>SINF IN</td>
<td>Not Rated</td>
<td>367</td>
<td>0.3</td>
<td>26.3</td>
<td>15.3</td>
<td>8.8</td>
<td>7.7</td>
<td>6.8</td>
<td>5.9</td>
<td>1.2</td>
<td>1.2</td>
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<td>J Kumar Infra</td>
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<td>479</td>
<td>0.3</td>
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<td>11.5</td>
<td>9.2</td>
<td>7.3</td>
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<td>2.0</td>
<td>1.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Supreme Infra</td>
<td>SPII IN</td>
<td>Not Rated</td>
<td>285</td>
<td>0.1</td>
<td>6.5</td>
<td>4.8</td>
<td>4.6</td>
<td>11.8</td>
<td>10.3</td>
<td>9.3</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
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<td>Ahluwalia Contractors</td>
<td>AHLU IN</td>
<td>Not Rated</td>
<td>243</td>
<td>0.2</td>
<td>24.1</td>
<td>18.1</td>
<td>13.5</td>
<td>14.4</td>
<td>11.1</td>
<td>8.5</td>
<td>4.9</td>
<td>3.9</td>
<td>3.0</td>
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<tr>
<td>KNR Construction</td>
<td>KNRC IN</td>
<td>Not Rated</td>
<td>376</td>
<td>0.2</td>
<td>16.9</td>
<td>13.7</td>
<td>10.8</td>
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<td>7.6</td>
<td>1.8</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Thermax</td>
<td>TMX IN</td>
<td>Reduce</td>
<td>1,102</td>
<td>2.1</td>
<td>44.7</td>
<td>33.5</td>
<td>24.4</td>
<td>27.0</td>
<td>21.3</td>
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<td>Engineers India Ltd (consol)</td>
<td>ENGR IN</td>
<td>Not Rated</td>
<td>224</td>
<td>1.2</td>
<td>20.9</td>
<td>15.6</td>
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<td>22.6</td>
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<td>2.6</td>
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<td>NBCC</td>
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<td>Buy</td>
<td>820</td>
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<td>21.3</td>
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<td>7.2</td>
<td>5.8</td>
<td>4.5</td>
</tr>
<tr>
<td>VA Tech Wabag</td>
<td>Buy</td>
<td>1,596</td>
<td>1.6</td>
<td>31.9</td>
<td>23.5</td>
<td>18.3</td>
<td>17.6</td>
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<td>10.8</td>
<td>3.8</td>
<td>3.0</td>
<td>2.6</td>
<td>13.8</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>25.9</td>
<td>20.2</td>
<td>13.1</td>
<td>16.2</td>
<td>12.7</td>
<td>10.2</td>
<td>3.0</td>
<td>2.6</td>
<td>2.2</td>
<td>12.7</td>
<td>14.9</td>
</tr>
</tbody>
</table>

Source: Bloomberg consensus for Not Rated stocks, Nomura estimates. Note: Prices as on 23 January 2015
Water treatment sector presents a significant market, both in India and globally

Uneven distribution of fresh water reserves poses a challenge of water availability in developing nations

Globally, demand for water is driven by factors such as population growth, industrialisation and urbanisation. According to Global Water Resource estimates, globally demand for water is recording a 2% CAGR. As such, the world has enough water reserves, but there are two-fold challenges while addressing global demand for water. First, of the total global water reserves, only 2.5% is that of freshwater and the rest is seawater and undrinkable. Second, these fresh water reserves are unevenly distributed globally, creating regional imbalances in the availability of water per capita. Notably, more than 60% of accessible fresh water supply is limited to only 10 countries, which results in water stress situation for emerging countries such as China and India, which account for nearly 40% of the global population but have only 9% of total fresh water reserves. Specifically for India, it accounts for nearly 16% of world’s population but only 3% of the world’s water reserves. Due to these regional imbalances, India, China including countries in Middle East and North Africa are more succumbed to challenges of water availability.

Fig. 12: Current global freshwater reserves

![Current global freshwater reserves](image)


Fig. 13: Top 10 countries account for 62% of the world’s fresh water availability

<table>
<thead>
<tr>
<th>Country</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>13%</td>
</tr>
<tr>
<td>Russia</td>
<td>10%</td>
</tr>
<tr>
<td>Canada</td>
<td>7%</td>
</tr>
<tr>
<td>US</td>
<td>7%</td>
</tr>
<tr>
<td>China</td>
<td>6%</td>
</tr>
<tr>
<td>Colombia</td>
<td>5%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>5%</td>
</tr>
<tr>
<td>Peru</td>
<td>4%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>2%</td>
</tr>
<tr>
<td>India</td>
<td>3%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>38%</td>
</tr>
</tbody>
</table>
Demand-supply gap set to increase in developing nations, led by the increase in industrialization and energy demand

Due to increasing population and urbanisation, rapid industrial growth and changing consumption patterns, water withdrawals in developing nations have increased in the past few years, which in contrast have relatively remained constant for developed nations such as the US and Japan. We believe this trend will remain unchanged as increasing per capita energy consumption in developing nations would continue to push the demand for water. According to Global Water Resources (GWR), water demand from various industries is expected to record a higher pace of ~3% CAGR vs. ~2% demand CAGR from agriculture and municipal/domestic use. According to GWR, by 2030, global water requirement would grow from 4,500bn cubic metres to 6900bn cubic metres. Assuming there is no efficiency gain, the demand-supply gap would increase to ~40%, with the situation becoming more severe in counties such as India and China. According to GWR, demand from India for water is expected to increase to 1,500bn cubic metres in 2030, while the supply of water would be limited to 740bn cubic metres, which would result in a large gap between current supply and projected demand — amounting to 50% of demand or 754bn cubic metres.

Fig. 15: Demand-supply gap could increase to 40% by 2030

Source: Global Water Resource

Fig. 16: Water demand-supply gap (assuming no efficiency improvement)

Source: Global Water Resource
India demand-supply gap necessitates investments in building water infrastructure

With growing demand from India's population, coupled with a steady industrial growth, we estimate the water growth rate contributed by residential, industrial, agriculture and commercial use will be in a robust range of 2.0% CAGR. For India, there are different water demand estimates available; we highlight the estimates by two different government agencies — the Ministry of Water Resources (MoWR) and the National Commission on Integrated Water Resources Development (NCIWRD) which put water demand at 813bn cubic metres per year and 710bn cubic metres per year, respectively. In contrast, based on official estimates of the Ministry of Water Resources (MoWR), total utilisable water reserves stand at 1,123bn cubic metres (BCM) per year, which imply currently there is a water surplus scenario. However, based on the demand projections of MoWR, the situation could turn around in the next 10 years when supply would just be matching demand.

We note that various studies have highlighted that the utilisable water resources of India have been over estimated. We highlight figures from Global Water Resources, which estimate India’s current water reserves at 754bn cubic metres (BCM) vs. MoWR’s estimate of 1,123bn cubic metres. If we consider utilisable reserves of 754bn cubic metres, even the current water supply situation looks alarming and necessitates significant investments in building water infrastructure, i.e. spending on increasing water supply, along with improving the efficiency of water usage.

**Fig. 17: Water demand in India (billion cubic metres)**

<table>
<thead>
<tr>
<th></th>
<th>MoWR estimates</th>
<th>NCIWRD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2025</td>
</tr>
<tr>
<td>Irrigation</td>
<td>688</td>
<td>910</td>
</tr>
<tr>
<td>Drinking Water</td>
<td>56</td>
<td>73</td>
</tr>
<tr>
<td>Industry</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Energy</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Others</td>
<td>52</td>
<td>72</td>
</tr>
<tr>
<td>Total</td>
<td>813</td>
<td>1,093</td>
</tr>
</tbody>
</table>

Source: Ministry of Water Resources, Govt. of India, National Council for Integrated Water Resource and Development (NCIWRD)

**Cost curve of improving water availability from waste water reuse to desalination**

Water gets consumed by agricultural, domestic and industrial sectors but agriculture dominates the water demand globally as well as in India. In India, the percentage of water consumed by agriculture is far higher compared to other developing nations/developed nations as agricultural yield is lower in India, plus there is inefficient usage of water as electricity is usually given to farmers at highly subsidised rates. Even for Industries, compared to other countries, India also has one of the lowest industrial outputs per unit of water. In our view, this implies a part of this demand-supply mismatch
could be bridged by the increasing efficiency of water. Nevertheless, such a wide gap would entail higher investments in building water infrastructure over the next few years.

The figure below highlights various supply measures which could be adopted to address these supply side and the cost required to increase supply. At the lower end of the cost spectrum, water supply can be increased through measures such as the reuse of waste water, inter-linking of rivers, whereas on the other hand, desalination is the most expensive method to increase water supply. In India, cities such as Chennai have set up desalination plants to address the supply shortage.

Fig. 18: Cost curve for increasing water supply

![Cost curve for increasing water supply](source: 2030 Water Resources Group)

**Poor waste water treatment increases woes over water availability**

As discussed above, India faces the challenge of limited water supply, but this is further aggravated by the non-treatment of waste water which pollutes the source of water bodies. The lack of treatment results in two challenges – first, non-treatment of wastewater (sewage) before discharging into water bodies pollutes the source and makes water unusable for drinking. Secondly, the water intended for drinking withdrawn from the same source is again not adequately treated. As a result, providing enough clean water for a rapidly growing population along with increasing consumption per capita (due to growing needs) has become a challenge. The increasing urbanisation trend in India is further leading to more pressure on the water and sanitation infrastructure in cities. As per McKinsey estimates, India’s urban population is expected to reach close to 600mn by 2031, more than double that in 2001 (around 290mn). Even the number of metropolitan cities with a population of 1mn and above has increased from 35 in 2001 to 50 in 2011 and is expected to increase further to ~87 by 2031. Clearly, this trend calls for increasing the capacity of water treatment plants.
Deficient waste water treatment capacity; nearly 68%-91% of waste water is left untreated

With the expansion of cities, the quantity of wastewater is increasing proportionately. As per CPHEEO estimates, c.70-80% of total water supplied for domestic use end up generating wastewater. Maharashtra, Delhi, Uttar Pradesh, West Bengal and Gujarat are the major contributors of wastewater. As per CPCB estimates, the total wastewater generation from Class I cities (498) and Class II (410) towns in the country is around 35,558 million litre per day (MLD) and 2,696 MLD, respectively, compared to the installed sewage treatment capacity of just 11,553 MLD and 233 MLD, thereby leading to a gap of 26,468 MLD in sewage treatment capacity. This means, overall in Class I cities, nearly 68% of waste water sewage goes untreated, which is even worse in Class II cities where nearly 90% of waste water is discharged untreated.

CPCB further highlights that even larger metropolitan cities have significant shortfall in STP capacity as follows:

• 15,644 MLD sewage is generated from 35 metropolitan cities (>1 mn population), but STP capacity exists for only 8,040 MLD, i.e. 51% treatment capacity.

• Among metropolitan cities, Delhi has the highest capacity of STP at 2,330 MLD but still witnessing a shortfall of ~40%.

• Mumbai has the second highest capacity at 2,130 MLD, which is 20% short of requirement.

• Treatment capacity meets the volume of generation in some cities such as Hyderabad, Vadodara, Chennai, Ludhiana and Ahmadabad.

• Most other metropolitan cities have STP capacities to cater to <50% of sewage generation.
Fig. 20: Status of waste water treatment in India
As of 2009

![Bar chart showing the gap between wastewater generated and treated in Class I cities (including Metros), Metropolitan cities, Class II cities, and Overall.

- Class I cities (including Metros): -68%
- Metropolitan cities: -49%
- Class II cities: -91%
- Overall: -69%

Source: Central Pollution Control Board

Study suggests sub-par performance of even installed sewage treatment plants

Not only do cities in India have inadequate sewage treatment capacities, but existing plants have sub-par performance. This is reflected by a study conducted by CPCB which evaluates the performance of 152 STPs (funded under National River Conservation Plan) spread over 15 states in the country with a total treatment capacity of 4,716 MLD. According to the study:

- Actual treatment capacity utilization is only 66% (around 3126 MLD).
- Of the 152 STPs, 30 STPs were non-operational; 28 STPs’ performance was not satisfactory.
- Of the 152 STPs, the treated effluent from 49 STPs exceeds BOD standards and with respect to COD, seven STPs are violating the general standards of discharge.

Poor financial health of municipalities -- one reason for the poor state of water infrastructure in cities

The error in metering, unbilled water consumption and theft lead to high levels of non-revenue water for municipalities. The challenge for municipalities is not only high levels of commercial and physical losses in the distribution network but also the unwillingness of local/state governments to levy adequate user charges (because of political reasons). In India, water utilities are typically able to recover only 30-35% of the operations and maintenance (O&M) cost, leaving municipalities in poor financial conditions. In comparison, other countries such as the Philippines and Cambodia, most water utilities are able to recover the full O&M cost.
Water spend competes with other urban infrastructure requirements

In the past few years, both central and state governments have been spending in improving the supply of clean drinking water, but still, quality as well as accessibility are issues in urban areas. Some investment in improving the sanitation and water infrastructure that has happened in cities is being funded through JNNURM.

According to a report from JNNURM, the investment requirement for urban infrastructure over the next 20-year period is estimated at INR39tn at 2009-10 prices. Of this, INR17.3tn (or 44%) is accounted for by urban roads. The backlog for this sector is very large, ranging from 50% to 80% across cities of India. Sectors delivering urban services such as water supply, sewerage, solid waste management, and storm water drains will need INR8tn (or 20%). The O&M requirements for new and old assets are projected at INR20tn over the 20-year period, according to the report.

Investment requirement is further estimated to increase at 15% p.a. during the Twelfth Plan period (2012-13 to 2016-17), 12% p.a. during the Thirteenth Plan period (2017-18 to 2021-22), and 8% p.a. during the Fourteenth and Fifteenth Plan period (2022-23 to 2031-32).

Source: Report on Indian Urban Infrastructure and Services, MoUD
Key addressable areas in the water segment and market opportunity

According to Global Water Markets, the global water industry was at USD349bn in 2007. Water utilities, which mainly comprise municipal drinking water and waste water treatment, shared almost 93% of the market or about USD325bn market and it is expected to grow to USD529bn by 2016 and further to USD702bn by 2025 (as per Ministry of Economy, Trade and Industry, Japan).

Moreover, water is a very regional business – locally-oriented, and driven by local regulations, local water supply, local demand and local contracts. Players' knowledge of local regulations and environment is very important. Therefore, currently the water industry is highly fragmented with very few global players.

Four key addressable opportunities within the water segment

In the market for water-related services, major clients are governments and government-owned utilities which provide water to the people, or industries which treat water either for input requirements or to meet output water conditions. The water treatment industry can be further classified into four kinds of water plants, namely water treatment, desalination, wastewater treatment and water recycling. Designing and engineering of projects in the water and wastewater treatment segment is technically complex and the technology is a critical part of such projects. There is a wide array of technologies to fulfill water or the wastewater treatment needs of municipal and industrial customers.

Fig. 24: Market break-up

Source: Global Water Markets 2008

Fig. 25: Estimated world water treatment market size

Note: 1) Equipment denotes the total cost of chemicals and equipment used for industrial water supply and equipment for industrial effluent treatment. 2) Plants denote the total amount of investment in water supply and sewerage facilities. 3) Services denote the total cost of operating water supply and sewerage facilities.


Four key addressable opportunities within the water segment

<table>
<thead>
<tr>
<th>Key processes</th>
<th>Key success factors</th>
<th>Companies</th>
<th>Design &amp; manufacturing</th>
<th>O&amp;M</th>
<th>Market size</th>
<th>2010</th>
<th>2030</th>
<th>CAGR</th>
</tr>
</thead>
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<tr>
<td>Water collection and treatment</td>
<td>1) Collection of fresh water, 2) Freshwater / groundwater treatment plant, 3) Desalination plant</td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Thermax, Degremont, Ramky Infrastructure, Ion Exchange, VA Tech Wabag</td>
<td></td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Subash Projects, Degremont, Ramky Infrastructure, JUSCO</td>
<td>1</td>
<td>32</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Distribution and supply</td>
<td>1) Domestic consumers, 2) Industrial consumers</td>
<td>Gammon, Aquatech, Siemens, VA Tech Wabag, Morf, Driplex</td>
<td></td>
<td>Subash Projects, JUSCO, Wipro</td>
<td>30</td>
<td>1,750</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Sewage &amp; sanitation services</td>
<td>Waste water collection, treatment, reuse and disposal</td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Thermax, Degremont, Ramky Infrastructure, VA Tech Wabag</td>
<td></td>
<td>Hindustan Dorr Oliver, Waster Water Engg, Subash Projects, Degremont, Ramky Infrastructure, JUSCO</td>
<td>12</td>
<td>1,304</td>
<td>26%</td>
<td></td>
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</table>

Source: E&Y report
**Fig. 27: Variety of treatment technologies on offer**

<table>
<thead>
<tr>
<th>Segments</th>
<th>Conventional technologies</th>
<th>Advance technologies</th>
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</thead>
<tbody>
<tr>
<td>Drinking water treatment</td>
<td>Chemical precipitation, filtration, disinfection</td>
<td>Biological denitrification</td>
</tr>
<tr>
<td>Waste water treatment</td>
<td>Activated sludge process (ASP) Sequential Batch Reactor (SBR)</td>
<td>Lamella Clarification</td>
</tr>
<tr>
<td>Sludge treatment</td>
<td>Upflow Anaerobic Sludge Blanket Reactor (UASB)</td>
<td>Aerobic Sludge Filtration</td>
</tr>
<tr>
<td>Sewage treatment</td>
<td>Bio Active Fixed Film Technology Stabilisation pond</td>
<td>Moving Bed Bio Reactor (MBBR)</td>
</tr>
<tr>
<td>Recycling</td>
<td></td>
<td>Reverse Osmosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ultra filtration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro filtration and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Membrane Bio Reactors</td>
</tr>
</tbody>
</table>

Source: Company data

**Municipal water treatment: large multi-year opportunity**

Whether it is the requirement of fresh water for drinking purpose or the need to treat sewage/waste water before it is let out into rivers/tributaries, municipalities are the key users of water treatment plants for the same.

De-salination plants and sewage treatment plants are growing as a concept and more and more local bodies are gearing up to set up more of these in India. As a company operating in this sector, players not only vie for contracts relating to the set up of these treatment plants but also look forward to O&M contracts for the same, which usually last from 10-20 years.

**O&M opportunity for WTP/STP in the Municipal sector**

According to a CPCB study, water treatment plants managed by private O&M contractors are in a much better shape than those which are managed by municipalities. Thus, there is growing focus on involving private companies on BOT or contract basis to manage the O&M of WTP/STPs across the country. We see this as a growing opportunity for the sector and moreover, this is also an asset-light and margin lucrative business compared to EPC. Back-of-the envelope calculations suggest that a typical STP would require almost 3x the capex spent on annual O&M alone, thus suggesting that the O&M opportunity is even bigger than the EPC opportunity.

**Industry water treatment: smaller opportunity, but penetration is low**

Water is an important input for manufacturing across various industries such as power, steel, chemicals, food, paper and oil & gas, which make the treatment of water quintessential. The non-treatment of industrial wastewater discharge causes pollution and thereby reduces the availability of fresh water reserves. The degree of treatment could vary depending upon the process, i.e., cooling and boiler feed of water in power stations, process water for a wide range of industrial uses to ultra pure water for electronics and pharmaceutical industries.

Industrial water consumption accounts for ~6% of annual water consumption, which is expected to reach 18% of total water consumption by 2050, according to CPCB.

Overall, however, the industrial water market is considered to be smaller than the municipal water market. The industrial water market is less homogenous than the municipal water treatment market. Although the same water treatment technologies (reverse osmosis, ultra-filtration, ion exchange, and membrane filtration) are used across many different industries, each application is specific to the industrial process in which it is used. The players having relevant technical expertise and reference list are preferred by industrial customers. As a result, the industry is polarised between large international groups on the one hand, and niche players with successful applications serving particular market segments on the other.
We believe demand for water by industries is only bound to rise in coming years. Most demand has been seen in industries such as pharmaceuticals, food and beverage processing plants, port sector, textiles and refineries. Advanced water treatment systems like the reverse osmosis membranes are preferred by growing industries. Companies manufacturing water treatment equipment are, thus, in our view set to witness a distinct increase in demand for their products. Pollution control boards from respective states are also pushing industries to adopt water-recycling systems for granting environmental clearances. Stringent quality standards are also demanding for the upgrade of existing plants.

In view of the significant demand for water, expected shortage and likely reforms, we believe the water sector provides vast opportunities for water management companies. Key business drivers for the water engineering business in India are summarized below:

- Significant gap in safe water supply and sanitation infrastructure availability in the country.
- Large budgetary allocation from the government in water supply and sanitation.
- Increased funding from multilateral agencies such as World Bank and ADB, with emphasis on private participation.
- Stricter disposal norms for industrial waste water.
- Need to recycle treated waste water to resolve the problem of disposal and fresh water availability simultaneously.
- Increasing trend to outsource O&M services.
- Higher private participation through the BOT/BOOT route.
Key players engaged in the sector globally

Suez Environment and Veolia Environment are the only two global players present throughout the entire value chain, as other companies active in this market typically have narrow geographical focus and lower revenues.

In the US, American Water Works (a subsidiary of RWE) is the largest player, but is only active in that country; in Asia, competition derives primarily from local conglomerates developing their water business on a partnership basis. In North Africa, Middle East, Chinese and Indian markets, the main competitors are Asian companies (Singaporean companies such as Hyflux, Japanese companies such as Marubeni and Mitsui and Malaysian companies such as Ranhill and the Philippine group Manila Water) and Spanish companies (Acciona, Aqualia-FCC and ACS), as well as conglomerates, notably General Electric and Siemens, which have long shown their international ambitions in the market for water treatment technologies.

Fig. 30: Industry structure

![Industry Structure Diagram]

Source: Nomura research

Fig. 31: Water/wastewater treatment industry on Porter’s Five Forces

**Bargaining power of suppliers: MEDIUM**
- Shortage of skilled technical engineers
- Good availability of construction contractors — poor financial health leaves little room for bargaining
- Equipment/technology is usually easily available

**Threat of New Entrants: MEDIUM to HIGH**
- Order sizes range from very small to medium; while there is very low entry barriers for smaller projects, larger ones require some experience and reference list
- JV/partnership with technology providers or experienced companies helps meet customer requirements
- Net worth requirements is not very large for bidding
- Some customers now insisting on specific market experience thus restricting competition

**Competitive Intensity: HIGH**
- Fragmented industry structure with several regional players
- Fragmented technology further adds to competitive landscape
- International companies trying to penetrate Indian markets, though with limited success so far

**What’s exciting about the sector given high competitive intensity and low entry barriers then?**
- Under penetration of water treatment as a concept in India and emerging markets means that growth opportunity could remain strong for everyone
- Despite fragmented nature of the industry, larger and complex projects typically witness lesser competition as most players are filtered out on relevant experience of working on similar sized projects in comparable conditions
- Client reference list matters especially while dealing with Governments/Municipalities

**Bargaining power of buyers: MEDIUM**
- Poor financial of municipalities and compulsory award of orders on competitive bid basis
- Fragmented industry structure leaves ample choices for the buyer
- However, larger and complex projects leave lesser bargaining scope for the buyer
- Most often, the bargaining power is evident in longer receivable cycle for the vendor

**Threat of substitution: LOW**
- While there are alternate technologies available for water treatment and can easily be interchangeable, there is no substitute for a project manager with requisite experience and ability.
- At best, projects can be delayed for lack of funds.

Source: Nomura research
Ganga river cleaning: hype or reality?

Need for cleaning the Ganga

Ganga is the largest and the most sacred river in India with enormous spiritual, cultural, and physical influence. It provides water to c.40% of India’s population in 11 states. Based on our rough estimates, the livelihoods of more than 500mn people in India are dependent upon the river, and one-third of India’s population lives within the Ganga basin. Despite this magnitude of influence and control by the river over present and future population of the country, river Ganga faces immense pollution through the dumping of untreated domestic sewage, industrial waste, etc. apart from natural environmental issues.

River Ganga flows through the most densely populated regions of India, passing through 29 cities with population >0.1 mn, 23 cities with population between 50,000-100,000 and about 48 towns. A sizeable proportion of the effluents in Ganga are caused by this population through domestic usage like bathing, laundry and public defecation. A number of tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals contribute to the pollution of the Ganga by dumping untreated toxic and non-biodegradable waste into it.

Fig. 32: Map of Ganga’s flow and causes of pollution

Note: MLD: million litre per day (the figures refer to the collective discharge from the drains into the river)
Source: CPCB, MOEF
The Supreme Court of India, on the back of a public interest litigation (PIL) filed by an NGO, has come out strongly on the government for slow/no progress in the cleaning of Ganga over the past 30 years despite huge money already being spent.

In its affidavit in September, the Narendra Modi government had responded saying that it is committed to cleaning the river, and that it was an election promise and has also recently been deemed as a national priority. It also said a group of professionals from IITs have been tasked with finalising the plan by the end of this year.

The government response also mentioned that 118 more towns have been identified by the government and things have started moving. Municipalities and other concerned authorities have been asked to wake up.

As per the government, ~70 STPs are likely to come up in the five Ganga basin states and are at various stages currently, of which the bidding process for 15 STPs is currently on. The government also mentioned that it proposes to conclude the Ganga cleaning within the current elected term itself, i.e. by 2018.

Cleaning the Ganga and what are the opportunities ahead

The map above (Fig. 32) depicts the flow of Ganga and the key states dependent on the same as well as how geographically at every stage the river gets polluted.

Ganga’s pollution takes two primary forms: 1) domestic sewage dumped untreated into the river; and 2) industrial pollution through untreated waste-water let into the river.

Domestic sewage treatment opportunity alongside the banks of Ganga

Domestic sewage is the major cause of contamination in the rivers in India. According to the Central Pollution Control Board (CPCB), 2,723 million litre a day (MLD) of sewage is generated by 50 cities located along the Ganga, which adds up to over 85% of the river’s pollution load.

Growing gap between STP capacity and need

The key problem comes from the main cities on the Ganga. The 36 Class 1 cities contribute 96% of the wastewater generation and also have 99% of the treatment capacity installed in these same cities. However, there is a growing gap between installed capacity and treatment. The most recent assessment by CPCB shows that there is a massive gap between the generation of domestic sewage and treatment capacity in the main stretch of the Ganga. The 2013 CPCB estimate shows that generation is ~2,723 MLD, while treatment capacity lags at ~1,209 MLD. It is important to compare this with the 2009 estimate of CPCB, which shows that even as the states have invested in sewage treatment capacity, the gap still remains the same.

According to this estimate, over half of the sewage goes untreated into the river or other water bodies.

<table>
<thead>
<tr>
<th>Sewage generation vs. capacity along Ganga</th>
<th>2009</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage generation (MLD)</td>
<td>2,638</td>
<td>2,723</td>
</tr>
<tr>
<td>Treatment capacity (MLD)</td>
<td>1,174</td>
<td>1,208</td>
</tr>
<tr>
<td>Gap (MLD)</td>
<td>1,464</td>
<td>1,514</td>
</tr>
<tr>
<td>% gap: treated vs. untreated</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

Source: CPCB 2009 and 2013

The utilisation level of existing STPs too is low

Apart from insufficient capacity, even the utilisation levels of existing STPs is low, resulting in a further gap between actual need and actual utilised capacity, thus forcing more and more untreated sewage to be dumped into the river. The sewage treatment utilisation is poor because of factors ranging from lack of electricity to the operation of the plant, to the lack of sewage that reaches the plant for treatment.
The 2013 CPCB report inspected 51 of the 64 sewage treatment plants (STPs) to find that less than 60% of the installed capacity was utilised, and 30% of the plants were not even in operation.

Among the reasons for STPs not being utilised properly include lack of power availability and hence power efficient STPs become all the more important.

Fig. 35: Even existing STPs’ capacities are not working to best utilisation levels

<table>
<thead>
<tr>
<th>States</th>
<th># of STPs inspected</th>
<th>Installed capacity (MLD)</th>
<th>Actual utilised capacity (MLD)</th>
<th>% utilisation</th>
<th>STPs not in operation (#)</th>
<th>% STPs not working</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttarakhand</td>
<td>4</td>
<td>54</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>8</td>
<td>358</td>
<td>287</td>
<td>80%</td>
<td>1</td>
<td>13%</td>
</tr>
<tr>
<td>Bihar</td>
<td>5</td>
<td>140</td>
<td>100</td>
<td>71%</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>West Bengal</td>
<td>34</td>
<td>457</td>
<td>214</td>
<td>47%</td>
<td>13</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>1,009</td>
<td>602</td>
<td>60%</td>
<td>15</td>
<td>29%</td>
</tr>
</tbody>
</table>

Note: The CPCB inspected 51 out of 64 STPs on the Ganga in 2012-13
Source: CPCB 2013, Pollution Assessment: River Ganga, Central Pollution Control Board, MoEF, July

Potential opportunity of USD1bn for STP capex alone

Rough estimates by the Centre of science and Environment suggests that these STPs would need a capital cost of INR10-12.5mn/MLD, which means that the sector presents an opportunity of INR61bn (USD1bn) in terms of STP projects alone if the entire gap in STP capacity vs. actual sewage generated is to be eradicated. This does not include the cost of drainage and pumping stations that would be required in addition to the STP itself. If the government were to stick to its proposed timeline to the Supreme Court, this would mean that the USD1bn of STP opportunity is up for grabs over the next five years.

Who funds the STP capex?

Funding of the capex for building a new sewage system (including STP, sewage network, pumping stations, etc.), both capital and O&M, is a key issue of debate between the Central and state governments. As per the Centre of science and Environment, when these initiatives began, the programme was funded 100% by the Centre. Thereafter, there have been many changes to this arrangement from a mixed funding model to 100% funding by the Centre again.

In 2001, a new cost-sharing formula was evolved: 70% of the project cost to be funded by the Centre and 30% by the states. Local bodies (municipalities) were expected to contribute one-third of the state’s share. Further, O&M was also the responsibility of the state and the local body. But, this too did not work because of the poor financial state of municipal bodies. Under the National Clean Ganga Mission, the payment formula has again been re-visited. The Centre will now build projects through a PPP route, which will require the concessionaire to design-build-operate the plants for five years. The Centre will bear the full cost for the first five years, after which the plant will be handed over to the state government, assuming that in five years, funds will be available to run the plant.

Industrial pollution is the other key source of pollution into the Ganga

Industrial pollution into the main Ganga has been another issue of attention and focus area for the government but without much success. The problem is that many of the industries that discharge chemical pollutants into the river are small-scale, for which technologies for treatment are inadequate or unaffordable.

According to the 2013 CPCB estimates, the 764 industries around Ganga (and its two tributaries, Kali and Ramganga) consume 1,123 MLD of water and discharge 500 MLD of effluent. Bulk of these industries (~90%) operates in the Uttar Pradesh stretch of the river.

On a sector-specific basis, bulk of the industrial pollution happens from the pulp and paper sector. Tanneries on the Ganges are the highest in number (vs. other industries),
but have a lower wastewater generation in comparison, though still very toxic because of its high chemical load.

**Fig. 36: # of Industrial units and waste water generation along the banks of Ganga**

![Graph showing industrial units and wastewater generation](source)

Over the past many years, efforts have been made by the government to reduce the pollution impact of these industries, but with little success. As a result, the real difference is seen only when industries are given closure or stop-work notices. But, since this is not a permanent solution, clearly more needs to be done to find ways to reduce the pollution from these industries, urgently and effectively, in our view.

UP leads the list of states with maximum industrial pollution into the river

Uttar Pradesh (UP), which has 1,000km of the river’s length and big cities to boot, also has 687 grossly polluting industries that pollute the Ganga. These tannery, sugar, pulp and paper and chemical industries contribute 270 MLD of wastewater.

While tanneries are large in number in UP – 442 – they only contribute 8% of the wastewater, but this is highly toxic and concentrated in the Kanpur belt. Sugar, pulp and paper and distillery plants add up to 70% of the wastewater.

Inspections by CPCB suggest that of the 404 units, only 23 required no-action. The rest were non-compliant in terms of the laws of the country.

**Controlling industrial pollution in Ganga: the way ahead**

In our view, controlling industrial pollution should be an easier task as compared to creating new sewage systems in cities. Our view assumes that stricter legislation on pollution/effluent discharge from industries (large or small) and even stricter monitoring of the same only require political will power and is relatively easier to handle.

Compared to a sewage system creation, which affects large population and needs massive planning and operational challenges, checking industrial pollution is far easier, in our view. From a funding perspective, too, while sewage systems call for state/centre/local bodies’ funding, industrial pollution control puts the onus on the respective user industry to fund the capex and ongoing expense.

Given the highly diverse and fragmented nature of industries which cause pollution, it is impractical to estimate the opportunity for VATW from the Ganga cleaning mission. Nevertheless, the number of industries polluting the Ganga (as mentioned in CPCB reports) suggests that this remains an exciting area to look forward to.
VATW: A solid global play on water and waste water treatment opportunity

VA Tech Wabag is a global player in the water treatment industry with market presence in India, the Middle East, North Africa, Central and Eastern Europe, China and South East Asia through its geographically spread-out offices worldwide.

While the company is headquartered in Chennai, it conducts its global operations through its several subsidiaries and branch and representative offices. VATW shares strategic and technical expertise across all its subsidiaries such that it allows research, operational and marketing synergies.

VATW offers complete life cycle solutions including conceptualization, design, engineering, procurement, supply, installation, construction and O&M services for sewage treatment, processed and drinking water treatment, effluent treatment, sludge treatment, desalination and reuse for institutional clients like municipal corporations and companies in the infrastructure sector such as power, steel and oil and gas companies.

Given the highly-fragmented nature of the water/wastewater treatment industry and its associated technologies, VATW strives to be on top of technology through its R&D centres located in Chennai, India and at Vienna, and Winterthur in Austria and Switzerland, respectively.

In 2007, VATW acquired Wabag Austria and hence took over the Wabag group, which gave it a project reference list of more than 2,250 projects built over the past three decades. VATW’s association with the Wabag brand name facilitates entry into newer markets and helps it to pre-qualify for complex and large projects.

VATW’s acquisition of Wabag Austria brought along:

• Technical know-how: Access to over 100 patents and experienced manpower
• Perennial rights to “WABAG” brand - established in 1924
• Project references in more than 19 countries that help in re-qualification
• Access to global geographies
• Acceptance of WABAG India in the overseas market
• Opportunity to leverage low-cost economic advantage in the global market

All of these have facilitated in recording a multi-fold jump in revenue for VATW since the acquisition of Wabag.

Fig. 37: VATW excels in its understanding of technology and has 100 patents to its name

Source: Company data
Three strategic focus markets to drive growth

Overseas markets
The overseas markets are jointly catered by Wabag India and Wabag Austria. While VATW already has its presence through Wabag Austria in major markets through its subsidiaries, it has recently started expanding its regional footprint through modular expansion. The company has now set up subsidiaries in its major markets such as Turkey and South East Asia so as to reduce overhead costs associated with the expensive Austrian operations.

We estimate ~12% revenue CAGR in overseas markets for VATW over FY14-17F.

On the back of its expanding footprint into emerging markets, we estimate VATW to record ~12% revenue CAGR in the overseas business over FY14-17F. Note that this compares with ~30% revenue CAGR recorded over the past three years for the company as it has successfully established presence in markets such as Turkey and South East Asia.

Our discussion with a competitor operating in the water and renewable sector in India, suggests that countries such as Sri Lanka and Bangladesh are on the verge of a major uplift in water spending and could be potentially worth USD700mn-1bn markets each, spread over three-four years. Bangladesh, for instance, is already throwing huge opportunity, mostly funded by Japan International Cooperation Agency (JICA), according to the competitor.

Fig. 38: VATW is present in the fastest growing markets in water globally
Market size and growth rates for key global markets; shaded regions are where VATW is present

<table>
<thead>
<tr>
<th>Countries</th>
<th>Market Size (US$ bn)</th>
<th>Expected CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>107.0</td>
<td>10-15%</td>
</tr>
<tr>
<td>China</td>
<td>47.0</td>
<td>6-10%</td>
</tr>
<tr>
<td>Italy</td>
<td>16.0</td>
<td>10-15%</td>
</tr>
<tr>
<td>Brazil</td>
<td>15.0</td>
<td>10-15%</td>
</tr>
<tr>
<td>Spain</td>
<td>11.0</td>
<td>15%+</td>
</tr>
<tr>
<td>Saudia Arabia</td>
<td>8.5</td>
<td>6-10%</td>
</tr>
<tr>
<td>Mexico</td>
<td>7.3</td>
<td>6-10%</td>
</tr>
<tr>
<td>South Africa</td>
<td>6.1</td>
<td>6-10%</td>
</tr>
<tr>
<td>India</td>
<td>5.9</td>
<td>10-15%</td>
</tr>
<tr>
<td>UAE</td>
<td>4.4</td>
<td>10-15%</td>
</tr>
<tr>
<td>Algeria</td>
<td>4.0</td>
<td>6-10%</td>
</tr>
<tr>
<td>Iran</td>
<td>3.8</td>
<td>10-15%</td>
</tr>
<tr>
<td>Egypt</td>
<td>3.5</td>
<td>6-10%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2.5</td>
<td>10-15%</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.8</td>
<td>15%+</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1.7</td>
<td>10-15%</td>
</tr>
<tr>
<td>Morocco</td>
<td>1.6</td>
<td>10-15%</td>
</tr>
<tr>
<td>Argentina</td>
<td>1.3</td>
<td>15%+</td>
</tr>
<tr>
<td>Romania</td>
<td>0.9</td>
<td>15%+</td>
</tr>
<tr>
<td>Tunisia</td>
<td>0.8</td>
<td>10-15%</td>
</tr>
</tbody>
</table>

Source: Company

Municipal corporations
VATW focuses on water and wastewater treatment for municipal corporations and provides complete EPC and O&M services. Municipalities are the largest customer base for VATW and most of these projects are funded by bilateral and multilateral agencies. Not only are the projects received from municipalities larger in size, but also happen to be technology-focused and complex. Along with the EPC opportunity, most such projects also involve O&M contracts for 10-20 years, which is a high-margin area.

VATW’s scope of activities for municipalities would typically include the following:
• Drinking water treatment plants;
• Sewage schemes;
• Industrial wastewater treatment plants; and
• Pumping stations and pipelines networks.

Potential 19% revenue CAGR from municipalities for VATW over FY14-24F
We estimate VATW to record 19% revenue CAGR from municipalities over the next 10 years on the back of a pick-up in new projects, strong O&M opportunity, rising project value on the back of newer technology adoption by customers as well as increasing market share for VATW. In the near term, we estimate a 33% revenue CAGR from municipalities for VATW over FY14-17F.
Industrial customers

VATW undertakes the execution of projects for large industrial clients such as oil refineries, steel plants and power plants, and provides solutions such as de-mineralization plants, reverse osmosis plants, thermal-based desalination plants, condensate polishing units, wastewater recycle plants and zero liquid discharge plants. These projects are directly linked to industries setting up new refineries, steel plants and power plants or their expansions.

VATW’s scope of work typically includes design and engineering, equipment supply and retrofitting, installation and site supervision, start-up and commissioning and the completion of turnkey contracts.

Potential 13% revenue CAGR from industrial customers for VATW over FY14-24F

Industrial sector is pre-dominantly led by the power sector as a key user of water/waste water treatment. As highlighted earlier, almost 88% of the industrial opportunity comes from the power sector. We estimate new power projects to grow at a moderate rate of 5% p.a., while rest of the industrial base should record 20% growth to arrive at a blended revenue CAGR of 13% over FY14-24F for VATW’s industry segment. In the near-term, we estimate ~14% revenue CAGR from the industry segment for VATW over FY14-17F.

Fig. 39: Key projects executed by VATW for municipalities in India

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Client</th>
<th>Project value (INR mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 MLD and 20 MLD STPs at Malisandra and Nagasandra</td>
<td>Bangalore Water Supply &amp; Sewerage Board</td>
<td>641</td>
</tr>
<tr>
<td>50 MLD STP at Kadbesinahalli</td>
<td>Bangalore Water Supply &amp; Sewerage Board</td>
<td>400</td>
</tr>
<tr>
<td>110 MLD STP at Kodungaiyur</td>
<td>Chennai Metropolitan Water Supply &amp; Sewerage Board</td>
<td>383</td>
</tr>
<tr>
<td>54 MLD STP at Perungudi</td>
<td>Chennai Metropolitan Water Supply &amp; Sewerage Board</td>
<td>327</td>
</tr>
<tr>
<td>Plant water system package</td>
<td>The Durgapur Projects Ltd</td>
<td>666</td>
</tr>
<tr>
<td>Plant water system for thermal</td>
<td>An Indian steel plant</td>
<td>1,344</td>
</tr>
<tr>
<td>111 MLD WTP at Cherthala</td>
<td>Kerala Water Authority</td>
<td>1,864</td>
</tr>
<tr>
<td>Plant water system package for 2 x 500 MW power plant at Durgapur</td>
<td>Damodar Valley Corporation</td>
<td>1,345</td>
</tr>
<tr>
<td>45 MGD STP at Kondli</td>
<td>Delhi Jal Board</td>
<td>1,907</td>
</tr>
<tr>
<td>54.6 MLD STP at Keshorpur</td>
<td>Delhi Jal Board</td>
<td>1,875</td>
</tr>
<tr>
<td>100 MLD sea-water RO desalination plant, Chennai</td>
<td>Chennai Metropolitan Water Supply &amp; Sewerage Board</td>
<td>5,334</td>
</tr>
<tr>
<td>50 MGD WTP at Dwarka</td>
<td>Delhi Jal Board</td>
<td>1,490</td>
</tr>
</tbody>
</table>

Fig. 40: VATW’s moment of glory in India – 100 MLD desalination plant, Chennai

Source: Company data
**Strong visibility on EPC segment revenues**

With a TTM book: bill ratio of 2.6x in the EPC segment as of Mar-14, VATW has a reasonable near-term revenue visibility. Moreover, we foresee good prospects on order inflow both near-term as well as over the longer term as described below, which further lends credibility to the company’s growth outlook.

**Strong near-term order pipeline**

Two new desalination plants in Tamil Nadu

The Tamil Nadu Infrastructure Development Board (TNIDB) has approved a series of projects including two sea water reverse osmosis (SWRO) desalination plants with a capacity of 400 MLD and 150 MLD to be located at Perur and Nemmeli, respectively, near Chennai and would be built at a cost of ~INR40.7bn and INR13.71bn. Both these projects would be built on design-build-operate (DBO) basis.

BMC to award three sewage treatment plants in Mumbai shortly

After years of delay, the Brihanmumbai Municipal Corporation (BMC), Mumbai, has started the tender process for the construction of the Bhandup STP. This move comes on the back of repeated warning and notices issued by the Maharashtra Pollution Control Board (MPCB) and the Central Pollution Control Board (CPCB) to the BMC to construct the treatment plants at the earliest, especially for the Bhandup and Ghatkopar ones. The cost of the Bhandup STP is likely to be ~INR3.65bn, while the Ghatkopar STP is likely to be worth INR5bn, we estimate. Separately, the BMC has also invited pre-qualification bids for another STP/WWTP at Colaba, Mumbai, which is likely to be an INR6bn project.

That apart, based on our talks with competitors, we believe BMC has also outlined plans for awarding five more STPs over the next two-three years, for which the bidding process is yet to start.

---

**Fig. 41: List of pre-qualified bidders for the upcoming Mumbai STP/WWTP projects**

<table>
<thead>
<tr>
<th>Bhandup</th>
<th>Ghakopar</th>
<th>Colaba</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA Tech Wabag</td>
<td>VA Tech Wabag</td>
<td>VA Tech Wabag</td>
</tr>
<tr>
<td>Degremont</td>
<td>Degremont</td>
<td>Degremont</td>
</tr>
<tr>
<td>Cadagua SA and SPML Infra - JV</td>
<td>Cadagua SA and SPML Infra - JV</td>
<td>Cadagua SA and SPML Infra - JV</td>
</tr>
<tr>
<td>Enviro Control and KEC – JV</td>
<td>Enviro Control and KEC – JV</td>
<td>Acciona Agua Spain + HCC JV</td>
</tr>
<tr>
<td>UEM India and Geo Miller – JV</td>
<td>Sound Global + UPL + Gharpure</td>
<td>Constructor Sanjose, SA + Unity Infra + Mekorcot JV</td>
</tr>
</tbody>
</table>

Source: MCGM

---

**West Bengal, Gujarat, Mumbai and Vishakhapatnam considering desalination plants**

Our discussion with competitors suggest that there are upcoming opportunities for desalination plants in West Bengal, Gujarat, Mumbai and Vishakhapatnam where these projects are being actively considered by respective state governments.

**Delhi Jal Board has recently drafted an INR195bn Sewage Master Plan until 2031**

The Delhi government in June 2014 had published its Master Plan for a requirement of INR195bn worth of investment in upgrading the sewage network in Delhi by 2031. The draft aims to fix the Capital’s failing wastewater management system and reduce pollution in Yamuna. As per the master plan, Delhi’s existing 35 wastewater treatment plants (WWTPs) can at best deal with only 40% of the total sewage generated every day. The rest of the discharge flows directly into the Yamuna through rainwater drains. The blueprint proposes a 10,000-km pipe network, 75 WWTPs and integration of various ongoing sewerage projects. Of the total investment proposed, ~25% is proposed towards the capex of new STP/WWTP, while 65% is for the new/upgrading sewer network and 10% for pumping stations.
New Industrial Water Allotment Policy in Andhra Pradesh

In December 2014, the Andhra Pradesh government had announced an exclusive Industrial Water Allotment Policy for speedy and sustainable industrial development in the state. As per the policy framework, industries which draw treated sewage water for industrial purposes will be provided infrastructure assistance on a priority basis. Further, Municipal Administration and Urban Development Departments will prepare a comprehensive plan for the recycling of sewage water for non-potable industrial use. The government will also promote desalination plants in coastal areas to meet the increasing water demand of various industrial nodes planned in the Vizag-Chennai Industrial Corridor (VCIC) and Bangalore-Chennai Industrial Corridor (BCIC).

Telangana’s industrial policy lays focus on the Common Effluent Treatment Plant (CETP) for industrial zones

As per the Industrial Policy Framework 2014 document by the newly formed state of Telangana, every industrial park will be provided with a common effluent treatment plant, depending on the nature of effluents expected from the specified industrial activity. The Telangana State Government will also encourage the development of CETP through a joint venture/PPP model, since it is possible to operate and maintain a CETP on commercial lines. Separately, Telangana has also outlined an INR150bn worth water programme.

Ganga Rejuvenation Project

The Ganga rejuvenation project is by far the most exciting and largest project among all the upcoming opportunities in the sector, given that it is also one of the pet projects of the new government. While we have detailed this opportunity in earlier pages, in a nutshell, this project entails ~INR510bn of investment to clean the river over the next five years.

In a recent communication to the Supreme Court, the government informed that it has proposed to spend this amount over the next five years to completely stop the discharge of untreated sewer and waste water from 118 towns into Ganga river. The 118 towns fall in the states of Uttarakhand, Uttar Pradesh, Jharkhand, Bihar and West Bengal. The Ministry of Environment and Forests as well as the Central Pollution Control Board have been tasked to enforce zero liquid discharge by grossly polluting industries located in the river basin of states, including Kanpur and other cities.

As part of this larger initiative as well as to include other important rivers such as Yamuna and Ramganga, special teams have been set up by the Ministry of Water Resources, River Development and Ganga Rejuvenation, which have already started submitting their reports. 120 such teams were constituted to study various aspects of 118 places along the rivers Ganga, Yamuna and Ramganga. These teams were asked to find out the latest position of sewage treatment plants located at these places and the types of plantation required along the rivers. The teams were also directed to find out the latest available techniques to modernize these treatment plants to obtain quicker results. Old and non-functional treatment plants will be replaced by new ones. These teams will also recommend necessary measures to be taken to contain pollution in these rivers to the Central Pollution Control Board.

Potentially an 18% India revenue CAGR story over FY14-24F

Data availability on the sector is difficult (in terms of existing treatment capacity/annual spend) given the fragmented nature of the sector and frail health of municipalities. Nevertheless, we have tried to estimate the current market size for water/wastewater treatment services in India as well as the market size after 10 years. Based on our estimates, the water/wastewater treatment sector in India has the potential to grow at >10% CAGR over the next 10 years. We base our estimates on the following key assumptions:

• Our estimates are based only on the data for Class I and Class II cities that account for 70% of India’s urban population;
• We assume 3% p.a. population growth, assuming that urbanisation trends will continue to lead to higher population growth for these centers vs. the national average;
• We do not assume any change in water supply per capita / day for Class I cities, while for Class II cities, we assume that by FY24F, they will tend to move closer towards targeted numbers of 150 litres per capita per day (lpcd);

• We assume similar rate of wastewater generation as now (i.e. ~80% of water supplied);

• We assume that waste water treatment as a percentage of wastewater generated will rise from 32% and 9% currently to 40% and 20% by FY24F in class I and II cities, respectively.

Together with sector growth of >10% over FY14-24F and market share gains, VATW is likely to record an 18% revenue CAGR over the next 10 years

We expect VATW to double its market share in the EPC segment over the next 10 years from 18% currently to 35%, as incremental projects will be larger and more complex, thus benefitting larger players with requisite experience. Further, even as other foreign companies such as Veolia and Suez (through Degremont) have been active in the Indian markets, we think that with their foreign overheads, they are less price-competitive compared to VATW (which has an Indian cost structure).

We believe that O&M opportunity will grow further for private participation vs. the current model where municipalities operate plants themselves. Thus, this is likely to lead to a market share gain from 7% currently to 20% for VATW by 2024F.

As industrial growth revives and larger plant capex is re-drawn, we believe water/wastewater treatment will now be among the key priorities for user industries. This should also lead to more orders flowing through to organised layers such as VATW, and thus likely improve market share growth from 15% currently to 20% by FY24F.

Fig. 42: We estimate ~18% revenue CAGR over the next 10 years for VATW

<table>
<thead>
<tr>
<th></th>
<th>FY14F</th>
<th>FY24F</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC Market opportunity (INR mn)</td>
<td>33,603</td>
<td>83,558</td>
<td>10%</td>
</tr>
<tr>
<td>O&amp;M Market opportunity (INR mn)</td>
<td>45,764</td>
<td>114,435</td>
<td>10%</td>
</tr>
<tr>
<td>Industrial sector opportunity (INR mn)</td>
<td>31,250</td>
<td>79,421</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total sector opportunity</strong></td>
<td><strong>110,617</strong></td>
<td><strong>277,414</strong></td>
<td><strong>10%</strong></td>
</tr>
</tbody>
</table>

VA Tech Wabag India revenues

<table>
<thead>
<tr>
<th></th>
<th>FY14F</th>
<th>FY24F</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC India - Municipalities</td>
<td>5,937</td>
<td>29,245</td>
<td>17%</td>
</tr>
<tr>
<td>O&amp;M India - Municipalities</td>
<td>3,047</td>
<td>22,887</td>
<td>22%</td>
</tr>
<tr>
<td>Industrial</td>
<td>4,556</td>
<td>15,884</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,540</strong></td>
<td><strong>68,017</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>

VA Tech Wabag Market share

<table>
<thead>
<tr>
<th></th>
<th>FY14F</th>
<th>FY24F</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPC India - Municipalities</td>
<td>18%</td>
<td>35%</td>
</tr>
<tr>
<td>O&amp;M India - Municipalities</td>
<td>7%</td>
<td>20%</td>
</tr>
<tr>
<td>Industrial</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12%</strong></td>
<td><strong>25%</strong></td>
</tr>
</tbody>
</table>

Source: Nomura estimates

Additional upsides to this growth rate are possible

• In our assumptions, we only consider the O&M for incremental projects being commissioned. However, the O&M of existing plants could also come up as local bodies are increasingly realising that privately managed WTP/STPs are performing better.

• The decline in water availability from current resources should lead to a shift towards treatment processes that are increasingly complex and expensive as traditional sources run out.

• Even as the quality of currently available water is also worrying, we only assume an incremental water supply or waste water addition for this opportunity. If the focus on
quality rises, even existing plants/sources could come up under the opportunity landscape.

- Our analysis is based only on Class I and II cities as defined by CPCB and that cover 70% of urban population and ~30-35% of overall India population, thereby leaving a large scope of opportunity outside the purview. As these smaller cities mature and demand treated water, the opportunity landscape could grow even further.

- There remain additional opportunities in the form of Ganga cleaning, smart cities, DMIC, and the creation of new cities or urban agglomerations.
VATW: Financials

Strong opportunity in both domestic and overseas markets to drive 39-45% order inflow CAGR over FY14-17F

Policy paralysis in India and a slowdown in rest of the world impacted VATW’s growth over FY10-13 in new order inflow. The company, however, revived in FY14, helped by the contribution from international orders led by VATW’s strategy of diversifying into newer global markets. Going ahead, we expect a revival in India order inflows, led by the strong pipeline of projects already in the making coupled with VATW’s expansion into newer geographies to drive 45% and 39% order inflow CAGR over FY14-17F in the India and overseas markets, respectively.

Fig. 43: We estimate 45% CAGR in VATW’s India order inflow
Fig. 44: …and a 39% CAGR in its overseas order inflow

Strong order inflow over FY14-17F is likely to drive order backlog up to 2.4x of the current size in India, while we estimate the overseas backlog to remain largely flat. The blended book: bill ratio of 2.9x TTM revenues does lend reasonable revenue visibility over the near-term, in our view.

Fig. 45: India order backlog estimated to grow 2.4x by FY17F
Fig. 46: …while overseas order backlog could remain flat

Rising share of O&M revenues to drive near-term margin upsides

In the near-term, we expect O&M revenue to rise on the back of existing order backlog. However, given that some of the large orders that are in the pipeline are primarily EPC, we expect the order mix to again shift in favour of EPC after FY16F. O&M contracts generally tend to have a higher margin component and are thus margin-accretive. We, thus, expect VATW to report EBITDA margins recovery over FY14-16F.
22% revenue CAGR over FY14-17F and margin recovery…
Overall, we estimate 22% revenue CAGR for VATW (consolidated) over FY14-17F, driven both by the execution of existing order backlog as well as strong order pipeline. This is compared with ~15% revenue CAGR that the company had posted over FY09-14.

The rising proportion of O&M revenue as well as economies of scale as newer subsidiaries start contributing to revenues are likely to drive better EBITDA margins, in our view. We, thus, estimate 150bps improvement in consolidated EBITDA margins by FY17F over FY14, thus taking it back to the margin levels recorded during FY11.

…to drive a 30% PAT CAGR
Together with the 22% revenue CAGR and EBITDA margin recovery, we estimate VATW to record a 30% PAT CAGR over FY14-17F. In our view, there could be further catalysts to this growth trend to continue beyond FY17F as water treatment remains an under-penetrated opportunity and will likely unfold over next several years.

Given the strong visibility of the India order pipeline, we are currently more confident on the India revenue driving this profit growth, while in our assumptions, we factor in a flat overseas revenue over FY15-17F. However, given that VATW has surprised the markets positively in FY14 in terms of its order inflow from overseas markets, we do not rule out similar surprises going ahead, too, especially since VATW continues to expand into new territories.
Asset-light business model ensures a debt-free balance sheet and reasonable returns

VATW operates with a fairly asset-light business structure, though its working capital cycle is long. On the positive side, bad debts have remained low as bulk of the receivables is from multilateral funding agencies such as JICA and World Bank.

On the back of the limited involvement in the stressful civil component of a typical contract, VATW is able to remain asset-light and only focuses on value-added and high-margin work processes. Most capital employed in the business is, thus, working capital, which it tries to push down to civil contractors.

![Fig. 53: Typical work flow for VATW](source)
VATW is primarily involved only in the designing, technology and O&M portions of the contract while actual execution is outsourced

![Fig. 54: Rising ROE even as VATW continues to increase net cash on the books](source)
Net debt is negative, implying net cash on the books
**Dupont analysis of ROE**

The ROE breakdown based on the Dupont framework suggests that bulk of our estimated ROE improvement is premised on margin recovery, which in turn is on the back of rising O&M revenue and economies of scale. We hardly assume any improvement in asset turnover or leverage. In fact, in our model, net cash on the books keeps rising, thus leading to a lower asset multiplier. If the company pays out higher dividend than our estimates, ROE could improve further.

*Fig. 55: VATW: Du Pont framework breakdown of consolidated ROE*

<table>
<thead>
<tr>
<th>ROE breakdown</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15F</th>
<th>FY16F</th>
<th>FY17F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAT/PBT</td>
<td>68%</td>
<td>66%</td>
<td>67%</td>
<td>67%</td>
<td>67%</td>
<td>67%</td>
<td>67%</td>
</tr>
<tr>
<td>PBT/EBIT</td>
<td>82%</td>
<td>81%</td>
<td>86%</td>
<td>86%</td>
<td>86%</td>
<td>88%</td>
<td>90%</td>
</tr>
<tr>
<td>EBIT Margin</td>
<td>9.5%</td>
<td>9.5%</td>
<td>9.7%</td>
<td>8.3%</td>
<td>8.9%</td>
<td>9.6%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Asset Turnover (x)</td>
<td>2.2</td>
<td>2.1</td>
<td>2.5</td>
<td>2.3</td>
<td>2.3</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Assets/Equity (x)</td>
<td>1.11</td>
<td>1.14</td>
<td>1.14</td>
<td>1.15</td>
<td>1.11</td>
<td>1.10</td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>12.3%</td>
<td>13.4%</td>
<td>14.0%</td>
<td>13.8%</td>
<td>14.3%</td>
<td>15.3%</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Nomura estimates*

**VATW likely to turn FCF-positive in FY15/16F**

On the back of improving EBITDA margins and stable working capital cycle, we estimate VATW to turn FCF-positive in FY15/16F, with a reasonable FCF yield of 1.8%/3.9% in FY16/17F. Notably, the FCF trend for VATW is already on an improving trend, despite a deteriorating WC cycle over FY11-14F. In the latest quarterly results conference call, management has clearly stressed on its focus on the collection of outstanding receivables and thus should help in boosting FCF generation further, in our view.

*Fig. 56: Free cash flow generation to turn positive in FY15/16F*

**Nomura vs. consensus**

While we are in line with consensus on our FY15F estimates, we are 5-12% higher on FY16/17F earnings estimates. This is primarily led by our belief that order inflows will remain strong over the medium-term, thus driving revenue and margin up for VATW.

*Fig. 57: Our FY16/17F earnings forecasts is 5-12% higher than consensus*

<table>
<thead>
<tr>
<th></th>
<th>FY15F</th>
<th>FY16F</th>
<th>FY17F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nomura</td>
<td>Consensus</td>
<td>% difference</td>
</tr>
<tr>
<td>Revenues</td>
<td>26,775</td>
<td>26,934</td>
<td>-1%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>2,444</td>
<td>2,476</td>
<td>-1%</td>
</tr>
<tr>
<td>PAT</td>
<td>1,386</td>
<td>1,419</td>
<td>-2%</td>
</tr>
</tbody>
</table>

*Source: Bloomberg consensus, Nomura estimates*
VATW: Valuations

Since VATW doesn’t have a long trading history to arrive at an appropriate valuation multiple, we compare it with other construction companies and also with specialised construction companies such as NBCC (Buy, NBCC IN) and Engineers India (Not Rated, ENGR IN) as we see lots of similarities between these two companies.

We believe VATW deserves to trade at premium multiples vs. other construction companies

We believe that VATW is the only pure-play on the emerging water and waste water treatment opportunity in India. Given its niche play status and strong growth opportunity, we think VATW deserves to trade at a premium over other construction companies in India as most of the companies operating in the construction sector are struggling with debt-laden balance sheets and an elongated working capital cycle.

We note that VATW’s standalone entity is already reporting ROEs similar to what these construction companies have delivered during the past upcycle, despite the latter taking up huge debt in contrast to VATW, which remains debt-free.

In our view, VATW’s valuation multiples could be benchmarked to specialised E&C companies such as NBCC and Engineers India, which again operate in niche segments, respectively, and are pure-plays within that.

**Fig. 58: Expected ROEs of construction companies over upcycles and downcycles (2005-17F)**

<table>
<thead>
<tr>
<th>Company</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY16F</th>
<th>FY17F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplex Infra</td>
<td>26.3</td>
<td>29.1</td>
<td>32.5</td>
<td>18.6</td>
<td>15.6</td>
<td>14.5</td>
<td>12.6</td>
<td>8.2</td>
<td>5.9</td>
<td>4.7</td>
<td>5.1</td>
<td>8.9</td>
</tr>
<tr>
<td>J Kumar Infra</td>
<td>28.5</td>
<td>24.3</td>
<td>27.5</td>
<td>20.3</td>
<td>17.3</td>
<td>15.2</td>
<td>14.7</td>
<td>15.2</td>
<td>15.8</td>
<td>15.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supreme Infra</td>
<td>28.4</td>
<td>34.8</td>
<td>26.2</td>
<td>26.8</td>
<td>20.4</td>
<td>16.8</td>
<td>15.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ahluwalia Contractors</td>
<td>37.9</td>
<td>41.1</td>
<td>28.4</td>
<td>-3.2</td>
<td>-33.1</td>
<td>-2.4</td>
<td>19.5</td>
<td>22.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KNR Construction</td>
<td>18.0</td>
<td>17.0</td>
<td>11.1</td>
<td>10.2</td>
<td>10.6</td>
<td>12.6</td>
<td>15.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hindustan Construction</td>
<td>9.4</td>
<td>9.6</td>
<td>8.3</td>
<td>8.1</td>
<td>5.5</td>
<td>-5.9</td>
<td>-10.2</td>
<td>-7.9</td>
<td>0.4</td>
<td>3.4</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Nagarjuna Construction</td>
<td>16.8</td>
<td>15.4</td>
<td>14.2</td>
<td>10.5</td>
<td>9.7</td>
<td>8.5</td>
<td>2.8</td>
<td>2.7</td>
<td>1.4</td>
<td>3.1</td>
<td>5.6</td>
<td>9.2</td>
</tr>
<tr>
<td>IVRCL</td>
<td>16.9</td>
<td>13.6</td>
<td>12.2</td>
<td>11.6</td>
<td>9.7</td>
<td>9.9</td>
<td>-4.1</td>
<td>-25.2</td>
<td>-29.9</td>
<td>-35.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineers India Ltd (consol)</td>
<td>14.8</td>
<td>17.4</td>
<td>35.3</td>
<td>38.0</td>
<td>37.4</td>
<td>28.9</td>
<td>20.7</td>
<td>18.1</td>
<td>20.3</td>
<td>18.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBCC</td>
<td>23.1</td>
<td>23.3</td>
<td>26.2</td>
<td>25.7</td>
<td>24.9</td>
<td>26.1</td>
<td>30.3</td>
<td>35.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average (ex-EIL &amp; NBCC)</strong></td>
<td>26.3</td>
<td>22.9</td>
<td>18.5</td>
<td>16.9</td>
<td>18.1</td>
<td>20.1</td>
<td>17.2</td>
<td>7.9</td>
<td>1.8</td>
<td>2.0</td>
<td>5.1</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>VA Tech Wabag (Standalone)</strong></td>
<td>7.8</td>
<td>1.2</td>
<td>11.3</td>
<td>16.9</td>
<td>17.2</td>
<td>18.0</td>
<td>15.5</td>
<td>12.7</td>
<td>15.4</td>
<td>18.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Bloomberg, Nomura estimates. Bloomberg consensus for not rated companies

**Regional peers are primarily into BOT models vs. VATW is primarily focused on design and engineering**

We note that most of the European and China peers in the water segment are primarily BOT-centric businesses where they own the WTP/STP or even water supply/distribution businesses, in some cases. Not only does this entail significant balance sheet funding and is thus an asset-heavy business model, but also exposes the companies to higher leverage, tariff and collection risks. In contrast, VATW primarily being a design and engineering company with an asset-light business model provides negligible balance sheet risk apart from working capital cycle.
Fig. 59: Chinese peers are primarily BOT heavy
%

<table>
<thead>
<tr>
<th>Company</th>
<th>Ratio of Construction / Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015F</td>
</tr>
<tr>
<td>Sound Global</td>
<td>30/70</td>
</tr>
<tr>
<td>Beijing Enterprises Water</td>
<td>50/50</td>
</tr>
<tr>
<td>CT Environmental</td>
<td>0/100</td>
</tr>
<tr>
<td>China Everbright Int'l</td>
<td>0/100</td>
</tr>
<tr>
<td>Kangda Environmental</td>
<td>0/100</td>
</tr>
<tr>
<td>Guangdong Investment</td>
<td>0/100</td>
</tr>
</tbody>
</table>

Source: Nomura estimates

Better ROE and growth profile vs. regional peers too
In Fig. 60 below, we note that European and China peers are trading at average EV/EBITDA of 7.6x and 12.9x and P/E of 16.9x and 17.5x, respectively, on FY16F consensus estimates. We believe that VATW deserves a higher multiple as it generates better ROE despite being debt-free (vs. most peer groups being heavily leveraged) and also for a much superior earnings growth profile of VATW over the next few years. We estimate VATW’s operating profit/net profit to record CAGRs of 28%/29% over FY14-FY17F, which is better than its peers (except for Chinese companies with in-line growth).

Rising O&M revenues could drive further re-rating
As we highlighted earlier in this report, both from a near-term perspective as well as over the long-term, O&M revenues are set to grow faster than rest of the business for VATW. With O&M being a higher-profit business and one that provides greater visibility and stability in revenue/profits, we believe the stock could re-rate as the O&M revenue share grows further.
VA Tech Wabag: TP of INR1,958 based on 22.5x FY17F P/E

Compared to its peer group, VATW generates better ROE, has a superior growth profile (both in the near-term as well as in the longer term) and has a cleaner balance sheet. As we expect a revival of the growth outlook and margin recovery to aid PAT growth of 29% over FY14-17F, we believe VATW should trade at the upper end of its fair value range of 23% upside potential from current levels.

Our fair value range of 15-25x is derived based on the trading mean range of ENGR and NBCC, which we think are the closest similar businesses in India for VATW. Compared to India E&C companies' current trading one-year forward average P/E of 20.2x, we assume an 11% premium for VATW, while from the regional peer group, we assume a 33% premium to European peers and a 29% premium to China peers.

In our view, most regional peers have high leverage and also have asset-heavy business models due to their BOT nature, while VATW is largely asset-light and generates better ROEs despite a debt-free balance sheet. The company, thus, deserves to trade at a premium vs. peer groups, in our view.
Historical valuation charts (based on consensus estimates)

Fig. 61: VA Tech Wabag: 1-year forward P/E chart

Source: Bloomberg consensus, Nomura estimates

Fig. 62: VA Tech Wabag: 1-year forward P/BV chart

Source: Bloomberg consensus, Nomura estimates

Fig. 63: Engineers India: 1-year forward P/E chart

Source: Bloomberg consensus

Fig. 64: Engineers India: 1-year forward EV/EBITDA chart

Source: Bloomberg consensus

Fig. 65: NBCC: 1-year forward P/E chart

Source: Bloomberg consensus

Fig. 66: NBCC: 1-year forward EV/EBITDA chart

Source: Bloomberg consensus
VATW: Key investment risks

• A diverse geographical spread could pose strain on management bandwidth and lead to unforeseen risks.

• Rising working capital could pose risks to cash flows.

• Execution delays could delay earnings growth.

• The frail financial health of municipalities in India could delay the materialisation of opportunities.

• Larger players such as L&T could pursue sector opportunities more aggressively, thus skewing competitive intensity further.
Annexure

Company background

VATW is a multinational player in the water treatment industry with market presence in India, the Middle East, North Africa, Central and Eastern Europe, China and South East Asia through its two key entities Wabag India and Wabag Austria. VATW offers complete life cycle solutions including conceptualization, design, engineering, procurement, supply, installation, construction and O&M services for sewage treatment, processed and drinking water treatment, effluent treatment, sludge treatment, desalination and water reuse for both municipal and industrial segments.

VATW is now one of the world’s leading companies in the water treatment field. VATW’s key competencies, which are based on over 90 years of plant building experience, lie in the design, completion and operation of drinking water and wastewater plants for both municipal and industrial sectors.

History of VA Tech Wabag

VATW was formed following the merger of the water technology segment of the VA Technologie Group with that of Deutsche Babcock in 1999. However, the WABAG brand dates back to 1924, while one of the taproots of the company extends to year 1868. The company has seen several changes in control and management over the past few decades, which is summarised in the chart below:
Fig. 68: History of VATW

VATW has grown on the back of its acquisition of its erstwhile parent.

Management background

Fig. 69: Key management personnel

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
</table>
| Mr. Rajiv Mittal   | Promoter, Managing Director  | - 30 years of work experience in the Water Industry  
- Previously worked with Wabag Water Engineering, UK as Deputy Director - International sales |
| Mr. Shiv Narayan Saraf | Promoter, Head of Operations | - 42 years of experience in the water industry; worked previously with Ion Exchange India Limited  
- Responsible for construction management of all projects of all SBUs |
| Mr. Amit Sengupta  | Promoter, Head of Corporate Strategy & Marketing | - over 30 years of experience in marketing and sales of water and wastewater technology  
- previously worked with Kirloskar AAF in the water SBU  
- Responsible for devising & implementing corporate strategies for growth, technology acquisitions & licensing & synergizing strengths within Wabag Group |
| Mr. S. Varadarajan | Promoter, CFO                | - 28 years of work experience; worked previously with PL Agro Technologies  
- In charge for finance, commercial, legal, secretarial, information technology, income tax and general administration functions |
| Mr. Erik P. Gothlin | CEO - Wabag Austria         | - 22 years of Work Experience in the Industry  
- Previously held various management positions in Westermo Teleindustri, Sweden, ABB, and Chromalox Group as Managing Director – International for United Kingdom, France and China |

Source: Company data
Appendix A-1

Analyst Certification

We, Amar Kedia and Vineet Verma, hereby certify (1) that the views expressed in this Research report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this Research report, (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Research report and (3) no part of our compensation is tied to any specific investment banking transactions performed by Nomura Securities International, Inc., Nomura International plc or any other Nomura Group company.

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Materially mentioned issuers

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<th>Ticker</th>
<th>Price</th>
<th>Price date</th>
<th>Stock rating</th>
<th>Sector rating</th>
<th>Disclosures</th>
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<td>INR 820</td>
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VA Tech Wabag (VATW IN) INR 1596 (23-Jan-2015) Buy (Sector rating: N/A)

Valuation Methodology: We value VATW at 22.5x FY17F EPS (INR87) to arrive at our TP of INR1,958/share. Our assigned multiple is based on an 11% premium to Indian E&C names given the superior financial metrics and balance sheet for VATW. The benchmark index for this stock is MSCI India.

Risks that may impede the achievement of the target price:
- A diverse geographical spread could pose strain on management bandwidth and lead to unforeseen risks.
- Rising working capital could pose risks to cash flows.
- Execution delays could delay earnings growth.
- Frail financial health of municipalities in India could delay opportunity materialisation.
- Larger players such as L&T could pursue the sector opportunities more aggressively, thus skewing the competitive intensity further.

National Buildings Construction Corporation (NBCC IN) INR 820 (23-Jan-2015) Buy (Sector rating: N/A)

Valuation Methodology: We value the stock on 15x Sep-16F EV/EBITDA to arrive at our TP of INR1,049 per share. The benchmark index for this stock is MSCI India.

For explanation of ratings refer to the stock rating keys located after chart(s).
Risks that may impede the achievement of the target price
1) Overhang of further dilution by the government in the stock as NBCC is currently 90% owned by the government of India. 2) Execution delays could delay earnings growth.

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SECTORS
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