AMBIT
Acumen at work

ESG

THEMATIC | May 10, 2024

Behind the green sheen of BRSR

India Inc's first detailed sustainability reports (BRSR) are here! For the first time, top 1,000 companies have discussed their ESG initiatives. But one should be wary of boastful disclosures. Higher ESG scores often are a function of more disclosures rather than real impactful actions. There would be simply a wrongful penalization or higher scoring of companies without considering materiality and recency aspects laced with tough questions. Discussing emissions (43% contribution) and water (59% contribution) without discussing cement and utility companies is futile. Despite cement companies being ahead in lowering emissions, achieving net-zero appears difficult. Given rising electricity demand and water stress, it makes sense to discuss water initiatives of utility companies. Several witnessed a disproportionate rise in water consumption. BRSR doesn't serve much purpose in assessing social actions. Despite a decade of corporate governance evolution, there are sharp outliers on boards, auditors and related parties. Accounting quality remains a powerful indicator of governance.

Net-zero looks like a distant dream

Steps taken by cement companies so far didn't involve major costs and would contribute only 30-40% to the net-zero journey. The remaining 60-70% would require higher capital costs and is possible only through carbon capture and sequestration. It would be interesting to check with Ramco and JK Cement on steps taken to reduce emission intensity by 13%/5% CAGR (peer median 3%) over FY20-23. Bharat Forge, Navin Fluorine and Aarti Industries are key players that witnessed higher emission growth (>17%).

Look out for disproportionate increase in freshwater withdrawal

Navin Fluorine, Atul and Bharat Forge witnessed an increase in freshwater withdrawal by >30% (peer median 5-11%) in FY23. Utility companies accounted for 57% of overall freshwater withdrawal in top200. NTPC and Adani Power have highest water consumption intensity and might need swifter actions. Consumption intensity for utilities is below the statutory limit, but it has seen no progress in the last few years. As electricity demand increases, it could further strain freshwater.

Women participation inching up

Median women's participation in the top 100 companies increased 200bps in FY23 (10%) vs FY21. HCL Tech, ICICI Lombard, Dr. Reddy's and Cipla incrementally added more women employees in FY23. L&T Tech, Patanjali and DLF have very low median women participation vs sector median. However, only 16/322 key managerial positions in top 200 companies are occupied by non-promoter women. These 16 women are mainly in MNCs and BFSI companies.

Governance - Critical to know what they do and why they do so

Did you know – 1) JSPL and Shree Cement have relatively low ID score, 2) KEI, AIA Engg. and EIH have >50% IDs associated >10 years, 3) JK Cement and Aarti Industries have among the largest boards within small-caps, 4) Grasim and APL Apollo Tubes have among the youngest non-executive promoter directors and 5) Varun Beverages and Dabur have moved back to long associated non-descript auditors.

Ask us for a bespoke work

We present a sample research for understanding use of water in a company's operations, water stress at operating locations, initiatives, tracking the progress and ranking the companies on these parameters to identify red flags. Ask us for a bespoke on any ESG parameter.

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Herculean task on 'E' for India Inc.

It appears so far that Indian listed companies have focused on low hanging fruits to manage emissions and water stress. Aggregate and median emissions' YoY growth in FY23 was 5% vs revenue growth of 22%/20%. Aggregate and median freshwater withdrawal's YoY growth in FY23 was 1%/8%. It is critical to understand disconnect between higher growth of revenue vs lower growth of emissions and water. It will be ideal to look at volume growth. One can check Ramco and JK Cement for reasons on sharp reduction in emission intensity (tCo2e/t). The next leg of net-zero ambitions seems difficult for cement companies. Dalmia has lowest emission intensity. Bharat Forge, Navin Fluorine, Aarti Ind. are key ones to witness higher emissions growth (>17%). NTPC and Adani Power need to take swifter actions on managing water risks. Navin Fluorine, Atul, Linde India and Bharat Forge witnessed increase in freshwater withdrawal by >30% (peer median 5-11%) in FY23.

The potential risk of under-reporting

It is difficult to comprehend what could lead to emissions increasing moderately at 4.6% vs revenue growth of 21.9% from FY22. This essentially led to improvement in the emission intensity numbers of companies. The drop in emission intensity would mean that companies are getting efficient in managing emissions. It is pertinent to note that intensity numbers would always improve in periods of inflation, price hikes or favourable cycles for commodity companies.

We believe investors should rather chase drop in absolute emissions or decrease in growth of absolute emissions. Drop or lowering of emission growth would ideally substantiate active steps taken by the companies to become net-zero. Analysis of emissions (Scope 1+ 2) data highlights interesting observations.

- Metals and mining, cement, utilities and oil & gas companies contributed >90% of total scope 1 + 2 emissions in FY23 within the top 200 companies.
- The next five highest emitting sectors include chemicals, aviation, pharma, auto ancillaries and FMCG. Adding Indus Towers to the list of top emitting sectors lead to total contribution of ~97% within the top 200 companies
- Real impact is still lacking as most companies are not disclosing scope 3 emissions. Only 56% of companies in the top 200 (ex of PSUs) as per mcap dated 31 Dec 23 disclosed scope 3 emissions in FY23.
- Non-consideration of outsourced manufacturing operations and consolidated (group) numbers could be other reason of lower reporting.
- No major differential between median and average intensity numbers indicates companies are at par and have simply applied initial efficiency measure to manage emissions. Big actions to significantly cut emissions are missing.
- Low contributors to overall carbon emissions are witnessing an increase in emissions at higher rates.
- As investors meet companies, it will be critical to know disconnect between substantial increase in revenues but correspondingly no growth or low growth in emissions.

Exhibit 1: Companies might look efficient on managing emissions in periods of inflation, favourable cycle or price hikes; it is critical to check the progress of reduction of absolute emissions

Sector (FY23)	Total emissions (tCO2e)	% Contribution	Agg. growth (vs FY22)		Median growth (vs FY22)		Intensity (tCO2e/Rs.mn)	
			Emissions	Revenue	Emission	Revenue	Average	Median
Metals and mining	247,039,735	41.7%	3.4%	6.6%	0.8%	10.9%	36.1	36.6
Cement	151,806,233	25.6%	7.9%	25.5%	6.8%	20.2%	88.3	100.8
Utilities	101,929,150	17.2%	2.9%	38.1%	2.9%	34.3%	67.5	38.4
Oil and gas	38,484,362	6.5%	(0.4%)	26.5%	(0.4%)	38.8%	6.5	3.0
Chemicals	16,520,906	2.8%	5.7%	27.1%	4.9%	28.7%	18.2	12.1
Telecom	7,403,631	1.2%	(5.3%)	12.6%	2.9%	8.2%	4.3	0.8
Aviation	6,793,965	1.1%	57.5%	110.0%	57.5%	110.0%	12.5	12.5
Pharma	4,080,050	0.7%	4.4%	9.0%	(0.2%)	6.4%	2.4	1.4
Auto ancs	3,813,152	0.6%	5.9%	22.2%	9.0%	21.1%	1.9	1.5
FMCG	3,293,464	0.6%	(2.2%)	13.3%	(3.5%)	10.9%	1.1	0.7
Agri inputs	1,537,779	0.3%	8.3%	31.9%	2.3%	18.8%	2.6	1.9
Auto	1,425,013	0.2%	4.4%	34.1%	3.2%	30.0%	0.3	0.4
E&C and infra	1,402,152	0.2%	10.7%	12.5%	9.1%	21.8%	1.0	0.9
BFSI	1,288,386	0.2%	16.6%	23.1%	16.4%	21.5%	0.2	0.2
Retail	1,156,854	0.2%	17.7%	39.2%	21.0%	39.2%	0.8	0.6
Building materials	1,082,357	0.2%	14.6%	20.1%	6.0%	19.1%	1.3	0.5
Conglomerate	963,740	0.2%	5.3%	89.0%	9.6%	52.7%	0.7	0.4
Light engineering	759,273	0.1%	(3.3%)	19.4%	4.4%	18.1%	1.2	0.5
IT	606,801	0.1%	(2.1%)	19.1%	3.7%	21.0%	0.1	0.1
Realty	428,233	0.1%	20.4%	11.8%	11.1%	23.4%	1.9	1.0
Healthcare	304,292	0.1%	17.9%	13.9%	16.0%	14.6%	1.0	1.0
Polymer products	194,220	0.0%	16.2%	18.4%	16.2%	18.4%	2.1	2.1
Consumer durable	122,352	0.0%	(0.3%)	14.4%	(5.1%)	8.1%	0.4	0.3
Textiles	100,009	0.0%	18.3%	16.3%	18.3%	16.3%	2.1	2.1
Consumer disc	98,457	0.0%	(1.2%)	28.1%	2.2%	34.5%	0.7	0.3
Travel and leisure	84,300	0.0%	(1.7%)	84.9%	(1.7%)	84.9%	2.3	2.3
Heavy engineering	65,514	0.0%	(10.7%)	27.5%	(7.3%)	27.5%	0.3	0.4
Media	23,156	0.0%	15.1%	5.3%	68.1%	4.5%	0.2	0.2
New age tech	16,112	0.0%	66.2%	45.1%	44.6%	45.5%	0.1	0.1
Summary			**4.6%***	**21.9%***	**5.0%^**	**20.0%^**	**8.5@**	**0.7^**
Summary (ex of top four sectors)			**8.7%**	**23.8%**	**6.1%**	**19.5%**	**2.3**	**0.6**

*Source: SES, Company, Ambit Capital research. Average intensity=total emission of sector/total revenue of that sector; Universe is top200 companies based on mcap as on 31 Dec 23. *Aggregate emission and revenue growth are basis absolute numbers of top200 companies (ex of PSUs); ^Median for top200 companies(ex of PSUs); @average of intensity of top200 companies (ex of PSUs)*

Exhibit 2: Key companies where emission growth was lower than revenue growth

Company	Sector	Mcap ($mn)	Intensity (tCO2e/Rs.mn) FY23		YoY growth (vs FY22)			
			Intensity	Sector median	Emission	Emission – sector median	Revenue	Revenue – sector median
Reliance Industries	Oil & Gas	227,089	7.2	3	(0.4%)	(0.4%)	25.1%	38.8%
Adani Green	Utilities	32,738	0.4	67.5	2.5%	2.9%	51.8%	34.3%
Nestle	FMCG	28,962	1.1	0.7	(39.2%)	(3.5%)	14.6%	(10.9%)
Adani Power	Utilities	26,812	126.6	67.5	3.2%	2.9%	39.9%	34.3%
Hindustan Zinc	Metals and mining	22,555	13.4	36.1	(4.8%)	0.8%	15.8%	10.9%
Varun Beverages	FMCG	22,449	2.6	0.7	30.9%	(3.5%)	60.6%	(10.9%)
Dr Reddy's	Pharma	12,499	1.4	1.4	(24.9%)	(0.2%)	14.5%	(6.4%)
Zydus Lifesciences	FMCG	11,827	2.5	0.7	(12.0%)	(3.5%)	11.4%	(10.9%)
Indus Towers	Telecom	10,914	22.4	4.3	(7.7%)	2.9%	2.4%	8.2%
Solar Industries	Chemicals	9,381	1.4	15.9	3.5%	3.5%	64.6%	28.6%
Torrent Power	Utilities	7,908	18.2	67.5	(15.5%)	2.9%	80.2%	34.3%
MRF	Auto anc	6,328	5.2	1.5	0.9%	9.0%	18.9%	(21.1%)
Tata Comm	Telecom	5,874	0.5	4.3	(10.7%)	2.9%	6.7%	8.2%
ACC	Cement	5,479	81.6	88.3	12.8%	6.8%	37.5%	20.2%
Gujarat Fluoro	Chemicals	4,619	18.5	15.9	7.8%	3.5%	47.4%	28.6%
Biocon	Pharma	4,245	0.6	1.4	(11.4%)	(0.2%)	36.5%	(6.4%)
Deepak Nitrite	Chemicals	4,108	7.3	15.9	(13.8%)	4.9%	20.8%	28.7%
Apollo Tyres	Auto anc	3,638	3.4	1.5	(13.9%)	9.0%	18.1%	(21.1%)
Timken	Auto anc	3,064	1.5	1.5	(4.9%)	9.0%	27.4%	(21.1%)
ZF Commercial	Auto anc	3,039	0.6	1.5	4.8%	9.0%	35.4%	(21.1%)
Ramco	Cement	2,142	108	88.3	6.8%	6.8%	36.0%	20.2%

Source: Company, Ambit Capital research. Mcap is dated as of 7 May 24

Exhibit 3: Key companies where emission growth was higher than sector or revenue growth

Company	Sector	Mcap ($mn)	Intensity (tCO2e/Rs.mn) FY23		YoY growth (vs FY22)			
			Intensity	Sector median	Emission	Emission - sector median	Revenue	Revenue - sector median
JSW Steel	Metals and mining	25,105	37.5	36.1	11.6%	0.8%	10.8%	10.9%
Divi's Lab	Pharma	12,433	9.9	1.4	0.1%	(0.2%)	(14.1%)	(6.4%)
Samvardhana Motherson	Auto anc	10,175	0.6	1.5	34.9%	9.0%	23.4%	(21.1%)
Colgate	FMCG	9,323	0.7	0.7	7.7%	(3.5%)	2.5%	(10.9%)
Marico	FMCG	9,042	0.2	0.7	14.9%	(3.5%)	(0.3%)	(10.9%)
SRF	Chemicals	8,578	11.6	15.9	10.7%	4.9%	21.3%	28.7%
Linde India*	Chemicals	8,159	28.4	15.9	26.8%	4.9%	48.5%	28.7%
Aurobindo	Pharma	7,895	3.8	1.4	9.6%	(0.2%)	6.0%	6.4%
Bharat Forge	Auto anc	6,918	3.7	1.5	17.9%	9.0%	21.1%	21.1%
UNO Minda	Auto anc	4,964	0.7	1.5	46.1%	9.0%	34.2%	(21.1%)
Motherson Sumi Wiring	Auto anc	3,603	0.3	1.5	41.8%	9.0%	25.2%	(21.1%)
Gland Pharma	Pharma	3,374	2.6	1.4	1.7%	(0.2%)	(17.8%)	(6.4%)
Aarti Industries	Chemicals	3,113	12.6	15.9	18.0%	3.5%	8.7%	28.6%
Navin Fluorine	Chemicals	2,006	6.6	15.9	119.7%	3.5%	42.9%	28.6%

*Source: Company, Ambit Capital research. Mcap is dated as of 7 May 24, * 15 months data is considered*

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Look for water usage exploitation

Unlike emissions, companies pay for water consumption. Essentially, tools and systems to keep track water withdrawals and consumption are better available than emissions. Surprisingly, several companies have witnessed disproportionately higher growth in freshwater withdrawal than revenue growth.

- Utilities, metals, oil & gas, FMCG, chemicals and cement (93% of total fresh water withdrawal in FY23) are the top five sectors in terms of overall contribution to freshwater withdrawal within the top 200 companies.
- Interestingly, Tata power, Adani Power, Vedanta, Tata Steel and Reliance Industries contribute 75% of overall freshwater consumption.
- The next five sectors with highest contribution w.r.t freshwater withdrawal are E&C, pharma, auto ancillaries, auto and agri inputs.
- Unlike emissions, there is significant dispersion between average and median freshwater withdrawal intensity numbers, suggesting sharp outliers, i.e. best and worst.
- Investors should look for outliers as stated in the table below and engage in deliberate discussions with the company.
- Interestingly, Grasim, MRF, Balkrishna and Apollo are a few companies from the chemicals and auto ancillary sectors which contribute significantly to the overall sectors' freshwater withdrawal.

Exhibit 4: Few companies are witnessing significant increase in freshwater withdrawal

Sector	Withdrawal Kl	% contribution	Agg. growth (vs FY22)		Median growth (vs FY22)		Intensity (Kl/Rs.mn)	
			Withdrawal	Revenue	Withdrawal	Revenue	Average	Median
Utilities	1,456,804,776	56.7%	(1.1%)	38.1%	7.6%	34.3%	965	161
Metals	608,509,902	23.7%	(6.7%)	6.6%	2.5%	10.9%	89	80
Chemicals	113,257,774	4.4%	10.7%	27.1%	11.1%	28.7%	125	53
Oil & Gas	107,499,876	4.2%	0.3%	26.5%	0.2%	38.8%	18	1
FMCG	100,617,920	3.9%	73.9%	13.3%	3.2%	10.9%	33	7
Cement	56,161,338	2.2%	26.8%	25.5%	12.5%	20.2%	33	34
E&C	19,514,625	0.8%	5.6%	12.5%	11.7%	21.8%	14	24
Pharma	18,790,209	0.7%	1.0%	9.0%	0.7%	6.4%	11	9
Auto Anc	14,453,010	0.6%	5.5%	22.2%	4.6%	21.1%	7	9
Auto	12,562,874	0.5%	18.0%	34.1%	9.0%	30.0%	3	3
Agri Inputs	11,755,200	0.5%	1.3%	31.9%	8.5%	18.8%	20	18
IT	7,609,821	0.3%	49.4%	19.1%	57.8%	21.0%	1	1
Conglomerate	7,358,893	0.3%	160.2%	89.0%	69.2%	52.7%	5	3
Healthcare services	6,177,625	0.2%	3.3%	13.9%	2.8%	14.6%	20	22
Realty	6,052,764	0.2%	44.8%	11.8%	11.3%	23.4%	27	18
Building materials	4,938,308	0.2%	5.8%	20.1%	(0.2%)	19.1%	6	4
Retail	4,010,457	0.2%	13.2%	39.2%	26.0%	39.2%	3	2
BFSI	3,415,943	0.1%	192.8%	23.2%	37.4%	23.0%	0	0
Light engineering	2,174,314	0.1%	2.1%	19.4%	7.0%	18.1%	3	2
Travel and leisure	2,119,859	0.1%	17.4%	84.9%	17.4%	84.9%	57	57
Textiles	1,511,695	0.1%	3.0%	16.3%	3.0%	16.3%	32	32
Heavy engineering	1,337,985	0.1%	1.3%	27.5%	22.0%	27.5%	6	5
Polymer products	957,789	0.0%	(28.8%)	18.4%	(28.8%)	18.4%	10	10
Consumer discretionary	822,574	0.0%	(0.8%)	28.1%	(7.2%)	34.5%	6	8
Telecom	527,744	0.0%	41.1%	12.6%	64.1%	8.2%	0	1
Miscellaneous	471,215	0.0%	4.1%	5.0%	4.1%	5.0%	7	7
Consumer durable	447,436	0.0%	12.6%	14.4%	1.6%	8.1%	2	1
Media	223,704	0.0%	13.5%	5.3%	8.9%	4.5%	2	1
New age tech	68,001	0.0%	289.2%	40.9%	34.4%	36.3%	1	0
Summary*	**2,570,153,630**	**100.0%**	**0.9%**	**21.9%**	**7.7%**	**20.0%**	**36.6**	**6.3**
Summary (ex of top five sectors)@			**14.9%^**	**24.7%**	**9.2%**	**20.7%**	**8.1**	**3.6**

*Source: Company, Ambit Capital research. * Water withdrawal is taken ex of seawater. * Depending on the data point, we have computed aggregate or median, summary is for top200 companies; @ summary is for all the companies in respective sectors; ^water withdrawal ex of seawater*

Exhibit 5: Key companies from key sectors with highest contribution in freshwater withdrawals

Company	Sector	Mcap ($mn)	Contribution to sector%	Intensity (KL/Rs.mn)		YoY growth (vs FY22)			
				Company	Sector median	Company withdrawal*	Sector median withdrawal*	Revenue-company	Revenue - sector median
NTPC	Utilities	40,539	78.4%	2,993	279	(3.8%)	2.8%	32.8%	32.8%
Adani Power	Utilities	26,812	1.7%	291	279	12.7%	2.8%	39.9%	32.8%
Tata Power	Utilities	16,697	19.3%	2,362	279	(2.2%)	2.8%	28.7%	32.8%
Tata Steel	Metals	24,553	33.0%	83	80	3.6%	2.5%	(0.2%)	10.9%
Vedanta	Metals	17,626	34.6%	143	80	(21.6%)	2.5%	11.0%	10.9%
Reliance Industries	Oil & gas	227,089	99.9%	20	1	0.2%	0.2%	25.1%	38.8%
ITC	FMCG	65,829	34.3%	52	7	30.0%	3.0%	17.0%	11.0%
United Breweries	FMCG	6,349	43.4%	582	7	1,230.0%	3.0%	28.0%	11.0%
Grasim	Chemicals	19,393	47.7%	201	53	10.0%	11.2%	29.0%	28.6%
SRF	Chemicals	8,578	4.7%	44	53	11.2%	11.2%	21.3%	28.6%
Gujarat Fluoro	Chemicals	4,619	4.7%	95	53	17.5%	11.2%	47.4%	28.6%
Tata Chemicals	Chemicals	3,247	30.3%	204	53	7.0%	11.2%	33.0%	28.6%
UltraTech Cement	Cement	33,471	47.4%	42	34	(1.1%)	12.5%	20.2%	20.2%
Larsen & Toubro	E&C	56,422	57.3%	10	24	(0.2%)	11.7%	9.4%	21.8%
GMR Airports	E&C	5,714	17.1%	50	24	18.8%	11.7%	45.5%	21.8%
MRF	Auto anc	6,328	20.0%	13	9	2.7%	4.6%	18.9%	21.1%
Balkrishna Industries	Auto anc	5,657	10.2%	15	9	12.7%	4.6%	18.7%	21.1%
Apollo Tyres	Auto Anc	3,638	14.3%	12	9	(7.5%)	4.6%	18.1%	21.1%
Sun Pharma	Pharma	43,535	11.5%	10	9	(6.4%)	0.7%	33.5%	6.4%
Aurobindo Pharma	Pharma	7,895	19.6%	15	9	10.3%	0.7%	6.0%	6.4%

*Source: Company, Ambit Capital research. * Water withdrawal is calculated ex of seawater*

Exhibit 6: Key companies which witnessed higher freshwater withdrawal vs peers

Company	Sector	Mcap ($mn)	Contribution to sector %	YoY growth (vs FY22) water withdrawal* - company	water withdrawal* - sector median	Revenue- company	Revenue - sector median
Divi's Laboratories	Pharma	12,433	14.4%	9.0%	0.7%	(14.0%)	6.4%
Linde India**	Chemicals	8,159	2.1%	30.8%	11.1%	48.5%	28.7%
Aurobindo Pharma	Pharma	7,895	18.7%	10.0%	0.7%	6.0%	6.4%
Bharat Forge	Auto anc	6,918	7.3%	36.9%	4.6%	21.0%	21.1%
ACC	Cement	5,479	22.9%	539.9%	12.5%	37.5%	20.2%
IPCA Laboratories	Pharma	3,931	5.9%	6.0%	0.7%	7.0%	6.4%
JK Cement	Cement	3,621	3.8%	21.1%	12.5%	17.2%	20.2%
Gland Pharma	Pharma	3,374	3.9%	8.0%	0.7%	(18.0%)	6.4%
Endurance Technology	Auto anc	3,203	4.9%	15.3%	4.6%	18.8%	21.1%
Aarti Industries	Chemicals	3,113	1.4%	11.4%	11.1%	8.7%	28.7%
ZF Commercial	Auto anc	3,039	0.6%	36.8%	4.6%	35.4%	21.1%
Atul	Chemicals	2,159	2.1%	30.5%	11.1%	1.4%	28.7%
Navin Fluorine	Chemicals	2,006	0.7%	111.7%	11.1%	42.9%	28.7%

Source: Company, Ambit Capital research. Withdrawal is ex of seawater; mcap is dated as of 7 May 24, ** 15 months data is considered*

Exhibit 7: Key companies which witnessed higher decrease in freshwater withdrawal vs revenue growth

Company	Sector	Mcap ($mn)	Contribution to sector %	YoY growth (vs FY22) water withdrawal* - company	water withdrawal* sector median	Revenue- company	Revenue - sector median
Reliance Industries	Oil and gas	227,089	100.0%	0.2%	0.0%	25.1%	39.0%
Hindustan Zinc	Metals	22,555	4.4%	1.4%	3.0%	15.8%	11.0%
Vedanta	Metals	17,626	34.6%	(21.6%)	3.0%	11.0%	11.0%
Tata Power	Utilities	16,697	89.4%	(2.2%)	8.0%	28.7%	34.0%
Jindal Steel & Power	Metals	11,296	3.2%	(6.5%)	3.0%	3.5%	11.0%
Mankind Pharma	Pharma	10,637	2.0%	(24.0%)	1.0%	8.6%	6.0%
Torrent Power	Utilities	7,908	0.8%	(23.3%)	8.0%	80.2%	34.0%
Petronet LNG	Oil and gas	5,348	0.0%	(55.7%)	0.0%	38.8%	39.0%
Glaxosmithkline Pharma	Pharma	4,148	0.0%	(16.0%)	1.0%	(0.0%)	6.0%
Deepak Nitrite	Chemicals	4,108	2.0%	(5.6%)	11.0%	20.8%	29.0%
Apollo Tyres	Auto ancs	3,638	14.0%	(7.0%)	5.0%	18.1%	21.0%
Timken India	Auto ancs	3,064	1.0%	(5.4%)	5.0%	27.4%	21.0%
SKF India	Auto ancs	2,745	2.0%	(2.0%)	5.0%	17.4%	21.0%
The Ramco Cements	Cement	2,142	5.0%	(11.5%)	13.0%	36.0%	20.0%

*Source: Company, Ambit Capital research. * Withdrawal is ex of sea water; mcap is dated as on 7 May 24*

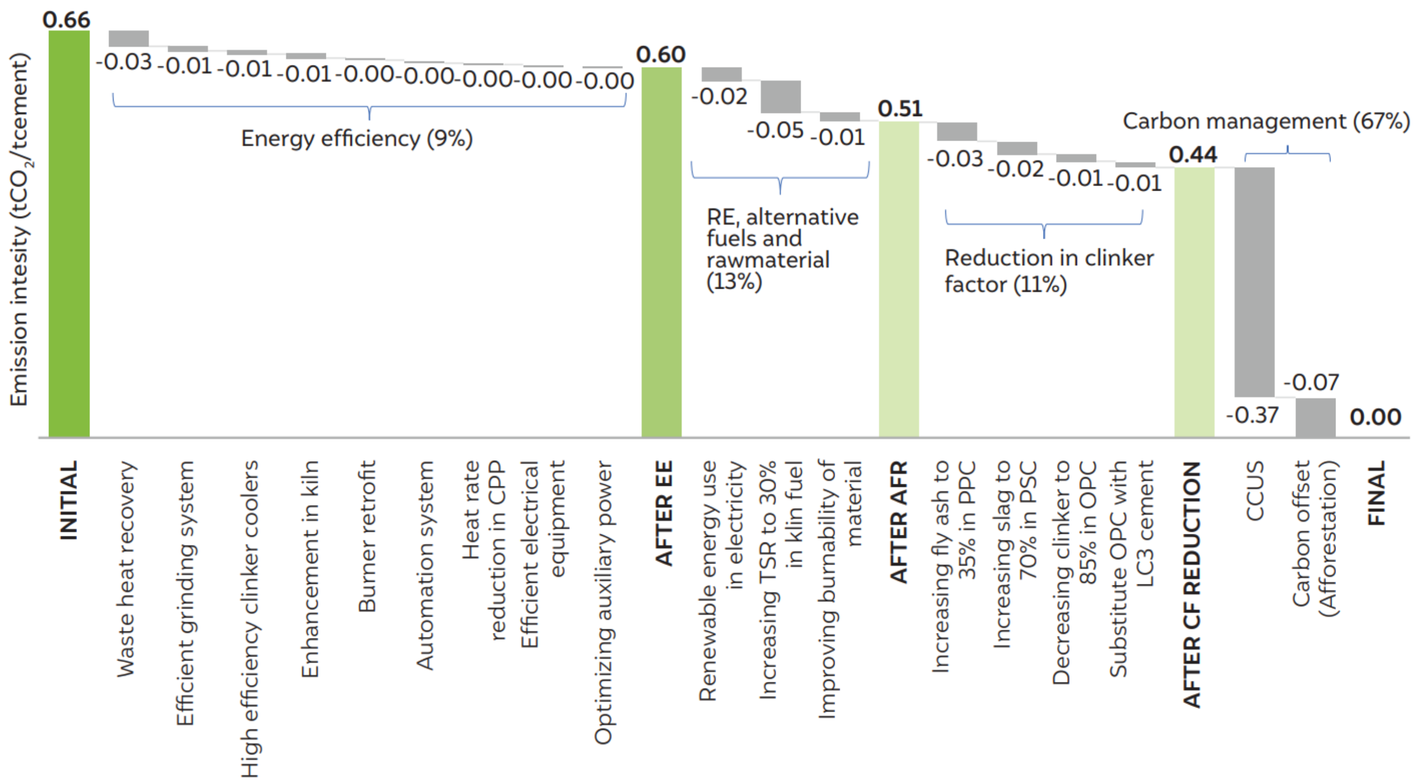
Net-zero targets seem unfeasible

The cement sector alone contributes 7-8% of global Greenhouse Gas (GHG) emissions. Major GHG emissions happen at three levels - 1) Calcination – >50% of Co2 is released during this process as limestone is converted to lime, 2) >30% of Co2 is due to combustion of fuels used for heating and 3) the rest is from electricity used for manufacturing. As per a CEEW report, a cement company's emissions can be curbed broadly by using four methods. Largely, Indian cement players have worked around the first three methods - 1) Energy efficiency, 2) Alternative fuels and 3) Clinker factor reduction. The fourth is - Carbon management, i.e. [carbon capture, utilization and storage (CCUS)].

Our reading of annual reports suggests that clarity around execution of CCUS is still lacking. Carbon management involves significant cost and hence might have a significant bearing on the final product. On the other hand, the first three methods could in fact lead to cost efficiencies.

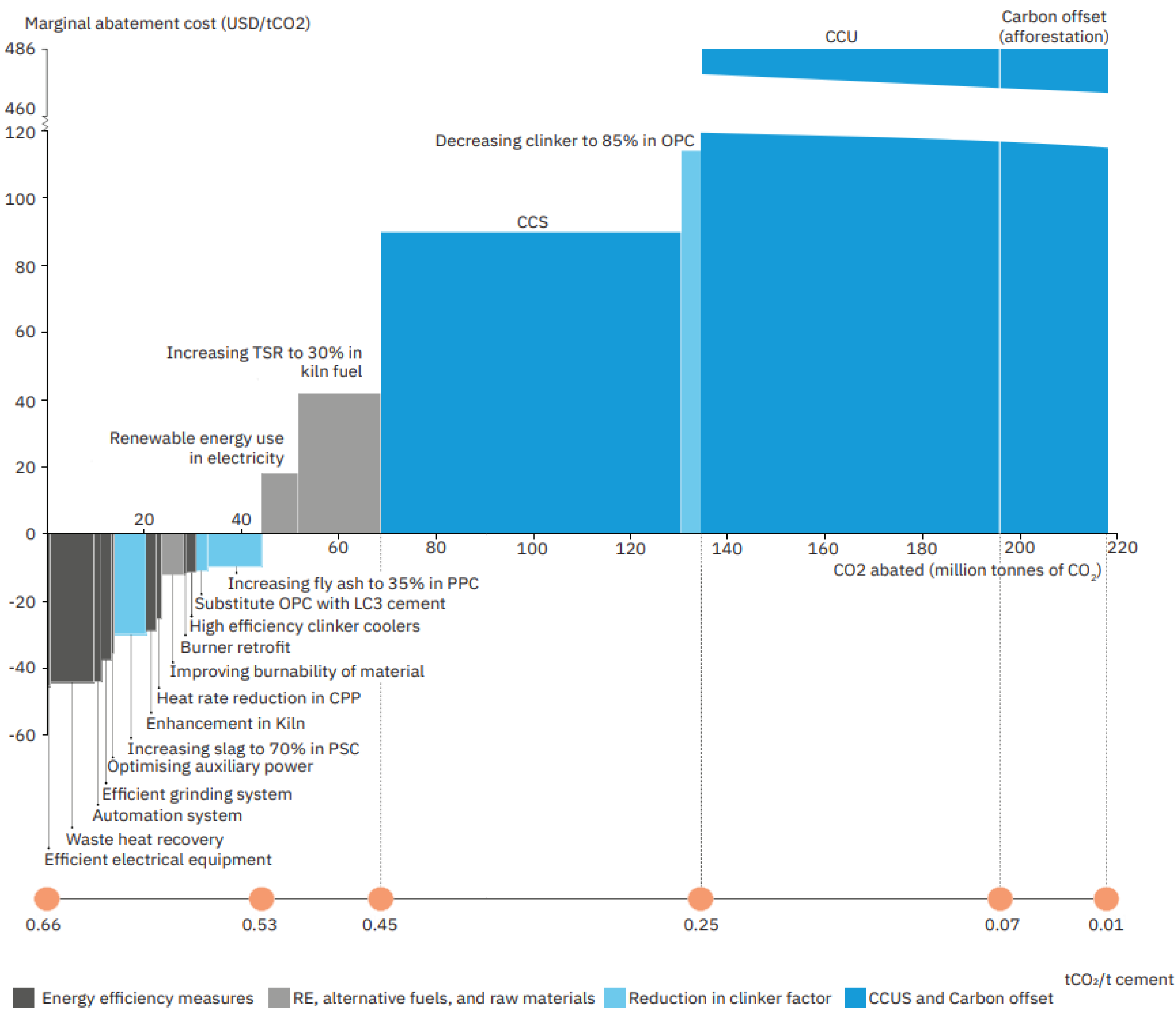
Co2 released during the process of calcination cannot be eliminated by alternative fuels or adopting energy efficiency measures. For this purpose, carbon management is critical.

Exhibit 8: >60% of emission reduction can happen only through CCUS and afforestation; however…



Source: The Council on Energy, Environment and Water (CEEW)-Evaluating Net-zero for the Indian Cement Industry report.

Exhibit 9: ...CCUS will have significant cost implications



Source: The Council on Energy, Environment and Water (CEEW)-Evaluating Net-zero for the Indian Cement Industry report.

Exhibit 10: Companies have done well on the first three measures and thereby were able to achieve desired targets

Name	Targets	Intensity reduction (kgCO2/ton)		
		Past performance (FY18-23) (CAGR)	Implied reduction (CAGR)	Achievable?
UltraTech	Reduction of net specific Scope 1 emissions by 27% by 2032, from 2017 as base year. Carbon-neutral concrete by 2050.	2.4%	2.2%	Yes
Shree	Scope 1 Carbon intensity = 0.51 Tonnes CO2 / tonne cementitious material Scope 2 Carbon intensity = 0.005 tCO2/Tonnes cementitious material by 2030	1.0%	1.3%	Yes
Ambuja	453 Climate and energy (Net specific CO_2 emissions) Kg/cementitious by 2030	1.4%	1.8%	Yes
Dalmia	Reduce Scope 1 GHG emissions 32% per tonne of cementitious material by FY34 from a FY19 base year Scope 2 GHG emissions 61.9% per tonne of cementitious material. Carbon negative by 2040 Switch to 100% blended cement production by 2026	2.9%	2.0%	Yes
ACC	Carbon neutral by 2050. 400 kg/t cementitious material CO2 emitted- by 2030	2.4%	2.2%	Yes
JK Cement*	Specific CO2 emissions (Scope 1 per tonne cementitious material in the base year 2020) - 532 kgCO2/tonne till FY30	3.9%	2.7%	Yes
Ramco	15% reduction in carbon emissions by FY25 (base year FY21 – 760 kgCO2/ton)	13.1%*	-	Achieved

*Source: Company, Ambit Capital research. * Data available since FY20 hence calculated for FY20-23; we have only considered net intensity for scope 1 emissions; *JK Cement data pertains to gross emission;*

Exhibit 11: Ramco and JK Cement have shown significant progress on emission intensity; however…

Emission intensity (kgCO2/ton)	FY18	FY19	FY20	FY21	FY22	FY23	CO2/t reduction FY18-23	CAGR reduction over FY18-23
JK Cement*	737	728	650	645	596	565*	(18%)	(5%)
Ultratech	626	619	614	597	582	557	(11%)	(2%)
Ramco#	NA	NA	820	760	NA	538/591	(34%)#	(13%)#
Shree	547	545	557	537	530	521	(5%)	(1%)
Ambuja	550	530	510	531	529	513	(7%)	(1%)
ACC	525	506	512	493	488	466	(11%)	(2%)
Dalmia	537	546	536	492	489	463	(14%)	(3%)

*Source: Company, Ambit Capital research. We have only considered net intensity for scope 1 emissions; *JK cement data pertains to gross emission; #intensity numbers for Ramco from FY18-23 are subject to change depending on the classification related to scope 1 and scope 2 emissions, gross intensity and net intensity. The company had not disclosed the said classification in previous years and hence the numbers are not strictly comparable to other companies. Due to a lack of data, absolute reduction in intensity and CAGR reduction have been calculated for FY20-23*

Exhibit 12: …they are still not the best on TSR, WHRS and clinker mix

Initiatives	Unit	Ultratech			Ambuja		ACC		Dalmia Bharat			Ramco			Shree			JK Cement		
		FY21	FY22	FY23	FY21	FY23	FY21	FY23	FY21	FY22	FY23	FY21	FY22	FY23	FY21	FY22	FY23	FY21	FY22	FY23
TSR	%	3.1	4.6	5.2	5.1	6.4	7.3	9.2	7.6	13.0	17.0	NA	NA	9.0	NA	2.4	3.5	6.5	8.9	14.0
WHRS	MW	125	167	210	80	160	30	186	32	63	166	18	27	40	NA	263	386	40	42	42
Env Capex	%	NA	11	12	0	0	0	0	0	100	100	NA	5	2	NA	29	41	NA	70	9
Clinker factor	%	NA	NA	71.4	63.0	59.6	58.4	56.8	60.7	61.3	58.5	74.6	79.4	80.0	63.7	63.2	62.1	69.0	65.6	65.0
Share of RE	%	13	18	19	3	8	5	6	NA	17	29	9	15	22	48	48	51	25	32	44
Alternative raw material	%	18	19	21	NA*	NA*	31	33	32	39	42	NA	NA	13	RM 26 fuel 6	RM 27 fuel 10	RM 27 fuel 14	RM 19 fuel 6	RM 20 fuel 7	RM 20 fuel 9

*Source: Company, Ambit Capital research. * Comparable figures not available; TSR=Thermal substitution rate, WHRS=Waste heat recovery system, RE=renewable energy*

Company commentary suggests focus on the low hanging fruits

We went through last three year's annual reports, sustainability reports, TCFD reports, management commentaries, speeches, etc. of these large cement companies. Below are key pointers from these:

- **Lack of clarity on CCUS execution** - For significant reduction in emissions, CCUS is the only powerful option. However, CCUS is very expensive at the moment. Dalmia, Shree and Ultratech are finding ways to make it viable for mass use. However, Ambuja and ACC are pointing out that once the cost is viable they will adopt it. JK and Ramco have not mentioned anything on CCUS.
- Use of blended cement can materially reduce waste generation for cement as well as other industries. Additionally, blended cement emits lesser CO2 compared to ordinary cement. Use of fly ash, steel slag, waste gypsum, etc. are used as alternative raw material in blended cement. ACC and Ambuja have the highest share of blended cement in their revenue (90%).
- Use of natural gas can significantly reduce emission from the heat generation process. The industry is finding more alternative fuel such as green hydrogen, electricity, oxy fuel, bamboo, etc.
- Eco-friendly transportation initiatives are undertaken by a few companies. Ramco uses rail while Dalmia has started using LNG fleet. Ultratech also uses LNG along with CNG. Other companies are largely silent on emission reduction initiatives.

Exhibit 13: Key environment-related QFMs for cement companies

Name	QFMs
Dalmia	▪ How much % of capex is done for environmental purpose and what is the nature of this capex? How will the new capex help company to achieve its carbon negative target? ▪ How the company is planning to scale carbon capture activities considering cost and efficiency? How the company is planning to manage cost and product pricing due to CCUS
Ramco	▪ How was company able to cut its emission so sharply vs other cement players? ▪ What are company's future plans to reduce clinker factor, increase TSR and further reduce emission intensity?
Ultratech	▪ Company has one of the highest emissions intensity per ton basis in India. What could be the possible reason for the same? ▪ What is current status of LC3 development? How much will it impact on your carbon neutral targets? ▪ What is your assessment of technology development on carbon management technologies? How will company manage cost and benefits of carbon management?
Ambuja and ACC	▪ Is company planning to leverage on fly ash sourcing through its group entities? ▪ How was company able to achieve very low clinker factor? ▪ Carbon management techniques are expensive and company stated that they will have to balance between cost and benefits. How is the company looking forward to this?
Shree	▪ What could be the possible reason for reduction in company's emission intensity at lower rate vs peers? ▪ What is current status of LC3 development?
JK cement	▪ How was company able to cut its emission so sharply vs other cement players? ▪ What are future goals of company for reducing carbon emissions further?

Source: Company, Ambit Capital research

Thermal power companies need to move swiftly

Power plants need water to create steam, which drives turbines for generating electricity. The steam is then cooled and condensed to repeat the cycle. Different energy sources are used to heat the water, but the process remains is largely the same. Coal plants use significant quantity of water for cooling. Cooling systems used by coal plants are called once-through systems or cooling towers. Natural gas-based plants use more efficient methods like closed-loop systems or air-cooled condensers using less water. For instance, torrent power has lower intensity compared to peers due to its heavier reliance on natural gas.

Different types of cooling system utilised in power generation include

- Once-through cooling system: Water is withdrawn from the source and run once through the power plant to cool down the steam. The water is then discharged back to the source a few degrees warmer. It is economical and has lower water consumption but withdrawal is very high.

- Closed cycle cooling system: In a closed water system, water circulates in a closed cycle and is subjected to alternate cooling and heating without air contact. The usage of water is quite less than in the once-through cooling system.
- Dry cooling system: This system provides cooling using only the ambient air without any need for water.

The development of India's power sector over the next two decades will take place against a backdrop of increasing water stress. Most parts of India are already experiencing high water stress.

Exhibit 14: NTPC is single largest contributor of freshwater withdrawal and consumption within utility companies

Company	Mcap ($mn)	Freshwater withdrawal (KL)*		% contribution of water withdrawal (FY23)		Water consumption (KL)		% contribution of water consumption (FY23)		Consumption /withdrawal (%)	
		FY22	FY23	Sector	Top 200 cos	FY22	FY23	sector	Top 200 cos	FY22	FY23
NTPC	40,539	5,483,000,000	5,274,000,000	78.4%	67.2%	1,069,870,000	1,135,550,000	82.5%	42.8%	19.5	21.5
Adani Green	32,738	277,002	447,630	0.0%	0.0%	277,002	447,630	0.0%	0.0%	100.0	100.0
Adani Power	26,812	100,239,773	112,949,594	1.7%	1.4%	130,145,639	132,023,576	9.6%	5.0%	129.8	116.9
Tata Power	16,697	1,330,928,000	1,301,676,000	19.3%	16.6%	64,721,000	69,735,000	5.1%	2.6%	4.9	5.4
Adani Energy Solutions	13,645	1,798,176	1,842,970	0.0%	0.0%	1,798,176	1,842,970	0.1%	0.1%	100.0	100.0
JSW Energy	12,223	24,824,795	28,855,026	0.4%	0.4%	24,824,795	26,209,609	1.9%	1.0%	100.0	90.8
Torrent Power	7,908	14,380,017	11,033,556	0.2%	0.1%	14,379,648	11,032,584	0.8%	0.4%	100.0	100.0

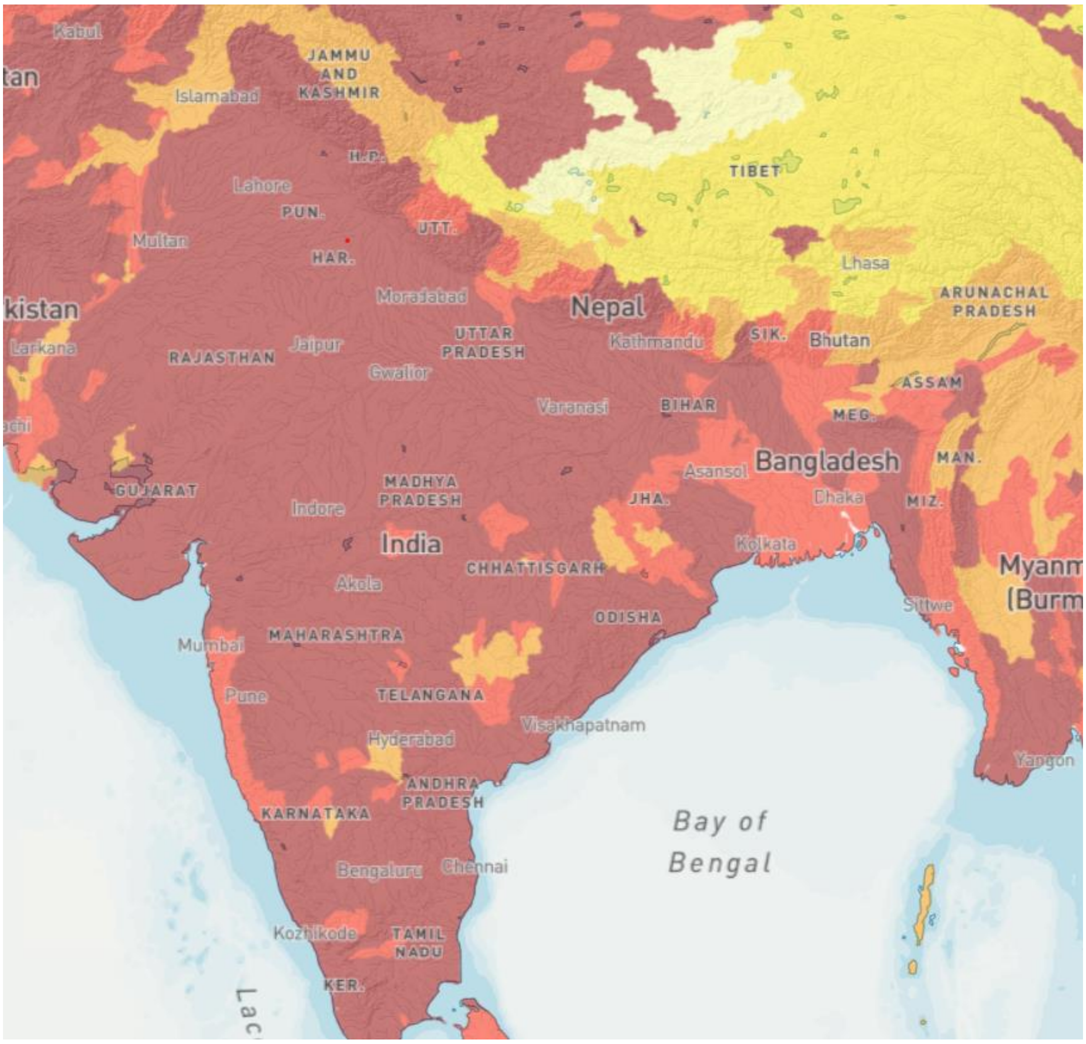
*Source: Company, Ambit Capital research. * Freshwater withdrawal is ex of seawater*

Exhibit 15: Significant dependence on thermal power plants will continue to exert pressure on water resources

	FY23	FY24E	FY25E	FY26E	FY27E	FY28E	FY29E	FY30E	FY31E	FY32E
Installed Capacity (GW)										
Coal + lignite	**212**	**221**	**230**	**237**	**241**	**244**	**251**	**258**	**264**	**282**
Central	68	74	78	80	82	83	88	94	98	116
State	69	72	76	81	82	84	86	86	88	88
Private	75	75	75	76	78	78	78	78	78	78
Gas	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Hydro	**42**	**44**	**47**	**48**	**50**	**51**	**54**	**54**	**56**	**57**
Nuclear	**7**	**9**	**11**	**12**	**12**	**14**	**14**	**14**	**15**	**15**
Renewable Energy	**125**	**144**	**165**	**187**	**212**	**243**	**276**	**313**	**351**	**391**
Solar	67	83	100	118	138	163	189	221	255	291
Wind	43	46	49	53	58	64	71	78	86	95
Total generation Capacity	**411**	**443**	**478**	**509**	**540**	**578**	**620**	**665**	**712**	**771**

Source: Company, Ambit Capital research

Exhibit 16: Majority of existing coal-based plants are located in water-stressed areas



Source: Company, Ambit Capital research. World Resources Institute-Aqueduct

With its huge thermal capacity, NTPC has much higher water withdrawal than any other power company. Moreover, NTPC might add thermal capacity in the near future. Water intensity of thermal plants like Adani Power and NTPC is much higher than other companies which have mixed portfolio of thermal and renewable energy. Even on YoY basis, Adani Power has seen a significant increase in total water withdrawal (13%) while companies like Torrent Power and JSW Energy have been prudent in water withdrawal.

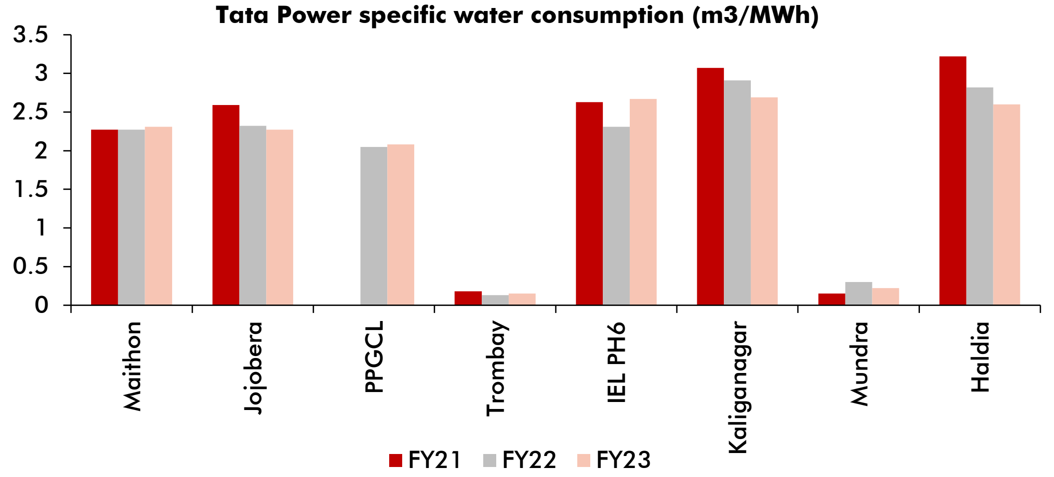
Adani Power has stated initiatives such as rainwater harvesting of 3.8mn KL, but it seems to be insignificant considering its total water withdrawal. NTPC also has stated initiatives like collection of 3.25kl of rainwater in FY22, which again is negligible given the total amount of water it consumes.

Exhibit 17: There has been little progress on reducing specific water intensity by utility companies

Company name	Method of power generation		Consumption(KL)	% of contribution in top200 companies	Capacity(Mw)	Specific water intensity (M3/Mwh)			
	Thermal	Renewable				FY20	FY21	FY22	FY23
Adani Power Ltd	100%	0%	132,023,576	5.0%	15,250	NA	NA	2.2	2.3
Tata Power	61%	39%	69,735,000	2.6%	14,381	Differs in each facility			
JSW Energy Ltd	48%	52%	26,209,609	1.0%	9,770	1.1	1.1	1.1	1.1
Torrent power	75%	25%	11,032,584	0.4%	4,100	1.3	1.4	1.3	1.5
a) Coal based	9%					3.3	3.5	3.2	3.1
b) Gas based	66%					1.1	1.1	1.1	1.3
NTPC	90%	10%	1,135,500,000	43.9%	75,958	NA	NA	2.8	2.7

Source: Company, Ambit Capital research. Water consumption for top200 companies (ex of PSUs) – NTPC's figures are considered for total consumption purposes

Exhibit 18: Trombay and Mundra plants of Tata Power have very low water intensity as they use seawater for cooling



Source: Company, Ambit Capital research

Some options available to coal-based power companies to deal with water stress:

- Shifting to dry and non-freshwater cooling to improve the thermal fleet's resiliency to water stress. However, there are important trade-offs; dry cooling has a higher capital cost and reduces power production by 7-8% as well as the efficiency of the plant.
- Use of waste-water for cooling is also an alternative. India's government has mandated coal plants to use sewage water if they are located close to municipal treatment plants. However, just 5-8% of all coal plants in India have access to treated wastewater and are able to use this water source to completely or partially meet their cooling water needs.
- Using natural gas instead of coal in thermal plants. As per EIA-USA, natural gas fired power plants are not only more efficient than traditional sources but also significantly reduced water consumption in electricity generation over the last decade.

Gender bias and regulatory disconnect

Median female participation in the top 200 companies has improved but still low at 10% in FY23. Also, only 5% of total 322 non-promoter executive positions are held women. Pharma, FMCG, retail and aviation are the key sectors which saw increasing women participation rate. Federal Bank, Godrej Properties and Page Industries are key companies with highest permanent women employees vs sector median whereas DLF, Relaxo, Lupin and Patanjali Foods are the ones with the lowest. On attrition, new-age companies continue to witness highest attrition rates. Interestingly, IT companies witnessed a significant drop in attrition in FY23 vs FY22. Retail, Auto Ancillaries, Chemicals and Aviation saw increase in attrition rates. Titan, Sundaram Finance and Federal Bank have lowest attrition rates vs sector median. Pfizer, Berger, Escorts Kubota and Coforge have higher attrition rates. Contingent liabilities are high for Fortis, Wockhardt, Glaxosmithkline and Sanofi vs peers.

Gender diversity inching up but still low

Female participation in the workforce is still low. But the median female employee/worker proportion was 10% in FY23 vs 8% in FY22 for the top 100 companies. Key observations from our analysis of data on women participation:

- Median female participation in the total workforce increased by 200bps in FY23 vs FY22, indicating companies are actively employing more women.
- Pharma, FMCG, retail and aviation witnessed female participation rate growth in the range of 2-5ppt.
- HCL Tech, ICICI Lombard, Dr. Reddy's, Cipla and AU Small Finance added more women than men in FY23.
- Federal Bank, Godrej Properties and Page Industries are key companies with higher permanent female employee participation rates vs sector median. DLF, Relaxo, Lupin and Patanjali Foods are key ones which lack the same.
- Interestingly, only 5% of a total of 322 executive positions in the top 200 companies are held by women. The percentage decreases if we only consider non-promoter women directors.

Exhibit 19: Pharma, FMCG, retail and aviation witnessed highest increase in female participation rate

	31 Mar 20			31 Mar 21			31 Mar 22			31 Mar 23		
	Total	Median	Contr.	Total	Median	Contr.	Total	Median	Contr.	Total	Median	Contr.
IT	1,167,870	33%	46%	1,258,098	35%	46%	1,513,810	34%	52%	1,613,607	35%	48%
BFSI	511,936	23%	20%	532,286	23%	20%	637,241	22%	22%	751,284	22%	22%
Pharma	169,520	5%	7%	175,349	7%	7%	166,308	10%	6%	186,097	10%	5%
Metals & mining	65,279	7%	3%	62,674	7%	3%	74,877	7%	3%	156,348	8%	5%
FMCG	91,347	9%	4%	100,773	9%	4%	83,340	10%	3%	110,357	11%	3%
Auto	97,357	4%	4%	94,469	4%	4%	76,563	5%	3%	91,805	4%	3%
E&C and infra	46,552	4%	2%	41,414	4%	2%	47,765	4%	2%	51,998	5%	2%
Retail	57,381	24%	2%	60,523	24%	2%	58,994	26%	2%	45,996	26%	1%
Cement	39,045	2%	2%	39,361	2%	2%	32,637	3%	1%	38,686	3%	1%
Conglomerate	28,942	2%	1%	26,968	3%	1%	14,092	6%	0%	34,204	4%	1%
Aviation	27,812	41%	1%	23,711	40%	1%	26,164	42%	1%	32,407	45%	1%
Auto Anc	34,001	1%	1%	31,711	1%	1%	30,526	1%	1%	31,959	1%	1%
Utilities	6,265	2%	0%	21,857	2%	0%	25,017	3%	1%	28,948	3%	1%
Building materials	21,045	4%	1%	20,353	4%	1%	22,352	4%	1%	26,973	4%	1%
Oil & Gas	26,878	4%	1%	24,328	4%	1%	23,062	4%	1%	22,920	5%	1%
Light engineering	18,571	11%	1%	17,580	11%	1%	17,121	7%	1%	17,080	12%	1%
Telecom	11,206	11%	0%	13,133	10%	0%	13,390	9%	0%	16,957	9%	1%
Agri Inputs	7,452	3%	0%	8,171	3%	0%	8,535	3%	0%	10,739	5%	0%
Consumer durable	8,623	6%	0%	8,406	7%	0%	8,023	7%	0%	8,910	8%	0%
Chemicals	6,299	4%	0%	6,386	4%	0%	7,010	5%	0%	7,171	5%	0%
Media	4,740	40%	0%	4,283	40%	0%	4,785	41%	0%	5,268	40%	0%
Realty	3,177	20%	0%	3,872	19%	0%	2,873	26%	0%	4,800	20%	0%
Heavy engineering	3,299	7%	0%	3,255	8%	0%	2,814	9%	0%	3,139	8%	0%
Overall		**8%**			**8%**			**9%**			**10%**	

Source: Company, Ambit Capital research. Universe is top 100 cos. (ex. PSU) as per Mcap dated 31 Mar 20

Total workforce in the top 200 (ex. BFSI) consists of 6.1mn people, of which 63% are permanent employees, 6% are temporary employees, 7% are permanent labour and 24% are temporary labour. Sectors having maximum permanent/temporary employees are IT and BFSI at >20%. Sectors having the maximum amount of permanent and temporary workers are Metals & Mining, FMCG, Auto Anc, E&C & Infra, and Auto. A few companies doing significantly well vs their peers on women workers are Page, ABFRL, Jubilant Foodworks, Motherson Sumi Wiring and Samvardhana Motherson, Britannia and Titan.

Exhibit 20: Almost all top companies in India still lag on women labour participation

31 Mar 23	Permanent employees			Temporary employees			Permanent workers			Temporary workers		
	Contr.	Median female %	Avg. female %	Contr.	Median female %	Avg. female %	Contr.	Median female %	Avg. female %	Contr.	Median female %	Avg. female %
IT	45%	31%	35%	20%	25%	26%	4%	24%	44%	0%	23%	23%
BFSI	27%	22%	21%	17%	28%	31%	0%	23%	23%	0%	N/A	N/A
Pharma	5%	11%	11%	5%	23%	26%	3%	6%	4%	4%	15%	12%
Metals & Mining	3%	8%	9%	1%	17%	10%	17%	4%	6%	18%	3%	4%
Healthcare Services	3%	52%	45%	4%	35%	38%	0%	N/A	N/A	0%	31%	31%
FMCG	2%	15%	12%	10%	19%	13%	12%	3%	5%	6%	10%	18%
Retail	2%	23%	25%	14%	31%	39%	4%	21%	70%	3%	11%	24%
Auto Anc	2%	6%	15%	1%	19%	22%	18%	0%	31%	9%	9%	26%
Telecom	1%	15%	16%	3%	22%	23%	0%	N/A	N/A	4%	5%	7%
E&C and Infra	1%	7%	8%	3%	5%	5%	1%	0%	0%	19%	0%	0%
Building Materials	1%	4%	5%	4%	6%	8%	2%	1%	2%	2%	3%	2%
Auto	1%	6%	7%	4%	13%	10%	11%	1%	1%	9%	5%	6%
Cement	1%	3%	4%	3%	6%	4%	3%	0%	1%	5%	1%	3%
Utilities	1%	7%	8%	1%	0%	5%	1%	3%	5%	5%	4%	4%
Light Engineering	1%	13%	13%	1%	12%	10%	2%	1%	5%	2%	7%	16%
Aviation	1%	45%	45%	0%	21%	21%	0%	N/A	N/A	0%	N/A	N/A
Chemicals	1%	5%	6%	0%	5%	13%	3%	0%	2%	3%	1%	5%
New Age Tech	1%	23%	14%	1%	42%	51%	0%	N/A	N/A	0%	8%	4%
Oil & Gas	0%	6%	7%	0%	6%	6%	1%	5%	2%	0%	2%	2%
Conglomerate	0%	8%	8%	1%	10%	5%	4%	1%	1%	2%	7%	6%
Realty	0%	20%	19%	1%	49%	14%	0%	N/A	N/A	1%	0%	0%
Consumer Durable	0%	7%	7%	3%	10%	10%	0%	8%	6%	2%	26%	12%
Heavy Engineering	0%	8%	8%	1%	13%	6%	1%	1%	1%	1%	5%	2%
Agri Inputs	0%	7%	8%	0%	21%	23%	1%	0%	0%	1%	1%	1%
Media	0%	22%	30%	0%	21%	25%	0%	N/A	N/A	0%	N/A	N/A
Travel & Leisure	0%	25%	25%	0%	N/A	N/A	1%	8%	8%	0%	26%	26%
Consumer Discretionary	0%	7%	8%	2%	12%	21%	6%	11%	71%	1%	19%	15%
Polymer products	0%	3%	3%	0%	5%	5%	0%	0%	0%	1%	4%	4%
Miscellaneous	0%	7%	7%	0%	14%	14%	1%	1%	1%	2%	7%	7%
Textiles	0%	17%	17%	0%	N/A	N/A	4%	97%	97%	0%	N/A	N/A

Source: Company, Ambit Capital research. Universe is top 200 cos. (ex. PSU) as per Mcap dated 31 Dec 23

Companies like ITC, Kajaria Ceramics, Dr. Reddy's and Hero have incrementally hired more women workers in FY23, i.e. women form >45% of workers hired in FY23.

Exhibit 21: Key companies which are incrementally adding more women workers

	Mcap ($mn)	Proportion of women workers as at 31 Mar 22	Proportion of women workers as at 31 Mar 23
ITC	65,829	10%	12%
Dr Reddys Lab. ^	12,499	3%	7%
Hero	10,717	7%	8%
Kajaria Ceramics	2,266	2%	5%

Source: Company, Ambit Capital research. ^We have only considered permanent workers for Dr. Reddy's; mcap dated 7 May 24, Bloomberg

Exhibit 22: Key outliers with very high or very low permanent women employees

31-Mar-23 Company	Mcap ($mn)	Sector	Permanent employees % women	Permanent employees Sector median
Leaders				
Infosys	70,948	IT	39%	31%
Trent	19,151	Retail	34%	23%
Godrej Properties	9,367	Realty	28%	20%
Procter & Gamble Hygiene	6,187	FMCG	42%	15%
Federal Bank	4,588	Banks	41%	24%
Laggards				
DLF	25,270	Realty	12%	20%
Patanjali Foods	6,115	Retail	3%	23%
L&T Tech.	5,699	IT	22%	31%
Cholamandalam Inv. and Finance	2,451	NBFC	3%	10%

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

Exhibit 23: Key outliers with very high or very low permanent women workers

31-Mar-23 Company	Mcap ($mn)	Sector	Permanent workers % women	Permanent workers Sector median
Leaders				
Titan	34,657	Retail	49%	21%
Cummins India	11,434	Light engg.	17%	1%
Samv. Motherson	10,448	Auto anc	55%	0%
Page Industries	4,606	Cons. discr.	89%	11%
Gland Pharma	3,386	Pharma	43%	6%
Laggards				
Lupin	8,821	Pharma	1%	6%
Patanjali	6,115	Retail	5%	21%
Relaxo	2,520	Cons. discr.	8%	11%
Whirlpool	2,199	Cons. dur.	1%	8%

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

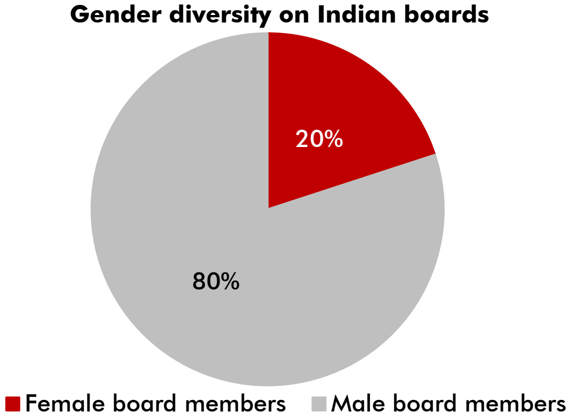
Exhibit 24: Key companies which are incrementally adding more women employees

	Mcap ($mn)	Proportion of women employees as at 31 Mar 22	Employees hired in FY23 % men	Employees hired in FY23 % women	Proportion of women employees as at 31 Mar 23
HCL Tech.	42,689	21%	41%	59%	29%
Cipla	13,389	13%	52%	48%	15%
Dr Reddys Lab.	12,098	18%	43%	57%	19%
ICICI Lombard	10,167	20%	52%	48%	24%
AU Small Finance	5,558	7%	16%	84%	8%

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

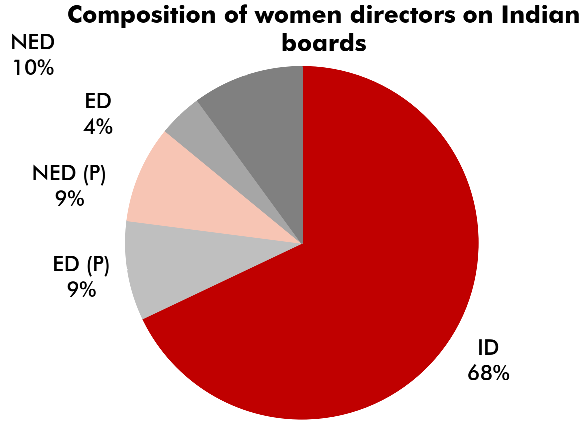
Women directors account for only 20% of 15,893 directors on Indian boards of NSE listed companies (ex PSU) having Mcap >Rs1bn as at 31 Dec 23. Interestingly, 68% of these women directors are independent directors. Remember, the top 1,000 companies are mandatorily required to have one women ID on the board. Also, only 4% of women directors occupy the role of non-promoter ED. This means only 1% of the total number of listed board directors in India have non-promoter women directors occupying executive positions.

Exhibit 25: Only 20% of the total board have women directors, of which…



Source: Company, Ambit Capital research, Prime Infobase; universe is NSE listed cos. (ex. PSU) having Mcap >Rs.1bn as at 31 Dec 23; board data is as at 31 Mar 24

Exhibit 26: …68% are IDs which are required by law and 18% are promoter family members



Source: Company, Ambit Capital research, Prime Infobase, universe is NSE listed cos. (ex. PSU) having Mcap >Rs.1bn as at 31 Dec 23; board data is as at 31 Mar 24; ID = Independent director, ED = Executive director, P = Promoter, NED = Non-executive director

We look at executive positions in sectors where women participation is high such as IT, BFSI, healthcare and aviation. Even in these sectors, the number of women at executive positions is not encouraging. Even in IT and aviation there are no women in executive positions on the board. Only three out of 28 companies in BFSI have women occupying executive positions on the board. In healthcare, only one company has all four women EDs. However, all of them come from the promoter family.

Exhibit 27: Among 46 cos. in sectors with high women %, only three have women in executive positions on the board

Sector	No. of cos.	Total directors	Women directors	IDs	ED	EDP	NED	NEDP
BFSI	28	308	47	40	3	-	4	-
IT	13	131	27	23	-	-	3	1
Healthcare	4	38	11	6	-	4	1	-
Aviation	1	9	1	1	-	-	-	-

Source: Company, Ambit Capital research. ID = Independent director, ED = Executive director, P = Promoter, NED = Non-executive director

Exhibit 28: Companies that have appointed a woman for an executive position

Sector	Mcap ($bn)	Total directors	Women directors	IDs	ED	EDP	NED	NEDP
Kotak	39	12	2	1	1	-	-	-
HDFC Life	14	12	2	1	1	-	-	-
Federal Bank	5	11	2	1	1	-	-	-

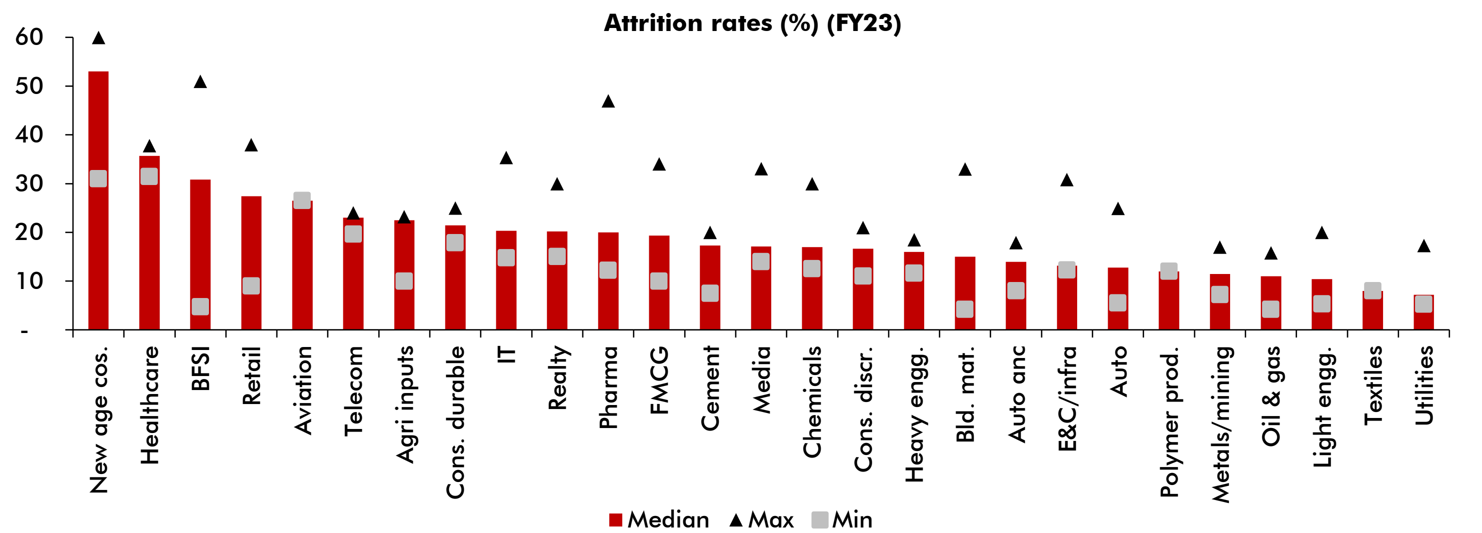
Source: Company, Ambit Capital research ID = Independent director, ED = Executive director, P = Promoter, NED = Non-executive director, Bloomberg; Mcap dated 7 May 24

High attrition may interrupt long-term value creation

Higher attrition rate could highlight dissatisfaction amongst the employees; however, high or low attrition rates could also imply opportunities available or slack within the sector or industry. Key observations from our analysis of attrition rates of top 200 companies include the following:

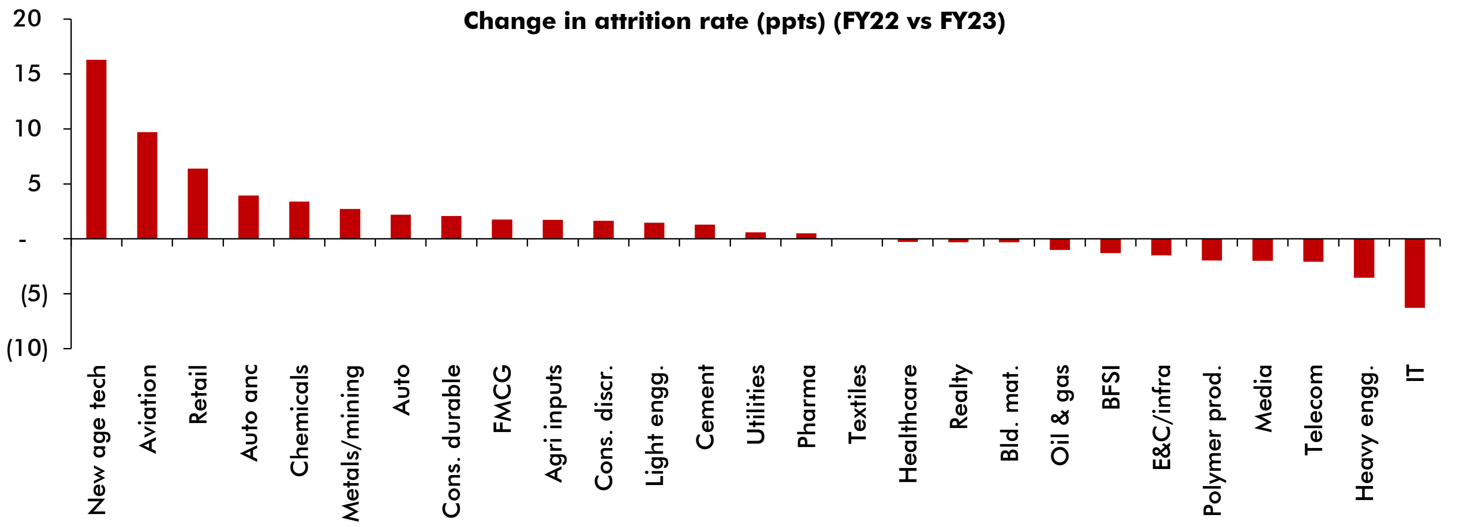
- Service-oriented companies usually have higher attrition rates, suggesting more opportunities in the industry vs asset-heavy sectors where employment opportunities seem lower.
- Sector-level shift in attrition rates may also suggest shift in business outlook. Interestingly, IT companies witnessed a significant drop in attrition rates in FY23 vs FY22. Retail, auto ancillaries, chemicals and aviation saw increase in attrition rates.
- New-age companies have the highest attrition rates, suggesting risks to long-term value creation due to higher churn in employees.
- Whilst the shift in the entire sector could highlight a change in business outlook, outliers within the sector may actually address the issue of employee well-being.
- Titan, Sundaram Finance and Federal Bank have the lowest attrition rates vs sector median. Whilst Pfizer, Berger, Escorts Kubota and Coforge have the highest attrition rate.

Exhibit 29: Lower attrition rates within asset-heavy companies also highlight lower opportunities; interestingly, dispersion w.r.t attrition rate is very high within each sector



Source: Company, Ambit Capital research, universe is top 200 cos. (ex. BFSI) as per Mcap at 31 Dec 23

Exhibit 30: IT companies have witnessed drop in attrition rates; aviation, retail, auto ancillaries and chemical companies witnessed some increase in attrition rates



Source: Company, Ambit Capital research, universe is top 200 cos. (ex. BFSI) as per Mcap at 31 Dec 23

Exhibit 31: A few companies which fare better on employee attrition

Company	Sector	Mcap ($mn)	Attrition rate		Sector median (FY23)
			FY22	FY23	
Titan	Retail	34,657	8%	9%	27%
Procter & Gamble Hygiene Health Care	FMCG	6,187	9%	10%	19%
Sundaram Finance	BFSI	6,001	8%	9%	31%
Federal Bank	BFSI	4,588	6%	6%	31%

Source: Company, Ambit Capital research. Bloomberg; Mcap dated 7 May 24

Exhibit 32: A few companies that can improve on employee attrition

Company	Sector	Mcap ($mn)	Attrition rate		Sector median (FY23)
			FY22	FY23	
Berger paints	Bld. Mat.	6,999	17%	33%	15%
Escorts Kubota	Auto	4,682	19%	25%	13%
Coforge	IT	3,264	40%	35%	20%
Pfizer	Pharma	2,349	11%	47%	20%

Source: Company, Ambit Capital research. Bloomberg; Mcap dated 7 May 24

Exhibit 33: While attrition rate for new-age companies have increased significantly…

Company	Mcap ($mn)	FY22 %	FY23%	Increase in attrition %
Zomato	20,643	36	41	5
PB Fintech	6,719	87	104	17
FSN E-comm	5,844	30	31	1
One 97 Comm	2,415	37	65	27

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

Exhibit 34: …traditional IT companies saw a drop in attrition rates

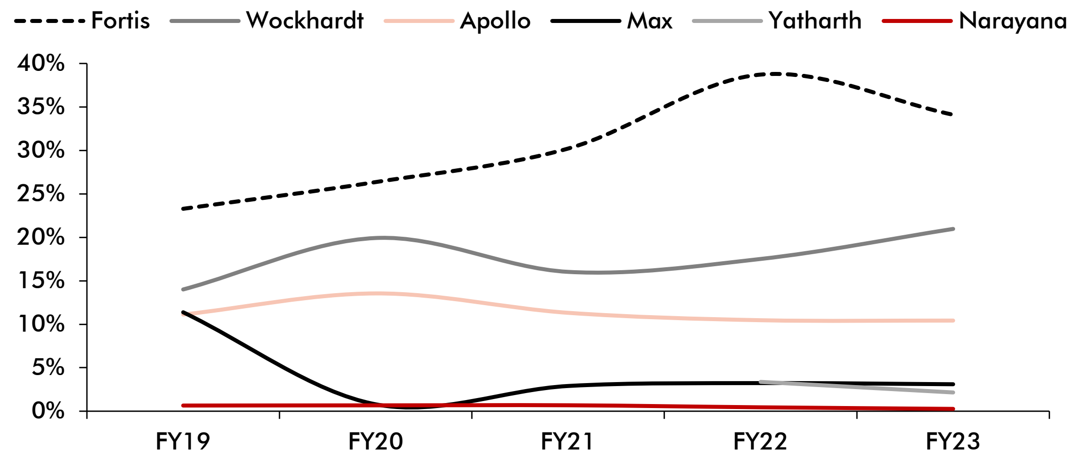
Company name	Mcap ($mn)	FY22 %	FY23%	Decrease in attrition %
Infosys	70,948	28	21	(7)
HCL	42,689	22	20	(2)
Wipro	28,995	23	20	(3)
LTI Mindtree	16,718	24	20	(4)
Tech Mahindra	15,055	24	15	(9)
Oracle Financial	7,936	28	15	(13)
Persistent Systems	6,250	27	20	(7)
Tata Elxsi	5,307	21	17	(4)
Coforge	3,264	41	35	(6)
KPIT	4,922	30	27	(3)

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

Spotting outliers on high off-balance sheet risks

Off-balance-sheet risks or contingent liabilities usually exist in the form of disputes related to tax litigations, complaints filed by customers, guarantees etc. Customers and government/regulators are two important stakeholders. Too many customer related litigations may highlight dissatisfaction among customers and inability of the companies in managing customer expectations. Similarly, significant tax litigations could highlight potential non-compliance of any law. Historically, hospitals have always carried high contingent liabilities. Contingent liabilities to net-worth ratio of Fortis and Wockhardt have increased in recent years. Narayana has the lowest contingent liabilities to net worth ratio.

Exhibit 35: Fortis and Wockhardt have higher off-balance-sheet risks



Source: Company, Ambit Capital research, ACE equity

Exhibit 36: Medical negligence, pricing and related matters affect Fortis the most, followed by Wockhardt and Max

FY23	Mcap ($mn)	Composition of contingent liability as a % of net worth (FY23): Income tax	GST, VAT, Sales tax and customs	Medical negligence, customers, pricing and related	Other
Apollo	10,067	1%	1%	1%	9%
Max	9,359	0%	0%	2%	0%
Fortis	4,184	18%	1%	13%	0%
Narayana	3,111	0%	0%	0%	0%
Wockhardt	1,000	12%	4%	3%	1%
Yatharth	448	0%	0%	0%	2%

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

Maruti Suzuki, Glaxo Pharma, Sanofi India, Ramco Cements and VIP Industries have higher contingent liabilities to net-worth ratio vs the sector median.

Exhibit 37: A few companies which have significantly higher off-balance-sheet risk vs sector median

Company	Sector	Mcap ($mn)	Contingent liability as a % of net worth			Composition of contingent liability as a % of net worth (FY23)				
			FY22	FY23	Sector median (FY23)	Tax litigations*	Claims against the company	JV/Associated related	Guarantees	Others
Maruti Suzuki	Auto	47,227	31%	31%	4%	30%	1%	0%	-	-
Glaxosmithkline	Pharma	4,086	13%	20%	3%	28%	7%	-	-	3%
Sanofi India	Pharma	2,274	21%	31%	3%	31%	-	-	-	-
Ramco Cements	Cement	2,163	18%	20%	11%	8%	-	-	6%	5%
VIP Industries	Cons. Durable	931	63%	60%	4%	60%	-	-	-	-

Source: Company, Ambit Capital research, Bloomberg; Mcap dated 7 May 24

Interesting outliers on governance

An ideal board is highly skilled, diverse, stakeholder value focused and most importantly independent. But, it is difficult to comment on board quality. At least one should be aware of outliers on important parameters and deliberate with the companies for rationale and explanation. Similarly, there are outliers on auditor appointment, remuneration and rotation practices. For instance, majority of independent directors (IDs) in JSPL and Shree Cement don't have any other listed ID experience. KEI Industries, AIA and Grasim have >50% IDs associated for >10 years. JK Cement and Aarti Industries have among the largest boards amongst small-caps. ABFRL and APL Apollo have among the youngest non-executive promoter directors. Varun Beverages, Shree Cement and Dabur are key large-caps with relatively non-descript auditors and were quickest to move back to long associated auditors. Bharat Forge, Raymond and Apollo Hospitals are amongst the firms with highest related-party transactions.

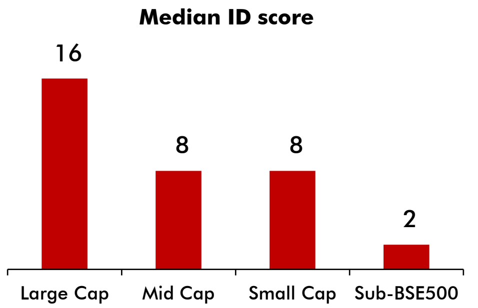
Finding comfort in a scenario of promoter dominance

It is only right given their high stake in the business that promoters might continue to have a higher say in board discussions. But, from a minority investor viewpoint there needs to be a counter balance through independent oversight. We look for instances where there is a possibility of impairment to board's independence. Whilst it is difficult to comment on the quality of independence of the board by looking at only quantitative filters, it is worth keeping an eye on in the interests of better governance.

Familiar and inexperienced IDs might impair independence

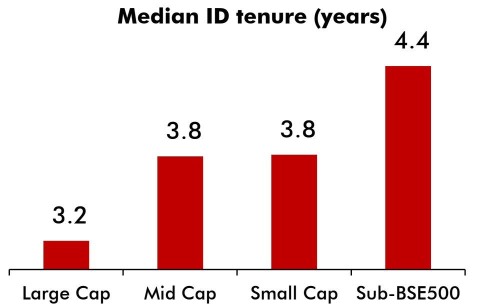
Like long association of independent directors (IDs) could highlight impaired independence, it is also necessary that companies must bring in experienced and skilled IDs on the board. Independent directors should be rotated on a timely basis. Similarly, at least the Audit Committee (AC) should be 100% independent. Large-cap companies are better on these parameters than the rest of the universe.

Exhibit 38: IDs in BSE500 companies have more listed directorship experience…



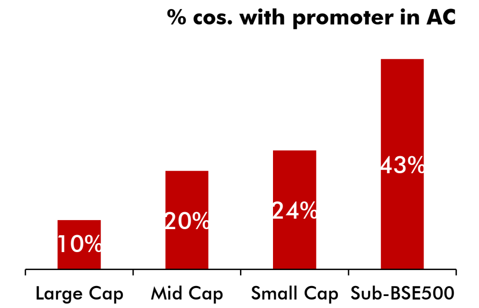
Source: Company, Ambit Capital research, Prime Infobase, universe is companies (ex.PSUs) having Mcap >Rs.1bn as at 31 Dec 23, board data is taken as at 31 Mar 24

Exhibit 39: …and are rotated frequently



Source: Company, Ambit Capital research, Prime Infobase, universe is companies (ex.PSUs) having Mcap >Rs.1bn as at 31 Dec 23, board data is taken as at 31 Mar 24

Exhibit 40: Smaller the company, higher instances of promoter in AC



Source: Company, Ambit Capital research, Prime Infobase, universe is companies (ex.PSUs) having Mcap >Rs.1bn as at 31 Dec 23, board data is taken as at 31 Mar 24

Framework to score experience of IDs: For each individual director, we assign a score such that if a particular individual acts as a director in either large/mid/small-cap firms, he will be assigned a score of 3/2/1 respectively. The score will obviously increase with increase in the number of such listed entities in which he acts as a director. Further, we take the sum of all individual IDs on a particular company's board. Higher the score, the better it is. We compare the score of the company to the median score of the universe. Scores in the below table are basis recent data of the board. Please note, we compute the score for each company basis individuals appointed by that company.

As per the Companies Act, 2013, an ID can be appointed for a maximum of two terms. One term can be a maximum of five years. However, applicability of this rule was w.e.f. 1 April 2014. Therefore, companies having long associated directors could appoint IDs for another 10 years (5+5). By September 2024, all IDs with association >10 years with the company will be rotated out.

Exhibit 41: Companies where significant change in IDs is expected in FY24

Company	Mcap ($mn)	No. of IDs	IDs >10 years	% IDs to be rotated
Grasim Industries	19,393	7	4	57%
Vedanta	17,626	4	2	50%
Linde India	8,159	3	2	67%
Ashok Leyland	6,825	6	3	50%
Oberoi Realty	6,405	4	2	50%
AIA Engineering	4,301	5	3	60%
Glaxo Pharma	4,148	5	3	60%
KEI Industries	4,144	7	4	57%
Ajanta Pharma	3,618	4	4	100%
Sun TV Network	2,992	6	3	50%

Source: Company, Ambit Capital research. Data is as at 31 Mar 24; mcap is dated as on 7 May 24

Exhibit 42: Companies with IDs having lower other listed company directorship experience

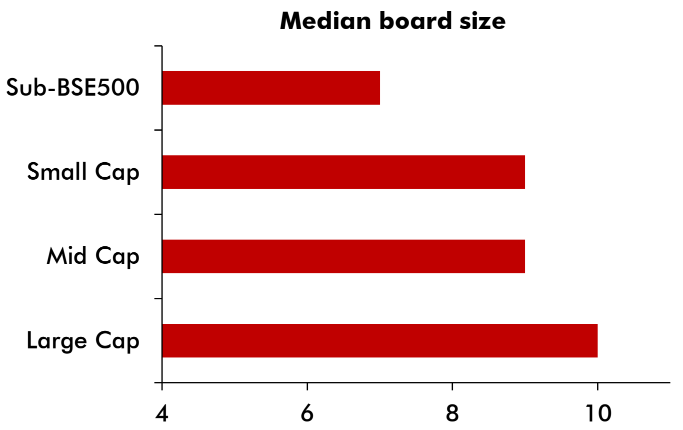
Company	Mcap ($mn)	ID score	Median ID score
Jindal Steel & Power	11,296	2	16
Shree Cement	10,974	2	16
Ajanta Pharma	3,618	2	8
Motherson Sumi Wiring	3,603	0	8
Coforge	3,274	2	8
Sun TV Network	2,992	0	8
Hatsun Agro Product	2,767	1	8

Source: Company, Ambit Capital research. Data is as at 31 Mar 24; mcap is dated as on 7 May 24

Visible promoters' influence on the board

We believe the significant involvement (or desire to exercise significant control) of promoters on Indian boards can be gauged through observing some common outliers. Larger board sizes often coincide with a higher number of promoter directors.

Exhibit 43: Median board size decreased with reduction in size of the company, however…



Source: Company, Ambit Capital research, Prime Infobase, universe is companies (ex.PSUs) having Mcap >Rs.1bn as at 31 Dec 23, board data is taken as at 31 Mar 24

Exhibit 44: …some have higher board size to accommodate a higher number of promoters

Company	Mcap ($mn)	Total board size	Promoter %
Pidilite Industries	17,967	15	20%
Havells India	12,554	14	21%
Dabur India	11,849	17	24%
Muthoot Finance	8,056	15	20%
MRF	6,328	20	30%
GMR Airports Infra	5,714	17	24%
Page Industries	4,590	15	33%
Lloyds Metals	4,151	14	21%
J.K.Cement	3,621	16	31%
Aarti Industries	3,113	15	33%
GE Shipping	1,682	15	20%

Source: Company, Ambit Capital research, Prime Infobase, board data is taken as at 31 Mar 24; mcap is dated as on 7 May 24

A significant deviation from the median age (60-62 years) of the Indian board members is often observed in the case of promoter family members. Appointment or presence of relatively very young (<40 years) or very old family (>75 years) members is very common in some promoter managed companies.

Exhibit 45: Some key companies where the promoter's age is unusually high/low vs the median age of the board

Company	Mcap ($mn)	Name	Design.	Age (Yrs.)	Tenure on board (Yrs.)
Companies with relatively older promoter directors					
Maruti Suzuki India	46,547	Osamu Suzuki	NEDP	94	40
Apollo Hospitals	10,158	Prathap Chandra Reddy	EDP	92	44
Gujarat Fluoro	4,619	Devendra Kumar Jain	NEDP	95	5*
EIH	3,685	Prithvi Raj Singh Oberoi	NEDP	95	63
Companies with relatively younger promoter directors					
Company	**Mcap ($mn)**	**Name**	**Design.**	**Age (Yrs.)**	**Tenure on board (Yrs.)**
Vedanta	17,626	Priya Agarwal	NED	34	6
Fsn E-Commerce	5,869	Adwaita Sanjay Nayar	EDP	33	5
Fsn E-Commerce	5,869	Anchit Nayar	EDP	33	4
APL Apollo Tubes	5,140	Rahul Gupta	NEDP	30	2
J.K.Cement	3,621	Madhav Krishna Singhania	EDP	35	2
Median age of directors in top 200(ex. of BFSI, PSUs and MNCs)				**64**	

*Source: Company, Ambit Capital research. Prime Infobase, board data is taken as at 31 Mar 24; mcap is dated as on 7 May 24; *number appears less due to restructuring of the entity*

Basis the parameters discussed in this section on boards, we divide companies into three buckets. Best ones or 'Level One' companies are companies which do not lag on more than one parameter in our checklist. 'Level Two' companies miss featuring in 'Level One' because they lag on two parameters under our checklist. 'Level Three' companies lag on three or more filters. Click here to learn more about our framework to assess boards.

Exhibit 46: A few companies which are classified as Level One companies on board parameters

Company	Mcap ($mn)	Board size	PD (%)	ID (%)	ID score#	Median ID tenure	P% in AC	P% in NRC
Mahindra & Mahindra	32,632	10	10%	70%	49	5	0%	0%
Interglobe Aviation	18,250	9	11%	44%	25	3	0%	0%
Cipla	13,411	12	17%	58%	22	3	0%	0%
Dr.Reddy's Laboratories	12,499	11	18%	82%	19	2	0%	0%
Torrent Pharmaceuticals	10,615	8	25%	63%	17	2	0%	0%
Marico	9,042	12	17%	67%	32	3	0%	0%

Source: Company, Ambit Capital research, board data is taken as at 31 Mar 24 Prime Infobase; mcap is dated as on 7 May 24

Exhibit 47: A few companies which need to improve only on one or two parameters to reach Level One

Company	Mcap ($mn)	Board size	PD (%)	ID (%)	ID score#	Median ID tenure	P% in AC	P% in NRC
Bharti Airtel	91,563	10	10%	50%	14	2	0%	0%
Asian Paints	33,457	11	45%	45%	17	1	0%	50%
Britannia Ind.	14,922	13	15%	62%	15	7	20%	33%
Divi's Laboratories	12,433	12	25%	58%	8	7	0%	0%
Polycab India	10,458	12	25%	50%	16	4	25%	20%
Berger Paints	7,160	11	36%	55%	20	7	20%	25%
Swan Energy	2,108	9	11%	56%	1	17	0%	0%

Source: Company, Ambit Capital research, Prime Infobase, board data is taken as at 31 Mar 24; mcap is dated as on 7 May 24

Exhibit 48: Key examples of Level Three companies which need to scale up on several parameters

Company	Mcap ($mn)	Board size	PD (%)	ID (%)	ID score#	Median ID tenure	P% in AC	P% in NRC
Solar Industries	9,381	8	25%	50%	4	1	25%	0%
Suzlon Energy	6,710	9	33%	56%	4	4	25%	33%
Apar Industries	3,787	7	29%	57%	1	6	25%	0%
Ajanta Pharma	3,618	8	38%	50%	2	10	25%	0%
Aarti Industries	3,113	15	33%	47%	1	5	33%	25%
Godfrey Phillips	1,980	10	30%	60%	4	4	25%	0%
HBL Power System	1,696	9	33%	56%	0	6	20%	0%
KNR Constructions	837	8	38%	63%	0	5	33%	0%
KRBL	784	9	44%	56%	0	10	25%	0%

Source: Company, Ambit Capital research, Prime Infobase, board data is taken as at 31 Mar 24; mcap is dated as on 7 May 24

Tightening of second line of defense

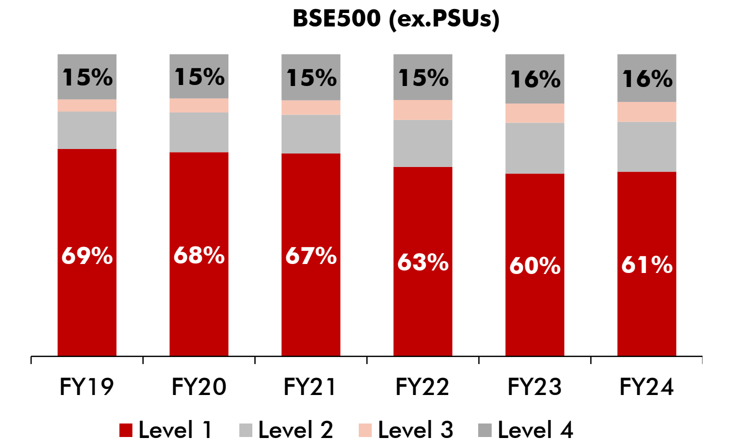
Role of auditors is quite critical to protect the interest of minority investors. We have in our recent accounting note highlighted instances of outliers on audit quality basis remuneration paid to auditors. We observed that appointment of auditors is largely a function of the size of the company. Higher the company's market cap, larger the auditor (in terms of number of audits). It is interesting to see some large companies still continuing with certain non-descript auditors. Also, it is critical to understand the rotation policy of the auditors. Long association with auditors can highlight risk to the audit quality.

Unusual instances of non-descript auditors with big jobs

In terms of number of BSE500 companies (ex. PSU), 61% of total companies are audited by Level one auditors. We cannot comment on the quality of audits done by Level one to Level four auditors. However, given the importance of the role of auditors in protecting the interests of minority shareholders, we believe having a non-descript auditor might need deliberate engagement with the companies.

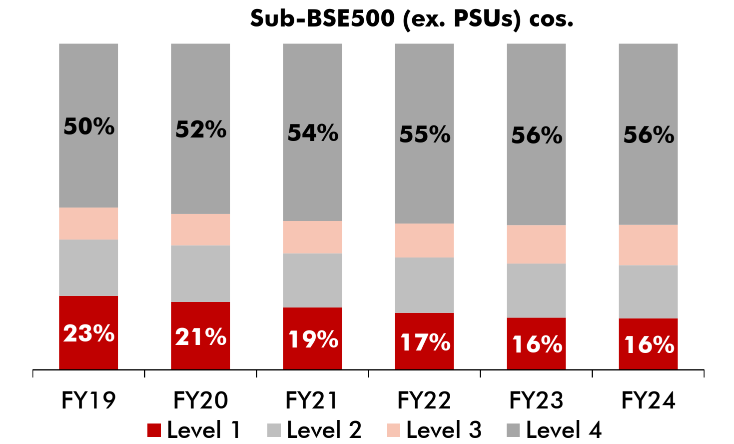
We classify the auditors of Indian companies into four categories, i.e. Level one, Level two, Level three and Level four. This classification is done in terms of number of audits done by them over the last 10 years (FY14-23). Level one auditors have audited >30 companies on median basis over the last 10 years. Level two and Level three auditors have audited >=five/three companies respectively. Level four auditors have audited zero to two companies over the same period.

Exhibit 49: 61% of BSE500 (ex. PSU) universe is audited by level one auditors



Source: Company, Ambit Capital research, Prime Infobase; universe is BSE500 cos. (ex. PSU)

Exhibit 50: Only ~16% of companies in Sub-BSE500 are audited by level one auditor



Source: Company, Ambit Capital research, Prime Infobase; universe is sub-BSE500 cos. (ex. PSU)

Exhibit 51: Few large and mid-cap companies in BSE500 (ex. PSU/BFSI) which are audited by non-descript auditors

Company	Mcap ($mn)	Auditor
Adani Enterprises	38,712	Dharmesh Parikh & Co
Varun Beverages	22,449	A P A S & Co LLP
Shree Cement	10,974	B R Maheswari & Co
Dabur India	11,849	G Basu & Co
Solar Industries India	9,381	Gandhi Rathi & Co
Supreme Industries	7,987	Chhogmal & Co
Balkrishna Industries	5,657	Jayantilal Thakkar & Co
Adani Wilmar	5,260	Shah Dhandharia & Co LLP
Gujarat Fluoro	4,619	Patankar & Associates
Lloyds Metals & Energy	4,151	Todarwal And Todarwal
KEI Industries	4,144	Jagdish Chand & Co
Ipca Laboratories	3,931	Natvarlal Vepari & Co
Ratnamani Metals & Tubes	2,612	Mehta Lodha & Co
Relaxo Footwears	2,502	Gupta & Dua
Devyani International	2,340	A P A S & Co LLP
Ramco Cements	2,142	C N G S N & Associates
Swan Energy	2,108	V R Renuka & Co
Lakshmi Machine Works	2,108	M S Jagannathan & Visvanathan

Source: Company, Ambit Capital research. Mcap is dated as on 7 May 24

Why hurry to re-unite with old auditors?

Mandatory auditor rotation rules came into effect on 01 April 2017. The law mandated the rotation of auditors after a maximum of every 10 years. Further, it mandated that the signing partner of the audit firm should be changed after a maximum of five years. Several companies moved to appoint new auditors as the mandatory rotation law was enforced. The retiring audit firm (old auditors) was required to maintain a cooling period of five years before becoming eligible for re-appointment. The cooling period of retiring audit firms got over at the end of FY22 for >250 companies. Whilst 73% of the companies chose to continue with the newly appointed auditors for another period of five years, 27% decided to go back to the old auditors with whom they were associated for a very long period before the commencement of mandatory rotation rules. Long association with auditors could highlight potential impairment to auditor independence.

Exhibit 52: Several companies have moved back to their old auditors with whom they were associated for a long time

Company	Mcap ($mn)	Erstwhile auditor		New auditor		Re-appt. year of erstwhile auditor
		Auditor name	Period	Auditor name	Period	
Reliance Ind	227,089	Chaturvedi & Shah#	28	DTS and EY	5	FY23#
Varun Beverages	22,449	OP Bagla#	10	APAS and GT	5	CY23#
Ambuja Cements	17,518	EY	8	Deloitte	5	FY22
Dabur	11,849	G Basu & Co.	28	GT	5	FY23
Cummins India	11,202	PWC	27	EY	5	FY22
Shree Cement	10,974	BR Maheshwari	26	Gupta & Dua	5	FY23
Solar Industries	9,381	Gandhi Rathi & Co	8	EY	5	FY23#
Oracle	7,967	EY	15	Mukund & Chitale	5	FY23
Jindal Stainless	6,911	Lodha & Co and S Kothari Mehta	8	GT	5	FY23
MRF	6,328	MM Nissim	8	Multiple auditors	5	FY22
Balkrishna Ind.	5,657	Jayantilal Thakkar & Co	8	N G Thakkar & Co	5	FY23
ACC	5,479	EY	8	Deloitte	5	FY22
IPCA Lab.	3,931	Natvarlal Vepari & Co	26	G M Kapadia & Co	5	FY23
Godrej Ind.	3,544	Kalyaniwala & Mistry	27	KPMG	5	FY23
Sun TV	2,992	EY	11	Deloitte	5	FY23
Grindwell Norton	2,877	Kalyaniwala & Mistry	8	KPMG	5	FY23
Relaxo	2,502	Gupta & Dua	6	BR Maheshwari	5	FY23
Pfizer	2,337	KPMG	8	GT	5	FY23
Whirlpool	2,209	EY	7	MSKA & Assoc.	5	FY23

Source: Company, Ambit Capital research. #auditors worked/appointed with joint auditors; ^period of association could be higher, we have used the periods available on Prime Infobase; Mcap dated 7 May 24

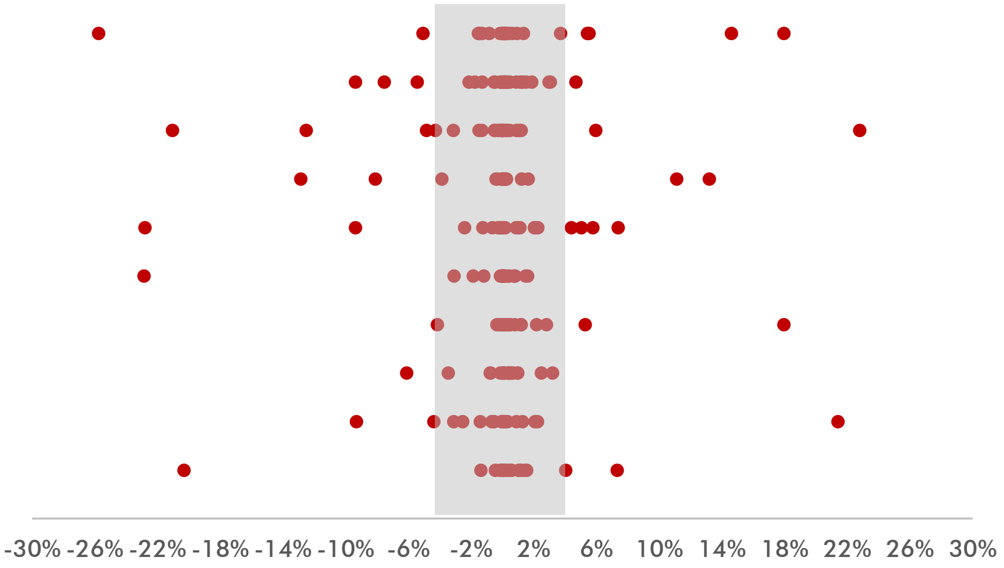
Beware of three dangerous traits on RPT transactions

In our last note we highlighted that significant related-party transactions (RPTs) exist when the value of net cash outflows or inflows as a virtue of transactions between the company and related parties exceeds 2% of revenues.

Basis of working – We have used consolidated financial statements for FY23. This implies that related-party transactions in our calculations do not include transactions with subsidiaries. Most of the data is extracted from financial statement databases. Depending on the nature of transactions as available in these databases, we have classified whether the transactions would result in cash outflow or inflow. As a summary of all such different kinds of cash outflows or inflows, we worked out the number of net cash outflows/inflows.

One must note that these numbers are used as a proxy for computing the cash outflow/inflows numbers and to understand the magnitude of related-party transactions. Also, these outflows/inflows include all types of transactions which would get reflected in the profit and loss statement (excluding dividends received and remuneration paid); i.e. they do not include transactions of capital nature like loan received or given, capital raise etc. Further, we do not take into account outstanding receivables/payables balances and hence may not reflect the exact outflow/inflow number.

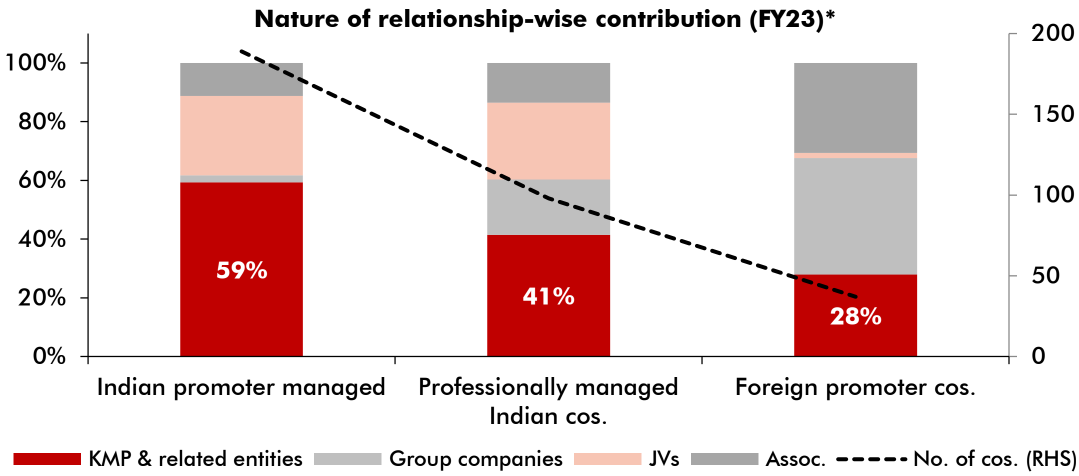
Exhibit 53: Around 27% of companies in BSE500 (ex BFSI/PSUs) have net inflows/(outflows) with related parties amounting to >2% of revenue in FY23



Source: Company, Ambit Capital research. universe is BSE500 (excluding BFSI and PSU), ACE Equity; net inflows/(outflows) are calculated as difference between outflows and inflows; total inflows include FY23 income from RPT excluding dividend received, outflows include FY23 expense incurred with RPT excluding remuneration

A total of 94 companies (99 in FY22) in BSE500 (ex. BFSI and PSU) have significant related-party transactions (i.e. net transaction value of > 2% of FY23 revenues). Out of these 94 companies, 54% (46% in FY22) are Indian promoter owned and managed companies, 26% (29% in FY22) are Indian promoter owned but professionally managed companies and 20% (25% in FY22) have a foreign promoter.

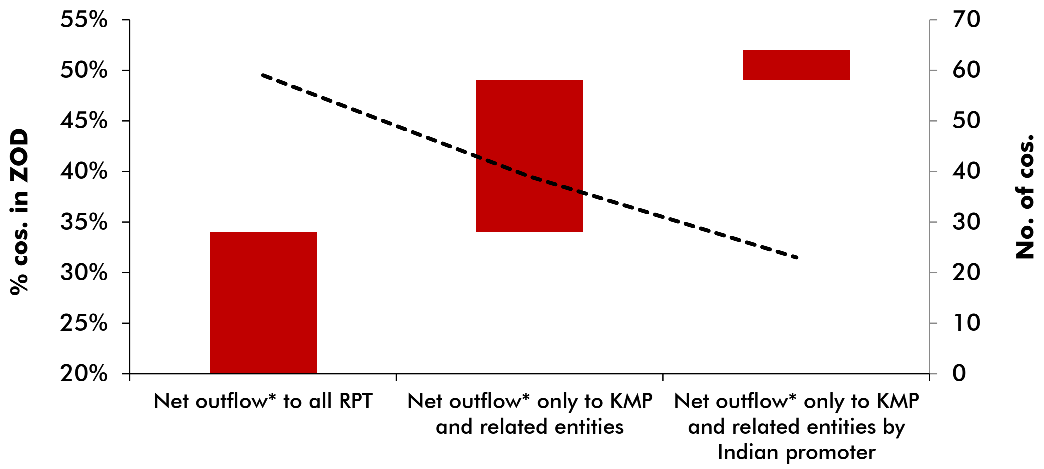
Exhibit 54: Indian promoter managed firms have higher share of RPTs with promoter entities; median share of KMP entities for Indian promoter managed companies is 59%



*Source: Ambit Capital research, ACE Equity; to compute the contribution, we considered absolute values of inflows and outflows. *Indian promoter-managed companies are companies having a majority stake by an Indian promoter and promoter acting in an executive capacity. Professionally managed Indian companies include companies having a majority stake by an Indian promoter but have ED, CEO or MD as outside professionals. #Foreign promoter companies are companies where the majority stake is held by a foreign promoter. #KMP & related entities include transactions (exc. remuneration) with promoter/KMP, relative of promoter/KMP, promoter/KMP owned entity*

Interestingly, most of the Indian promoter-managed companies having net outflows to KMP or related entities greater than 2% of FY23 revenues also feature in the ZOD.

Exhibit 55: 52% of companies having net outflows to KMP and related entities greater than 2% of FY23 revenues



*Source: Ambit Capital research, ACE Equity, net outflow is calculated as total outflows less total inflows, total inflows include FY23 income from RPT excluding dividend received, outflows include FY23 expense incurred with RPT excluding remuneration; *net outflow >2% of FY23 revenue. Basis FY18-23, poor accounting quality stocks identified by our accounting framework are classified in the 'Zone of Darkness' or ZOD*

Exhibit 56: A few companies that have higher estimated net cash outflows to promoter-owned entities

	Mcap ($mn)	Net estimated cash outflow as a % of consolidated revenue	
		FY22	FY23
Adani Enterprise	39,052	7%	11%
JSW Steel	25,321	29%	3%
JSPL	11,527	2%	7%
Hero MotoCorp	11,046	10%	4%
Apollo hospitals	10,067	26%	29%
Bharat Forge	7,834	15%	14%
Cello	2,282	2%	3%
Raymond	1,739	5%	6%
Elecon Engg.	1,433	12%	12%
Shakti Pumps	523	5%	6%

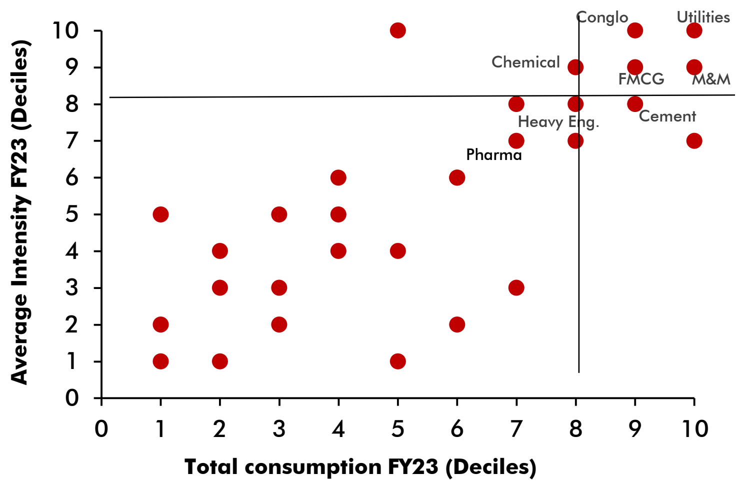
Source: Company, Ambit Capital research, Bloomberg, Mcap dated 7 May 24

Sample bespoke on water stress

India Inc was recently mandated to comment transparently on ESG initiatives. Majority of the country is classified as water-stressed basis WRI-Aqueduct or Central Ground Water Authority (CGWA) in India. We worked on 18 companies selected from material sectors on water consumption for our analysis. FY23 data suggests that all 18 companies are freshwater-dependent through third parties, surface water or groundwater. In the portfolio, Tata Power accounts for >90% of total (18 companies) freshwater consumption and needs more attention. Nonetheless, discussions with experts and companies suggest that water security is a risk from a long-term (3-5 years) perspective. Most companies need to make detailed plans to mitigate these risks. Our eight-parameter framework helps identify leaders and laggards.

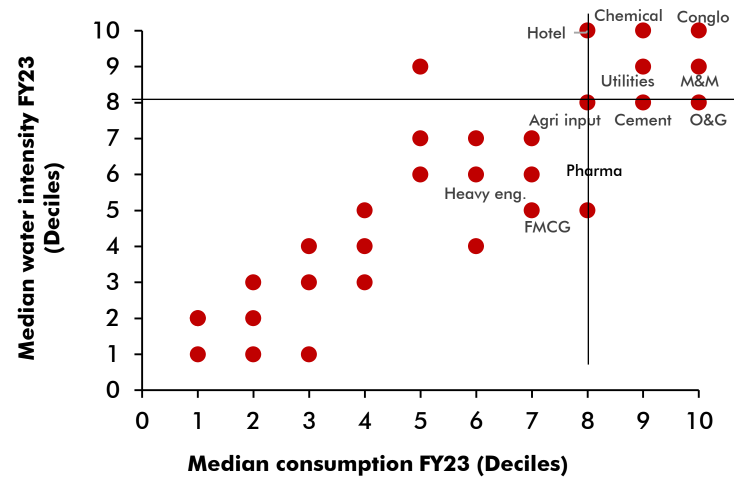
To understand which businesses are most water-intensive, we divide the top 200 companies into deciles based on consumption and intensity (basis revenue). Water intensity is simply calculated as absolute water consumption (KL- Kilolitres) divided by revenue in 'Rs million'. Whilst ranking into deciles, D1 companies include companies with the lowest water consumption and water intensity, D10 are those with the highest consumption and intensity. We use the top 200 companies as a proxy to understand the water intensity of businesses within the entire listed universe. Once we understand which businesses/sectors are most water-intensive, we mark the sectors within a portfolio of companies accordingly (18 companies taken in this case).

Exhibit 57: Analysis of top 200 companies suggests that utilities...



*Source: Company, Ambit Capital research. Universe is top 200 companies. *top 200 companies are basis mcap. Data was available only for 170 companies*

Exhibit 58: ...FMCG, pharma, cement, heavy engineering and chemicals are most water-intensive



*Source: Company, Ambit Capital research. Universe is top 200 companies. *top 200 companies are basis mcap. Data was available only for 170 companies*

Exhibit 59: A few companies require higher attention to water consumption as they consume significant water within the portfolio

Source	Company	FY23 withdrawal (Kilolitres)	% contribution in top200 companies		% contribution		
			in respective source	in respective source (ex of Tata chemical and Tata power)	in total portfolio withdrawal	in total portfolio withdrawal (ex of Tata Power and Tata Chemicals	Score (0 to 100%, 0 being worst and 100 being best)
Seawater	Tata Power	3,265,808,000	75%	NA	98%	NA	54%
	Tata Chemicals	72,411,893	NA^	NA	2%	NA	52%
Surface water	Tata Power	1,286,842,000	17%	NA	98%	NA	54%
	Tata Chemicals	30,876,489	NA^	NA	2%	NA	52%
	Nestle	742,999	0%	0%	0%	52%	41%
	Tata Consumer	176,991	0%	0%	0%	12%	69%
	Syngene Int	172,711	NA^	NA^	0%	12%	32%
Ground water	Tata Chemicals	2,622,016	NA^	NA	24%	NA	52%
	Hindustan Unilever	1,921,329	1%	1%	17%	23%	70%
	Nestle	1,909,408	1%	1%	17%	23%	41%
	Dabur	1,290,195	1%	1%	12%	15%	52%
	Dr. Reddys Lab	1,069,076	1%	1%	10%	13%	80%
	SRF	1,025,296	1%	1%	9%	12%	56%
Other	Tata Power	14,768,000	5%	NA	57%	NA	54%
	SRF	4,333,845	1%	1%	17%	42%	56%
	Biocon	1,600,000	NA^	NA^	6%	16%	56%
	Cipla	1,263,636	0%	0%	5%	12%	58%
	Hindustan Unilever	926494.00	0%	0%	4%	9%	70%
	Tata Chemicals	807,371	NA^	NA	**3%**	**NA**	52%

Source: Company, Ambit Capital research. ^Not included in top200 companies.

Exhibit 60: Our eight parameters to identify leaders and laggards on water management

Parameter	Weights	Weights for BFSI/ FMCG	Rationale	Conditions	Scoring (0-5, 0 is worst and 5 is best)
Quality of disclosures	10%	9%	High quality disclosures enable investors and stakeholders to form a view on water management practices of the company.	#1 - Time period - 5 or more years #2 - Consistency #3 - Specific or action based #4 - Quantitative details #5 - Independent assurance on disclosures #6 - Disclosures at group level	- All six conditions are met - 5 - Four to five conditions met - 4 - Any three conditions are met - 3 - One to two conditions met - 2 - No conditions met - 0
Inherent risk					
Basis consumption	10%	10%	Understanding where the company features on water consumption vs. the overall listed universe is critical to understanding its magnitude of impact on water resource	Basis FY23 numbers D1 companies have lowest consumption, whilst D10 companies have highest.	Depending upon where company features D1/D2 - assign a score of 5 D3-D5 - assign a score of 4 D6-D7 - assign a score of 2 D8-D10 -assign a score of 1
Basis intensity	10%	10%	Understanding where the company features on water intensity basis revenue vs. overall listed universe is critical to understand how water-intensive its operations are	Basis latest FY23 numbers and comparison with top 200 cos D1 companies have lowest intensity, whilst D10 companies highest intensity	Depending upon where company features D1/D2 - assign a score of 5 D3-D5 - assign a score of 4 D6-D7 - assign a score of 2 D8-D10 -assign a score of 1
Progress on water intensity basis revenue (actual consumption/Rs.mn revenue)	10%	9%	Understanding whether the company has witnessed reduction or increase in its water intensity basis revenue is critical to knowing the real impact of various measures taken over the years	#1 - Timeline for analysis - 3 or more years #2 -Decreasing	Both conditions met - 5 # 1 condition met, #2 not met - 3 None condition met - 1
Dependence on stressed areas (Aqueduct or CWRA - some subjective element)	20%	20%	Higher exposure to water-stressed regions as classified by CWRA or WRI should be given lower scores.	**Basis % of consumption from stressed regions** #1 >75% basis actual water consumption/capacity/volume/plants #2 50-75% basis actual water consumption/capacity/volume/plants #3 25-50% basis actual water consumption/capacity/volume/plants #4 <25% basis actual water consumption/capacity/volume/plants	#1 met , score =1 #2 met, score =2 #3 met, score 3 #4 met, score 4 if no water stress locations at all = score 5 we have excluded dependence on sea water to check the conditions
Target - Short term	10%	9%	A specific short-term target highlights the company's commitment and action-driven approach	#1 target up to FY26 #2 Specificity of the target i.e. not being generic	none condition met, assign score = 0 if #1 condition met, #2 condition not met, assign score of 3, Both conditions are met, score 5
Target - Long term	10%	9%	A specific long-term target highlights the company's commitment	#1 target up to FY26 #2 Specificity of the target i.e. not being generic	none condition met, assign score = 0 if #1 condition met, #2 condition not met, assign score of 3, Both conditions are met, score 5

Parameter	Weights	Weights for BFSI/ FMCG	Rationale	Conditions	Scoring (0-5, 0 is worst and 5 is best)
Current status - water positive/neutral	10%	9%	Companies which are already water positive or water neutral deserve a higher score	# 1 water positive #2 water neutral #3 partial water positive/neutral	if #1 is met, assign score of 5 if #2 is met, assign score of 4 if #3 is met, assign score of 3 if none conditions are met, assign score of 0
Community initiatives	10%	9%	It is critical to understand whether the company is proactively contributing for betterment of society on water resources	#1 yes, very detailed and large impact #2 Yes but weak commentary and low impact #3 no initiatives	#1 met, assign score of 5 #2 met, assign score of 3 #3 met, assign score of 1
Upstream/downstream risk		9%	For FMCG companies, it is critical to understand the commentary on sustainable sourcing from a water perspective For Banks/NBFCs, it is critical to understand downstream risk i.e. exposure to water-intensive sectors	For FMCG companies: #1 yes, very detailed and large impact #2 Yes but weak commentary and low impact #3 no initiatives For Banks/NBFCs : Basis % of exposure to water-intensive sectors #1 >75% exposure #2 50-75% exposure #3 25-50% exposure #4 <25% exposure #5 decreasing trend of exposure	For FMCG companies: #1 met, assign score of 5 #2 met, assign score of 3 #3 met, assign score of 1 For Banks/NBFCs: #1 met , score =1 #2 met, score =2 #3 met, score 3 #4 and #5 met, score 5

Source: Company, Ambit Capital research

Exhibit 61: Scorecard - in the order of best to worst

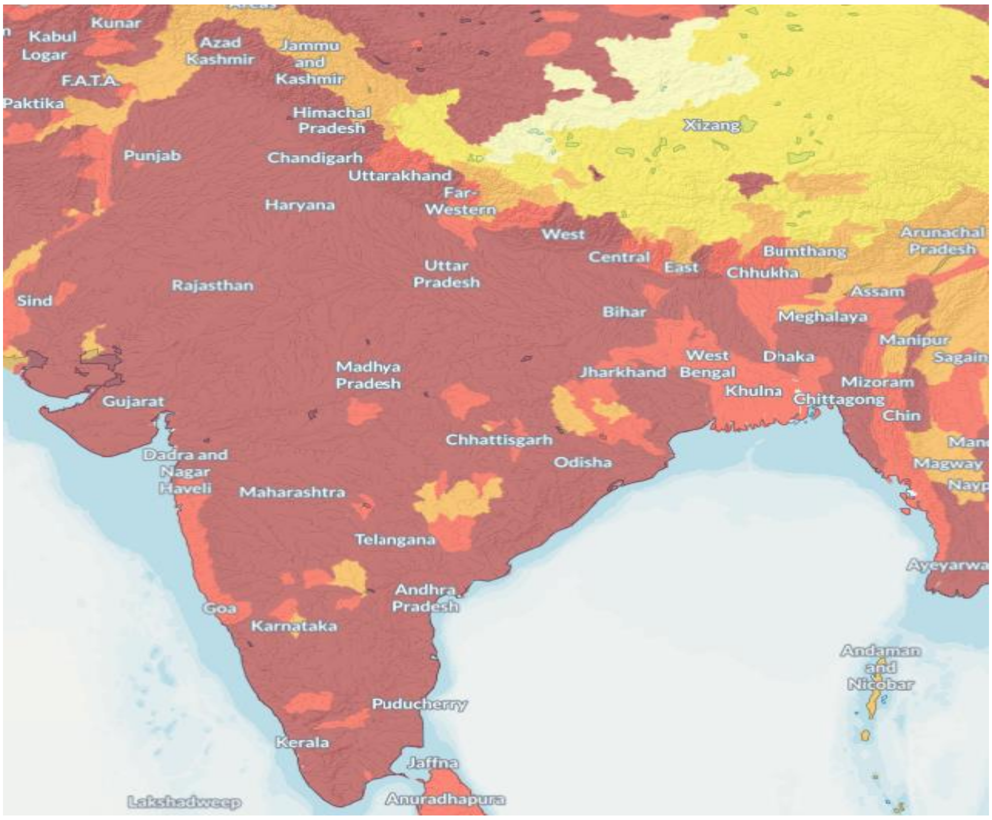
Company	Sector	Quality of disclosure	Consumption (inherent risk)	Intensity (inherent risk)	Progress (Intensity)	Exposure to Stress regions	Short-term target	Long -term target	Current status	Community initiatives	Upstream/ downstream risk	Final score (0 to 100, 0 is worst)
(On a scale of 0 to 5 such that 0 is worst and 5 is highest)												
Weights		**10/8.6**	**10**	**10**	**10/8.6**	**20**	**10/ 8.6**	**10/ 8.6**	**10/8.6**	**10**	**8.6**	**100%**
Colgate	FMCG	4	4	4	5	5	5	3	4	5	3	86%
Marico	FMCG	4	5	4	5	4	5	5	3	4	3	84%
Dr Reddy's	Pharma	5	2	2	5	3	5	5	5	5	NA	80%
ABB	Heavy Eng.	4	4	4	5	2	5	3	3	4	NA	72%
HUL	FMCG	4	1	4	5	3	5	5	0	5	4	70%
Tata Consumer	FMCG	2	4	4	2	3	3	5	3	5	4	69%
Godrej Consumer	FMCG	4	4	2	5	2	4	3	5	5	2	68%
Dr. Lal Pathlabs	Pharma	4	4	2	5	4	3	4	0	3	NA	66%
Cipla	Pharma	4	2	2	5	3	4	2	0	4	NA	58%
Bosch	Heavy Eng.	4	4	4	5	2	3	0	0	5	NA	58%
SRF	Chemical	4	1	1	5	2	4	3	3	3	NA	56%
Biocon	Pharma	4	2	2	5	5	1	1	0	3	NA	56%
Tata Power	Utilities	4	1	5	3	4	3	3	0	0	NA	54%
Dabur	FMCG	3	2	1	5	3	4	4	0	3	1	52%
Tata Chem	Chemical	3	1	1	5	5	0	3	0	3	NA	52%
Nestle	FMCG	2	1	1	3	2	3	3	0	3	3	41%
CG Power	Heavy Eng.	2	4	4	3	1	0	0	0	3	NA	36%
Syngene	Pharma	2	4	2	4	1	0	0	0	2	NA	32%

Source: Company, Ambit Capital research

A herculean task ahead for India Inc.

Most of the country is classified as water-stressed as per the WRI-Aqueduct website and Central Ground Water Authority, India. Our discussions with experts and companies suggest that water scarcity could be a medium to long-term risk and companies need to start preparing for that.

Exhibit 62: Most of India, as per WRI (World Resources Institute) Aqueduct website, is classified in the high to extremely high risk zone w.r.t water availability



Source: Company, Ambit Capital research

Experts say 'water is scarce and big actions are missing'

In the backdrop of our analysis done on disclosures and commentary made by India Inc. on water management practices, we took some time to get insights from leading water experts in the country. Our questions to these experts revolved around:

- How they see the situation of India w.r.t. water stress as most of the country is classified as a high risk zone.
- Do they see major scarcity of water over the short (3-5 years) to long term (beyond 5 years)?
- What challenges, opportunities and alternatives are available to the industries to mitigate these risks?
- Do they think steps taken by industries are adequate in this regard?
- How do they find the government's actions over the years and do they see any big regulatory changes (like water tax, water credit etc.) happening in the future to tackle these challenges?

Key observations from our discussions with **#expert 1**:

- In India, scarcity of water is linked to per capita, i.e. the population.
- India has 20 river basins, and 16 of them are witnessing water scarcity. Hence India is water scarce.
- 80% of consumption is for agricultural purposes, 10-12% for domestic and the rest for industries. But in future, industry (manufacturing) will drive demand. A lot of investments are required to improve irrigation. Irrigation in agriculture needs to be efficient so water can be used for other purposes.
- Companies face physical risk (non-availability, quality) and economic risk (e.g. penalties).
- Companies take requisite approvals; however, effective oversight mechanism to prohibit wrongdoings (e.g. unauthorized withdrawal of water) might be missing.
- Water positive targets should be achieved through creating storage and re-using.
- Surface water is monitored by different govt. departments without much interaction between them. Interaction is critical to devise better solutions.
- Authorities are driven by simple outputs rather than outcomes.
- Water is a state subject and the central govt. has a limited role. There will be always disputes among states over usage of water. Some inspiration can be taken from the European Union.
- Recently the govt. came up with a green credit program. Depending on the amount of water harvested, one gets green credits.

Key observations from our discussions with **#expert 2**:

- Water is a very scarce resource and has no substitute. E.g. Spain imported water from France which was very expensive and now they are having plans for water desalination. The situation in India is complicated as droughts/floods are natural phenomena and it is difficult to manage water.
- More than 2/3rd of India is water scarce. India really requires a lot of resources for becoming a global manufacturing hub. Water is a concerning factor for many industries.
- The government is in a dilemma. The dilemma is that farmers don't pay for water and make wasteful use of water. Their fields are unregulated. But the government is elected by the people. On the other hand, the government wants industries to flourish and hence are not enforcing strict laws.
- It could be a long-term challenge. But there are alternatives available to mitigate these risks. E.g. Germany managed water stress only through prudent water management. Nonetheless, Germany's agriculture sector is smaller than India's.
- Three steps to mitigate water risks – 1) new technologies (desalination, using brackish water etc.), 2) bringing in efficiencies in water management and 3) expanding water infra (e.g. distribution efficiency and managing seasonal imbalances). But this will require huge capital.

Discussions on upstream risks should hold more importance

Upstream risks are essentially related to supply-side risks and are most relevant to FMCG companies. FMCG companies face more risks from disruption on the supply side due to water scarcity issues. We note from our discussions with the experts that 80% of the water consumed is for agricultural purposes and this usage could be very inefficient. Most of India consists of wheat and rice eating population and these crops are very water-intensive. Nonetheless, all crops require adequate amounts of water. Most FMCG companies have limited discussions on these upstream risks. Often the discussions lack details (qualitative and quantitative), consistency, impact assessment and risk scenarios.

Exhibit 63: Nestle, Dabur and Marico have highest exposure to most water-intensive crops (wheat and rice) and animal products (milk)

Raw materials (1QFY24) contribution	HUL	Nestle	Godrej Consumers	Tata Consumers	Dabur	Marico
Sugar	3%	7%	-	-	5%	-
Crude Oil	20%	-	25%	-	20%	10%
Wheat	-	10%	-	-	-	-
Palm Oil	-	5%	-	-	-	-
Milk	-	30%	-	-	-	-
SMP - International	2%	10%	-	-	2%	-
PFAD	20%	-	20%	-	-	-
Tea	8%	-	-	50%	-	-
Coffee	2%	8%	-	10%	-	-
Copra - Calicut		-	-	-	5%	30%
LLP	-	-	-	-	10%	10%
Alkyl Benzene (LAB)	15%	-	-	-		
HDPE/Packaging	15%	15%	15%	10%	15%	15%
Rice bran/Edible oil	1%	-	-	-	10%	25%
Others	14%	15%	40%	30%	33%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Company, Ambit Capital research

Companies with decorated sustainability reports have higher chances of shining

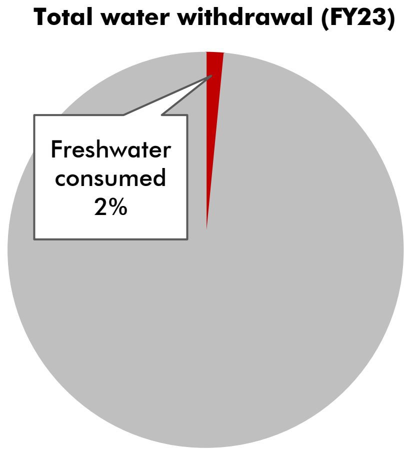
Earlier the issue was largely w.r.t. dearth of ESG data, but now with BRSR that problem is slowly getting resolved. But there are still doubts on reliability, completeness etc. Some common challenges which we have noted during our analysis:

- Reporting boundary is inconsistent (standalone or consolidated).
- Outsourced manufacturing activities are still outside the ambit of BRSR.
- The real picture could be different. For instance, we note differences in classification of water-stressed regions as per companies and our findings.
- There are no defined and set disclosures yet on sustainable financing; e.g. it is critical to understand banks' assessment on their exposure to different sectors through an environment lens.
- It is extremely difficult to evaluate environment actions with cash flows or profitability.
- There is still no explicit requirement to get the ESG data certified by external independent assurer.
- Several hygiene issues w.r.t reporting still creep in.

Tata Power

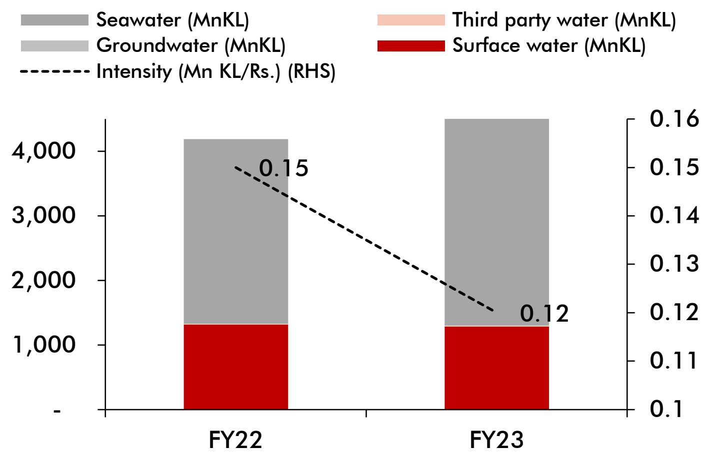
The company has a 'B' rating by CDP on water security. 72% water withdrawn for cooling purposes in FY23 was sea water using desalination. 27% of water withdrawn is used at hydro power plants where water diverted from river/barrages is used for power generation and is given back to the river without changing or affecting its quality. Accordingly, this does not account for any incremental consumption of water. Thus, total freshwater consumption is just 1.5% of total water withdrawn. The company has stated that solar energy generation projects are located in water-stressed areas, however, water consumed in this area is only 1,769mn litres (3% of total water consumption and 0.05% of total water withdrawn). The company has been reducing specific water consumption for the last 10 years and has a target of water neutrality by 2030.

Exhibit 64: Owing to seawater usage and re-usability, only 2% of water withdrawn is w.r.t. freshwater consumption



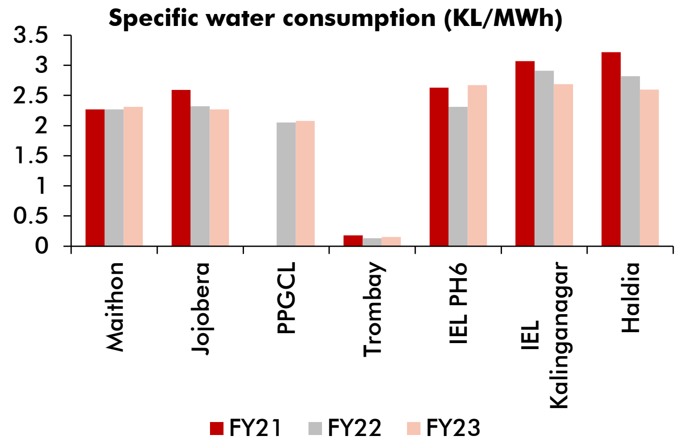
Source: Company, Ambit Capital research

Exhibit 65: Most of water withdrawn is seawater and river water for hydroelectricity which is given back to the river



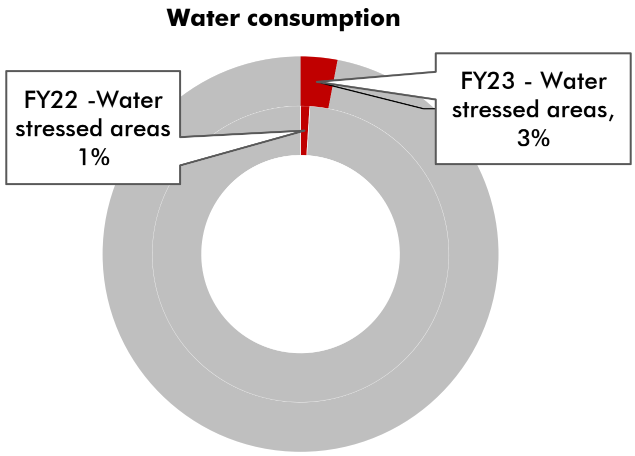
Source: Company, Ambit Capital research

Exhibit 66: Specific water consumption at major sites such as IEL Kalinganagar, Jojobera and Haldia is reducing y-o-y



Source: Company, Ambit Capital research

Exhibit 67: Only 1%/3% of total water consumption was at water-stressed areas where solar power plants were located



Source: Company, Ambit Capital research

Initiatives taken by the company to be water neutral by 2030 are: 1) promoting rainwater harvesting, 2) a water stewardship policy for its employees and 3) water metering to monitor consumption of water for flushing.

SRF

The company operates in three broad segments, out of which chemical consumes 80% of the water. Only two of 10 plants pertain to chemicals. 60% of water consumed is at Dahej (Gujarat) which is in the 'Extremely high water risk' category as per WRI and has a government water supply pipeline (GIDC) for industries. The company is in the process of implementing sea water desalination plant at Dahej. Another chemical plant at Jhiwana (Rajasthan) is under the 'over-exploited' category, however, it is a ZLD plant and water positive since 2009. There are three other water-stressed locations pertaining to other segments where water consumption is low and all are ZLD. SRF intends to improve its water credit to debit ratio but no timelines have been specified. Measures taken and reducing intensity numbers are expected to drive the company towards water positivity. The company reports on a standalone basis which covers the entire water-intensive chemicals business.

Exhibit 68: The company consumes majority of water from third-party (GIDC) pipeline provided by the government

	FY18*	FY19*	FY20*	FY21*	FY22	FY23	CAGR (FY18-23)
Ground water	30%	26%	25%	20%	21%	19%	
Third party water	70%	74%	75%	80%	78%	80%	
Total water consumed (mn KL)	**2.5**	**2.9**	**3.0**	**3.6**	**4.8**	**5.4**	**16%**
Revenue ^	18	24	30	36	100	121	46%
Intensity (KL/₹mn)	139	122	101	95	48	44	
Peer# median intensity	-	-	-	-	72	63	

*Source: Company, Ambit Capital research. * Only chemicals segment was considered for these years; ^ revenue for FY18-21 is only for chemical business and revenue for FY22-23 is total standalone revenue #Gujarat Flouro and PI Industries are considered as peers*

Exhibit 69: It is in the process of implementing a seawater desalination plant at Dahej

FY23	As per CGWA	As per WRI Aqueduct	% water cons.#	Source
Chemical business (61% revenue contribution)				
Bhiwadi/Jhiwana	Over-exploited	Extremely high water risk	20%	Ground water
Dahej	Safe	Extremely high water risk	60%	GIDC
PFB business (20% revenue contribution)				
Indore	Over-exploited	Extremely high water risk	20%	Third party water
Kashipur	Safe	Extremely high water risk		
Pithampur	Over-exploited	Extremely high water risk		
TTB business (16% revenue contribution)				
Gwalior	Safe	Extremely high water risk		
Manali	Over-exploited	Extremely high water risk		
Viralimalai	Safe	Extremely high water risk		
Gummidipoondi	Safe	Extremely high water risk		

Source: Company, Ambit Capital research. Revenue contribution is on a standalone basis

Exhibit 70: Over the years, the company has been mentioning about water conservation through technological development and rainwater harvesting; recent measures include setting up a desalination plant

Year	Management commentary
FY15-17	"At Dahej, we have been focusing on reducing water consumption through conservation measures in the medium term, which needs out-of-the-box solutions to take care of the growing needs of the site." - **Prashant Yadav, President, CEO, FCB**
	"There has been a concerted effort to improve the water utilization at Dahej site. Through technological interventions and using the concepts of recycle and re-use, we have been able to reduce the daily water consumption by ~30%" - **Anurag Jain, President, CEO, SCB**
FY19	"Water management remains a key focus area for us. While recyclability and reuse of wastewater remains a focus, quality of water discharge and effluent treatment is also a high priority area for us. Our Bhiwadi operations have successfully maintained a water positive status since 2008-09. Moreover, Bhiwadi plant continues to have zero liquid discharge." - **Anurag Jain, President, CEO, SCB & CTG**
FY20-21	"From **setting up rainwater harvesting systems** to substantial re-use of treated wastewater within our facilities, at SRF, we are focusing on reducing our dependence on freshwater for manufacturing and cooling processes. Additionally, for the benefit of the community around our chemical facility in Bhiwadi and to reverse the depletion of the water table, SRF Foundation, our CSR arm has constructed earthen dams in adjoining villages, thereby increasing the livelihood of farmers, and contributing to water and food security of our nation" - **Kartik Bharat Ram, JMD**
FY22	The Company's strategic focus areas towards effective water management include **reducing water consumption with water-efficient technologies**, recycling and reusing treated wastewater in operations and **increasing rainwater harvesting**.
FY23	At our operations, we strive to continuously improve our efforts to minimise water consumption. This is achieved through the adoption of various water-efficient technologies, the recycling and reuse of treated wastewater in processes and the practice of rainwater harvesting. Additionally, **we are in the process of implementing a seawater desalination project** in partnership with local authorities which will further reduce our dependency on freshwater resources.

Source: Company, Ambit Capital research

Tata Chemicals

The company has a high water-intensive business. Despite the fact that majority of the company's water requirement (~70%) is met through sea/desalinated water, its dependence on fresh water is still very high (>50% of total consumption of 47 companies in your list). Freshwater consumption/revenue has increased at a CAGR of 5%/7% over FY19-23. The freshwater intensity is 2.4X v/s its peers in FY23. Proportion of water recycled/reused increased from 66% in FY19 to 87% in FY23. Water-stressed areas account for only 1.5% of the overall freshwater footprint. One of stressed areas is already net freshwater neutral and ZLD has been implemented at two other stressed areas. We believe that the company could set more specific/detailed targets in terms of how they will achieve water positive status by 2030. For instance, the company's commentary lacks details on creating additional capacities like construction of ponds.

Exhibit 71: Excluding sea/desalinated water, water consumption and intensity still remain very high

Source	Unit	FY19	FY20	FY21	FY22	FY23
Surface water	%	28%	27%	30%	28%	29%
Groundwater	%				3%	2%
Sea/desalinated water	%	72%	73%	70%	68%	68%
Water consumption	mn KL	98.3	105.2	88.2	101.0	106.7
% water recycled/reused	%	66%	86%	90%	87%	87%
Revenue	₹bn	128	104	102	126	168
Freshwater* intensity	**KL/₹mn**	**216**	**278**	**256**	**254**	**204**
Peer median#	KL/₹mn	NA	NA	NA	103	86

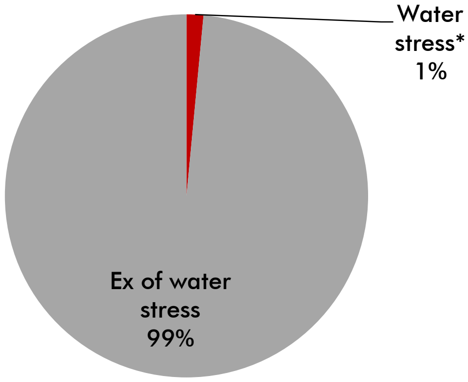
*Source: Company, Ambit Capital research. Reporting boundary is consolidated operations, *freshwater includes surface water and groundwater, #we have considered GHCL and Gujarat Alkalies and Chemicals as peers for our analysis who have reported on a standalone basis, NA means not available*

Exhibit 72: The company has set some long-term targets and appears active on community initiatives

Area	Initiatives
Target	Become water positive by 2030.
Target	Replenish freshwater used in India by 2030.
Target	Replenish more freshwater than consumed by 2040.
Innovations	A new variant of FOS powder having low water activity.
Innovations	Undertaken a study on a precast admixture using the soda ash effluent process residue leading to production and commissioning of Builtonic, led to a 24.8% water reduction.
Community	In FY23, water harvested was 136 mcft and 268,797 people were benefitted. Facilitated access to clean water for 12,080 households and constructed 152 small water structures (farm pond, farm bund, well recharge) in Dwarka in FY23.
ZLD	Implemented at Mambattu, Akola and Wyoming plant.

Source: Company, Ambit Capital research

Exhibit 73: <1% of freshwater withdrawal is done from water-stressed areas



Source: Company, Ambit Capital research. Reporting boundary is consolidated operations, manufacturing facilities at Mithapur, Ankleshwar & Dahej in Gujarat, Akola & Lote in Maharashtra, Cuddalore in Tamil Nadu, Mambattu in Andhra Pradesh are identified as water-stressed areas by the company on the basis of WRI*

Exhibit 74: Targets could include rainwater harvesting and creating capacities to reduce fresh water consumption

Facility	Initiatives
Mithapur	Mithapur, the main manufacturing complex is already ne freshwater neutral.
Mithapur	256 households were provided with tap connection in Mithapur in FY23
Akola & Mambattu	ZLD implemented.
Ankleshwar	Developed capability for 100% recycling of treated water
Rallis, a subsidiary	Four out of Five plants are in stressed areas. Rallis is currently working towards making its plant ZLD.

Source: Company, Ambit Capital research. Reporting boundary is consolidated operations

Colgate-Palmolive (India)

The company appears transparent in communicating its water management initiatives. Initiatives and actions taken by the company rightfully reflects its 360 degree (reducing consumption, reusing water and rainwater harvesting) thinking on water management practices. Water intensity has reduced over the years on account of various efficiencies promoting measures undertaken by the company. Absolute water consumption has largely remained stable since FY19 despite increase in revenue. The company claims 3.5% reduction in non-product water per MT of production leading to saving 257KL of water in 2022. Basis the company's assessment (WRI), three out of four plants are located in water-stressed regions. It appears cognizant of that and measures are being taken accordingly. Two of these plants are already water positive and it targets to be net-zero water in India by 2025. The company has extensively worked on water initiatives for the community at large.

Exhibit 75: Water intensity has reduced over the years, but…

Overall water usage	Unit	FY20	FY21	FY22	FY23*
Rainwater storage	%	ND	6%	4%	3%
Groundwater	%	ND	49%	47%	40%
Third party water^	%	ND	45%	50%	56%
Water consumption	000' KL	238	238	245	238
% of non-product water	%	9%	8%	7%	7%
Revenue	₹bn	45	48	51	52
Water intensity	**KL/₹mn**	**5.3**	**4.9**	**4.8**	**4.6**
Marico	KL/₹mn	3.6	1.7	1.6	1.6
Dabur India	KL/₹mn	NA	8.5	7.1	14.5

*Source: Company, Ambit Capital research. Reporting boundary is standalone operations, ND means not disclosed, ^includes industrial corporation, tankers and municipal corporations, *water usage for its head office in Mumbai was reported in FY23 only, above data is not available for prior years*

Exhibit 76: .. 70% water consumption is still from stressed areas

Water-stressed water usage	FY20	FY21	FY22	FY23*
Groundwater	38%	41%	44%	40%
Third party water	62%	59%	56%	60%
Water consumption (KL)	173,239	164,863	187,364	175,015
As a % of overall consumption	**73%**	**69%**	**76%**	**74%**

*Source: Company, Ambit Capital research. Reporting boundary is standalone operations, third party water includes industrial corporation, tankers and municipal corporations, *company started reporting water usage for its head office in Mumbai in FY23*

Exhibit 77: Company targets to become net zero water by 2025

Facility	Company (WRI)	CGWA	ZLD	Water positive
Sri City, Andhra Pradesh	Stressed	Safe	Yes	Yes
Sanand, Gujarat	Stressed	Safe	Yes	No
Baddi, Himachal Pradesh	Stressed	Safe	Yes	No
Goa	Safe	Safe	Yes	Yes

Community initiatives (beyond the fence)

Company **targets** to implement water access and augmentation program in **100 water-stressed villages** by 2025.

350 mn + litres of water replenished in Maharashtra & Rajasthan **in the last nine years**, via various CSR programs.

- Restored 50 anicuts, 60 wells, recharged 300+ wells, constructed 53 tanks in Alsigarh, Rajasthan replenishing >193mn litres.
- In 2019, Company did a feasibility assessment in Amravati with Water for People, India Trust & replenished 168 mn litres.
- Water supply schemes at 53 villages incl. 50 schools, 50 anganwadis and 5 ashram shalas, covering >10,996 children. Travel drudgery to fetch water reduced by 2 hours daily.

A **water conservation literacy program** was launched in FY23 to inculcate sustainable habits at the grass root levels for efficient use in irrigation and agriculture.

Source: Company, Ambit Capital research. WRI means World Resource Institute, CGWA means Central Groundwater Authority, ZLD means zero liquid discharge

Exhibit 78: Several water-related initiatives are taken at the plant (within the fence)

Facility	Initiatives	Savings
Sri City, Andhra Pradesh	Used RO plant's reject water in domestic flushing	280KL
	fixed water efficient aerators for taps in washrooms & kitchen	300KL
	Rainwater harvesting in FY23	5,454KL
Sanand, Gujarat	Saved and harvested 50,263 KL of water which is 88% of total non-product water consumed by the site (57,070 KL) from GIDC in FY22.	50,263KL
Baddi, Himachal Pradesh	Used 1st RO rejected water into raw water tank as a feed to 2nd RO	45KL/day
	Adopted chlorine sensor water recovery from a water pre-treatment plant	1KL/day
	Ozone sensor water recovery from secondary water treatment plant.	1KL/day
Goa	Used 16,151 KL of alternative water in FY22	16,151KL
	Returned 27,956 KL of water to the environment through infiltration and irrigation i.e. 6% more than the water consumed by the site	27,956KL
	Recovered additional boiler condensate water through newly installed moisture separators.	1,600 KL p.a.

Source: Company, Ambit Capital research

Marico

The company has been pro-actively managing its water-related risks over the last few years. Owing to the measures undertaken over the years, its water intensity has reduced by >50%. Measures include achieving ZLD status for all plants, incurring some capex spends to bring efficiencies, process modifications etc. Further, the company has been aggressively creating more capacities through construction of water bodies. Since FY19, whilst total water consumption by the company was 769,000 KL, it also managed to create water carrying capacities of 2,749,000 KL through construction of ponds. Chairman's speech in the FY23 annual report suggests that the company is aiming for water neutral operations in all manufacturing facilities by FY30. Also, the company states that its first net water positive plant will by declared by FY24. The company seems particularly aware of water-stressed regions and is driving specific initiatives in these regions.

Exhibit 79: Continuous initiatives have reduced the water intensity by more than 50%

	Unit	FY19	FY20	FY21	FY22	FY23
Surface water	%	NA	NA	NA	3%	4%
Groundwater	%	NA	NA	NA	14%	13%
Third party water*	%	NA	NA	NA	83%	83%
Water withdrawal	000' KLs	NA	NA	NA	124	129
Water consumption	000' KLs	224	203	109	119	115
% of water used in products		NA	NA	NA	1%	7%
Revenue	₹bn	60	59	63	75	75
Water intensity	KL/₹mn	3.89	3.56	1.66	1.64	1.61
Dabur	KL/₹mn	21.63	21.94	19.72	17.45	16.07
Godrej Consumers	KL/₹mn	NA	8.46	7.32	6.39	6.44
HUL	KL/₹mn	NA	4.90	5.54	5.11	4.61

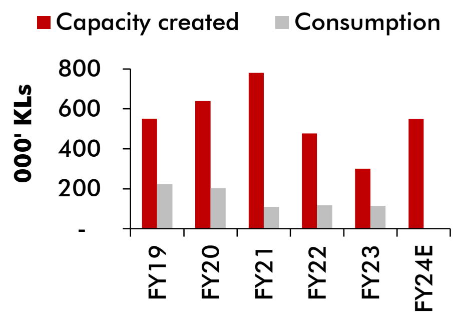
*Source: Company, Ambit Capital research. Reporting boundary is standalone operations, * third-party water includes municipal tanker water, NA means not available*

Exhibit 80: The company has taken several measures to become water efficient

Area	Initiatives
Water positivity	Chairman mentions that Company is aiming for certified water-neutral operations in all manufacturing facilities for which a long-term plan until 2030 has been developed.
Water positivity	First net water positive plant will be declared by March'24 and then every year a factory will be referred to by the management.
ZLD	All manufacturing locations are equipped with ZLD processes
Operational efficiency	Capex requirement for internal water efficiency does not cross 1% -1.5% of gross block.
Operational efficiency	Sanand unit completed a project which reduced the freshwater intake of the boiler section by ~350 KL/year by optimizing the blow down frequency of the boiler, reducing idle time and improving the feed water quality by filters.
Capacity creation	2.9mn KL of water capacity has been created so far, especially around their manufacturing units or key raw materials sourcing areas under their 'Jalashay' program. 119 Farm ponds were constructed in FY23.
Capacity creation	Management claims that water capacities created are 2x to 3X of their water footprint p.a. Every year, they take up certain targets to create new capacities.

Source: Company, Ambit Capital research

Exhibit 81: New capacities are created every year in excess of the company's own consumption



Source: Company, Ambit Capital research

Exhibit 82: >20% of water is sourced from stressed areas (Perundurai, Tamil Nadu and Puducherry)

Water-stressed	Unit	FY22	FY23
Rainwater harvested	%	12%	18%
Third party water	%	88%	82%
Withdrawal in stressed areas*	KL	27,505	27,740
% of overall withdrawal	%	22%	22%
Consumption in stressed areas*	KL	27,505	27,740
% of overall consumption	%	23%	24%

*Source: Company, Ambit Capital research. Reporting boundary is standalone operations, * does not include Jalgaon (Maharashtra)*

Exhibit 83: However, company is undertaking several initiatives to address this risk

Facility	Initiative
Jalgaon (edible oil Factory)	Gradually shifting to physical refining and partial refining which is less water-intensive. The company is putting a tertiary treatment equipment which would cut down 30% of freshwater requirement by FY24.
Perundurai	A large in-house rain water conservation pond which caters to ~30% of their annual water requirement of the facility

Source: Company, Ambit Capital research

Hindustan Unilever

Owing to several measures, water intensity marginally decreased in FY23. The company identifies its facilities at Bhuj, Chhindwara, Etah (Instant Tea), Etah (Packet Tea), Nabha, Nashik, Pondicherry, Rajpura and Sonepat to be located in water-stressed areas. However, even Silvassa detergents factory at Dadra & Nagar Haveli is categorized as "over-exploited" as per CGWA. The company understands that uncertainty in timing and severity of monsoon may impact the seasonal swings that it gets on its mixes. To deal with the same, the company claims to be making water-saving formulations available for seasonal deployment across portfolios and have ongoing plans to de-seasonalise their product portfolios to deal with extreme unfavourable seasonal swings. Targets set include 100% sustainable sourcing of their key agricultural crops. ~43% of key crops (make up >2/3rd of agricultural raw material volume) were sourced sustainably in 2022. 82% tomatoes, >69% tea and 100% chicory were sourced sustainably in 2022. The company does not report on outsourced operations.

Exhibit 84: Dependence on ground water has increased over the years

Overall water usage	Unit	FY20	FY21	FY22	FY23
Groundwater	%	52%	67%	69%	67%
Third party water	%	48%	33%	31%	33%
Water consumption	KL	1,948,883	2,604,720	2,679,932	2,795,743
Revenue	₹mn	397,830	470,280	524,460	605,800
Water intensity	KL/₹mn	4.90	5.54	5.11	4.61
Marico	KL/₹mn	3.56	1.66	1.64	1.61
Godrej Consumers	KL/₹mn	NA	NA	6.17	6.46
Dabur India	KL/₹mn	NA	8.45	7.06	14.47

Source: Company, Ambit Capital research. Reporting boundary is consolidated operations for HUL and standalone operations for all the above peers mentioned

Exhibit 85: Initiatives of Hindustan Unilever Foundation have a strong focus on community well-being

HUF	A not-for-profit company set up in 2010 to address India's water challenges
Water stress projects	Implemented water stewardship programs in 8 water-stressed areas as at Dec'22 with a target of total 12 such locations by 2030.
Water stress Projects	Partners with non-profit companies in water-stressed regions in India to support rural communities with water conservation and regenerative agricultural practices amongst farmers.
Water stress Project	In 2022, HUF launched a research study in partnership with Development Support Centre for building informed and scalable water security solutions for Gujarat, based on distinct regional water typologies.
Water capacity creation	Chairman states that HUF has delivered a cumulative and collective water potential of >2.6 trillion litres i.e. more than the drinking water needs of India's population for nearly two years. A target to contribute to total 3 trillion litres of water potential in India by 2025.
Groundwater project	HUF's partner, Centres for International Projects Trust, worked towards addressing the Punjab's groundwater crisis covering 12,000 farmers and 80,000 hectares of land. Paddy farmers were encouraged to adopt practices such as direct seeding of rice, alternate wetting & drying, varietal shifts from long-duration to short-duration varieties & the use of an IoT enabled soil moisture sensor.

Source: Company, Ambit Capital research

Exhibit 86: ~45% of the water needs are met from stressed areas with higher dependence (~80%) on groundwater

Water-stressed water usage	Unit	FY22	FY23
Groundwater	%	80%	79%
Third party water	%	20%	21%
Water withdrawal	KL	1,191,213	1,264,271
Water consumption	KL	1,190,479	1,264,271
As a % of overall consumption	**%**	**44%**	**45%**

Source: Company, Ambit Capital research. Reporting boundary is consolidated operations

Exhibit 87: Other initiatives

Area	Initiatives
Water intensity	48% reduction in water consumption (KL/tonne) in manufacturing operations v/s 2008 through efforts towards reducing freshwater abstraction, implementing captive rainwater harvesting, and maximizing the use of RO plants
Wastewater discharge	26 out of 29 of factories recycle and reuse 100% wastewater within the site. Remaining three factories discharge water in common ETP.
Others	Company claims to have embarked its journey to align their water stewardship program to the Alliance for Water Stewardship Framework at two sites.

Source: Company, Ambit Capital research. Reporting boundary is consolidated operations

Tata Consumer Products

Water consumption increased at 33% CAGR vs 9% revenue CAGR over the last three years for the standalone entity. Groundwater accounts for 1/3rd of consumption. All plants are situated in areas with no groundwater risk. The company targets to become water neutral across all operations by 2030. The annual report commentary suggests that the company does not have ZLD status. However, it claims to treat wastewater generated and reuses recycled water for irrigation and landscaping. Water intensity of beverage business reduced from 360 litres/tonne in FY17 to 273 litres/tonne in FY21. It recharged 314mn KL (106% of its consumption) in FY23 and promises to recharge similar volumes going forward. It claims to have worked extensively in Assam from where it sources tea. The company's mission includes sustainable growth across the tea supply chain. In FY23, 55% of Tata Tea was sourced sustainably as verified by Trustea/Rainforest Alliance

Exhibit 88: Water intensity has increased over FY21-23

Sources	Unit	FY21	FY22	FY23
Surface water	%	57%	64%	60%
Groundwater	%	34%	29%	33%
Municipal water	%	8%	6%	6%
Rainwater stored	%	1%	1%	2%
Water consumption	KL	166,319	242,406	295,162
Revenue	₹mn	71,544	79,323	85,388
Water intensity	**KL/₹mn**	**2.32**	**3.06**	**3.46**
Britannia	KL/₹mn	NA	3.65	3.21
Nestle India	KL/₹mn	NA	19.16	16.57

Source: Company, Ambit Capital research. NA means not available; reporting boundary is standalone representing 62% of consolidated revenue in FY23 and excludes salt and ready mix beverage manufacturing units which act as supplier of the Company, reporting boundary is standalone for Nestle India and consolidated for Britannia Industries

Exhibit 89: Community initiatives undertaken

Area	Initiative
Target	Company's project Jalodari aims to support ~2.5 mn individuals across 4,000+ villages in 12 states.
Water recharge	Recharged 314mn litres in Himachal Pradesh in FY23 & claims to contribute to same volume of recharge annually in future.
Water recharge	In FY22, Tata Coffee, a subsidiary, created 273 natural water storage ponds and converted >120 hectares into reservoirs with a capacity of >3 mn litres.
Ground water project	Installed four iron removal plants in Assam (the groundwater was highly contaminated with iron and population suffered from skin diseases due to water) providing safe drinking water to >450 households and distributed 526 point-of-use water filters. 82% participants reported an improvement in health.
Waste water	No ZLD. Wastewater is treated in the in-house STPs & the recycled water is used for irrigation & landscaping.
Upstream	Co. claims that Tata Soulfull's millet-based portfolio will gradually evolve to become a mainstream category which requires 90% less water v/s rice and is better crop to sow in drought-prone areas. Soulfull's reach has increased from 15,000 outlets at its acquisition to >0.4 mn outlets now.
Upstream	The company funded a collaborative study between the Tea Research Association, India, and Ethical tea partnership to analyse the impact of climate change on the tea-growing regions of Assam.

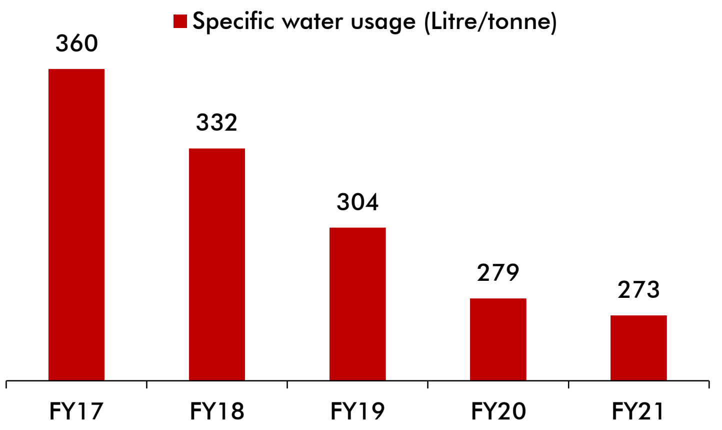
Source: Company, Ambit Capital research

Exhibit 90: The company claims that none of their plants is in stressed areas

Plant	Location	CGWA	Mgmt	WRI
Periakanal Estate	Munnar, Kerala	Safe	Safe	Extreme high
Pullivasal Estate	Munnar, Kerala	Safe	Safe	Extreme high
Instant tea operations (Incl. Nullatani factory)	Munnar, Kerala	Safe	Safe	Extreme high
Tetley (Tea Bag) Division	Kochi, Kerala	Safe	Safe	Extreme high
Water plant	Sirmour, Himachal Pradesh	Safe	Safe	Extreme high

Source: Company, Ambit Capital research. CGWA means Central Ground Water Authoirty, Mgmt means Management, WRI means World Resource Institute

Exhibit 91: Water usage of beverage business consistently reduced over FY17-21

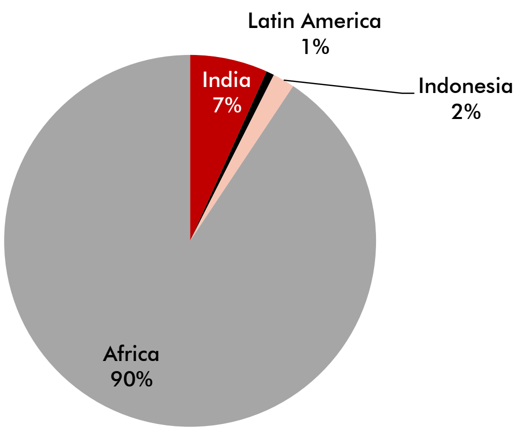


Source: Company, Ambit Capital research. Reporting boundary is beverage operations

Godrej Consumer Products

Significant consumption of water happens in Africa. Only 7% of total water consumption is for India operations. Despite increase in revenue at 8% CAGR over FY19-23, the overall water consumption increased by 2%. The drop in intensity could be attributed to recycling of water initiatives over the years. A single plant located in Madhya Pradesh (MP) is identified by the company as a water-stressed area. The MP plant accounts for >60% of water consumption in India. We believe the company's water management plan should include more drastic steps to reduce mitigate risk from MP region. For instance, currently claim to install roof rainwater harvesting systems in all community buildings in four villages near this region aimed at saving 1,565 KL of water p.a. going forward seem inadequate given its total consumption (330,763 KL in FY23). The company is vocal on community initiatives through its annual reports. It claims to have achieved water positivity and ZLD status.

Exhibit 92: India accounts for only 7% of total water consumption



% of water withdrawal in FY23 (7.3 mn KL)

Source: Company, Ambit Capital research

Exhibit 93: Water consumption has grown at a moderate pace

	Unit	FY19	FY20	FY21	FY22	FY23
Municipal supplies	%	ND	20%	19%	26%	32%
Groundwater	%	ND	80%	81%	74%	68%
Gross water consumption (a)	**KL**	ND	**463,000**	**458,000**	**444,000**	**494,000**
Water processed and discharged to the source (b)	KL	ND	158,000	202,000	153,000	-
Net water consumption (a-b)	KL	ND	305,000	256,000	291,000	494,000
Specific water withdrawal	**KL/MT**	**1.53**	**1.41**	**1.45**	**1.30**	**1.49**
Revenue (c)	₹mn	56,793	54,745	62,543	69,516	76,672
Water intensity (a/c)	**KL/₹mn**	**ND**	**8.46**	**7.32**	**6.39**	**6.44**
HUL	KL/₹mn	ND	4.90	5.54	5.11	4.61
Dabur	KL/₹mn	21.63	21.94	19.72	17.45	16.07
Marico	KL/₹mn	3.89	3.56	1.66	1.64	1.61

Source: Company, Ambit Capital research. Reporting boundary is India (standalone)

Exhibit 94: Aims to reduce water intensity and drive process efficiencies

Target	To reduce water intensity (litres/MT) by 40% by 2025 v/s 2011	So far, reduced by 30%

Integrated watershed projects for the community near the plants

Installed 25 drip irrigation systems at farmer lands at a drought-prone district of
Siddipet in Telangana with an aim to conserve 3.5 mn KL p.a. by FY24

Company has constructed a borewell in Kathua, an under-ground water tank in
Bari Brahma, renovated existing drinking water facility in Meghalaya, provided a
gen-set and trolley to draw ground water in Karaikal providing water to 6K people.

Cluster	Process initiatives in FY23	Savings (KL/year)	Capex (₹mn)
North east	▪ DM water used in place of distilled water for developer batch making in crème manufacturing at New Guwahati, New Conso and Lokhra II. ▪ New Conso: Crème colorant process optimized.	225	NA
North	▪ RO waste water start to use for gardening. ▪ Reuse of RO rejected water. ▪ Water cooled air compressor replaced with VSD air cooled compressor in Katha & Kathua	750	0.82
South	▪ STP treated water used in toilets & gardening. ▪ Using level sensors in water storage tanks. ▪ 0.1mn litre rainwater capacity in CONSO unit ▪ Sensor based taps in all washrooms, canteen.	NA	2
Central west	▪ Installed rainwater harvesting in new soap plant	1,500	NA
Total		**2,475**	**2.82**

Source: Company, Ambit Capital research, NA means not available

Exhibit 95: 64% of the company's water consumption in India is done at Malanpur, a stressed region

Water-stressed water usage	Unit	FY22	FY23
Surface water	%	42%	48%
Groundwater	%	58%	52%
Water consumption	KL	272,391	330,763
As a % of overall consumption	%	63%	67%
Water intensity	KL/MT	1.35	1.63

Source: Company, Ambit Capital research. Reporting boundary is India (standalone operations)

Dabur

Impact of several efficiencies promoting measures is probably reflected in the moderate growth of water consumption vs revenues over years. Six of 14 plants in India are located in water-stressed regions ('over exploited') as classified by CGWA. The company sources ~90% of its water from ground water. The company has created a capacity to recharge 770,235 KL (55% of water withdrawal in FY23) of water within its manufacturing units. It targets to reduce water intensity (KL/MT) in operations by 30% by FY26 and become water positive in operations and communities by 2030. It claims to have achieved 22% reduction in water intensity (KL/MT) from FY19 despite high growth in the water-intensive 'Juices' portfolio. The company states that at all manufacturing locations have wastewater treatment systems (STP/ETP) installed and treated wastewater is used for various purposes. It also claims to be going through external water audit processes by FICCI and CII every year.

Exhibit 96: Water consumption/revenue grew by a CAGR of 0.7%/8.0% over FY19-23

Sources	Unit	FY19	FY20	FY21	FY22	FY23
Ground water	%	ND	ND	ND	98%	92%
Third party water	%	ND	ND	ND	2%	8%
(a) Water withdrawal	000' KL	1,357	1,384	1,417	1,427	1,396
(b) Water consumption	000' KL	ND	ND	ND	1,285	1,256
Water discharged (a-b)	000' KL	ND	ND	ND	142	140
Wastewater discharged [(a-b)/a]	%	ND	ND	ND	10%	10%
Water intensity	KL/MT	3.41#	5.11	4.9	4.37	4.06
(c) Revenue	₹bn	63	63	72	82	87
Water intensity (a/c)	KL/₹mn	21.63	21.94	19.72	17.45	16.07
Peer* median	KL/₹mn	ND	4.90	5.54	5.11	4.61

*Source: Company, Ambit Capital research. The company expanded its boundaries in FY23 to include non-manufacturing locations as well, which includes offices, warehouses, nurseries and employee dormitories and restated the data of prior years, ND means not disclosed, * we have considered HUL, Marico and Godrej Consumers Products as peers for our analysis, #includes raw water intensity which is not directly comparable due to reporting boundary expansion*

Exhibit 97: Reduction of water intensity is probably a reflection of various initiatives taken over the years

Initiatives taken over years
▪ Installation of UF and RO plant to recycle ETP treated water into secondary processes.
▪ Utilization RO reject water into secondary processes to reduce raw water extraction.
▪ Reuse of FFE vacuum pump discharge water in cooling tower.
▪ Eliminate the water overflow from HDPE 5KL overhead raw water tank by installation of low level and high-level water sensor with controller.
▪ Installation of foot operated water taps and prismatic taps instead of normal taps.
▪ Installation of Storage tank for water use in CTGO plant by removing direct water pump from reservoir.
▪ Installation of Rainwater harvesting system for recharging it back to ground or utilization in secondary processes based on geographical requirements.
▪ Installation of steam condensate recovery system.
▪ Automation for overfill protection.
▪ Installation and effective monitoring through digital flow meter system to keep track of water utilization.

Source: Company, Ambit Capital research

Exhibit 98: 1/4th of the total consumption is done in stressed areas

Water-stressed water usage	FY22	FY23
Groundwater	86%	64%
Third party water	14%	36%
Water withdrawal (KL)	213,004	293,881
% of overall withdrawal	**15%**	**21%**
Water consumption (KL)	147,600	245,969
Water discharged (KL)	65,404	47,912
Water discharged as a % of withdrawal in stressed areas	**31%**	**16%**

Source: Company, Ambit Capital research

Exhibit 99: The company has taken steps to mitigate risks in stressed regions

Stressed areas	Initiatives
Tonk (Rajasthan), Baddi (Himachal Pradesh), Pithampur (Madhya Pradesh)	Company claims to run programs based on 1. Water harvesting, 2. Eco-friendly technologies, 3. Recharging of tube wells and 4. Plantation to give rural communities access to water for their personal consumption and irrigation needs. In FY23, the program was extended to Pithampur with the renovation of a 65.5 mn litre village pond and adoption of another 1.4mn litre capacity pond in Baddi

Source: Company, Ambit Capital research

Nestle India

Over the last decade, the company has discussed multiple CSR projects w.r.t. water management but the disclosures lacked quantitative details. It claims a 52% reduction in water consumption per MT of products over CY07-22, albeit this could be a result of changing product mix rather than actual reduction in consumption. Seven water usage reduction projects were introduced by the company in 2022 for reuse of water via the RO technology. Probably due to this there was a slight improvement in water intensity number from 4.99 KL/MT to 4.69 Kl/MT over CY21-22. The company has classified three manufacturing locations under water stress areas which consume ~60% of water. In CY22, the company invested in two factories (other than water-stressed) for recycling treated effluents to reduce groundwater withdrawal. Commentary lacks detailed discussion on upstream risks. Given high dependence on ground water in stressed areas, the company should set specific water neutral/positivity targets. It does not have any subsidiaries.

Exhibit 100: Company disclosed water data for the first time in 2021; water intensity witnessed a slight improvement…

	Units	CY21	CY22
Surface water		26%	27%
Groundwater		74%	68%
Third party water		0%	5%
Total	**KL**	**2,824,517**	**2,800,232**
% water consumed from stressed areas		**64%**	**61%**
Intensity	KL/MT	5.0	4.7
Intensity	Kl/₹mn	19.3	16.7
Peers			
Tata consumer	Kl/₹mn	5.1	4.6
HUL	Kl/₹mn	3.1	3.5

Source: Company, Ambit Capital research

Exhibit 101: …in 2022, however, 61% of total water consumed was from water-stressed areas

	Water-stressed categorisation			% water cons.
	Company	CGWA	Aqueduct	
Moga (Punjab)	Stressed	Over-exploited	Extremely high risk	23%
Choladi (Tamil Nadu)	Safe	Safe	High risk	NA
Nanjangud (Karnataka)	Stressed	Safe	High risk	23%
Samalkha (Haryana)	Stressed	Over-exploited	Extremely high risk	15%
Ponda (Goa)	Safe	Safe	High risk	NA
Bicholim (Goa)	Safe	Safe	High risk	NA
Pantnagar (Uttarakhand)	Safe	Safe	Extremely high risk	NA
Tahliwal (Himachal Pradesh)	Safe	Safe	Extremely high risk	NA

Source: Company, Ambit Capital research

Exhibit 102: Company has emphasized on Reverse Osmosis technology over the last two years

Year	Initiatives
Till CY20	Claims to reduce water consumption per tonne by 52% over last 15 years. The company took various CSR initiatives on clean Drinking Water Projects, Water Awareness Programme and water saving in agriculture
CY21	During the year, **water reduction projects were initiated in different factories locations**. The projects undertaken will **result in savings of approximately 65,100 m3 (saving of 2.30 % of total annual water consumption)** and shall be realized in the next 2-3 years. One of the key initiatives contributing to water savings in 2021 was increasing the utilization of treated effluent after polishing through high technology Reverse Osmosis (RO) plant.
CY22	Continue to Claim to reduce water consumption per tonne by 51% over last 15 years. During the year, **seven water reduction projects were initiated in different factories locations**. The projects undertaken will **result in savings of approximately 148,654 m3 (saving of 5.31 % of total annual water consumption)** and shall be realized in the next 2-3 years. One of the key initiatives contributing to water savings in 2022 was increasing the utilization of treated effluent after polishing through high technology RO plant

Source: Company, Ambit Capital research. 2022 annual report

Exhibit 103: Claim of water usage/ton dip by 51% could be due to higher mix of lower water-intensive products

Segments	Kl/tonne	% in MT	
		2007	2022
Milk Products/Nutrition	6.0*	46%	23%
Prepared dishes and cooking aids	3.1	30%	63%
Beverages	6.0	11%	4%
Chocolate and confectionery	3.1	12%	10%

*Source: Company, Ambit Capital research. Kl/tonne data is taken from annual report of Nestle global, *Nestle global had disclosed intensity of milk products (3.6) and Nutrition (8.4) separately, we have taken average of the same*

Dr Reddy's Laboratories

The company has been monitoring and reporting volume of water consumption since 2004. Water intensity has reduced consistently over the last five years. DRL achieved water positivity in FY23, i.e. two years ahead of its target through water efficiency, utilisation of alternate sources of freshwater, ZLD, wastewater focused initiatives, rainwater harvesting and water recharge activities for the communities around its operations. DRL's 12 facilities in Hyderabad and Pydibhimavaram (total: 23 manufacturing facilities and 8 R&D facilities) are located in water-stressed areas where it withdraws >50% of its overall consumption needs. Currently, most of the water is sourced from groundwater in Pydibhimavaram. Management claims that they are currently working on shifting the source in Pydibhimavaram. DRL received A-score under CDP Water Security 2021. DRL assessed 60 suppliers including 15 strategic suppliers, of which 3 suppliers are located in over-exploited areas as per CGWA.

Exhibit 104: The company witnessed lower growth (2% CAGR) in water footprint vs (12% CAGR) revenue over FY19-23

Sources	Unit	FY19	FY20	FY21	FY22	FY23
Harvested rainwater	%	0%	3%	2%	3%	3%
Groundwater	%	46%	51%	53%	57%	57%
Third party water	%	38%	25%	9%	6%	5%
Municipal water	%	16%	22%	36%	34%	35%
Water withdrawal (a)	000' KL	1,718	1,812	1,862	1,838	1,884
Water consumption	000' KL	NA	NA	1,694	1,704	1,586
Revenue (b)	₹bn	154	175	190	215	247
Water intensity (a/b)	**KL/₹mn**	**11.6**	**10.1**	**9.6**	**8.3**	**7.5**
Cipla Ltd.	KL/₹mn	NA	NA	10.3	7.6	6.9
Lupin Ltd.*	KL/₹mn	NA	NA	23.1	20.1	19.9

*Source: Company, Ambit Capital research. Reporting boundary excludes commercial offices with water footprint <10KL/day, * Lupin reports water footprint only for its standalone operations, NA means data not available*

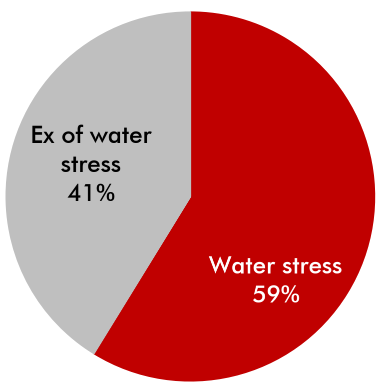
Exhibit 105: A host of initiatives led to reduction in consumption and intensity

Within the fence initiatives	Impact
Water efficiency: installing equipment and designing processes to reduce water usage	
Utilizing greywater as a substitute for freshwater and conducting a water pinch assessment.	Savings: 125,402 KL in FY23
Wastewater-focused initiatives. ZLD implemented at all facilities in India.	Savings: 39,091 KL in FY23
Rainwater harvesting for re-use and recharge within and beyond the plant contributed to 7% to the Company's water neutrality efforts	Recharge potential of 6.07mn KL created
Beyond the fence initiatives via Dr. Reddy's Foundation	
Agri-water-saving techniques in paddy fields in Andhra Pradesh and Telangana	Savings: 4.9 mn KL water
Climate-smart and regenerative agriculture practices	Savings: 500 to 1,800 KL of water per acre
WASH awareness sessions for communities	8,556 people sensitised

Source: Company, Ambit Capital research

Exhibit 106: Over 50% of overall water footprint is from water-stressed areas, i.e. Pydibimavaram & Hyderabad

% of water withdrawal in FY23



Source: Company, Ambit Capital research. Reporting boundary excludes commercial offices with water footprint <10KL/day

Exhibit 107: However, the company is undertaking several initiatives to address this risk

Area	Initiative	Outcome
Pydibimavaram	Lake rejuvenation	320,000 KL capacity lake created
Pydibimavaram	A pilot on the super Napier grass	8000 acres shifted from Till farming to zero tillage saving 5.7mn KLs
Hyderabad	Shift in water source	Engagement with the city water supply board led to a 90% shift from groundwater to surface water

Source: Company, Ambit Capital research

Dr. Lal Pathlabs

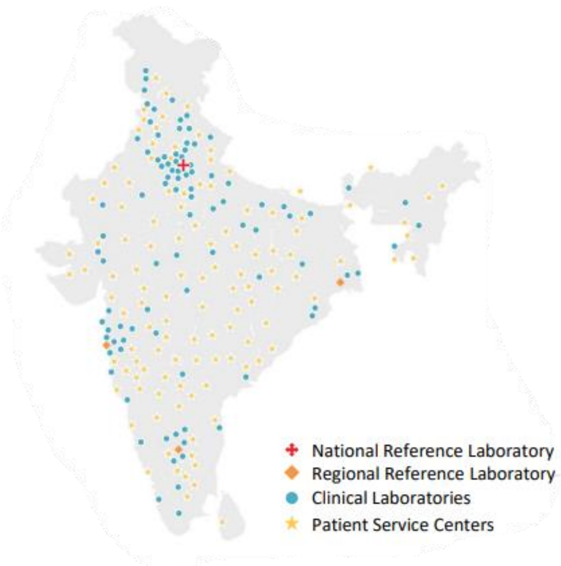
The company's water intensity reduced from 10.7 to 7.1 KL/₹mn from FY21 to FY23 (peers at 80.2 KL/₹mn). It has mentioned steps like recycling RO waste water, rainwater harvesting, sewage plant etc. for reducing water consumption. The company claims to have achieved ZLD status in FY22. In FY23, RO plant was able to save 36 KL/Day (13 KL/Day in FY22). Water saving reducer helped the company save 3000 KL/year of water. The company has 277 labs as on FY23 spread across the country, practically making water risk negligible. The company's capex for environment for FY23 was 3.4% of total capex (2.2% in FY22). The company has 1 national lab in Delhi and 3 regional labs in Kolkata, Banglore and Mumbai. Assuming majority of employees are occupied at these big labs, water consumption will be skewed to these labs. Major water consumption is for domestic use. We do not see any material water-related risk.

Exhibit 108: Water intensity has reduced drastically over the years

Overall water usage	Unit	FY21	FY22	FY23
Ground water	%	21%	21%	50%
Third party water	%	79%	79%	50%
Total water withdrawal	KL	159,919	122,316	125,036
Total water consumption	KL	159,919	122,316	125,036
Revenue	₹mn	14,906	18,788	17,690
Water intensity basis turnover	**KL/₹mn**	**10.73**	**6.51**	**7.07**
Peer* median	KL/₹mn	NA	69.36	80.23

*Source: Company, Ambit Capital research. Reporting boundary is standalone operations, * peers include Metropolis Healthcare and Vijaya Diagnostic centre*

Exhibit 109: The company has 55,400+ facilities across India and hence water risk per facility would be negligible



Source: Company, Ambit Capital research

Cipla

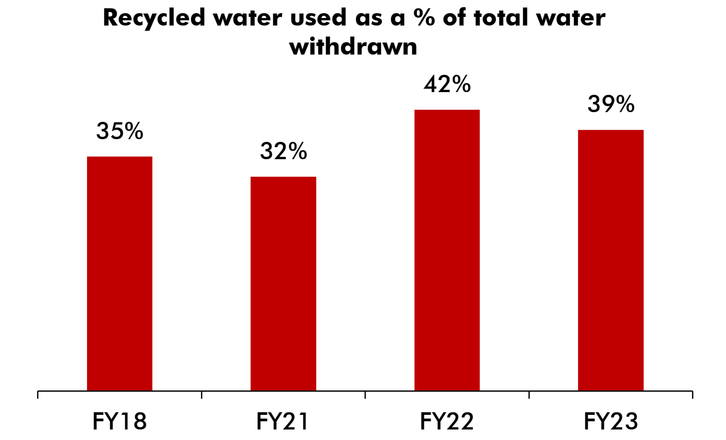
Cipla emerged as champion in the KPMG ESG conclave 2023. Initiatives to conserve water such as installing contactless water-level sensors to avoid overflow, rainwater harvesting etc. were taken since 2010. The company also took various steps such as increase in waste water recovery, cooling power blowdown, optimisation of steam condensed recovery and building 24 rain harvesting structures to conserve water. All API division plants were ZLD by 2018 and three formulation units achieved ZLD by 2022. The company classifies water management under high-risk category and has committed to be water neutral by 2025. Rainwater harvesting capacity increased substantially from 76,368KL to 120,648KL (7/10% of FY23 consumption) over FY21/22. Five of Cipla's plants were located in water-stressed areas which consume 27% of total water requirement. 3 out of 5 of these were ZLD. The company reports its BRSR on a consolidated basis and has shown significant improvement in water consumption in the last two years.

Exhibit 110: The company witnessed reduction in fresh water consumption…

	FY19	FY20	FY21	FY22	FY23
Third party water %	73%	77%	70%	67%	81%
Ground water %	23%	21%	28%	28%	16%
Surface water %	4%	2%	2%	5%	3%
Total water consumption ('000 KL)	1,827	1,811	1,999	1,646	1,567
Intensity (KL/₹mn)	11.2	10.6	10.4	7.6	6.9
Peer intensity (KL/₹mn)				7.9	6.4

Source: Company, Ambit Capital research. Peers considered are Dr. Reddy, Syngene and Biocon

Exhibit 111: …possibly due to increase in use of recycled water across its manufacturing plants



Source: Company, Ambit Capital research

Exhibit 112: ~1/4th of the water is consumed from water-stressed areas

Location	Nature of operations	As per company	As per CGWA	As per aqueduct	% water consumed
Kurkumbh (Maharashtra)	Form.	Water stressed	Semi Critical	Extremely high	27%
Virgonagar (Karnataka)	API	Water stressed	Over-Exploited	Extremely high	
Baddi (Himachal Pr.)	Form.	Water stressed	Safe	Extremely high	
Bengaluru (Karnataka)	API	Water stressed	Over-Exploited	Extremely high	
Pithampur (Madhya Pr.)	Form.	Water stressed	Over-Exploited	Extremely high	
Patalganga (Maharashtra)		Safe	Safe	Extremely high	73%
Verna (Goa)		Safe	Safe	High	
Rangpo (Sikkim)		Safe	Safe	High	
Rorathang (Sikkim)		Safe	Safe	High	

Source: Company, Ambit Capital research

Exhibit 113: Cipla has taken several steps on water conservation in the last five years

Year	Comments on water conservation
FY19	Water is used from cleaning the equipment to raw material. Given this criticality, Cipla has adopted the 5R approach - reduce, recover, reuse, recycle and rethink.
FY20	5R approach has helped reduce overall water consumption by 3% vs FY19. Four new initiatives to reduce water consumption adopted.
FY21	Set a target to become water neutral by 2025. Approach to water neutrality rests on three pillars, i.e., to reduce the usage of blue water, enhance the use of rainwater and treated water, and support our communities through water conservation programmes.
FY22	Rainwater harvesting systems installed in manufacturing facilities at Kurkumbh, Indore, Baddi, Bommasandra, Sikkim, Goa and Kundaim in the form of underground tank, recharge pits and shafts. The combined annual rainwater harvesting potential of these sites is 1,20,648 KL
FY23	Cipla tracks the entire cycle of water use including withdrawal, consumption and the recycling and reuse of wastewater which has resulted in 5% reduction of water withdrawal from FY22.

Source: Company, Ambit Capital research

Biocon

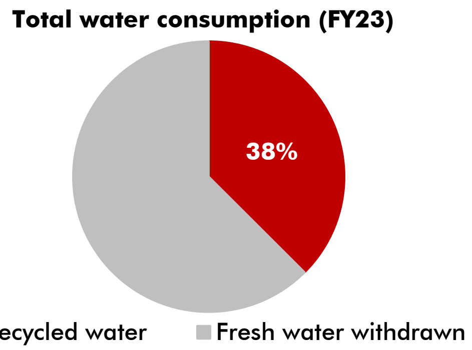
The company has been discussing water conservation from FY07. Drug manufacturing consumes a significant amount of water and accordingly various water conservation measures such as rainwater harvesting and recycling were continuously undertaken over the years. By 2012, all manufacturing plants were ZLD and a separate water committee was formed. In FY22, the company invested ₹80mn in water recycling, resulting in 680KLD water savings. It secured 'B' in CDP disclosures on water security. Measures like water accounting, audits, demand management, efficiency initiatives and risk assessments w.r.t. water consumption were undertaken. The company does not have any groundwater consumption. In FY23, it stated that it conducted a thorough water risk assessment and scenario analysis using the WRI aqueduct tool and determined that all its sites pose a low risk regarding water-related concerns. The company reports its BRSR on a consolidated basis.

Exhibit 114: Water intensity reduced significantly over FY21-23

Overall water usage	Unit	FY21	FY22	FY23
Consolidated				
Third party water (municipal)	%	0%	100%	94%
Other sources (municipal)	%	100%	0%	6%
Total water withdrawal	'000 KL	1,740	1,700	1,600
Total water consumption	'000 KL	ND	1,700	1,600
Water intensity basis turnover	KL/₹mn	24.36	20.77	14.32
Water intensity basis turnover (peer median*)	KL/₹mn	16.02	19.71	17.55

*Source: Company, Ambit Capital research. * Peers used for our analysis are Dr. Reddy's Laboratories Ltd., Lupin Ltd., Zydus Lifesciences Ltd*

Exhibit 115: Over 1/3rd of total water consumption comes from recycled water



Source: Company, Ambit Capital research

Exhibit 116: 81% of water is consumed from low-risk areas as per company disclosures

Locations	No. of plants	CGWA	WRI Aqueduct	As per Company	% water consumed
Bengaluru	2	Over exploited	Extremely high risk	Low risk	81%
Vishakhapatnam	2	Safe	Extremely high risk	Low risk	NA
Hyderabad	1	Over exploited	Extremely high risk	Low risk	NA

Source: Company, Ambit Capital research, management discussions

Exhibit 117: The company has taken up lake rejuvenation in Bangalore

Lake rejuvenation	Hebbagodi lake, Bangalore
Amount invested	₹82mn
Reduction in chemical oxygen demand (2017-20)	300%
Reduction in biological oxygen demand (2017-20)	1400%
Reduction in total dissolved solids (2017-20)	75%
Dissolved oxygen level	5mg/l
Company has now initiated the restoration of Yarandahalli Lake in Bommasandra, Anekal District, Karnataka, India	

Source: Company, Ambit Capital research

Exhibit 118: Multiple water conservation initiatives undertaken by the company in the Bangalore plant over the years

Year	Comments in the annual report
FY12	During the year, rain water harvesting was introduced at all locations with the installation of roof top rain water and storm water collection systen
FY13	Commissioning of a 200 KL storage tank at the Biocon Park facility for collecting rain water runoff.
FY18	Launched initiatives to revive 35-acre Hebbagodi Lake in Bengaluru
FY20	During this reporting period, we made a substantial capital investment to upgrade our Zero Liquid Discharge facility at our Bengaluru unit with th latest advancements in wastewater treatment
FY21	A new 600 KLD capacity zero liquid discharge, effluent treatment plant, based on advanced membrane bioreactor technology, was installed Bengaluru for an investment of ₹80mn in FY21.
FY22	35-acre Hebbagodi Lake in Bengaluru revived
FY23	Initiated the restoration of two other lakes, India. Leverage third-party conventional effluent treatment plants to treat wastewater and reuse it withi its plant premises in Bengaluru.

Source: Company, Ambit Capital research

Syngene International

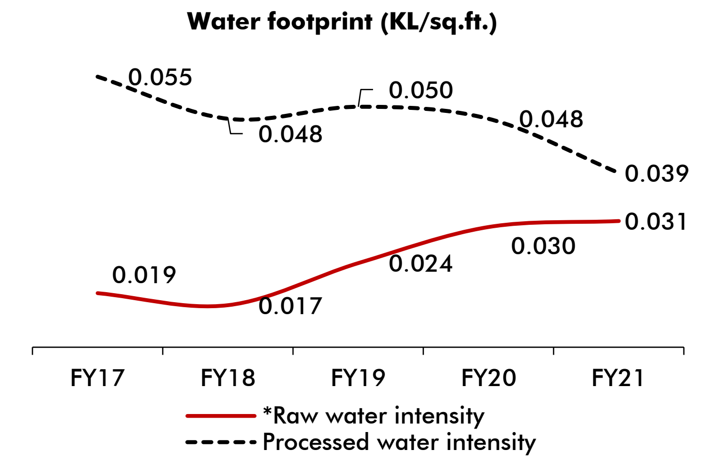
Over the last two years (FY21-23), the company witnessed revenue CAGR of 21% vs water consumption CAGR at 11%. Additionally, the company was also able to increase the % of water reuse/recycle from 15% in FY21 to 38% in FY23. Basis our findings, all manufacturing facilities are in extremely high-risk categories as per WRI Aqueduct. However, we could not find any specific commentary or action to mitigate the risks present in these locations. The company has not set any targets in view of achieving water neutral/positive situation. Focus seems to be on reducing fresh water consumption YOY through using different techniques like reuse of water, RO plant, rainwater harvesting, etc. But given high consumption of water, we believe it is critical to set a future trajectory of increasing the share of reuse/recycle water.

Exhibit 119: Water intensity improved sharply in FY23

	Unit	FY21	FY22	FY23
River water from Govt.	%	96%	97%	96%
Groundwater	%	4%	3%	4%
Water withdrawal & consumption	KL	146,747	171,034	179,335
% of water reused/recycled	%	15%	20%	38%
Revenue	₹mn	21,794	26,014	31,935
Water intensity basis revenue	KL/₹mn	6.73	6.57	5.62
Peer median*	KL/₹mn	NA	28.83	32.98

*Source: Company, Ambit Capital research. Above data is not available for prior years; reporting boundary for standalone operations (subsidiaries' businesses are insignificant); * peers are Divi's Laboratories and Suven Pharmaceuticals which have more manufacturing activities and thus are more water-intensive - these are the best peers; global peers also have more manufacturing and less R&D; NA means not available*

Exhibit 120: Processed water footprint fell over FY17-21



*Source: Company, Ambit Capital research. Above data was not reported for FY22 and FY23; data for FY17 & FY18 include laboratories footprint only; data for FY19-21 include laboratories and plants footprints; * until natural water is treated by a potable water treatment process, water is considered as raw water*

Exhibit 121: Majority of the facilities are in water-stressed areas

Manufacturing facilities	CGWA	WRI	Mgmt
Biocon Park, SEZ, Bommasandra Industrial Area – Phase-IV, Jigani Link Road, Bengaluru	Over exploited	Extremely high risk	Not applicable
113-C – 2, Bommasandra Industrial Area, Attibele, Hobli, Anekal, Bengaluru	Over exploited	Extremely high risk	Not applicable
IP-38 (Part), IP-39, IP-46, & IP-60, Kalavar and Bajpe village, Surathkal Hobli, Mangalore, Dakshina Kannada, Karnataka	Safe	Extremely high risk	Not applicable
Building 9000, Plot 7, Survey 542, MN Park, Synergy Square 2, Genome Valley, Kolthur (V), Shameerpet (M), Medchal, Hyderabad, Telangana	Safe	Extremely high risk	Not applicable

Source: Company, Ambit Capital research, CGWA= Central Ground Water Authority, WRI= World Resource Institute, Mgmt= Management

Exhibit 122: Key initiatives do not highlight plans/actions to reach water neutral or water positive situation

Site	Technique	Initiative	Impact
Mangalore	Gemba walk	Tapping reused water using reverse osmosis and recycling it	Reduced freshwater wastage by 3,000 litres/day
NA	Kaizen	Improved rainwater filtration, now suitable for utilities	Saving: 195 KLs of Freshwater in FY23.
Mangalore	Six sigma	Green belt project, Rainwater harvesting	1,021 KL in FY23
Bengaluru campus	Kaizen	Use of recycled water from the ETP at washrooms	Freshwater savings: >1,000 KL p.a.
Bengaluru		Advanced ETP	19% of effluent reclaimed & recycled

Source: Company, Ambit Capital research, NA means not available

ABB India

On total water consumption, the company ranks 24th in a list of 46 companies (1 highest, 46 lowest) and 31st basis water intensity. It identifies all locations as water-stressed areas. Over 60% of water is groundwater. In CY22, water consumption increased by 8%, i.e. a lower rate than revenue growth (17%) v/s CY19. Some key initiatives are ZLD adopted at facilities, water positivity awareness programs for value chain partners, rainwater harvesting (contributed to 1% of consumption in CY22), water positivity index of 1.24 at Nelamangala campus and a target to become water neutral/positive at all locations by 2025. Surat Municipal Corporation has partnered with ABB India to roll out new infrastructure (electrification equipment) enabling over one million residents in Surat to gain access to safe and reliable water. The company is also working with the Karnataka Govt. to ease water shortages in the state.

Exhibit 123: Water intensity has slightly reduced over the last four years

Sources	Unit	CY19	CY20	CY21	CY22
Surface water	%	ND	39%	35%	33%
Ground water	%	ND	60%	63%	65%
Third party water	%	ND	1%	1%	1%
Rainwater harvesting	%	ND	0%	0%	1%
Water withdrawal	KL	1,70,000	122,474	145,665	184,064
Water consumption	KL	ND	122,474	145,665	182,937
Revenue	₹mn	73,151	58,210	69,340	85,675
Water intensity	**KL/₹mn**	**2.32**	**2.10**	**2.10**	**2.14**
CG Power and Industrial*	KL/₹mn	NA	NA	4.54	4.52
Siemens#	KL/₹mn	NA	NA	1.79	1.85
Honeywell Automation*	KL/₹mn	NA	NA	0.97	0.86

*Source: Company, Ambit Capital research. Reporting boundary is consolidated operations for the Company and its peers, *CG Power & Honeywell have reported intensity for FY22/FY23, #Siemens has reported intensity for Sept'21/Sept'22, ND/NA means not disclosed/not available*

Exhibit 124: Initiatives seems largely focussed on rainwater harvesting and water recycling

Area	Initiatives
Nelamangala campus	Turned water positive in Jan 2022 as certified by The Energy and Resources Institute. 1.24 Water positivity index. Annual rainwater harvesting potential of 200+ mn litres (17 rainwater recharge wells, 2 recharge ponds and 5 cross wave technology-based recharge tanks) ~85% water recyclability through STPs.
Nashik facility	Rainwater harvesting saving 565KL/day Reduced indoor water usage by 47.8% (baseline not known)
All 25 facilities	Adopted ZLD.
Three facilities	Initiated rainwater harvesting projects based on CGWA/ IGBC guidelines
	In CY22, enhanced water recyclability by ~14% v/s CY21 and ~12% v/s CY19. However, volume of water recycled is not known.
	Aims to become water neutral / positive across all locations by 2025.
	Curated a 10 point ESG framework which includes water conservation focusing on rainwater recharge, reduction of freshwater, rainwater use, recycle treated water and real time monitoring of recharge, consumption, saving.
	Five awareness programs on ESG topics including water positivity. 23% value chain partners participated in CY22.

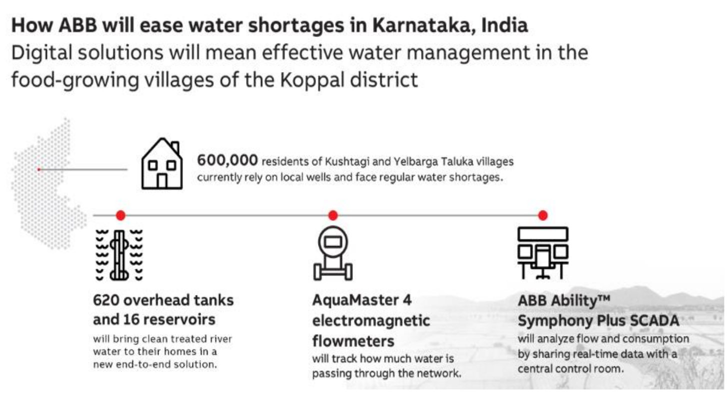
Source: Company, Ambit Capital research

Exhibit 125: The company identifies all facilities as located in stressed areas

Plants	Management	CGWA	WRI
Peenya	Stressed	Over-exploited	Extreme high
Nelamangala	Stressed	Over-exploited	Extreme high
Nashik	Stressed	Safe	Extreme high
Nashik	Stressed	Safe	Extreme high
Vadodara	Stressed	Critical	Extreme high
Faridabad	Stressed	Over-exploited	Extreme high

Source: Company, Ambit Capital research, CGWA= Central Ground Water Authority, WRI= World Resource Institute

Exhibit 126: ABB undertakes a govt. water management project in a water-stressed area



Source: Company, Ambit Capital research

Bosch

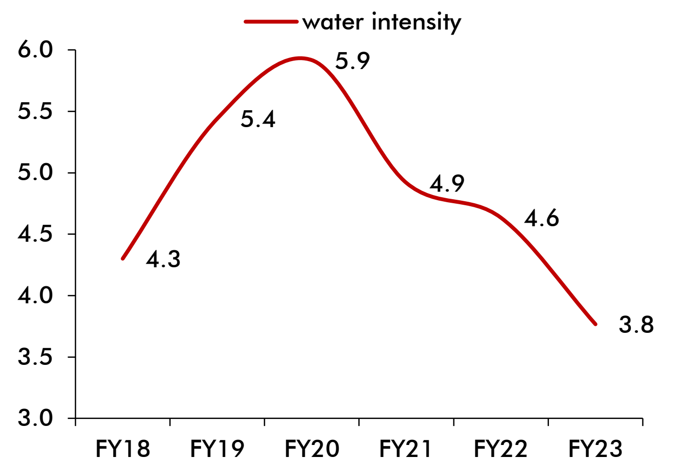
The company has been awarded for its water management (excellence in water management at Nasik plant by CII in FY22) and overall ESG initiatives (Sustainalytics rank#1 in FY24). It has taken several measures like drip irrigation for gardening, reuse of water, rainwater harvesting, water taps etc. to reduce water usage impact. For instance, the company claims to have 19,000KL of rainwater harvesting capacity, but it is only 3% of total water withdrawal. In FY25 the company aimed to reduce water withdrawal by 25% (base year FY17). Revenue grew 27% in FY23 vs FY22 whereas water consumption increased by a modest 3%. This possibly shows that the company's efforts on reducing incremental water consumption. The company can aim to further reduce water consumption and intensity and set specific targets like turning water neutral/positive. FY15-23 annual report suggests the company is actively working through CSR initiatives by installing check dams, rejuvenating lakes, installing RO plants etc.

Exhibit 127: Water intensity reduced by 19% in FY23

Companies		Bosch Ltd.	
Reporting Boundary	Unit	Standalone	
Overall water usage		FY22	FY23
Surface water	%	-%	-%
Ground water	%	12%	8%
Third party water	%	80%	86%
Other sources	%	8%	6%
Total water withdrawal	KL	546,017	562,394
Total water consumption	KL	564,711	583,147
Revenue (₹mn)	₹mn	117,816	149,293
Water intensity basis turnover	KL/₹mn	4.8	3.9
water intensity peer median*	KL/₹mn	1.8	1.9
% of water consumption to water withdrawal	%	103%	104%

*Source: Company, Ambit Capital research. * Seimens, Honeywell, ABB India*

Exhibit 128: Water intensity reduced vs pre-Covid levels



Source: Company, Ambit Capital research

Exhibit 129: Location-wise analysis suggests that a significant portion of revenue is generated from water-stressed regions

Business Segments	% of Revenue (FY23)	Plants for respective segment in stressed area	# of plant in stressed area	total plants for respective segment
Mobility solution	58%	Bangalore, Bidadi, Naganathapura, Jaipur, Manesar	5	9
consumer good	27%	Bangalore	1	2
industrial technology	8%	Ahmedabad	1	1
energy and building technology	8%	Bangalore	1	1

Source: Company, Ambit Capital research. Stressed area classification is basis CGWA. As per WRI, all the locations are classified as 'Extremely high'

Exhibit 130: Reading the last five years' annual reports suggests continuous focus on reuse of water

Year	Summary of sustainability initiatives
FY19	Water conservation projects have yielded substantial results but annual report lacks quantitative data
FY20	Company started reusing water and rainwater harvesting and also Jaipur plant received award regarding water conservation
FY21	Company followed "avoid, then reuse and dispose" principle w.r.t water management.
FY22	Company in its materiality matrix put water in moderate, additionally company took measure such as drip irrigation for gardening, special water taps, etc. company claimed to conserve 34% of their fresh water consumption by treating recycled water
FY23	Company claims to reuse water several times, under CSR company benefited 22,500 families and 100,000 lives/year

Source: Company, Ambit Capital research

CG Power & Industrial Solutions

The company went through a management change in FY20. Focus on water management could be next in line for new management. Initially, under old management, the company mentioned water conservation efforts through CSR activities along with some comments on rainwater harvesting, installation of water tanks and upgradation of ETP/STP. The comments lacked quantitative data and qualitative nature of initiatives. Moreover, initiatives did not seem commensurate to the volume of water actually consumed by the business. After the investment by Murugappa group, water management initiatives are slowly gathering momentum. Given its increasing capacities and revenues alongside increase in water consumption and water intensity, it is now critical to set specific targets and initiatives on water management. Majority of its facilities fall in stressed regions as per CGWA/WRI. The company needs to work on ZLD status. It mentions that none of the plants has ZLD status.

Exhibit 131: It is now critical to reduce water consumption/intensity

Overall water usage	Unit	FY22	FY23
Surface water	%	1%	1%
Ground water	%	26%	23%
Third party water	%	73%	76%
Sea water	%	0%	0%
Other sources	%	0%	0%
Total water withdrawal	KL	282,094	344,117
Total water consumption	KL	234,458	297,358
Revenue	₹mn	51,592	65,796
Water intensity basis turnover	KL/₹mn	4.54	4.52
Water intensity –Hitachi Energy	KL/₹mn	5.95	5.44

Source: Company, Ambit Capital research

Exhibit 132: Given its high dependence on third-party water, it is critical to identify risk mitigating measures

Location	CGWA	Aqueduct
Mandideep , Madhya Pradesh	Safe	Extremely high
MIDC Ahmednagar	Safe	Extremely high
Goa	Safe	High
Bhind, Madhya Pradesh	Safe	Extremely high
Ambad	Safe	Extremely high
Aurangabad	Safe	Extremely high
Gurgaon	Over-Exploited	Extremely high
Dhar, Madhya Pradesh	Safe	Extremely high

Source: Company, Ambit Capital research

Exhibit 133: None of the initiatives seems adequate given total consumption of water

Year	Measures
2019	1.Contribution to Asia's largest water and irrigation project by Telangana drinking water supply corporation ltd 2.Construction of well for drinking water, Water pumping and distribution project, Rain water harvesting project
2020	1.Installation of new mix bed plant at ETP has reduced the frequency of regeneration by 50% thus giving water saving up to 15 KL per month. 2) Replacement of old STPs 3) LVRM unit-2 provided 1000 litre water tanks to Hatvalan and Mandavgan Z.P. schools in Ahmednagar
2021	Sewage and effluent treatment plants have been installed and waste water from these plants is re-used for portable use
2023	1) Sewage treatment plant installed at Colvale unit helps in recycle of 12 KLD water 2)Water reservoir of 10 Lac Litres constructed in LIM plant.(Large Industrial Machines)

Source: Company, Ambit Capital research

Exhibit 134: While CG has reported on standalone basis, consolidated numbers won't have a major impact

Name of subsidiaries	Country	FY22		FY23	
		%	₹mn	%	₹mn
Standalone revenue of parent	India	94%	51,857	94%	66,217
CG Adhesive Products Ltd	India	0%	232	0%	236
CG Drives and Automation AB	Sweden	4%	2082	3%	2365
CG Drives and Automation	Netherlands	1%	534	1%	713
CG Drives and Automation GMBH	Germany	3%	1658	3%	1962
QEI LLC	USA	1%	779	1%	942
Adjustment including inter co		(3%)	(1,910)	(4%)	(1,987)
Consolidated revenue	India		55,232		70449

Source: Company, Ambit Capital research

Our last accounting note

Hello darkness, my old friend…

AMBIT Acumen at work

…I have come to talk with you again…

Accounting quality is getting ignored. ZOD companies outperformed ZOS companies/NSE100 (ex BFSI) by 23/39ppts in the past year, suggesting decreasing risk averseness. 50% of free-float mcap of BSE500 companies (ex-BFSI) features in the lower half of the accounting quality spectrum. There was rising interest in small-caps. Median institutional holding in ZOD small-caps sub-BSE500 increased from 0.09% in Dec-19 to 0.32% in Dec-23. Historically, small-caps had lower accounting scores vs large/mid-caps. High related-party transactions and weak audit quality and boards amplify accounting risks. Favorable business momentum need not always translate into accounting quality turnaround. ESG analysis is incomplete without considering business representation. Reach out for finding risks.

Key companies which witnessed improvement recently

Difference b/w FY23 vs FY19	Bharti Airtel	Polycab	JK Tyre	Orient Cement
CFO (pre-tax)/EBITDA	(1%)	-%	20%	(8%)
Cont. liab to net worth	(19%)	(20%)	3%	(16%)
FCF/Revenue	9%	1%	5%	16%
Misc. exp. to revenue	(1%)	-%	(1%)	(1%)
cash yield	(1%)	-%	0%	-%
CWIP/GB (6 yr. median)	(1%)	(2%)	(1%)	(6%)
Vol. in depr. rate) (bps)	(52)	(18)	(40)	(36)

Source: Ambit Capital research, Company. Ratios are computed on past six year basis ending FY19/23. Basis our framework, we have looked at six year median/cumulative numbers

High growth might not reflect good accounting quality

Several companies did witness significant growth in revenues and profits but it is critical to check their cash generation capabilities, both OCF and FCF, to rule out potential red flags in working capital and capex.

Some which witnessed cash conversion challenges

Company	Mcap (Rs.bn)	3 yr CAGR/cumulative ratio (FY20-23) Revenue	EBITDA	CFO/EBITDA
Delhivery*	292	37%	38%	*15%
Inox Wind*	146	(1%)	(200%)	*892%
Aether	115	29%	38%	20%
CCL Products	84	22%	12%	58%
VA Tech	39	5%	14%	40%

*Source: Ambit Capital research, Company.*Delhivery and Inox Wind both have negative CFO pre-tax and EBITDA and hence CFO/EBITDA figure is positive*

Stricter lens on RPT, auditors and governance

Promoter-run companies have lower accounting scores. Moreover, smaller companies usually have non-descript auditors and board members. Add to this higher related-party transactions.

Key companies with higher RPTs with KMPs*

Company	Mcap (Rs.bn)	Net estimated cash outflow as a % of consolidated revenue FY22	FY23
JSPL	744	(2%)	(7%)
Cello	184	(2%)	(3%)
Elecon	122	(10%)	(17%)
Raymond	119	(5%)	(6%)
Ask Automotive	60	(4%)	(3%)
Flair	35	(2%)	(3%)

Source: Ambit Capital research, Company. Some companies mentioned above do have renowned auditors. KMP include key managerial personnel, relatives of KMP and KMP entities

Ambit Capital Pvt. Ltd.

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Our recent notes

Please find below links of a few notes that we have published in recent years focusing on accounting/governance. We have tried to look at important aspects like accounting quality, boards, auditors and related-party transactions.

- ESG note 2023 - Reconsider ESG investible options (link for the report)
- ESG note 2022 – Adding ESG to Good & Clean 2.0 (link for the report)
- Note on boards – Finding light in shadow of promoter's dominance (link for the report), In the quest of impartial boards (link for the report)
- ESG - Net zero race - What winners need? (link for the report)
- Auditors – Do not trust the watchdog blindly! (link for the report), Spotting outliers on practices w.r.t auditors (link for the report)
- Related party transaction - Spooky family affairs of accounting laggards! (link for the report)
- Remuneration practices - Spotting outliers on executive compensation (link for the report)
- Latest accounting note (link for the report)

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SELL	We expect this stock to deliver less than or equal to 10 % returns over the next 12 months
UNDER REVIEW	We have coverage on the stock but we have suspended our estimates, TP and recommendation for the time being NOT
NOT RATED	We do not have any forward(looking estimates, valuation, or recommendation for the stock.

Note: At certain times the Rating may not be in sync with the description above as the stock prices can be volatile and analysts can take time to react to development.

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