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# Accelerating India's sustainability journey in chemicals

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## **Authors**

Avinash Goyal  
Chris Musso  
Divy Malik  
Jakob Fischer  
Naveen Unni  
Nitika Nathani  
Rajat Gupta  
Rupali Jain  
Ulrich Weihe



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## **Authors**

### **Avinash Goyal**

Senior Partner, India

### **Chris Musso**

Senior Partner, USA

### **Divy Malik**

Associate Partner, India

### **Jakob Fischer**

Senior Partner, Germany

### **Naveen Unni**

Partner, India

### **Nitika Nathani**

Partner, India

### **Rajat Gupta**

Senior Partner, India

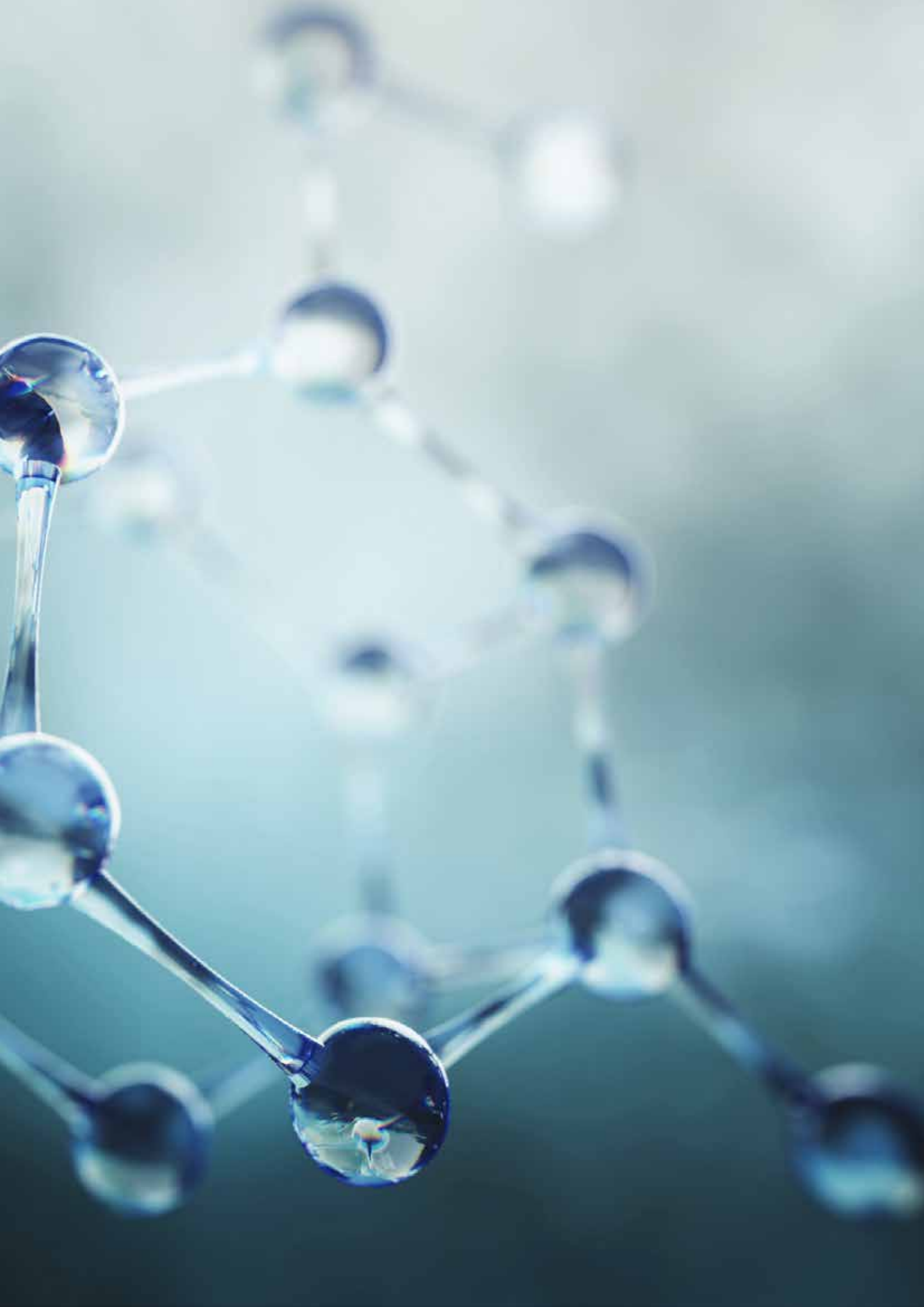
### **Rupali Jain**

Associate Partner, India

### **Ulrich Weihe**

Senior Partner, Germany

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# Executive summary

Sustainability is taking centre stage in society and the business world amid shifting demand from conscious customers, growing investor awareness and stricter regulations. This is leading to greater scrutiny of environmental, social and governance (ESG) considerations in chemicals, a sector that has historically been linked to environmental concerns due to energy-intensive operations, high greenhouse gas (GHG) emissions, and improper waste disposal.

These concerns also reflect in the ESG scores of chemical companies. For example, in a McKinsey analysis of ESG scores across 100 global organizations, few chemical corporations appeared in the top quartile (scores over 71) and close to half scored in the bottom two quartiles (below the median of 43).

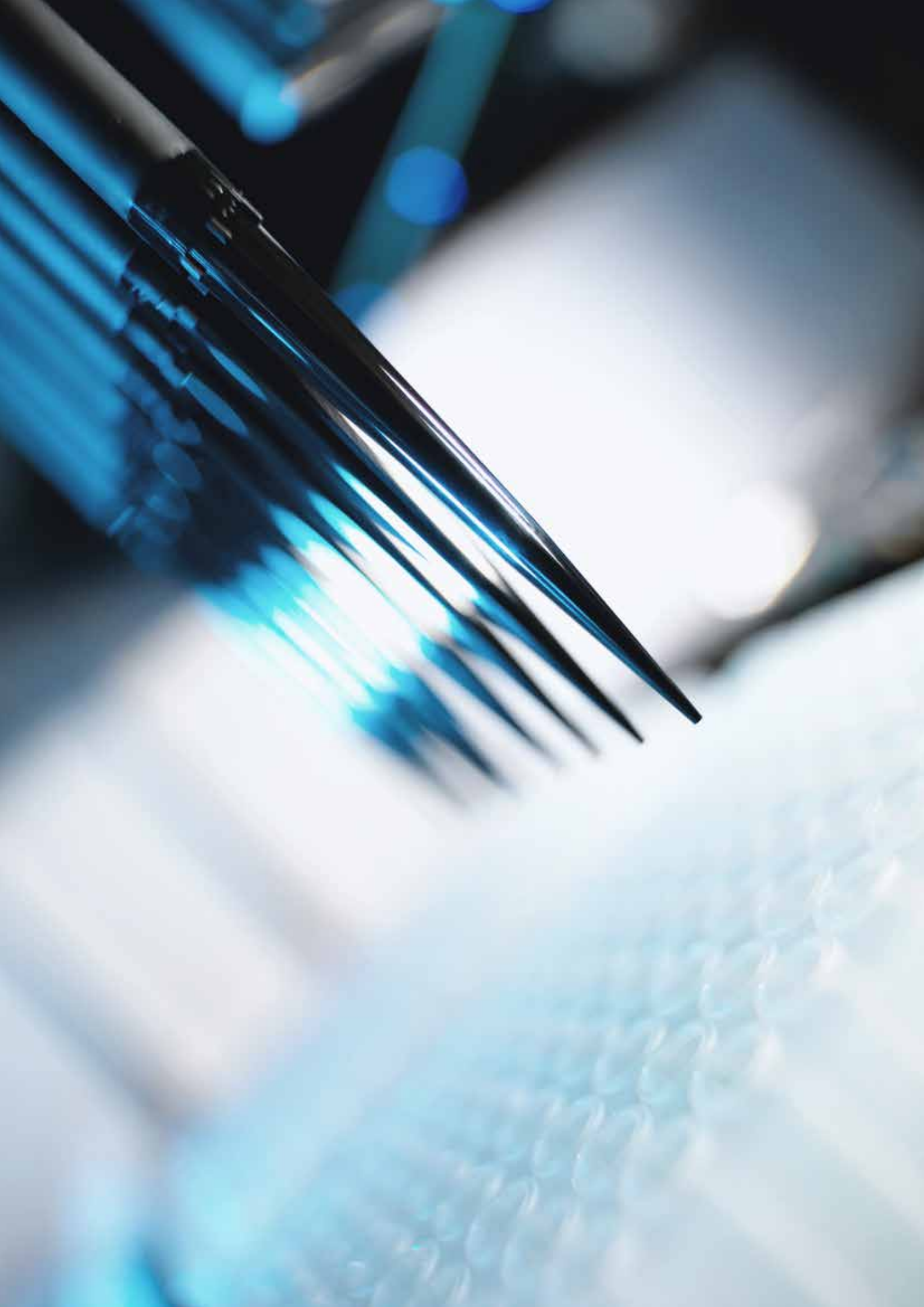
Several companies in the industry are already taking significant strides towards improvement by employing innovative technologies to cut down emissions, kicking off decarbonization efforts, and enabling other sectors to become more sustainable.

While these are important steps, the stark realities of climate change and environmental consciousness require the industry to do more. To begin with, more companies in the sector – big and small – could take a holistic approach to ESG and strive to perform better on environmental metrics. It may also be helpful to focus on the tangible benefits of ESG and sustainability – which could contribute to improved returns for shareholders and higher valuations for chemical companies.

Industry leaders embarking on their ESG journeys could look at three priorities as a starting point:

1. **Formulating an ESG vision and strategy:** Companies could review current business practices to understand where they stand and what could be changed. They could then prioritize sustainability drivers that matter most, use this information to formulate a clear ESG vision and communicate it to all stakeholders.
2. **Improving decarbonization efforts:** Since emissions are a major consideration in the environmental impact of the chemical industry, companies could focus on decarbonization efforts across different levels of emission.
3. **Exploring green growth opportunities:** They could develop products with a focus on sustainability to meet the needs of today's environmentally conscious customers.

Finally, companies need additional enablers to execute their ESG strategy successfully. They could ensure cross-functional alignment on aspirations and priorities, strict adherence to timelines and guardrails set by the ESG vision and strengthen teams traditionally leading ESG – Health Safety & Environment, Human Resources and Corporate Social Responsibility. Learning from peers and their ESG strategies could prove to be enlightening and serve as a guide for leaders through their sustainability journey.



# 1. Sustainability at the heart of next-gen chemicals strategy

The 26th United Nations Climate Change Conference of the Parties, held at Glasgow in 2021, differed from its 25 predecessors in one critical aspect. Countries and governments not only acknowledged the harmful effects of climate change but also vowed to initiate mitigative action. Conversations seemed to have finally moved away from ‘**Why** do we need to act?’ to the more proactive ‘**How** can we act?’ and ‘**What** can we do?’

This transition from the why to the how is increasingly apparent in business as well. Environmentally conscious stakeholders expect higher environmental, social and governance (ESG) standards from companies, pushing organizations in India and abroad to launch decarbonization and net-zero efforts.

Inaction is no longer an option for the chemicals industry – a top contributor to greenhouse gas (GHG) emissions and heavily reliant on fossil fuels.

The question of the hour seems to be: what role could sustainability play in building resilient businesses and unlocking tangible value.

In this report, we take different approaches to answer that question. Organizations could improve their ESG performance not just to embrace sustainability but also to create value beyond their top and bottom lines, thus meeting the expectations of key stakeholders—customers, investors and regulators.

- **E**, environmental criteria include the energy a company uses and the waste it discharges. Besides electricity, energy used may include resources such as water and non-renewable feedstock. Greenhouse gas emissions comprise the major part of the waste in the sector.
- **S**, social criteria include a company’s contribution towards safeguarding its labour, customers, and the communities within which it operates.
- **G**, governance is the internal system of practices and procedures a company adopts to make decisions and manage risks

While companies should approach ESG holistically and spread out their strategy across all three levers (E,S and G), this report primarily focuses on environmental aspects.

Some companies in the industry are already making progress by kicking off clean energy initiatives and helping other sectors become more sustainable. They have consistently outperformed peers in terms of TRS (total return to shareholders) and the report uses learnings from such examples to introduce a framework that could help Indian chemical companies to build and implement a sustainability strategy. The first step is recognising the hurdles to sustainability in an energy-intensive industry such as chemicals.

## The challenges to sustainability

McKinsey research shows that the chemicals sector alone contributes to 2 percent of the total global emissions and 1 percent of India emissions. Even within the industrials category, chemicals contribute to 7 percent of total greenhouse gases (GHG) released worldwide (Exhibit 1).<sup>1</sup>

Complex processes across the chemicals value chain are responsible for these high levels. Companies heavily depend on fossil fuels due to the lack of renewable feedstock, depleting precious natural resources. Meanwhile, limited sustainable disposal options add to concerns ranging from incineration emissions to toxicity from non-biodegradable wastes.

The industry’s challenges in this area also pull down its ESG performance (Exhibit 2), as measured by prominent rating agencies such as S&P ESG, Refinitiv, Sustainalytics, DJSI and MSCI.<sup>2</sup> A recent

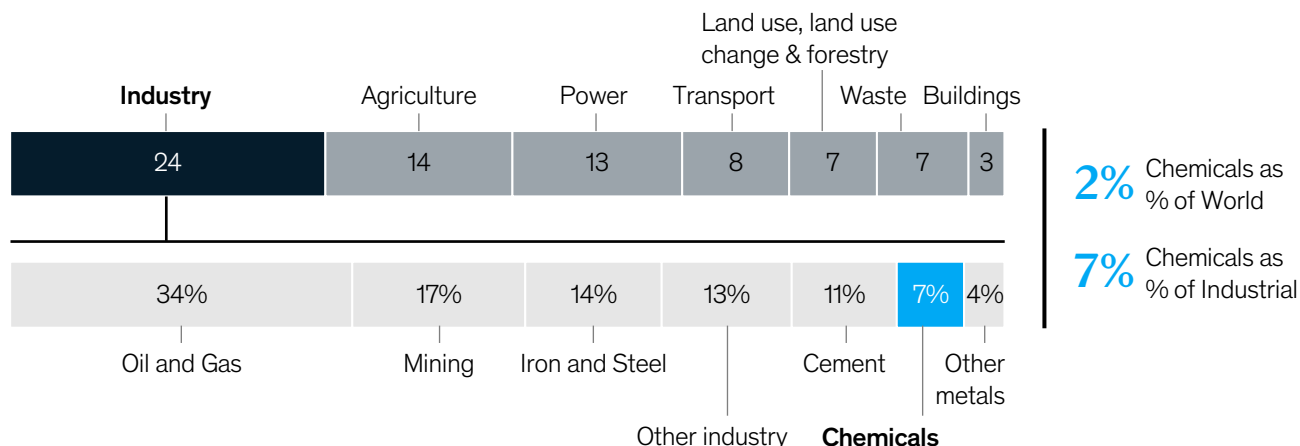
<sup>1</sup> EMIT (McKinsey Sustainability Insights. (2022). EMIT database by McKinsey Sustainability Insights).

<sup>2</sup> <https://www.spglobal.com/esg/solutions/data-intelligence-esg-scores>

Exhibit 1

## Global industry GHG emissions<sup>1</sup>.

GtCO<sub>2</sub>e per year, world



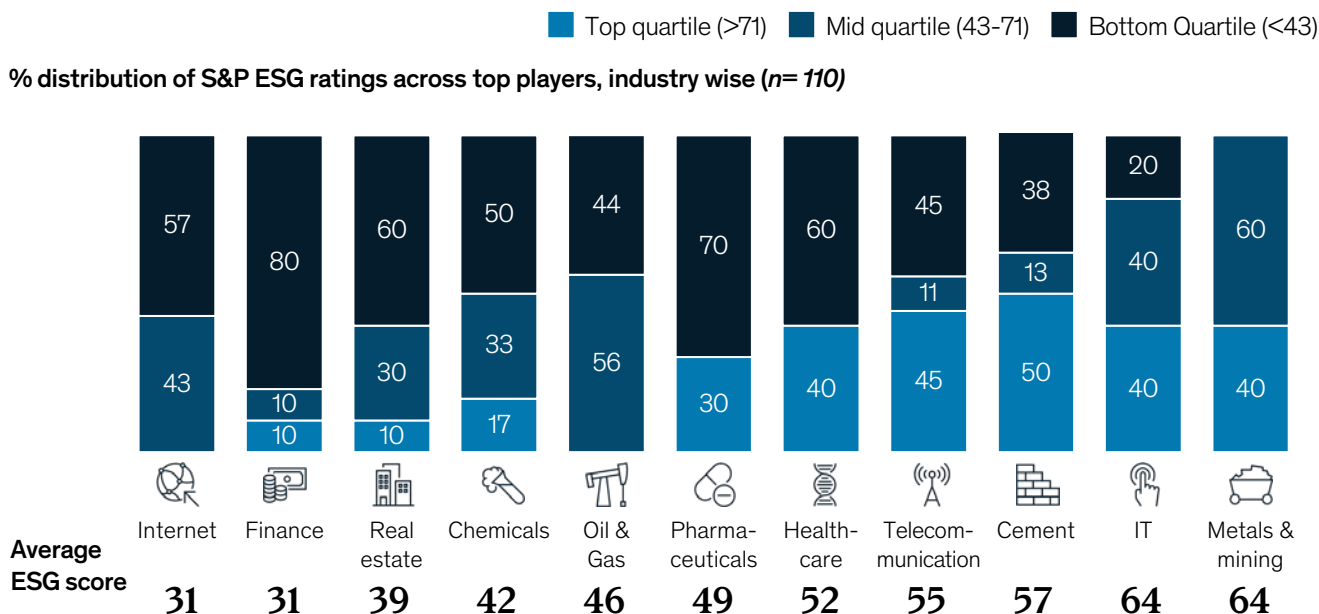
Source: McKinsey Sustainability Insights. (2022). EMIT database by McKinsey Sustainability Insights

McKinsey analysis of ESG scores across 100 global organizations, found only a few chemical corporations in the top quartile (scores over 71); in fact, close to half of them scored in the bottom two quartiles (below the median of 43).<sup>3</sup>

## The power of ESG

Exhibit 2

## S&P ESG scores for 100+ companies distributed industry-wise by performance<sup>1</sup>.



Source: S&P 2021, <https://www.spglobal.com/esg/solutions/data-intelligence-esg-scores>

<sup>3</sup> Quartiles were created using all the ESG scores across industries/ companies with median as 43. ESG scores for each company segregated as 'high' (score >71), 'medium' (71 > score > 43) and 'low' (score < 43) as per the quartiles. Companies were then aggregated as per their respective industry getting a distribution amongst 'high', 'medium' and 'low' ESG scores.

With several forces prompting ESG adoption in the chemicals industry, the low ESG scores could gradually improve. Stakeholders are pushing for greener practices in chemicals operations, while a more visible link between sustainability and value creation is further encouraging companies to align themselves to ESG norms.

### **Stakeholder preferences**

The most prominent push for change comes from conscious customers who prefer eco-friendly alternatives. Over 70 percent of customers surveyed on purchases across multiple industries were ready to pay an additional 5 percent for a green product if it performed as well as a non-green alternative.<sup>4</sup>

Investors are not far behind – ESG-linked projects often attract funds more easily. In a McKinsey global survey on valuing ESG programs, 83 percent of C-suite leaders and investment professionals indicated they were willing to pay close to a 10 percent premium to acquire companies with a positive ESG record over those with a negative one. In fact, global sustainable investment stood at about USD 30 trillion in 2018 – up 68 percent from 2014.<sup>5</sup>

Meanwhile, stricter regulations in key geographies and markets are ensuring companies comply with environment-friendly policies. The European Union, for example, is pushing for stringent regulations on cross-border carbon tax, using the proceeds to fund sustainability initiatives.<sup>6</sup> A company's location may no longer shield it from environmental legislation, encouraging organizations with global supply chains to adhere to ESG and carbon emission norms.

Finally, end-market alignment with sustainability is also increasing, creating demand for bio-based or green products. For example, sales of Unilever's water-saving dishwasher liquid and other eco-friendly brands outpaced category growth by about 20 percent.<sup>7</sup> Companies that continue to embrace greener processes in the long term may find their growth compounding over the years: Finland's Neste, founded as a traditional petroleum-refining company more than 70 years ago, now generates more than two-thirds of its profits from renewable fuels and sustainability-related products.

### **Sustainability as a value creator**

A focus on sustainability helps companies create tangible value in the present and future. Reducing exposure to carbon, for instance, could allow chemical companies to get a wallet-share of customers who have pledged to cut their carbon footprint. This translates into increased market share, improved ESG ratings and a potential boost to TRS (Exhibit 3).<sup>8</sup>

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<sup>4</sup> Unless otherwise specified, all sources in this section are drawn from the McKinsey report "Five ways that ESG creates value" November 2019; <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/five-ways-that-esg-creates-value>. Industries surveyed include automotive, building, electronics, and packaging categories.

<sup>5</sup> The online survey was in the field from July 16 to July 31, 2019, and garnered responses from 558 participants, including 439 C-suite executives and 119 investment professionals. To adjust for differences in response rates, the data are weighted by the contribution of each respondent's nation to global GDP.

<sup>6</sup> <https://www.mckinsey.com/business-functions/operations/our-insights/net-zero-or-bust-beating-the-abatement-cost-curve-for-growth>

<sup>7</sup> <https://www.unilever.com/news/news-search/2016/the-true-impact-behind-our-sunlight-water-centres/>

<sup>8</sup> McKinsey's perspective on "Chemicals and capital markets: Growing sustainably"; <https://www.mckinsey.com/industries/chemicals/our-insights/chemicals-and-capital-markets-refocusing-on-the-fundamentals>

## Global chemical companies with high sustainability end-market scores outperformed peers in total return to shareholders (TRS)<sup>1</sup>.



<sup>1</sup> CPAT (2016-2021), Company investor presentations.

<sup>2</sup> 5-year TRS calculated from 8/31/16-8/31/21. 2-year TRS calculated from 8/31/19-8/31/21.

<sup>3</sup> Orientation score determined by multiplying % of company's revenue tied to tailwinds (10.6x), neutral (3.1x), and headwinds (2.1x) end-markets. High and low scores categorized based on an orientation score above or below 3.1.

Source: Company investor presentations, Corporate Performance Analytics™, a McKinsey Solution

Aligning business to sustainability end-markets such as EVs, Carbon Capture Utilization & Storage (CCUS), water and waste management, and bio-based consumer products could be an even more robust growth driver.<sup>9</sup> For example, China's plan to combat air pollution is expected to create more than USD 3 trillion worth of investment opportunities through 2030, across industries such as air quality monitoring, indoor air purification and cement mixing. Companies that align their business to such end markets could also gain investor confidence, again leading to a higher TRS.

Chemical companies that embrace sustainable practices could see themselves as investing in a resilient future. They ensure long-term business continuity as environmental regulations, such as mandatory zero liquid discharge, 'net-zero' emissions or carbon neutrality, grow increasingly stringent worldwide. But how exactly do industry leaders approach such a transition? The following section proposes three themes Indian chemical CXOs could consider to build their sustainability programme.

<sup>9</sup> <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/five-ways-that-esg-creates-value>





# 2. Three priorities for industry CXOs approaching ESG

Uncertain about where to begin their sustainability journey, many Indian chemical companies have waited to see what their peers would do, keeping them in a state of inertia. This reflects in their low ESG scores, a critical area that needs immediate attention.<sup>10</sup> Since different agencies base their ESG assessments on a range of factors, companies should aim to perform well across all of them.

An analysis of ESG scores in the industry shows two big ways in which companies can catch up<sup>11</sup>:

- **Improving engagement with ESG rating agencies:** Rating agencies rely on information from companies or public data to complete assessments. The fact that only 10 of the top 50 Indian chemical companies have S&P ESG ratings, and just six have Refinitiv scores, could highlight limited engagement. Ensuring regular communication with agencies might thus help companies gain momentum on their ESG journeys.
- **Doing better on environment-related criteria:** There is a large gap between the average ESG scores of the top 10 Indian chemical companies (32) and their global counterparts (70). While performance on social and governance metrics is comparable between the two groups, global companies did better on environment-related criteria (Exhibit 4). Indian chemical companies could design better initiatives to battle environmental challenges and climate change to bridge this gap.

On the bright side, the industry does well on some levers. A number of big companies have already formulated comprehensive ESG plans. These typically include decarbonization initiatives, increased investment in ESG, and meticulously tracking sustainability performance and outcomes.<sup>12</sup> In terms of ESG scores, Indian chemical companies consistently perform better than their global peers on codes of business conduct, operational efficiency, customer relationship management and human capital development.<sup>13</sup>

Learnings from such examples in India and abroad suggest a three-step approach to ESG and adopting sustainable practices:

## 1. Formulating an ESG vision and strategy

The first step to crafting a clear ESG vision and strategy is running an internal diagnostic that reveals what is working well (and what is not) in the company's current business practices. The following approach could shape the diagnostic:

- Identify a baseline. Review the organization's current practices, its evolution, and how it compares with relevant peers from similar industries.
- Assess the industry landscape. Understand what industry peers are doing as part of their ESG efforts. Also, what can new technologies accomplish in terms of revamping current operations?
- Ask what economics are at stake in the short, medium and long term. Establish a clear link between ESG and value creation to prioritize the sustainability drivers that matter most.

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<sup>10</sup> S&P ESG data




<sup>11</sup> CapitalIQ

<sup>12</sup> Sustainability reports; press search, company websites

<sup>13</sup> CapitalIQ

## How top Indian and global chemical companies perform across ESG parameters.<sup>1</sup>

Above peer average  Below peer average

		Indian companies						Global companies						
		Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Avg. top 10	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Avg. top 10	Avg. top 50
<b>Environmental</b> 	Climate strategy	42	42	45	40	54	24	93	84	90	90	80	81	50
	Water-related risks	74	25	0	25	25	15	100	100	100	100	70	86	30
	Operation eco-efficiency	83	77	29	58	57	37	78	67	73	52	67	59	40
<b>Social</b> 	Product stewardship	89	53	0	33	57	28	96	92	86	89	63	77	34
	Human capital development	77	73	28	60	71	43	88	89	74	68	70	76	42
	Customer relationship management	73	55	8	100	100	34	0	90	90	76	100	79	28
	Occupational health & safety	30	21	32	22	30	15	54	65	46	61	78	47	26
<b>Governance &amp; Economics</b> 	Codes of business conduct	92	88	52	65	72	55	98	94	82	86	89	82	52
	Innovation management	74	50	4	29	62	24	100	87	84	80	99	78	24
<b>Overall ESG score</b>		66	54	27	43	53	32	82	77	75	77	74	70	38

<sup>1</sup> Top 50 Indian and global companies on market capitalization taken; S&P ESG data was only available for 10 of 50 Indian companies and 43 of 50 global companies. Note: Comp stands for Company

Source: S&P 2021, <https://www.spglobal.com/esg/solutions/data-intelligence-esg-scores>

When asked what could help companies get going on their sustainability goals, the former CEO of Coca-Cola Enterprises, John Brock, said organizations should decide what is important, communicate it, and act on it.<sup>14</sup>

Executives looking to draw up an effective ESG strategy could adopt a holistic approach by incorporating elements across environmental (GHG emissions, resource usage including water, operating efficiency), social (occupational health and safety, human rights, community engagement) and governance (business ethics, presence of independent directors, diversity) factors.

It is critical to proactively communicate ESG goals, initiatives and progress to all stakeholders, including the government, organizations, and financial institutions. Keeping these stakeholders in the loop is important as they often influence the business environment and could play an essential role in delivering future ESG plans.

## 2. Increasing decarbonization efforts

With growing awareness of climate change, it is critical that companies centre their ESG strategy on reducing GHG emissions. At the COP26 summit at Glasgow in 2021, more than 130 countries representing 70 percent of global emissions set net-zero targets.<sup>15</sup>

According to GHG protocol, emissions can be classified across three categories:

- **Scope 1** includes direct GHG emissions from sources owned or controlled by the organization. This could include, for instance, emissions associated with fuel combustions from boilers and furnaces.
- **Scope 2** includes indirect GHG emissions associated with purchasing electricity, steam, heat, or cooling. For example, such emissions could occur at facilities generating electricity.
- **Scope 3** includes all other indirect emissions that result from a company's activities but originate at sources not owned or controlled by the company. Extracting and producing purchased materials, transporting purchased fuels, using and disposing of final products could cause such emissions.

In a typical chemicals value chain, 15 to 30 percent of the total GHG emissions come from production operations and are classified as Scope 1 and 2 emissions.<sup>16</sup> Most GHG emissions are Scope 3, which is much more challenging to ascertain. The data required to evaluate these emissions is not always available from suppliers and customers, forcing companies to rely on models or approximations to estimate their carbon footprint. Nevertheless, even a less-than-perfect picture could act as that much-needed catalyst for improvement.

### Decarbonization targets in the chemical industry

Several global chemical companies have proactively committed to long-term reductions in GHG emissions and eventual net-zero aspirations. Sixteen of the top 20 global chemical companies have pledged to cut a percentage of their GHG emissions by 2030, and nine committed to achieve net-zero carbon emissions by 2050. BASF has cut its GHG emissions by almost 50 percent over the last three decades, despite doubling production volumes. It achieved this using patented catalysts to lower carbon dioxide emissions and increasing efficiency at its plants.<sup>17</sup>

In comparison, Indian chemical companies are lagging. Only five of the top 20 Indian chemical companies have set GHG reduction targets until 2030, and none have declared a target year to achieve net-zero emissions (Exhibit 5).<sup>18</sup>

<sup>14</sup> <https://www.mckinsey.com/featured-insights/leadership/taking-ownership-of-a-sustainable-future>

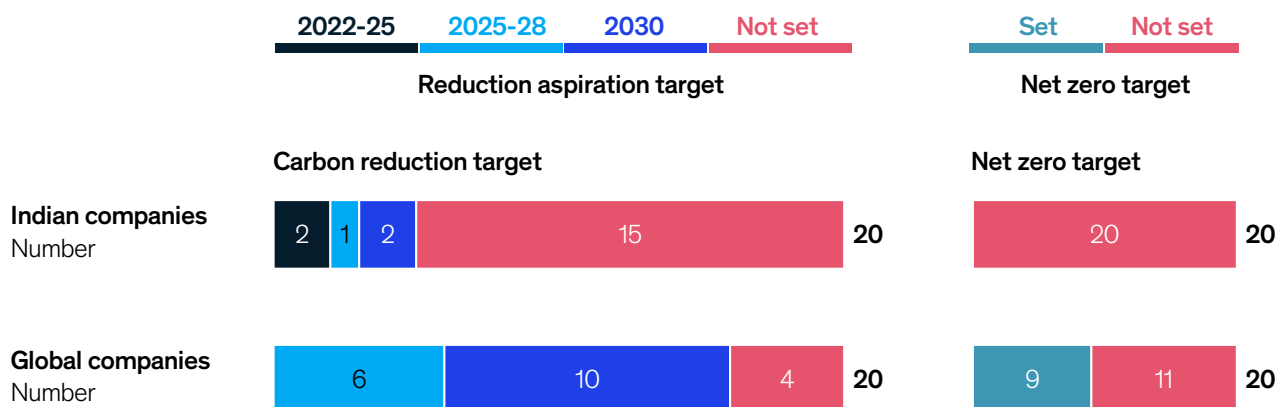
<sup>15</sup> Energy & Climate intelligence unit, Climate Watch Net zero tracker; <https://eciu.net/netzerotracker>

<sup>16</sup> McKinsey report: Making Supply Chain Decarbonization happen: <https://www.mckinsey.com/business-functions/operations/our-insights/making-supply-chain-decarbonization-happen>

<sup>17</sup> <https://www.basf.com/tw/en/who-we-are/sustainability/whats-new/sustainability-news/2019/innovations-for-a-climate-friendly-chemical-production3.html>

<sup>18</sup> Company sustainability reports and websites; press search

## Decarbonization targets set by top 20 Indian and global chemical companies.



Source: Press search, company sustainability reports, company websites

### Evaluating options for end-to-end decarbonization

The chemical industry relies heavily on hydrocarbons as feedstock and energy sources, inviting constant regulatory and public scrutiny. However, since most Scope 1 and 2 emissions are controllable, kickstarting decarbonization efforts could not only have a positive ecological impact but also facilitate cross-sectoral benefits (since chemicals form the base of several industries).

Organizations could consider a variety of approaches to decarbonization:

- Energy efficiency or process set-up changes:** These involve process innovations, including catalysts, thermal modelling for loss mitigation, or closing material loops through circular economy solutions. Although the industry has been good at this traditionally, the advent of predictive analytics (e.g., AI-powered energy management) could further improve processes.
- Carbon Capture, Utilization & Storage (CCUS) on emissions:** These solutions aim to capture carbon dioxide and convert it into more valuable products (e.g., biofuel, concrete) while retaining the carbon neutrality of the production processes.
- Electrification with carbon-neutral power:** Electrification of the transport system and chemical processes, substituting fossil-based hydrocarbons with renewable energy sources (e.g., solar, wind, bioenergy), is critical to decarbonization efforts.
- Hydrogen as fuel:** Increased use of decarbonized blue (produced from natural gas with carbon capture technology) and green (from electrolysis with renewable energy) hydrogen has immense potential to reduce emissions from industrial production processes and electricity generation.
- Biobased fuel and feedstock:** Sustainable feedstocks like plant or animal fats, starch, or sugar, can help produce bio-based chemicals such as alcohols, polyesters, and other products.
- New cracking technologies:** Innovative cracking technologies efficiently cut carbon content across production processes, e.g., incorporating chemical looping could facilitate highly efficient carbon dioxide separation during fuel combustion in cracker operations.

It is also crucial to acknowledge that implementing a 20 to 30 year decarbonization roadmap is a complex, organization-wide effort. From developing an effective ESG strategy to involving critical functions – either as deployment leads (e.g., manufacturing, supply chain and logistics) or critical enablers (e.g., digital and analytics, organization strengthening and governance), the process demands meticulous planning and flawless execution.

### **Implications for CXOs as they formulate their decarbonization action plan**

After analyzing the ESG journeys of several global chemical players, we collated a list of insights that could help Indian chemical CXOs kick off their decarbonization efforts:

- Craft a detailed roadmap to achieve decarbonization aspirations. This is more logical than moving fast. Economic implications and technological breakthroughs are two key factors that could drastically alter an organization's decarbonization strategy in the long run; it is wise to account for the possibility of such changes from the get-go.
- Ensure strict compliance with regulations and reporting standards. Decarbonize own operations and assess physical and transition risk.
- Follow an integrative, collaborative approach across functions, including decarbonizing the supply base through sustainable sourcing, low carbon mobility in logistics and renewable energy use in manufacturing, green financing, innovative product development solutions, and advanced analytics.
- Pursue levers that have positive Net Present Values immediately (e.g., loss reduction, energy efficiency, use of renewable power in the overall energy mix).
- Include nascent technologies (e.g., green hydrogen, CCUS) in the roadmap only after their economic feasibility is achieved.

Although decarbonization remains a key focus area for Indian chemical companies, it is critical to recognize that other sustainability topics (e.g., water conservation and zero liquid discharge, waste reduction including end of life management) could be as relevant based on context and the company.

## **3. Exploring green growth opportunities**

Building green products and businesses is critical to responding to sustainability challenges and addressing emerging customer demand and technology shifts. Companies could look at revamping existing products with a focus on sustainability (e.g., using bio-based inputs) or aligning with environmentally conscious end-markets.

### **Introducing green products**

Several companies may want to radically reinvent their processes to introduce bio-based or less carbon-intensive products, thereby balancing their portfolio of products. Many global and Indian companies use green feedstock and sustainable processes.

Solvay owns several brands that offer green alternatives to existing products in the market – e.g., Augeo is a cleaning solvent that uses glycerine from soybean instead of traditional petrochemicals.<sup>19</sup> UPL's green product Zeba is an in-furrow application, derived from corn starch, which improves water retention and soil health.<sup>20</sup> Jubilant Ingrevia uses ethanol instead of traditional petro-based feedstock while manufacturing pyridine.<sup>21</sup> Ethanol, derived from sugarcane molasses, is not only a cost-effective alternative but also cuts carbon emissions by 34 percent.

### **Entering greener segments**

Decarbonization-driven megatrends could lead to a USD 4 to 5 trillion addressable global market by 2025 across multiple sub-themes (Exhibit 6).<sup>22</sup> Indian chemical companies could realign their portfolios to tap these trends.

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<sup>19</sup> <https://www.solvay.com/en/brands/augeo>

<sup>20</sup> UPL sustainability report; [https://www.upl-ltd.com/downloads/UPL\\_Sustainability\\_Report\\_2019-20.pdf](https://www.upl-ltd.com/downloads/UPL_Sustainability_Report_2019-20.pdf)

<sup>21</sup> Jubilant Ingrevia sustainability report; [https://jubilantingrevia.com/pdf/jubilantingrevia-sustainability\\_report\\_2020-21.pdf](https://jubilantingrevia.com/pdf/jubilantingrevia-sustainability_report_2020-21.pdf)

<sup>22</sup> Press search, company websites

## Decarbonization megatrends could lead to an addressable global market of ~ USD 5 trillion by 2025.

Not exhaustive

Investable themes – addressable global market size in 2025 (\$ billion), across all industry sectors

Decarbonization of power	Renewable power generation	Microgrids and resiliency	Flexibility and energy storage
	Grid and customer energy analytics	Advanced solar PV technology	
Low carbon mobility	Electrification of vehicle power trains	Next-gen batteries	Charging infra and energy services
	Fleet decarbonization		
Circular products & packaging	Sorting and processing tech	Sustainable packaging	Circular products and upcycling
	Reverse logistics supply chain services		
Water and waste management	Industrial water treatment	Infra rehabilitation and management	Water analytics and smart management
	Advanced	Waste	Management
	Waste to energy		
Low carbon agriculture and food supply chain	Low carbon proteins	Sustainable timber	Tech enhancements for crop yields
	Crop	Preservation/waste reduction	Methane inhibitors
Hydrogen and low carbon fuels	H2 electrolyzers	H2 blending materials	Hydrogen mobility
	Project development	Bio-refineries	Biofuel innovation
High efficiency buildings	Energy efficiency and building controls	Building electrification	Green building materials
	On-site clean energy		
Industrial decarbonization	Green cement and CO <sub>2</sub> negative aggregates	High efficiency iron & steel production	Decarbonization of industrial process heat
	Industrial energy efficiency		
CCUS	Sorbents for carbon capture	CO <sub>2</sub> to fuel	Direct air capture
	Novel point-source capture	CO <sub>2</sub> pipelines and transport	CO <sub>2</sub> capture infrastructure
Carbon markets, offsets, financing	Offset project design, development, and supply	Marketplaces and exchanges	Carbon credit brokers and retailers

Source: Expert interviews

BASF's corporate purpose says, 'creating chemistry for a sustainable future'.<sup>23</sup> Sustainable solutions contribute substantially to the company's overall business, accounting for EUR 16.7 billion in sales in 2020. The company plans to boost this number to EUR 22 billion by 2025.

LG Chemicals, a leading manufacturer of EV battery materials, also produces several other eco-friendly materials, e.g., NanoH2O, an RO membrane that treats seawater and is used in several large desalination projects.<sup>24</sup>

Several companies also offer services to treat industrial wastewater and produce coagulants, flocculants, heavy metal removers, RO membranes, and micro solutions for secondary treatment. These are further examples of how chemical companies can create value while helping other organizations become sustainable.

Sustainability is more than a feel-good exercise and an avenue for cost reduction. A tough stance, and a significant investment of time, money and resources could be necessary for companies to fulfil their bold ESG commitments.

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<sup>23</sup> BASF corporate factbook; [https://www.basf.com/global/documents/en/investor-relations/calendar-and-publications/Factbook/BASF\\_Factbook\\_2021.pdf](https://www.basf.com/global/documents/en/investor-relations/calendar-and-publications/Factbook/BASF_Factbook_2021.pdf)

<sup>24</sup> <https://www.lgchem.com/product/PD00000070>



# 3. Executing ESG strategy at chemical companies

The transition to clean energy could have a profound impact on every aspect of the chemicals business. Company leaders must move away from small-scale disjointed efforts to a more holistic, transformational approach. They could start by learning from other Indian chemical companies that have made progress in executing their ESG plans. Further, they could utilize enablers such as milestone-based tracking systems and a supportive organization structure to mobilize execution.

## Learning from the success of others

Top Indian chemical companies with high ESG scores follow comprehensive and actionable plans. Some learnings from their examples include:

- CEOs and boards must take an active interest in sustainability performance and frequently review progress. For example, a leading chemical company conducts reviews on a half-yearly basis, verifying reported data through systematic internal and external audits. It also publishes a comprehensive sustainability performance report annually, as per Global Reporting Initiative (GRI) standards.
- Holistically approaching environmental criteria, focusing on GHG reduction (Scope 1 and 2), energy efficiency, and cutting down water consumption is essential. Currently, several chemical companies meticulously monitor and report data on their initiatives, set proactive targets, and improve initiatives by modifying processes and adopting new technologies.
- Companies monitor global sustainability trends and improve their initiatives as per best practices. By doing this, a top agrochemical company has significantly changed its ESG strategy.
- Some are also incorporating social and governance policies, e.g., communicating progress on UN Sustainable Development Goals, setting up human rights guidelines, encouraging transparency, and ensuring safety at manufacturing facilities.
- Another ESG leader in the industry is focusing on delivering value-based outcomes for all stakeholders. The company leverages core capabilities to create sustainable solutions for farmers and employs processes that mitigate climate change risks. It also prioritizes enhancing world food security, improving yields, sustainable sourcing, and strengthening community well-being through education, health, and sanitation.

## Tracking milestones along the transformation journey

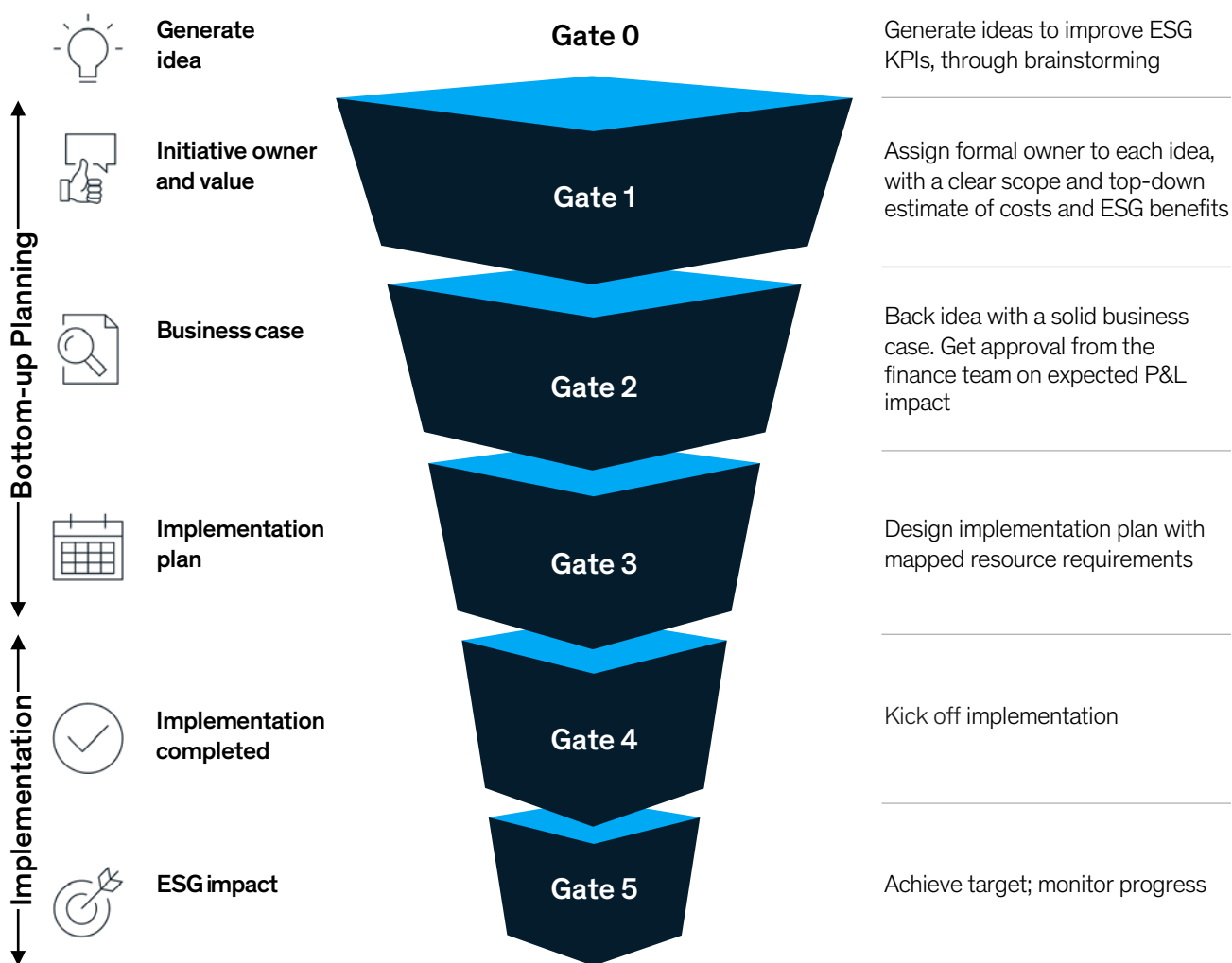
To create real change, chemical companies could think bigger than one-off, scattered initiatives and develop a long pipeline of projects that solve real-world problems and leverage technology. Next, they must identify critical changes that could clean their value chains, rank them in ascending order of cost per ton of abated carbon and map them to their respective prices.<sup>25</sup> To beat the cost curve, companies could pick some immediately actionable initiatives and develop a long-term view on sustainability for business continuity.

For the short term, they could look to cut emissions by implementing known technologies and approaches in the control room, on the shopfloor and across the organization. Milestone tracking could be critical here to keep a sharp eye on progress. ESG initiatives could follow a structured stage-gated process to ensure focus on bottom-up planning and successful implementation. Each initiative must go through five phases or 'gates' to be cleared (Exhibit 7).

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<sup>25</sup> McKinsey Article: "Net zero or bust: Beating the abatement cost curve for growth, April 2021 <https://www.mckinsey.com/business-functions/operations/our-insights/net-zero-or-bust-beating-the-abatement-cost-curve-for-growth>

**Initiatives move through a structured stage gate process, with a sharp view on status.**



A long-term view on business continuity could lead executives to other possibilities that do not currently appear on the abatement curve. These could take the form of big bets on new technical, strategic and market opportunities that capture value and reduce environmental impact.

**Strengthening the ESG organization structure**

A sturdy ESG organization structure allows for combining projects from traditionally non-priority functions such as CSR, HR and SHE (Safety, Health and Environment) under a single ESG transformation office and empowers them to drive change.

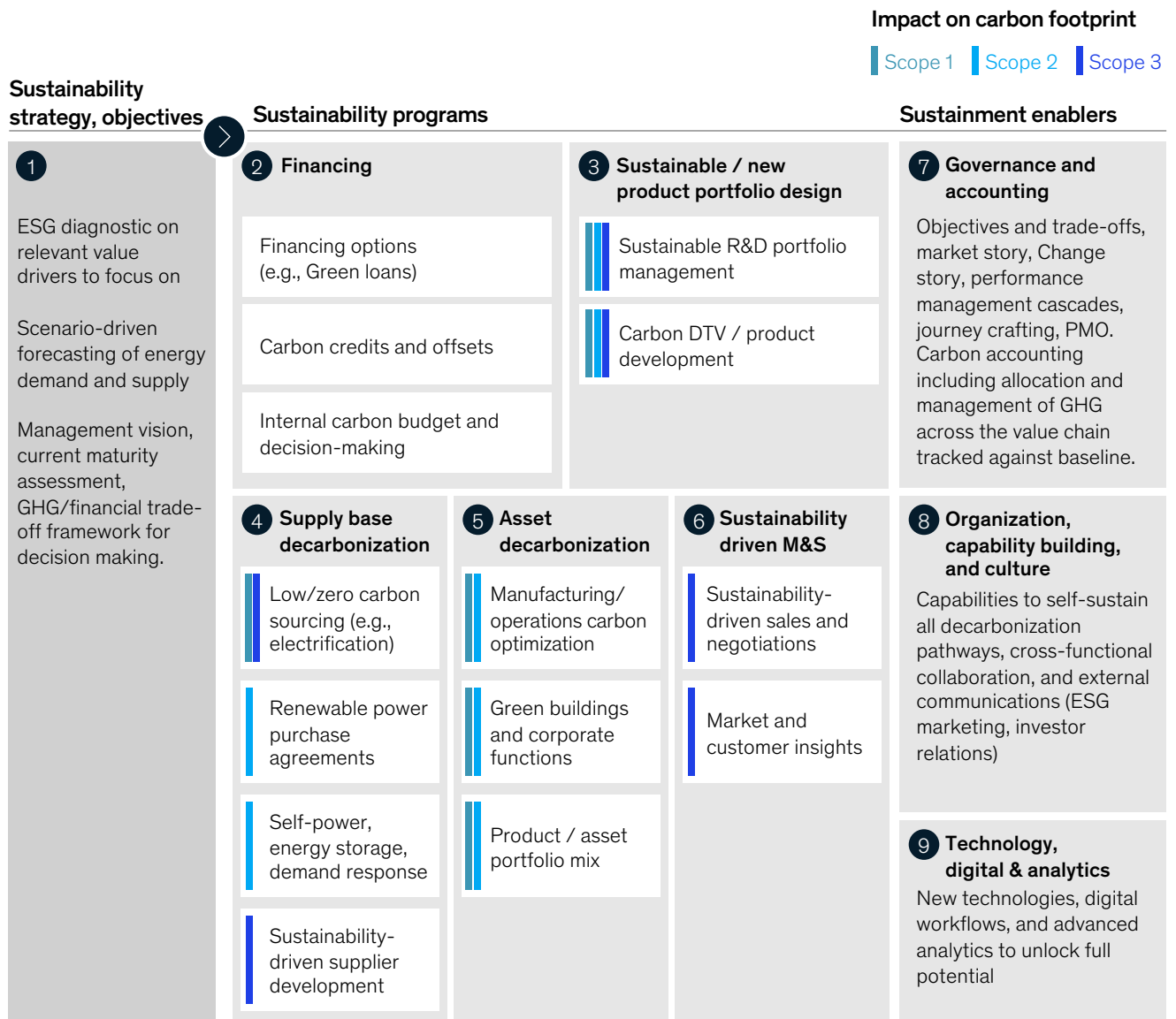
To successfully operationalize efforts, companies could develop new capabilities at a transformational scale, including hiring expert talent and upskilling existing staff and acting on sustainability-related challenges. Companies could also create a task force of process optimization and sustainability specialists to help site teams drive rapid improvement and sustain, expand, and re-strategize efforts as a project evolves. Once such a structure is set up, they could adapt targets, performance metrics, and decision-making processes across the organization to ensure employees are motivated and supported to achieve clean energy goals.

It is also crucial to incorporate an execution focus by setting up a transformation office architecture. For example, appointing a chief sustainability officer (CSO), who reports to the CEO, to own and drive the transformation journey independently.

The chemicals industry can improve its ESG performance overall, as several chemical companies have shown. Defining an ESG strategy to embrace sustainable practices, implementing necessary changes in energy-intensive operations and using enablers to execute said strategies could help transform this dynamic industry into a clean energy hub that serves as an example for the rest of the world. Pictured below (Exhibit 8) is an overarching framework that CXOs could adopt to design their ESG strategy.

Exhibit 8

### Framework to evaluate elements across ESG strategy for organizations.



Source: Expert interviews



# 4. Conclusion

The race to clean energy is underway, influenced heavily by shifting consumer choices and growing awareness around sustainability and climate change. Several chemical companies in the country are interested in adapting to these changing times, but formidable technical and economic barriers have stopped them at the starting line itself.

Achieving such a transition could be complicated, demanding collective action across the industry versus individual efforts. Executives could start with adopting a transformation mindset, articulating a north star for their future and developing a plan to get there. They should also aim to adopt an execution bias and use enablers, whether in the form of innovative technology, or the right talent, to make their vision for sustainability a reality.

Courageous leadership will further rethink their long-term strategic positioning, adapt existing portfolios, identify growth opportunities emerging from the disruption, and place big bets on long-term initiatives that put sustainability at the heart of next-gen strategy.





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