



The Petrochemicals Landscape in India:

Challenging Monopolistic Practices
and Emerging Competitors

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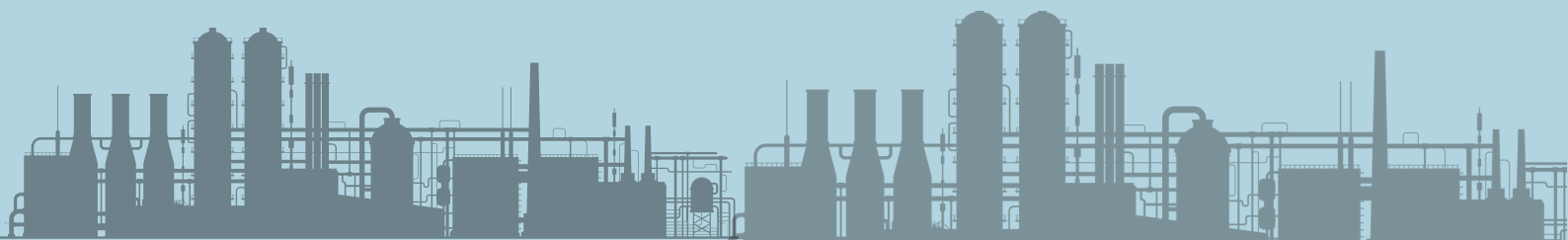
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Summary

India holds a prominent position in the global petrochemicals industry. Demand for plastics across diverse sectors including packaging, construction, automobiles, and textiles, has been going up rapidly. To foster the growth of the industry, the Indian government has implemented several initiatives, such as offering import relief for crucial raw materials like coal and MEG (mono ethylene glycol). Key players in the Indian petrochemicals industry, such as Reliance Industries, Indian Oil Corporation, and the Adani Group, have either already made or intend to make substantial investments in projects manufacturing petrochemicals – these are among the country's largest privately-owned and public conglomerates. Monopolistic control over the production of petrochemicals has resulted in conflicts between major players on the one hand, and medium and small domestic manufacturers and users on the other.

Amid India's commitments to international climate change objectives, the Adani Group has announced a decision to enter the petrochemical industry by utilising coal from various controversial projects within and beyond the country's borders. This move raises concerns about the likely environmental implications of petrochemical manufacturing in the coming decades. Having announced a plan to establish an ambitious coal-to-PVC (polyvinyl chloride) manufacturing unit through Adani Petrochemicals Limited at Mundra, Gujarat, in western India, the Adani Group aims to diversify its business operations in the hope of becoming a significant player in the country's plastics production industry.

The plan, which was initially announced in 2021, was briefly suspended in early 2023 following the release of a report by the New York-based short seller Hindenburg Research alleging stock manipulation and a range of other malpractices by the Adani Group. By June, however, the plan was revived. It has been reported that the country's largest bank in the public sector, the State Bank of India (SBI) would lead a consortium of banks and financial institutions to raise ₹14,500 crore (or around US\$ 1.8 billion at current exchange rates) out of the total project cost of ₹34,500 crore (or around \$4.2 billion). Financial closure was expected by mid-August 2023. However, this had not been achieved till November, according to a six-monthly Environmental Compliance report submitted by the Adani Group. Further details were awaited at the time of publishing this report. The setting up of this project raises questions about utilising coal resources and the environmental implications of the venture.

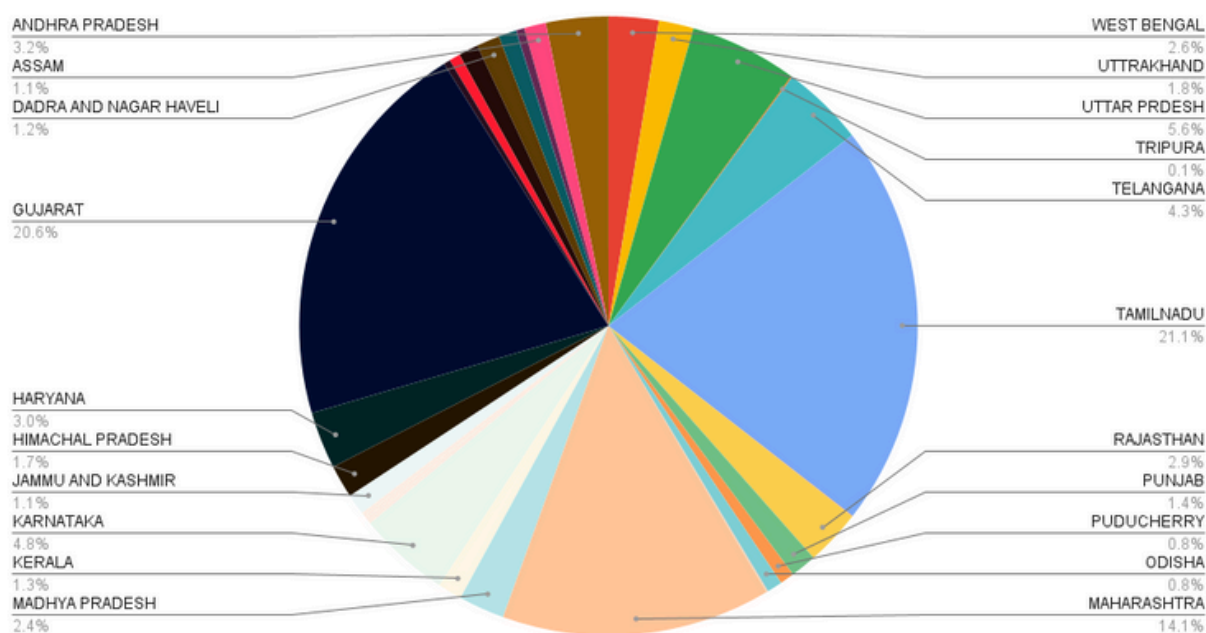
Introduction

Petrochemicals, aptly named for their origins in petroleum, are a diverse range of chemical products that are predominantly derived from petroleum-based sources. Additionally, some petrochemicals can be derived from coal, as well as “unconventional” sources such as corn or other kinds of biomass. These versatile compounds find widespread use in everyday life and encompass various products and applications, including a wide range of plastic items, soaps, detergents, explosives, rubbers, and paints.

In India, the Department of Chemicals and Petrochemicals, operating under the Union Government’s Ministry of Chemicals and Fertilisers, assumes the responsibility of overseeing the growth and development of the petrochemicals industry. With a large count of over 12,000 units making products using petrochemicals, India is rapidly solidifying its position as a global epicentre of the industry. Four states – Gujarat, Maharashtra (in western India), Tamil Nadu, and Karnataka (in southern India) – account for over 60% of the units producing petrochemicals in the country, according to government data.

Percentage distribution of Chemical & Petrochemical plants across Indian states.

Source: Department of Chemicals and Petrochemicals, MoCF



India's market for petrochemicals is significantly dominated by two major players: Reliance Industries Limited (RIL), India's largest privately-owned corporate entity and Indian Oil Corporation Limited (IOC), one of the country's biggest companies in the public sector. The two together accounted for nearly 70% of the domestic production of all petrochemicals in 2020. RIL has strategically prioritised the production of key petrochemical products such as polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), and polyvinyl chloride (PVC).

India is one of the largest importers of mono-ethylene glycol (MEG), with an annual average import volume of 800 KT (kilo tonnes). MEG serves as a crucial component in the production of various essential materials, including polyester fibre and film, polyethylene terephthalate (PET) resins, and engine coolants.

Besides being a major importer of raw materials and intermediates for making a variety of petrochemical products, RIL is one of the largest private producers of petrochemical compounds in India. Its project was originally established as Mynylon Limited in Karnataka. Over the last four decades, the company has acquired various other corporate entities and made these its subsidiaries. The most important of these was the 26% stake RIL acquired in 2002 in the Government-owned Indian Petrochemicals Corporation Limited (IPCL) during the Atal Behari Vajpayee regime. Subsequently, RIL's stake in IPCL increased to 47% before the latter was formally merged with the former in 2007, thereby giving the merged entity a dominant position in the Indian market for a variety of petrochemicals.

The book titled *The Polyester Prince* published in 1988, an unauthorised biography of the late Dhirubhai Ambani, the founder of Reliance Industries, by Australian journalist Hamish McDonald, provides a detailed and compelling narrative about how Government regulations relating to the import of raw materials essential for producing polyester fibre were modified a number of times during the 1980s to favour RIL at the expense of its competitors (like Bombay Dyeing) and enabled it to make it the largest manufacturer of synthetic fibres in India.

In a striking parallel, history repeated itself in February 2020 when the Narendra Modi government took the decision to lift anti-dumping duty on mono ethylene glycol (MEG). This crucial intermediate is widely employed in the production of polyester fibres and films, polyethylene terephthalate resins, as well as engine coolants. However, this decision was met with opposition from RIL, the most prominent producer of MEG and PTA (purified terephthalic acid) producer and others.

Call for Anti-Dumping Duties

The imposition of anti-dumping duties is an important protective measure implemented through raising the tariffs on imported products. Such duties are applied when these products enter the Indian market in significant quantities and are sold at highly competitive prices or at prices lower than even the cost of production, thereby rendering uncompetitive similar goods produced domestically. The primary purpose of imposing such customs duties is to curb the practice of “dumping” or flooding the market with imported goods at low prices. By imposing anti-dumping duties, governments aim at shielding local manufacturers from foreign producers who undermine their competitiveness.

The imposition of anti-dumping duties is governed by the Customs Tariff Act of 1975 and the Customs Tariff Rules of 1995, which provide the legal framework for such measures. Suppose an investigation conducted by the Directorate General of Trade Remedies (DGTR) in the Department of Commerce in the Ministry of Commerce and Industry reveals that a specific product is being dumped causing harm to domestic producers. In that case, India thereby c the Department of Revenue in the Ministry of Finance may receive a recommendation from the DGTR to levy an additional import duty on top of the regular or “basic” customs duty. In most cases, this additional duty serves as an effective tool to counteract the negative impact of dumping and to protect the interests of local industries.

However, in the case of MEG, the anti-dumping duty has been repeatedly opposed by most industry participants, specifically smaller users, on the grounds that cheap imports enable them to sell products at lower prices thus benefitting consumers.

On 9 December 2019, the DGTR initiated an anti-dumping investigation on the imports of MEG. This investigation was prompted by a request from RIL, the largest domestic producer of MEG, which claimed that domestic MEG producers were facing challenges due to alleged dumping by suppliers from Kuwait, Oman, Saudi Arabia, the United Arab Emirates, and Singapore. The DGTR’s objective was to thoroughly examine the allegations made by RIL, gather evidence and determine whether imported MEG was being sold at prices that could be detrimental to the interests of domestic industry.

Small Manufacturers vs Reliance

The Polyester Textile Apparel Industry Association (PTAIA), representing end-users of PTA and MEG, conveyed their opposition to the Ministry of Textiles on the move to initiate an anti-dumping investigation. According to a 19 September 2020 [report](#) in the NewsClick portal by one of the authors of this report, the association wrote a letter demanding that the anti-dumping investigation be terminated since total imports of MEG had fallen by nearly 60% between 2016 and 2020 and was accounting for a share of 28% of the total demand for the intermediate product. Thus, the PTAIA argued, the claim that inexpensive imported MEG was being dumped in India was on weak ground.

The association further contended that the existing domestic production capacity of MEG was falling short of overall demand, necessitating imports. Notably, during the fiscal years 2018-19 (or the twelve-month period ending 31 March) and 2019-20, domestic MEG production was short of demand to the extent of approximately 80,000 tonnes and 85,000 tonnes respectively in the two fiscal years.

In her speech announcing the Union Budget for 2020-21 delivered in Parliament on 4 February 2020, Finance Minister Nirmala Sitharaman made a significant announcement that was ostensibly in the “public interest.” She declared the government's decision to abolish anti-dumping duties on the import of PTA from countries such as China, Taiwan, Malaysia, Indonesia, Iran, South Korea, and Thailand. These duties have been in effect since 2014.

Sitharaman provided a rationale for this decision, emphasising that PTA serves as a crucial raw material for numerous industries. She acknowledged the persistent demand from various sectors to access this specific product at an affordable price, even if it meant resorting to imports. The Union Finance Minister underscored the importance of ensuring the availability of this “critical input” at competitive prices, as it would unlock immense potential in the textile sector, which is recognized as a significant generator of employment opportunities.

Subsequently, RIL, the leading producer accounting for 70% of the country's domestic PTA output, along with MCPI, a West Bengal-based manufacturer in eastern India (using technology from Japan's Mitsubishi Chemicals) contributed a bit more than a fifth (21%) of India's total PTA output, and the Chemicals and Petrochemicals Manufacturers' Association, jointly filed a petition before the Gujarat High Court on 13 August 2020.

The petition strongly denounced the government's decision to revoke anti-dumping duties on PTA, describing it as illegal, lacking proper authority, arbitrary, and a grave violation of the principles of natural justice. The petition demanded that this decision be withdrawn.



Resurgence of the 2020 Tussle

In June 2021, a year after the initial tussle, RIL and India Glycols Limited (IGL) jointly submitted another application to the DGTR. This time, they sought an anti-dumping investigation on imports of MEG from Kuwait, Saudi Arabia, and the US.

According to a [list](#) provided by the DGTR, only RIL and IGL were categorised as manufacturers that are part of the “domestic industry” since they were the ones who initiated the investigation. By way of contrast, 14 other Indian companies were listed as importers of MEG. The DGTR’s investigation unfolded through 2021 with multiple extensions being granted to the directorate to complete its probe. The investigation got over in September 2022. In its disclosure statement, the DGTR once again recommended the imposition of anti-dumping duties on imported MEG.

According to another [report](#) by the two other authors of this report that was published in NewsClick on 21 October 2022, the Purified Terephthalic Acid Industry Association wrote a letter to Piyush Goyal, Union Minister of Textiles who is also the Minister of Commerce and Industry urging him to reconsider the imposition of anti-dumping duties on MEG imports.

Highlighting a critical concern, the letter emphasised that the major producers of MEG allocated approximately 70% of their production for captive use, leaving only 30% for downstream users producing man-made fibres. This limited supply of MEG posed significant challenges to the expansion plans of manufacturers of man-made fibres. The commercial viability of current capacities created in this industry segment was being jeopardised and those intending to set up future production capacities were being dissuaded from going ahead with their plans. The association’s letter underlined the need for more imports for the survival and growth of man-made fibre makers in the country. The letter pointed out that local MEG producers were able to generate profits even after factoring in freight and distribution charges in their final selling prices since no customs duties were imposed on the raw ingredients used to manufacture MEG.

It added: “The imposition of anti-dumping duty on MEG will have adverse effects on approximately 40,000 small and medium manufacturers in the polyester fibre, yarn, fabric, and garment sectors. Consequently, this will jeopardise the jobs and livelihoods of hundreds of thousands of workers in India. As of today, the textile industry in India provides direct and indirect employment to 10–15 crore (100–150 million) individuals.” In fact, the manufacture of textiles generates the largest number of jobs in India after agriculture.

According to the Indian Customs Tariff Rules, any domestic business entity accounting for more than 25% of the production of a particular item has the right to request an anti-dumping investigation for that item. RIL and IGL together account for more than 70% of MEG production in India, thus making them eligible to initiate an investigation by providing substantial evidence of injury.

In their application to the DGTR, RIL and IGL claimed that cheaper MEG imports were having an adverse impact on their production. The PTA Industry Association, on the other hand, raised doubts about this assertion by presenting a contrasting market scenario. The association contended that imported MEG entered India at a cost comparable to that of domestic producers and sought to refute the allegations of dumping. It urged the Government of India to get its priorities right. The association asked whether it was better to create more jobs, attract foreign investments, and foster further expansions of capacities for making man-made fibres, or if the interests of only two or three producers should be prioritised by the Government. The association said many of these manufacturers of man-made fibres, despite operating at full capacity, were unable to meet domestic demand.



Emergence of a New Player in Plastics Manufacturing

For decades, RIL has been the leading manufacturer of plastics in India and among the biggest in the world. As global discussions revolve around reducing plastic production and usage for the sake of the natural environment, the new development in this industry is the expected emergence of a new player in this oligopolistic industry, that is, the Adani Group.

One of the largest Indian conglomerates engaging in mining and exporting coal, the Adani Group announced in 2021 that it intends to establish a PVC manufacturing unit in an area that is part of the land occupied by Adani Ports and SEZ Limited, located at Mundra, Gujarat. SEZ is an acronym for special economic zone which is a designated export-oriented area within which tax laws that applicable with the “domestic tariff area” do not apply. In other words, an SEZ is akin to a country within a country.

The Adani Group has coal mining operations in India, Indonesia, and Australia. In India, it is the largest Mine Developer and Operator (MDO) in the private sector and among all coal mining companies in the country, it is second only to Coal India Limited, the public sector company with seven subsidiaries that describes itself as the world’s largest government owned coal producer. The Adani Group has expanded its operations by actively participating in auctions for commercial coal mining rights that have been conducted by the Indian Government in recent years.

The proposed new coal-to-PVC venture would be executed through Adani Petrochemicals Limited, a wholly owned subsidiary of Group flagship Adani Enterprises Limited. In July 2022, Adani Group successfully secured a loan of ₹6,071 crore from the State Bank of India (SBI), the country’s largest bank. The loan was meant to set up a copper refinery at Mundra. Not long thereafter, the Adani Group approached the SBI once again, this time seeking a loan of ₹14,000 crore. The purpose of this funding was to support the construction of their proposed coal-to-PVC plant. The project was initially estimated to cost ₹19,000 crore, with a substantial portion, around ₹14,000 crore, to be potentially financed by a consortium of banks led by the SBI. Earlier, the Adani Group had obtained a loan of ₹12,000 crore from the SBI-led consortium that devolved on to other banks leaving the SBI’s share at approximately ₹5,000 crore. Thereafter, the total project cost went up first to around ₹29,200 crore and then further to roughly ₹34,500 crore (or \$4.2 billion).

The proposed plant will be situated in a three-square-kilometre area and will use 3.1 million tonnes of coal per year to make PVC. This coal is likely to be substantially sourced from the group's very own Carmichael mine in Queensland in north-west Australia, which has already started sending coal to the Mundra Port or the APSEZ which is part of the Adani Group.

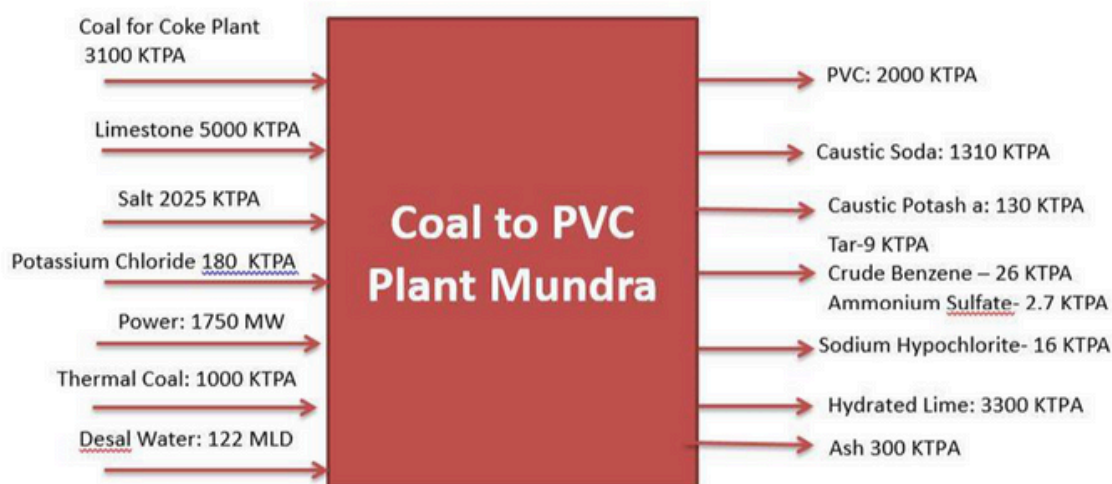


Fig: Coal-to-PVC plant Mundra overview. Source: Pre-Feasibility Report

In 2020, after over a decade marked by many controversies – opposition from environmental groups, lack of loans from potential investors and international financial institutions including the SBI, and allegations of intimidation of an activist opposed to the mining project – what was supposed to be the “world’s largest greenfield coal mining project” was scaled down to less than one-fourth of its originally envisaged size. The Adani Group underwent a rebranding exercise, adopting the name Bravus Mining and Resources, and proceeded with its mining operations in Australia’s Galilee Basin in Queensland.

Prior to the announcement that it would set up a coal-to-PVC project in Mundra and the commencement of mining operations in the Carmichael mine, the Adani Group’s initial investment decision to purchase mining rights was treated with scepticism. Some even called it a potential “stranded asset” and claimed it would not be economically and commercially viable because the prices of power generated from renewable sources (in particular, solar energy and wind energy) were coming down quickly.

Bravus Mining, the Australian arm of the Adani Group, initially stated that the coal extracted from the Carmichael mine would be utilised solely for coal-based power plants in India where a significant portion of the population still lacks adequate access to electricity. At the same time, it may be recalled that in an apparently contradictory claim, the country’s Prime Minister Narendra Modi declared in 2018 that every village in the country had been electrified.

Thereafter, the Adani Group responded by suggesting that thermal coal from the Carmichael mine cannot be utilised for PVC manufacturing and would be used to generate electricity in India. It now appears that some thermal-grade coal from Australia would be used for making PVC and that this could be a way to ensure that the Carmichael project is financially viable.

The pre-feasibility report submitted by the Adani Group itself acknowledges that the proposed coal-to-PVC project would require coking coal, thermal coal and “petcoke” blends in the coke oven or coal pyrolysis plant to produce the necessary coke. (Petcoke is an abbreviated version of petroleum coke which is a final carbon-rich solid material that is derived from refining crude oil.) The report also mentions that a total of 3.1 million metric tonnes per annum of all grades of coal would be required for the coke oven plant for PVC manufacture and that the bulk of the coal would be imported from Australia, Russia, and other countries.



Post Hindenburg Research Report

On 24 January 2023, Hindenburg Research, a US-based short seller, released a report that labelled the rise of the Adani Group as the “biggest con in corporate history.” The report made many allegations against the Group, including allegations of stock price manipulation, insider trading and improper use of tax havens for moving funds. It further expressed concerns about the Group’s high debt levels. The publication of the 32,000-word long report by Hindenburg Research resulted in a sharp drop in the prices of shares of publicly listed companies in the Adani Group and its head Gautam Adani’s ranking among the world’s richest individuals fell from the third position to the 26th one. The weighted average of seven of the Group’s listed companies fell by as much as 60% a month after the Hindenburg report came out. On 1 February, the Adani Group called off its Rs 20,000-crore FPO (Follow-on Public Offering) that was said to be the largest of its kind in India.

Particular projects announced by the Adani Group were put on hold, including the “green hydrogen” plant that was to be set up with France’s Total Energies holding a 25% stake in the company setting up the project. The Group has announced that the execution of its green hydrogen project might be delayed till 2028.

The Group decided to abandon its acquisition of a coal plant from DB Power in Chhattisgarh and reported that it had halted its investment in the coal-to-PVC project in Mundra. The Adani Group’s chief financial officer (CFO) publicly stated that a review of investment commitments would take place after the volatile period ended and till then, no new projects would be pursued. Four months later, in June 2023, the Adani Group reactivated its investment strategy for India’s largest polyvinyl chloride (PVC) plant and stated that it had obtained in-principle approval for a credit line of up to Rs 14,000 crore from multiple banks.

Petrochemicals and their Relationship with Climate Policy in India.

In February, the Union Ministry of Power released its Green Hydrogen Policy under a “National Green Hydrogen Mission” that “intends to infuse Green Hydrogen Purchase/Consumption Obligation (GHCO) in fertiliser production and petroleum refining.” The GHCO would work as a “Renewable Purchase Obligation (RPO) for carbon-intensive industries” and under the obligation, a carbon-intensive company would be obliged to buy a certain percentage of renewable energy for its consumption. The government policy requires 30% GHCO for fertilisers and petroleum and 10% blending of green hydrogen in CNG (compressed natural gas) and PNG (piped natural gas) by 2030.

This policy would work in favour of companies like Reliance Industries and the Adani Group that have announced plans to manufacture “green hydrogen” in India. RIL and the Adani Group, two of the country’s largest companies in carbon-intensive sectors such as petroleum, petrochemicals, coal, and logistics, could offset their carbon emissions by producing green hydrogen for their own use as well as for sale.

While the Adani Group had decided to manufacture green hydrogen, RIL plans to first make blue hydrogen – the hydrogen extracted is coded blue when its atoms are sourced from petroleum-based fuel. This process is dissimilar to manufacturing grey hydrogen that does not capture carbon di-oxide (CO₂) which is eliminated in the manufacturing process.

As RIL operates one of the largest (if not the largest) crude oil refineries in the world in Jamnagar in Gujarat, it adds to their manufacturing of “syngas” and hydrogen from petcoke. Production of syngas (or synthetic gas) is also called coal gasification that creates a mixture – comprising primarily of carbon monoxide (CO), hydrogen (H₂), carbon di-oxide (CO₂), methane (CH₄) and water vapour (H₂O) – obtained from coal and water, air and/or oxygen.

As the world pushes toward a net zero emissions goal, RIL needs to repurpose some of its gasification assets towards aiding the process of making blue hydrogen. The company intends to first use the blue hydrogen in its captive plants and then sell the captured carbon (derivatives from hydrogen generation processes) for production of urea fertilisers and synthetic fuel.

To aid the petrochemicals industry, the Government’s Ministry of Skill Development and Entrepreneurship (MSDE) has developed specific training programmes that would help two of India’s largest corporate conglomerates employ workers who will not have to be trained in-house but at the expense of the national exchequer. A similar instance was highlighted in the Gujarat state legislative assembly in March 2023 – it was pointed out that “there was no tendering process to award a contract for the ‘Adani Skill Development, Ahmedabad’ facility” meant to impart training to young people belonging to the Scheduled Castes.

As India’s petrochemicals industry grows at 10% annually, the country remains dependent on imports of coal and oil used as feedstock or raw materials.

S.N.	Product	HS Codes	(ID %)	(ID %)	(ID %)	(ID %)	(ID %)	(ID %)
1	MIXED PETROLEUM GASES	27112900	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2	ETHANE	29011000	5.0%	2.5%	2.5%	2.5%	2.5%	2.5%
3	NAPHTHA	27101221	5.0%	4.0%	4.0%	2.5%	1.0%	2.5%
4	VINYL CHLORIDE MONOMER (VCM)	29032100	2.0%	2.0%	2.0%	2.0%	2.0%	2.5%
5	N BUTANOL	29051300	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
6	I BUTANOL	29051490	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
7	2 ETHYL HEXANOL	29051620	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
8	ACRYLIC ACID (and its Salts)	29161100	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
9	BUTYL ACRYLATE	29161210	5.0%	5.0%	5.0%	7.5%	7.5%	7.5%
10	2-ETHYL HEXYL ACRYLATE Other Esters	29161290	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
11	Crude Glycerin	15200000	7.5%	7.5%	7.5%	7.5%	7.5%	2.5%
12	PHTHALIC ANHYDRIDE	29173500	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
13	Caustic Soda	28151110, 28151190, 28151200	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
14	Hydrogen Peroxide	28470000	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
15	Chloromethanes (Methylene Chloride, Chloroform, Carbon Tetrachloride)	29031200, 29031300 and 29031400	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
16	POLYPROPYLENE	39021000+3902	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
17	HDPE	39021000	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
18	LLDPE	39021010	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
19	LDPE	39021090	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
20	PVC	39041010+ 1020 1090+2100+2200	7.5%	10.0%	10.0%	10.0%	7.5%	7.5%
21	PET	39071000+6990	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
22	POLYSTYRENE	39031100+39031990+ 39039090	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
23	STYRENE MONOMER	29025000	2.0%	2.0%	2.0%	2.0%	2.0%	2.5%
24	PTA	29173600	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
25	MEG	29051100	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
26	ABS	39033000	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
27	OIL EXTENDED STYRENE BUTADIENE RUBBER	40021910	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
28	OTHERS SYNTHETIC RUBBER AND PACTICE DRVD FROM OILS IN PRIMRY FORMS/IN PLTS SHTS ETC MXTRS EXCL LATEX	40021990	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
29	BUTADIENE RUBBER (BR)	40022000	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
30	HR	40023100	5.0%	10.0%	10.0%	10.0%	10.0%	10.0%
31	HBR	40023900	5.0%	10.0%	10.0%	10.0%	10.0%	10.0%
32	POY	54024600	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
33	PTY	54023300	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
34	FDY	54024700	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
35	PSF	55032000	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
36	SAN	39032000	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
37	Elastomeric Yarn/Spandex Yarn	54024400/54041100	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
38	PTMEG- Polytetramethylene Ether Glycol-1800 used for manufacture of spandex Yarn	39072910	Nil	Nil	Nil	Nil	Nil	Nil
39	Diphenylmethane 4-4 Di-isocyanate used for manufacture of spandex Yarn	29291090	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
40	NYLON 6 CHIPS	39081010/1011/1019/1029/1041/ 1039/1049/1059/ 1069/1071/1079/9000	7.5%	7.5%	5.0%	5.0%	5.0%	5.0%

Figure: Customs duties on various petrochemical products. 2023

Image Source: The Chemicals and Petrochemicals Manufacturers Association, India (CPMAI)

Russia’s war in Ukraine led to a notable surge in crude oil prices, raising worries about higher costs of raw materials for petrochemicals. Under the circumstances, the Indian Government intervened and cut import duties on key raw materials used in the manufacture of petrochemicals, including naphtha used in the production of paints, synthetic rubbers, varnishes, and ethylene. The customs duty on naphtha was reduced from 2.5% to 1% while that on PVC was brought down from 7.5% to 2.5%.

The petrochemicals industry operates in a highly carbon-intensive manner, where one carbon compound is utilised to create another, often relying on energy derived from carbon-based fuels like coal and gas. Moreover, the environmental impact of the manufacturing processes extends beyond the production phase, as the use of petrochemicals also contributes to carbon emissions. Additionally, the disposal of waste from petrochemical processes releases harmful chemicals into the environment, exacerbating environmental concerns. In addition, there are significant health implications associated with the use of petrochemicals, as these have been linked to various forms of cancer in humans.

Product	Grams released per ton of product			
	EDC to air	EDC to water	VCM to air	VCM to water
EDC synthesis (1 ton)	-	7	-	-
VCM synthesis (1 ton)	5000	1	1000	1
PVC polymerization (1 ton)	-	-	5100	-

- Indicates releases <1 g/ton.
Source: SFT 1993.

Figure: Release of EDC and VCM (cancerous) in PVC production stages; Norwegian government estimate, 1993.
Image Source: Joe Thornton, healthybuilding.net

EDC or ethylene dichloride is a colourless liquid with a sweet chloroform-like odour. It is primarily used as an intermediate in the production of vinyl chloride, which is further used to manufacture poly vinyl chloride (PVC) resins. VCM or vinyl chloride monomer is a crucial building block in the production of PVC. Through a process called polymerization, VCM molecules combine to form the long-chain polymer structure of PVC, giving it its unique properties and versatility.

According to the Living Future Institute, “The Living Building Challenge (LBC) Red List” comprises products that are considered the worst-in-class due to their detrimental effects on the environment, their ability to bio-accumulate in the food chain, and the harm they pose to workers involved in their manufacturing and handling in factories. It is concerning to note that both PVC as a final product and the compounds used in its production find themselves on this list. These substances have been identified as contributing to pollution and causing adverse impacts on ecosystems and human health, making it crucial to adopt more sustainable and environmentally friendly alternatives.

India has recently taken a step by updating its Nationally Determined Contribution (NDC) for submission to the United Nations Framework Convention on Climate Change (UNFCCC). Under this commitment, India aims to significantly reduce the “Emission Intensity” of its GDP (gross domestic product) by an impressive 45% by 2030. Emission intensity is a crucial metric that measures the amount of greenhouse gas emissions produced per unit of GDP, making it a key indicator of progress towards sustainability goals.

However, India faces significant challenges in dealing with its plastic waste, as it generates approximately 9.46 mega tonnes of plastic waste annually, ranking fifth in the world. Unfortunately, nearly half of this waste ends up in landfills and rivers, exacerbating environmental concerns. Even the plastic that is reused often undergoes downgrading into cheaper or toxic products, or worse, gets burned as fuel, both of which contribute to additional greenhouse gas emissions.

It is important to recognise that achieving the ambitious target of reducing emission intensity by 45% over the next seven years without compromising the use of petrochemicals and plastic could prove challenging in practice.

The idea of “carbon neutrality” has gained prominence, allowing polluting industries to claim positive carbon points by shifting to renewable energy sources or implementing carbon-capturing techniques to remove carbon from the environment. In this context, the Adani Group, while not explicitly announcing carbon neutrality goals, has acknowledged India’s broader net zero goals by 2070 in their annual report. However, considering the group’s significant reliance on coal for almost half of its total business turnover, achieving carbon neutrality would undoubtedly present considerable challenges.

To address these pressing issues, a multi-faceted approach is essential, including exploring alternative methods for plastic waste management and adopting cleaner energy sources in industries. Collaborative efforts from various sectors and stringent policies will be crucial in fostering a sustainable future for India and the global community at large.

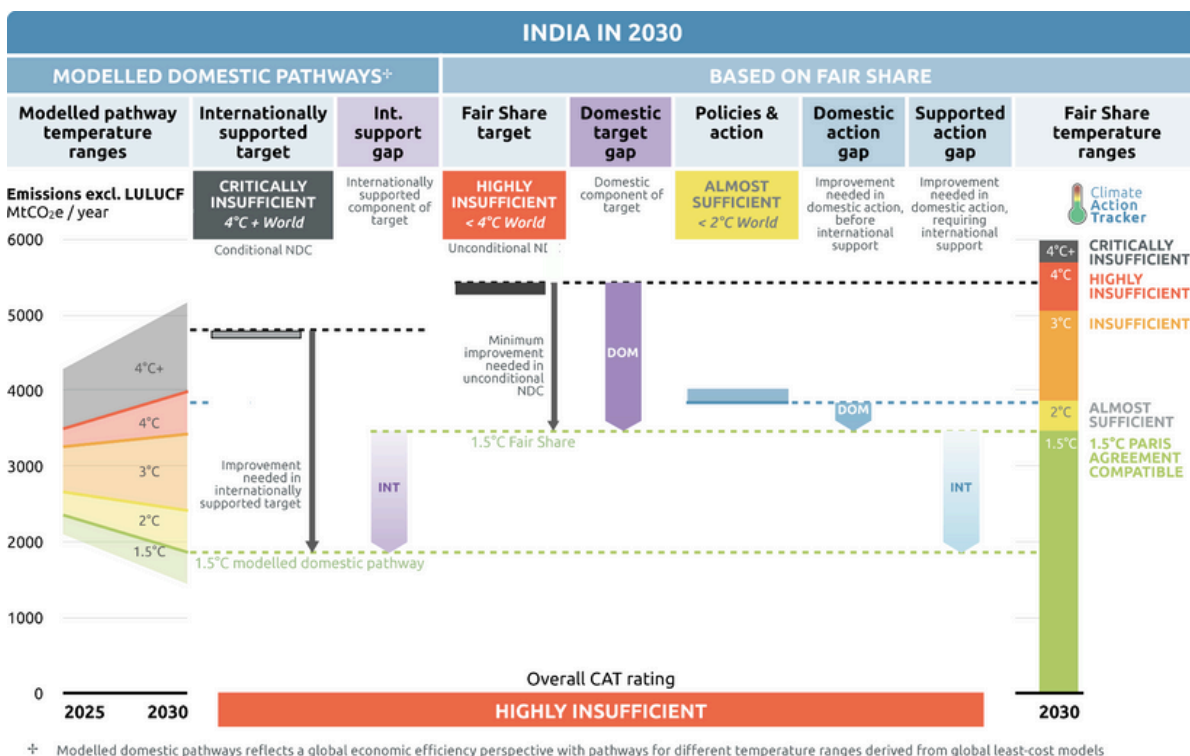


Figure: India’s Climate Model 2030. Source: Climate Action Tracker

Conclusion

The Climate Action Tracker, a reputable organisation specialising in climate policy assessment, has assessed India's current climate policy and concluded that it falls under the category "highly insufficient." This rating implies that the measures and commitments taken by India to combat climate change are not commensurate with the scale of the challenges that lie ahead.

Based on their advanced climate prediction model, the Climate Action Tracker forecasts a significant 4°C rise in temperature by the year 2030 if the current trajectory of greenhouse gas emissions continues unabated. Such a temperature increase has profound implications for global climate patterns, ecosystems, and human well-being.

While India has expressed its intention to achieve net-zero emissions by the year 2070, this target falls short when compared to the more ambitious goals set by several other nations aiming to achieve net-zero emissions by 2050. By lagging behind the global effort to reach carbon neutrality, India risks missing opportunities to mitigate the worst impacts of climate change and may experience additional challenges in adapting to the changing climate.

The petrochemicals industry in India, a significant contributor to greenhouse gas emissions, requires a more nuanced and scientifically informed policy approach. Acknowledging the inherent emission intensity of this industry, Government policies must go beyond merely increasing production and instead prioritise finding effective remedies to address the climate emergency.

The current stance of the Indian Government's Ministries responsible for petrochemicals and coal has been criticised for lacking cohesion and unity in their approach towards combating climate change. Instead of collaborating toward the shared goal of tackling the disastrous effects of climate change, these ministries appear to be pursuing individual agendas and not effectively coordinating their efforts.

To address the urgency of the climate crisis, India's policies towards the petrochemicals industry should prioritise innovative strategies that reduce emissions and promote cleaner alternatives. This approach must be supported by a coordinated effort from all relevant Ministries and stakeholders to ensure a unified response in mitigating the impacts of climate change and striving towards a more sustainable future. Such measures are crucial not only for India but also for global efforts to combat climate change and safeguard the planet for future generations.

Centre for Financial Accountability (CFA) engages and supports efforts to advance transparency and accountability in financial institutions. We use research, campaigns and trainings to help movements, organisations, activists, students and youth to engage in this fight, and we partake in campaigns that can shift policies and change public discourse on banking and economy.

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