

Dalberg

Building a Global Cleantech Compass

**A Coordination Hub for Diversified Cleantech
Manufacturing and Supply Chains**



Dalberg co-anchored the Bharat Climate Forum with a focus on advancing dialogue and action on cleantech manufacturing

Through the Bharat Climate Forum, Dalberg is bringing together industry, finance, technology and other ecosystem leaders to build an evidence-led agenda for strengthening India's manufacturing ecosystem

January 2025 | Convening the ecosystem

The inaugural **Bharat Climate Forum, 2025** convened leaders from government, industry, and finance around India's emerging manufacturing opportunity and launched the **Bharat Cleantech Manufacturing Platform**, by Shri Piyush Goyal, Honorable Union Minister of Commerce



February – December 2025 | Building the evidence and sharing recommendations

Published a series of reports and knowledge documents on pathways to scale cleantech manufacturing in India

Shared recommendations with key stakeholders, convened roundtable discussions and conferences



National Manufacturing Mission Blueprint



Import Dependence and Indigenization Opportunities Note



The Credit Summit Note



Roadmap for building skilled workforce for cleantech manufacturing



Capital Market Note

POLICY SUPPORT

- NMM Blueprint submission to Mr. Amitabh Kant
- Discussion with Finance Secretary Mr. Ajay Seth
- Discussion with EAC to PM and ANRF CEO on R&D Ecosystem
- Organized IMEC Conclave to accelerate international cooperation in clean energy

FINANCE MOBILIZATION

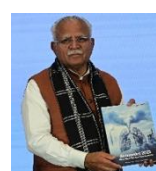
- Convened capital-markets roundtable at NSE
- Organized Credit Summit on Green Financing
- Organized Ease of Doing Business Conference with key govt. stakeholders
- Participated in Indo-US discussion on R&D on indigenization

January 2026 | Bharat Climate Forum, 2026

The year-long research and engagement culminated in the Blueprint for India's Cleantech Manufacturing Ambition, setting out pathways to deepen domestic value creation across six sectors

The Blueprint was launched by the Hon'ble Vice-President of India, Shri C. P. Radhakrishnan and endorsed by senior Government of India leadership

Clockwise from Top: Shri C. P. Radhakrishnan, Hon'ble Vice-President of India; Shri Manohar Lal, Union Minister of Power; Shri Pralhad Joshi, Union Minister of New and Renewable Energy; and Shri Santosh Kumar Sarangi, Secretary, Ministry of New and Renewable Energy.



February 2026 - Present | Expanding the agenda through international engagement

Exploring how global technology, manufacturing, resource and capital partnerships can strengthen India's cleantech supply chains and connect complementary capabilities across markets.

Presenting recommendations on strengthening global cleantech partnerships at various convenings such as the Regional Committee Meetings of International Solar Alliance, London Climate Action Week and industry-led Global South Convenings

Select insights from India's Blueprint for Cleantech Manufacturing

India's cleantech manufacturing potential

India's rapidly growing demand could make it one of the world's largest cleantech markets by 2030, creating an opportunity to capture more value through domestic manufacturing.

Yet only ~20–55% of value is captured domestically across six key value chains. with strengths concentrated downstream while upstream materials, high-value components and specialised equipment remain import dependent.

Dalberg's Blueprint for India's cleantech manufacturing ambition

To identify where India can capture more value, Dalberg assessed six priority value chains across demand, technology and R&D, raw materials, capital equipment, talent and finance. The Blueprint identified key bottlenecks and pathways to move towards ~50% domestic value addition.

Figure 1: Framework to diagnose localization gaps across six value chains

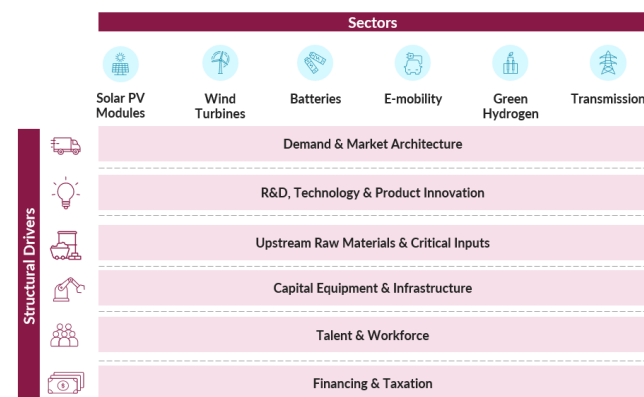
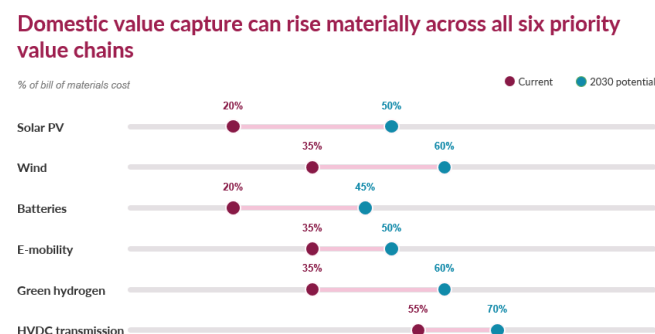


Figure 3: Potential domestic value capture by 2030



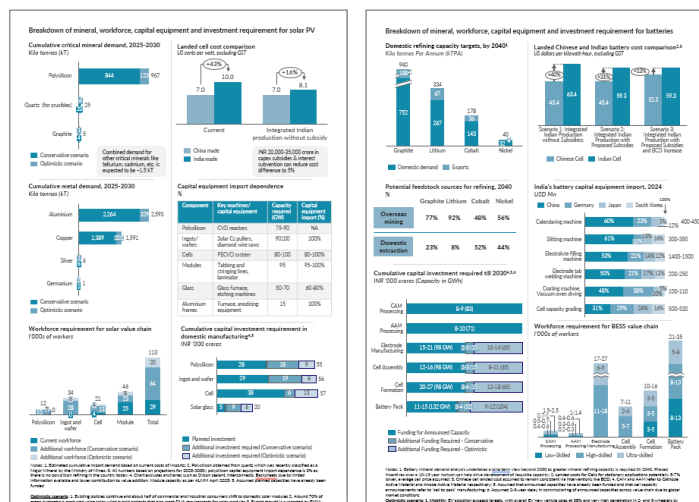
Imperative to invest

USD 48–68B cumulative import-bill savings through 2030

USD 20–30B potential annual GDP addition by 2030

~1.8M direct and indirect cleantech manufacturing jobs

Figure 2: Illustrative deep dives for solar PV and batteries



Analysis insights:

India has built strength in **downstream assembly, fabrication and balance-of-plant manufacturing**, but significant value remains upstream

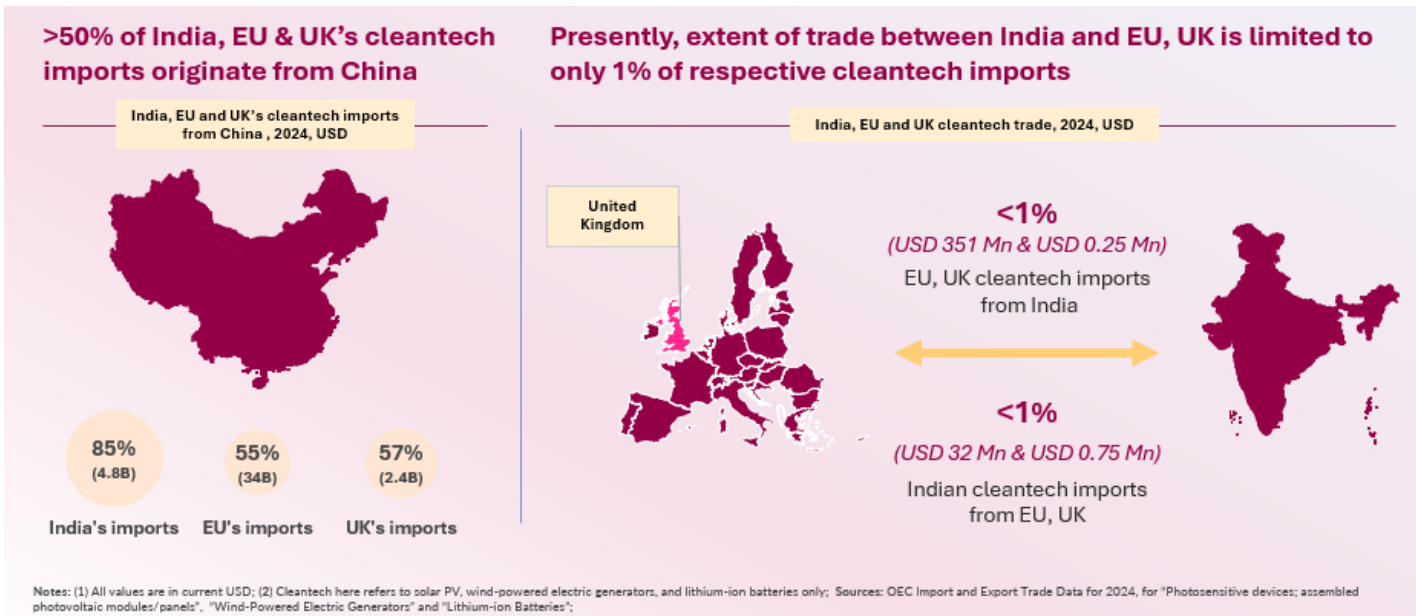
- Solar:** continued dependence on polysilicon, wafers and advanced manufacturing equipment
- Batteries:** gaps in cells, cathode and anode active materials and mineral refining
- Wind:** dependence on gearboxes, large bearings and converters
- Other sectors:** similar gaps in electrolyser components, EV power electronics and advanced HVDC equipment

Emerging Global Analysis on Supply Concentration and Cleantech Trade Potential (1/2)

India’s manufacturing opportunity also underscored the limits of a purely domestic strategy. Critical inputs, technologies and manufacturing capabilities remain concentrated globally, leaving major markets exposed to supply disruption, price volatility and trade restrictions.

Dalberg therefore extended the analysis to the EU and UK, two large cleantech markets with strong industrial ambitions but similar exposure to concentrated global supply chains. Their distinct manufacturing and technology capabilities also create opportunities for complementarity with India.

Global concentration of supply chains

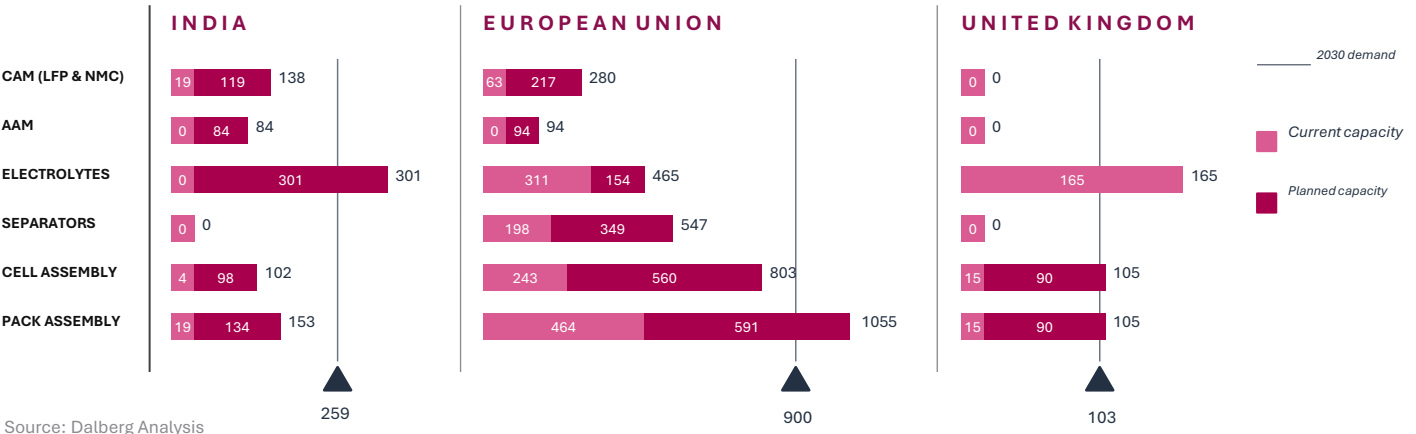


Building on the India Blueprint, Dalberg assessed manufacturing capacity, technology and supply-chain strengths across India, the EU and UK to identify where complementary capabilities could address shared gaps

Battery manufacturing illustrates how complementarities emerge

India is scaling battery materials and cells but still has gaps in separators, advanced materials and testing. The EU brings stronger component and technology capabilities, while the UK adds strengths in electrolytes, R&D and downstream systems, creating opportunities for trade, technology transfer, JVs and co-manufacturing.

Current and planned battery manufacturing capacity vs. 2030 demand, GWh



Across sectors, these complementarities translate into four recurring partnership pathways

Integrate markets

Reduce trade barriers and align standards, testing and certification to enable manufacturers to serve multiple markets.

Build together

Scale JVs, licensing, co-manufacturing and R&D partnerships around specific technology and manufacturing gaps.

Mobilise finance

Use blended finance, guarantees and long-term offtake to de-risk strategic cross-border manufacturing investments.

Build capabilities

Strengthen testing, skills, mineral processing and recycling capabilities needed for globally competitive manufacturing.

Emerging Global Analysis on Supply Concentration and Cleantech Trade Potential (2/2)

Resilient cleantech supply chains depend not only on manufacturing capacity, but also on secure access to minerals, processing and low-carbon industrial inputs. Many of these capabilities sit in resource-rich economies that are not yet deeply integrated into downstream cleantech value chains.

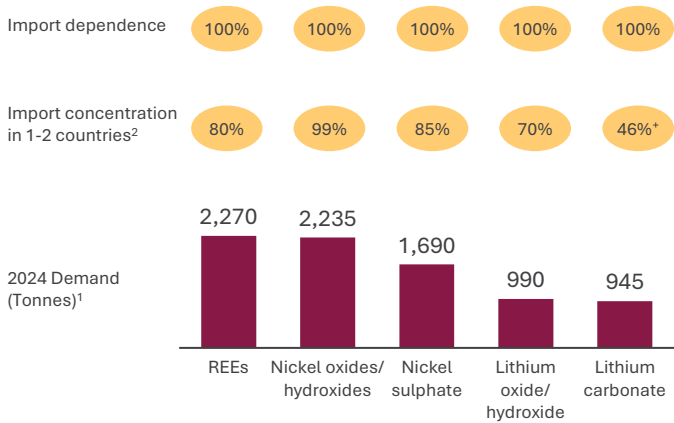
Brazil is one such opportunity. It combines significant mineral resources and renewable power with relatively limited downstream processing, while India brings growing demand, manufacturing scale and technology capabilities. Connecting these strengths could create more diversified supply chains and greater value addition in both markets.

India and Brazil bring complementary strengths across resources and manufacturing

India has a large critical minerals dependency:

Faces complete import dependence from just 1-2 countries for REE, nickel oxide/hydroxide, nickel sulphate, lithium oxide/hydroxide, and lithium carbonate

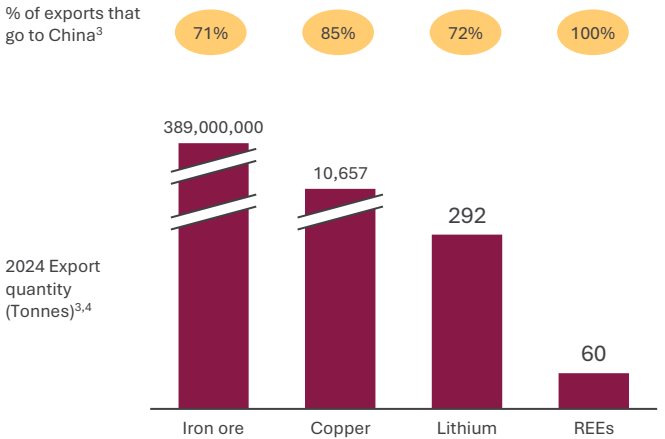
Critical minerals where India is completely import dependent



Brazil is a key exporter with limited domestic value add :

Holds strong reserves and is an exporter for key minerals, with >70% of offtake from China alone. But has limited domestic processing capabilities

Critical minerals where Brazil is dependent on China for offtake



Notes: *60% imports from China for rare earth metals, and 100% imports from China for rare earth magnets; +Lithium carbonate was sourced from Ireland and Netherlands in 2024; however, these are reported as trading hubs, implying a potential sourcing from China; #National Critical Minerals Mission (NCMM); Política Nacional de Minerais Críticos e Estratégicos (PNMCE)

The opportunity is to move beyond raw-material trade toward deeper industrial partnerships, linking Brazilian resources with processing, manufacturing, technology and long-term offtake.

Our analysis identified three illustrative pathways for converting this complementarity into industrial partnerships

Rare earth separation and recycling

1

Combine **Brazil's dysprosium and terbium resources** with India's existing rare-earth processing base to explore **HREE separation and magnet-to-oxide recycling**, helping secure critical inputs for **EV motors and wind turbines**..

Lithium, nickel & copper processing

2

Scale **lithium carbonate / hydroxide conversion in Brazil** and link Brazilian **nickel and copper** to Indian refining and manufacturing, creating more diversified feedstock for **batteries, grids and electrification**..

Green steel & low-carbon industry

3

Combine **Brazil's high-grade iron ore and renewable power** with Indian steelmaking capabilities to develop **low-carbon steel and processed-material hubs**, strengthening access to greener industrial inputs and export markets.

Dalberg's work on cleantech manufacturing is shaped through active ecosystem engagement

Our analysis draws on close engagement with Indian and global industry, policy, finance, research and implementation partners.



Our published work so far:



Blueprint for India's Cleantech Manufacturing Ambition

The flagship Dalberg report sets out pathways to deepen domestic value creation across India's priority cleantech value chains.



Sectoral Indigenization Pathways

The sectoral analyses examine opportunities and gaps across solar, wind, batteries, e-mobility, green hydrogen and high-voltage transmission value chains in India.

Get in touch:

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The Dalberg logo consists of the word "Dalberg" in a white, bold, sans-serif typeface. The letter "g" is stylized with a horizontal bar that extends to the right and then curves downwards.

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