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WORKING PAPER - CLIMATE FINANCE*

**The multilateral financial system, climate and development
*Addendum to the Working Paper from October, 2022**

Experts, political leaders, and advocates increasingly recognize that international financial institutions (IFIs) and multilateral development banks (MDBs), specifically, are not doing enough to meet today's poly-crises - in particular climate change. In 2018 all nine MDBs pledged to become aligned with the Paris Agreement,¹ and yet, the MDBs have not made significant structural changes, are not allocating sufficient finance towards climate-related goals, and continue to fund fossil fuel projects.²

In response, calls for reform have grown, with several policy proposals and avenues for gaining traction - including the Bridgetown Initiative, MDB reform that encompasses de-risking opportunities, the G20 Capital Adequacy Framework, and the World Bank reform "roadmap," which open up spaces for these discussions. By finding areas of consensus for reforming MDBs and broader financial frameworks, the US and India can drive forward effective and urgent changes.

The Bridgetown Initiative

The Bridgetown Initiative is an agenda for reforming development and climate finance that was introduced in 2022 - including at the UNFCCC COP27 - by Barbadian Prime Minister Mia Mottley and her climate finance envoy Avinash Persaud. The Initiative draws on and synthesizes a number of longstanding proposals to update international financial institutions to meet the moment of the climate crisis. Among other recommendations, the Initiative proposes funding

¹ The World Bank Group, "Multilateral Development Banks (MDBs) Announced a Joint Framework for Aligning their Activities with the Goals of the Paris Agreement," available at <https://www.worldbank.org/en/news/press-release/2018/12/03/multilateral-development-banks-mdbs-announced-a-joint-framework-for-aligning-their-activities-with-the-goals-of-the-paris-agreement#:~:text=Washington%20DC%20-%203%20December%2C%202018%20-%20Multilateral,Agreement%2C%20reinforcing%20their%20commitment%20to%20combat%20climate%20change>

² The Big Shift Global, "Investing in Climate Disaster," (2022) https://bigshiftglobal.org/Investing_In_Climate_Disaster

for loss and damage, increasing the usage of disaster and pandemic clauses in debt instruments, and leveraging a new issuance of SDRs on the capital markets to address mitigation. It also seeks to reform MDBs with consideration for the Global South and climate-vulnerable nations (V-20, AOSIS) at the forefront. The Bridgetown Initiative has gained political traction since COP27, and an upcoming summit hosted by President Macron of France is being timed with the June NATO meeting to incentivize high-level attendance, particularly by President Biden, in view of exploring which elements could be brought forward in the course of 2023.

Reforming multilateral development banks

The following steps have been identified to effectively support country-driven transitions to low carbon and resilient economic development pathways:

First, explore the de-risking opportunities at the project level and at the portfolio level. MDBs typically deliver investment financing, technical assistance, and policy support or lending, to countries, through direct project finance, financial intermediaries or policy-based loans. An evaluation of the remits of MDBs is necessary to identify if these permit portfolio approaches that bundle assets across geographical boundaries for collective de-risking are effective. If existing mandates do not allow for such portfolio approaches, a modification of the same could be necessary. Exploring the de-risking opportunities at the project level and the portfolio level, in a way that can be tailored to country needs, by including diverse financial institutions and stakeholders, is also key.

Second, maximize the opportunities highlighted in the report to the G20 containing recommendations for MDB Capital Adequacy frameworks. MDBs face some constraints in the scale of their lending and investment capacity. Addressing these constraints is critical to expanding their capacity to deliver adequate support to countries, and use international public capital routed through MDBs. For instance, in July 2022, the G20 Capital Adequacy Framework (CAF) review was released, providing recommendations on how to increase MDB lending and the investment capacity of MDBs and maximize impact.³ The CAF review provides recommendations on how MDBs can make the most of their unique advantages, to massively increase funds available without relying on bigger contributions from shareholders. In particular, MDBs are urged to change how they assess and treat risk, and how they approach callable capital and balance sheet optimization.

At the IMF/WB annual meetings in October 2023, the G20 will release an action plan with benchmark dates for the CAF recommendations. Actioning the recommendations of this review could enhance the ability of MDBs to enhance their lending headroom and mobilize other providers of finance by taking more risk or sharing the risk [capitalize de-risking instruments].

³ An Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks, "Boosting MDBs' investing capacity," (2022), available at <https://www.nrdc.org/sites/default/files/media-uploads/caf-review-report.pdf>

World Bank reforms

The World Bank Evolution Roadmap - requested by donor countries and published in January 2023 - proposes changes for stakeholders to better address climate goals, including changes to its mission, increasing lending capacity, expanding concessional funding for vulnerability, and mobilizing private finance.⁴ Additionally, the Roadmap calls for an increase in capital for its projects. Experts and advocates have agreed that the Roadmap does not go far enough and does not address all of the CAF recommendations, but it is a start and an opportunity for larger change.⁵ The draft Roadmap will be negotiated with shareholders ahead of and during its April meetings.

The U.S. has vocally called for climate-focused reforms to World Bank architecture, lending, and practices and for enhancing the impact of MDB lending by efficiently implementing the recommendations of the report to the G20 on MDB CAF. In 2022, Treasury Secretary Yellen called on the World Bank to have more constructive climate leadership, develop clear climate targets, identify concessional resources, and only invest in gas infrastructure where necessary.⁶ With David Malpass resigning early from the World Bank presidency and Ajay Banga nominated by President Biden for the next term, there is opportunity for the U.S. and India to jointly push the World Bank towards more sweeping reforms, including by implementing the CAF recommendations.

U.S.-India areas for collaboration

As the president of the G20 for 2023, India will be in the position to lead on climate finance proposals and drive toward consensus. India could seek to expand de-risking facilities and encourage member countries to develop an effective and strong action plan for the G20 CAF Review.⁷ The Biden administration has spoken positively about the Bridgetown Initiative and MDB reform more broadly. Lastly, ensuring transparency and accountability and that the economic and environmental benefits are felt especially in climate-vulnerable communities could be a common goal between both countries.

The following are potential areas for U.S.-India collaboration on MDB and IFI reform:

- **De-Risking facilities:** Create and expand de-risking facilities that help reduce the cost of capital and mobilize finance, build resilient supply chains for emerging clean energy

⁴ Lawder, David, "World Bank seeks more funds to address climate change, other crises -document," (2023), Reuters, available at <https://www.reuters.com/business/sustainable-business/world-bank-seeks-more-funds-address-climate-change-other-crises-document-2023-01-03/>

⁵ ODI, "What is missing from the World Bank's Evolution Roadmap? Six priorities for management and shareholders," (2023), available at <https://odi.org/en/insights/what-is-missing-from-the-world-banks-evolution-roadmap-six-priorities-for-management-and-shareholders/>

⁶ Reuters, "Yellen wants bolder World Bank steps on climate change, global issues," (Feb 2023) <https://www.reuters.com/world/yellen-calls-bolder-world-bank-action-climate-change-global-challenges-2023-02-09/>

⁷ Ghosh, Arunhaba and Harihar, Nandini, "Coordinating Global Risk Mitigation for Exponential Climate Finance," (2021), available at <https://www.ceew.in/publications/mitigating-climate-change-and-clean-energy-finance-risks-for-developing-nations>

technology development and deployment, and scale up transition bonds. Support from the U.S. to action these proposals would be critical during India's G20 Presidency.

- **Increased inclusion of extreme weather and disaster and pandemic clauses in lending/debt instruments:** Increase the usage and deployment of extreme weather and disaster and pandemic clauses, allowing for more flexibility and resilience when countries are in crisis, and providing the fiscal space to recover from climate emergencies.
- **Transform emerging finance hubs in developing countries into centers of catalytic finance:** Initiatives such as the Gujarat International Finance Tec-City's International Financial Services Centre (GIFT IFSC) in India and the Global Blended Finance Alliance in Indonesia could become gateways for climate-aligned capital flows to the Global South and increase access to concessional capital in emerging economies. Such initiatives could also complement MDBs in advancing catalytic finance by matching bespoke financial solutions for developing countries with sources of capital that can fund them.
- **Capital adequacy:** Build consensus around the need for responsibly stretching resources available to MDBs and boldly implementing the CAF recommendations, in order to vastly expand lending to address global challenges.
- **Global public goods:** Promoting work on and harmonizing visions for how MDBs define, prioritize and invest in global public goods.

The following are recommendations that India and the U.S. could pursue as part of a bilateral initiative at the G20, to explore peer experiences about regulatory frameworks conducive to mobilizing investments in developing countries:

- **Sectoral regulations:** The G20 could facilitate cross-learnings between countries on best practices in policy and regulation for creating a conducive business environment for investors in specific green sectors e.g., renewables, sustainable transport, industrial decarbonization etc. Currently, there is a wide gap and significant scope and opportunity to share learnings between countries, but no precedent for how such learnings could facilitate and enhance green development. For instance, most developing countries witness a similar set of challenges regarding financial risks and uncertainties. The practices and challenges of building new institutions overlap in developed and developing countries. Identifying these lessons, sharing them and applying them locally hold critical value in creating an attractive ecosystem for investors. One way to disseminate best practices in sectoral policy and regulation can be accomplished through the G20 Sherpa Track, particularly the Energy Transition, Environment and Climate Sustainability and Sustainable Finance Working Groups.
- **Financial regulations:**
 - **Taxonomies:** The G20 must facilitate the international harmonization of taxonomies by coordinating with other platforms pursuing similar objectives. This could facilitate the identification of credible investment opportunities and link both international and domestic capital with investment opportunities in developing countries. Based on this harmonization, credible sustainability-linked financial instruments can be envisaged.

- Sustainability-linked credit ratings: The G20 could consider advancing regulations that mandate pricing environmental and social factors into credit ratings, complemented by a standardized framework for this purpose. Lowering the cost of borrowing for sustainable activities could increase the relative attractiveness of these activities from the perspective of investors.
- Sustainability-linked lending and investment: The G20 could advocate for regulators globally to issue mandates to draw at least a minimum investment of their portfolios in sustainable assets.

WORKING PAPER ON CLIMATE FINANCE FROM OCTOBER 2022

Executive Summary[1]

Energy and finance are critical fuels to enable an economic transition. However, within this, several challenges restrict an economic-wide clean energy transition. First, the current discourse on climate finance is trapped between a negotiated maximum and an undelivered minimum, i.e., USD 100 billion in climate finance. Secondly, challenges with ambiguity, limited flow to developing countries, lack of financial de-risking and limited private sector investment constrict global clean energy finance globally. Thirdly, similar to oil and gas, resources such as critical minerals and rare earth metals are sparsely distributed and owned by a few. Hence, the clean energy transition will give rise to new geostrategic rivalries and supply vulnerabilities arising from competition over these resources. Lastly, production capabilities and technological know-how are in the hands of a few, calling for greater knowledge exchange and co-development of technology to level the playing field and accelerate a global transition towards a clean energy future.

Under the ambit of the India-U.S. Track II Dialogue on Climate Change and Energy, the Climate Finance Working Group identifies where India and the U.S. can partner on clean energy financing. This includes formulating and building financial innovations necessary for resilient supply chains for existing and upcoming clean energy and clean technology sectors and kickstarting emerging and immature markets in India and Africa. The working paper provides the following G2G, multilateral and plurilateral recommendations:

G2G

- **Leverage the USD 150 billion credit** line announced by the U.S. Development Finance Corporation to unlock the USD 53 billion opportunity for clean energy productive use appliances in India. This aligns with the credit's mandate to bridge the country's economic gender gap through micro-financing.
- **Utilise the new India-U.S. energy task force** to explore opportunities to boost production and deployment of existing and emerging technologies such as green hydrogen through technology co-development.

- **Promote a small-scale early investment** with low-interest rates for higher-risk sectors such as green hydrogen to de-risk capital.
- **Provide non-financial trade-related incentives** to develop long-term markets supported by supply contracts, where few exist.

Multilateral

- **Establish a GCI-RMM** to de-risk utility-scale renewables and ease the flow of capital and access to non-project risk management tools in emerging markets, such as India. Support from the U.S. is critical to establish this de-risking facility. Under preliminary calculations conducted in 2018, to mobilise USD 20 billion in clean energy and related investments, the initiative would require an initial capital investment of about USD 660 million.[2]
- The U.S. government, the Government of India, and private sector lenders should collaborate to jump-start the lending market by de-risking finance and establishing a secondary market (resale value) for two- and three-wheel electric vehicles. Furthermore, priority sector lending, risk-sharing mechanisms, interest rate subvention, and product guarantees are all critical to unlocking finance for a more comprehensive EV transition in India.
- India and the U.S. should partner with the International Solar Alliance (ISA) to provide technical assistance and innovation transfer to scale up large-scale clean energy deployment in sub-Saharan Africa.
- The U.S. and India should lead in developing a multilateral and multi-stakeholder platform to drive large-scale adoption of productive uses of clean energy to stimulate jobs and growth for rural livelihoods and economies globally. The platform would solve specific barriers to catalyse a DRE-based productive use market at scale

Plurilateral

- India and the U.S. should **leverage the combined benefits of the QUAD using existing platforms/initiatives** and current or planned manufacturing capacity in QUAD and other like-minded countries. The aim is to reduce the overall critical dependence of China on raw materials and manufacturing of finished goods such as solar cells and modules and EV battery assimilation.
- As part of the QUAD, India and the U.S. should **push for a pooled technology de-risking fund for technologies at early stages of development**. This would mitigate the risk of underperformance, boost investor confidence, leverage greater private sectoral buy-in, and commercialise and deploy these technologies.
- **Build local capacity in the Global North and South** through guaranteed investments towards pilot projects, mitigate concerns about clean energy insecurity, and lay the

foundations of a rules-based architecture for trade and investment in existing and emerging clean technologies, such as green hydrogen.

Sustainable finance for a secure energy transition

By *Arunabha Ghosh and Nandini Harihar*[3]

Under the ambit of the India-U.S. Track II Dialogue on Climate Change and Energy, the Climate Finance Working Group identifies where India and the U.S. can partner on clean energy financing. This year, the working group will focus on formulating and building financial innovations necessary for resilient supply chains for existing and upcoming clean energy and technology sectors.

1. Beyond the negotiated maximum and a delivered minimum

Two fuels – energy and finance — drive every economy. India’s energy transition will not be possible without substantial capital flows at unprecedented scale and pace. India requires USD 10.1 trillion in aggregated investments to achieve its 2070 net zero targets (Singh and Sidhu 2021). Hence, far greater climate finance is needed than what is being negotiated under the USD 100 billion promise from developed countries.

The current dialogue on climate finance is trapped between a negotiated maximum and a delivered minimum (Ghosh 2021). Moreover, the lack of ambiguity in what counts for climate finance makes it tricky to evaluate what has been explicitly delivered as climate finance, as opposed to development financing or the balance between public and private finance

So, how do we break this trap and transform the upcoming years as a banner for climate finance delivery?

First, capital is needed at a far greater scale than what has been negotiated. Of the USD 10.1 trillion investment required, not all can come from private sources. The aggregate investment support needed by India to achieve its 2070 net-zero target will be USD 1.4 trillion at an average of USD 28 billion per year (Singh and Sidhu 2021).

Secondly, there must be a balance between public and private sources and adaptation and mitigation financing. In 2020, USD 44 billion was invested as green finance in India (CPI, 2022). Most of this was domestic capital, with green financing accounting for 3 percent of foreign direct investment (FDI) and bilateral and multilateral sources between 5-10 per cent. This trend is also true for climate finance under the USD 100 billion promise. In 2020, USD 83.3 billion was mobilised by developed countries (OECD 2022). Of this, almost 82 per cent was delivered through multilateral and bilateral public financing, with private sector financing accounting for only 15.7 per cent (ibid). While debt financing dominates in India, project developers seek more international bond financing. In this regard, India is counting on the debut of sovereign green bonds of almost USD 2 billion (INR 16,000 crore) to lower the cost of finance (PIB 2022). With

this, India will join 25 other countries with government-issued bonds to fund green infrastructure and climate sustainability projects (Roychoudhury 2022).

Thirdly, investment risk needs attention. The world's largest sovereign wealth funds, pension funds and institutional investors shy away from developing countries, considering them risky investment destinations. Without de-risking instruments, green finance (particularly in developing countries) for clean energy, sustainable mobility, and low-carbon industry will remain limited and costly. Developing countries need five interventions to catalyse the market for clean investments:

- De-risking utility-scale renewables in emerging markets by targeting non-project risks
- Reducing the cost of finance for distributed energy solutions for small businesses
- Increasing risk capital for R&D investment in disruptive technologies (such as green hydrogen or advanced biofuels)
- Deepening debt markets in developing countries through subsidies for credit enhancement[4]
- Establishing a de-risking facility based on risk pooling across projects and countries to ease the flow of capital and access to non-project risk management tools (Ghosh and Harihar 2021).

Fourthly, regulation is needed in developing countries to create an ecosystem for green finance. This includes a revised green taxonomy (beyond renewables) to generate greater awareness about green sectors, reduce greenwashing, and offer a better framework for equity investors to measure impact in other sectors, such as agriculture, construction and mobility (Ghosh and Harihar 2021b). In February 2022, India announced its *Green Hydrogen Policy 2022*, the first installment of an expected series of policies that will lay the foundations to accelerate the development of a green hydrogen manufacturing ecosystem in the country. This includes waivers on inter-state transmission charges to manufacturers of hydrogen and ammonia; facilitates the “banking” of clean electricity with power utilities; provides distribution licenses to procure and supply renewable energy to the manufacturers of green hydrogen and green ammonia within states at concessional prices etc. (Srinivas 2022) (Mint 2022). Estimates suggest that the cost of green hydrogen production could drop by 17 per cent in states such as Uttar Pradesh (Mallya and Yadav 2022).

A proposed approach to G2G and multilateral cooperation

First, India presents a USD 53 billion opportunity for decentralised renewable energy (DRE) productive use appliances (Waray, Patnaik and Jain 2018). Initiatives such as Powering Livelihoods, a joint initiative by CEEW and Villgro, have witnessed success in improving rural livelihoods by scaling up clean energy-powered appliances. Of this, women accounted for 71

per cent of the livelihoods improved through such appliances (as of August 2022). In this regard, the new credit line announcement by the U.S. Development Finance Corporation (DFC) in June 2022 provides a suitable prospect to reduce the cost of finance for DRE solutions for small and emerging businesses in India. DFC has approved USD 150 billion to address the economic gender gap through micro-financing in three of the poorest states in India (DFC 2022).

Secondly, in October 2022, India and the U.S. launched a new energy task force under the Strategic Clean Energy Partnership (SCEP) to “strengthen energy security and accelerate a clean, secure, and just energy transition” (PIB 2022b). Under the mandate of this task force, India and the U.S. should explore co-developing energy storage technologies and disruptive technologies such as green hydrogen for industrial decarbonisation to accelerate production and deployment, both domestically and globally.

Thirdly, support from the U.S. is critical to establish a de-risking facility, such as the **Global Clean Investment Risk Mitigation Mechanism (GCI-RMM)**, to de-risk utility-scale renewables and ease the flow of capital and access to non-project risk management tools in emerging markets such as India. Under a net zero, India needs to fill an investment gap of USD 3.5 trillion by 2070 (Singh and Sidhu 2021).

The GCI-RMM would be funded through international public money, serving as the guarantee to take up the residual risk, and the risk mitigation bundle for non-project risk is priced with market/risk reflective premiums. Public funds would only serve as the guarantee and take up the residual risks (Ghosh and Harihar 2021). A big boost for GCI-RMM is that it can leverage capital several fold in the form of private, clean energy and related investments. Under preliminary calculations conducted in 2018, to mobilise USD 20 billion in clean energy and related investments, the initiative would require an initial capitalisation of only about USD 660 million.[5]

2. Financing clean energy interdependence and building resilient supply chains

Energy security is not the same as energy independence. As the energy powerhouses shift from fossil fuel-rich countries to minerals-rich economies, the clean energy transition will give rise to new strategic rivalries and geopolitical, and supply vulnerabilities arising from competition over these vital resources as the transition to a sustainable low-carbon economy unfolds. So, how do countries achieve energy security through energy interdependence without a foolhardy quest for energy independence?

China’s dominant control over polysilicon, rare earth and critical minerals

The polysilicon concentration in China (Table 1) has raised many challenges with the global supply chain and domestic industries in India, South Korea and the United States since there is no wafer production outside China. For short-term protectionist measures, high duties on imported polysilicon translate into higher renewable electricity costs. Meanwhile, any

slowdown of upstream output impacts the pace of RE deployment. In 2020, the explosions at a Xinjiang plant took down 10 percent of global capacity resulting in significant supply disruptions.

1. Global crisis across the solar supply chain: The explosion caused a price rise due to factory shutdowns and rising demand, resulting in a 33 per cent hike in module prices.
2. Shutdown of local industry: Over 135 GW of polysilicon capacity shut down in South Korea and the United States.
3. Opacity of ethical concerns from the presence of polysilicon manufacturing in Xinjiang and limited transparency consistent concerns over the use of forced labour.

Moreover, Chinese players globally have built significant overcapacity and control over 75 percent of each stage. This makes many countries highly dependent on imports under the current supply chain arrangements while detrimentally impacting the domestic industry.

Table 1: Domestic value chain capacity shares of China, India, and the U.S.

Value Chain	U.S.	India	China	Rest of the world
Finance (WACC* for green energy)	5.1%	8.2%	6.6%	
<i>Polysilicon</i> [^]	1.1 (7%)	0.0 (0%)	4.9 (77%)	1.4 (15%)
<i>Wafers</i> [^]	0.0 (0%)	0.0 (0%)	9.2 (97%)	0.3 (2%)
<i>Cells</i> [^]	0.1 (0%)	0.4 (2%)	8.8 (86%)	1.4 (10%)

<i>Modules[^]</i>	0.4 (1%)	0.9 (4%)	10.1 (82%)	1.8 (10%)
Technology	Moderate	Low	High	

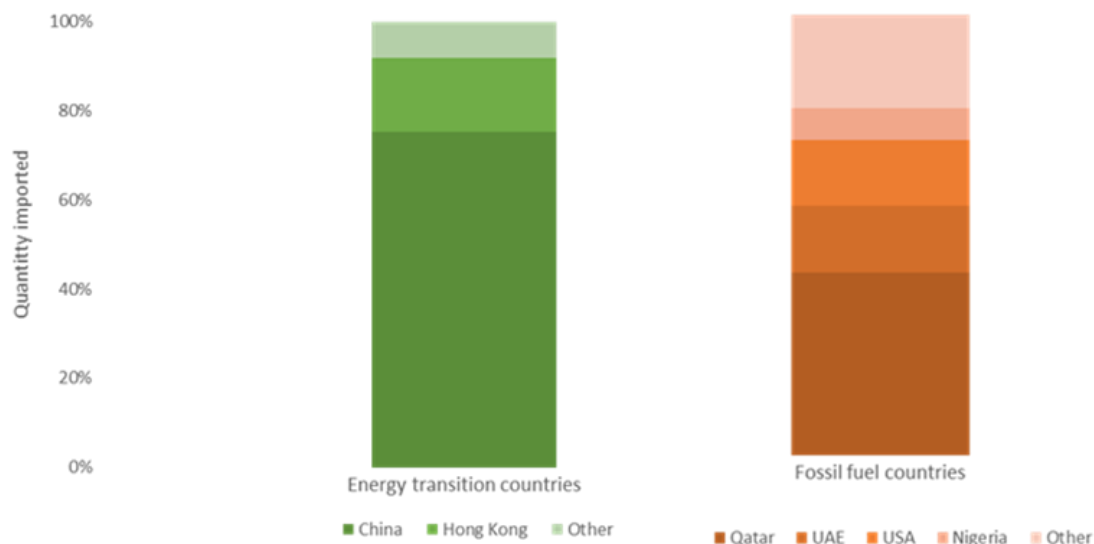
Source: CEEW analysis

Note: *Weighted Average Cost of Capital. ^Figures in brackets are market share of global capacity

India’s import dependency for critical energy resources

India’s energy security is evident if one considers its import dependence for clean energy equipment. First, India imported 75 per cent of its installed solar photovoltaic modules between 2017-2022 (IEA 2022). Secondly, India is 100 per cent import dependent on heavy rare earth minerals necessary for green technologies like wind turbines and hybrid vehicles, among others (Gupta, Biswas and Ganesan 2016). Thirdly, China controls over 50-75 per cent of the geographical distribution of the global EV battery supply chain (IEA 2022). Hence, India must strategically develop joint partnerships with existing global players (private firms and governments) to secure an assured supply of critical minerals and diversity in its energy resource suppliers (Figure 1). This is critical to mitigating energy dependence with a rising clean energy share. India’s (over)dependence on China for equipment like solar panels and modules (97 per cent), lithium-ion batteries (75 per cent) and rare earths metals (94 percent) in 2021-22 showcase its vulnerability to any disruption in supplies. In 2021, the cost of PV projects in India rose by 10-15 per cent, causing an increase in the power purchase agreement (PPA) tariffs for solar electricity due to the energy crisis in China (Mallya and Yadav 2022).

Figure 1: India’s import dependence for critical energy resources in 2021-2022



Source: Ministry of Commerce and Industry, Government of India; CEEW analysis

The International Energy Agency (IEA) forecasts that India will become the largest market for utility-scale battery storage worldwide (IEA 2020). The CEEW Centre for Energy Finance (CEEW-CEF) estimates that India has a USD 206 billion sales opportunity for India’s EV transition, including a market opportunity of USD 12.3 billion in battery manufacturing (Singh, Chawla and Jain 2020). However, since India is deficient in many of the minerals that are required for the manufacturing of renewable energy hardware, without adequate, secure and reliable access to these critical resources, the country will miss out on this growth potential and will be delayed in terms of its sustainable and clean energy transition.

The need to diversify resource supplies

While India owns around 6 per cent of the world’s rare earth reserves, its share of rare earth oxide production is less than 2 percent of total world production. This makes India dependent on Chinese raw materials and end products. India needs greater self-reliance and/or resource security by:

- Identifying the holistic demand estimation for domestic manufacturing (Dutt and Tyagi 2022).
- Building capabilities to undertake strategic sourcing, increasing domestic exploration of mining, and acquiring the know-how in mineral processing technologies through technological co-development and bilateral relations (Dutt and Tyagi 2022) (Gupta, Biswas and Ganesan 2016).
- Strategic acquisitions of mines, diplomatic supply and trade contracts and greenfield investments are prioritised with other countries (ibid).

Table 3: Leading producers of rare earth minerals in 2021

Rank	Country	Producing (Million tonnes)
1	China	168,000
2	U.S.	43,000
3	Myanmar	26,000
4	Australia	22,000
5	Thailand	8,000
6	Madagascar	3,200
7	India	2,900
8	Russia	2,700

Source: (Garside 2022); (Pistilli 2022)

A proposed approach to G2G and plurilateral cooperation

India's integration into global energy markets will be one of the key shifts in the global economy. For this, India needs to identify key functions that bilateral G2G partnerships and regional or plurilateral energy institutions could perform to build global energy

interdependencies and its energy security. These functions include assuring transparency in energy markets, cooperatively managing strategic reserves, jointly patrolling energy supply routes, arbitrating disputes, and pooling resources to lower insurance premiums on transporting resources.

First, India and the U.S. could lead and leverage the combined benefits of the QUAD using existing platforms/initiatives (Quad Climate Working Group and Supply Chain Resilience Initiative) and current or planned manufacturing capacity in Quad and other like-minded countries. A preliminary assessment from CEEW indicates:

- Solar PV (38 percent of the global market): U.S. (polysilicon), India and South Korea (cells and modules)
- EV battery (31 per cent of global market): U.S., Japan, South Korea (cells), India (battery assembly), Australia (key minerals)
- H2 electrolyzers (29 per cent of global market): U.S. (membrane), Japan (catalysts), South Korea (catalysts)

Secondly, pursuing new avenues of technology co-development, including intellectual property co-ownership, will socialise risks across countries. The QUAD could promote a pooled technology de-risking fund, particularly for technologies at early stages of development, such as green hydrogen (Ghosh, Chaturvedi and Bhasin 2019). This would mitigate underperformance risk and provide comfort to financiers, thus enabling greater flow for private sector financing and faster commercialisation and scaling up of novel technologies.

Another approach could be built on the three pillars of finance, guaranteed demand offtake, and technology co-development backed by common and enabling standards. There is a need to combine multilateral funding (grants and low-cost debt), sovereign guarantees to help tap capital markets, and revisiting the tariff structure for the products included within the scope of this initiative. Moreover, India and the U.S. should investigate mechanisms for early starters, green hydrogen developers and manufacturers. This could include:

- **Early investment at a G2G level.** This could be a smaller pool of finance with low-interest rates, which holds up against higher-risk sectors such as green hydrogen. Both governments can bear the risk of failure as a means of de-risking.
- **A G2G partnership to provide other non-financial trade-related incentives.** For instance, India and Japan could consider providing technology and capital to develop green hydrogen manufacturing units in India (due to its low cost of manufacturing), and India, in turn, could provide a guaranteed supply of ammonia to Japan for the next 25 years.
- **Building local capacity in the Global North and South.** This requires guaranteed investments towards pilot projects to bridge the technology divide, mitigate

concerns about clean energy insecurity, and lay the foundations of a rules-based architecture for trade and investment in existing and emerging clean technologies.

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[1] With inputs from the David Marchick's climate finance paper, titled 'Kickstarting Emerging/ Immature Markets'

[2] This is based on initial risk assessment and capital requirement calculations done in 2018. More updated calculations can be done by market participants and supportive governments once the idea gets political support

[3] Arunabha Ghosh is CEO and Nandini Harihar is a Research Analyst at the Council on Energy, Environment and Water (CEEW). <https://ceew.in>

[4] CEEW-CEF calculates that a subsidy of USD 649 million, over five years, could mobilise debt capital ~ USD 10.1 billion (Singh and Sidhu 2021).

[5] This is based on initial risk assessment and capital requirement calculations done in 2018. More updated calculations can be done by market participants and supportive governments once the idea gets political support