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DEVELOPING AN EFFECTIVE CARBON MARKET FRAMEWORK TOWARDS THE ACHIEVEMENT OF NET-ZERO IN INDIA:

The Role of Article 6, Emissions Trading and Voluntary Markets

IN PARTNERSHIP WITH:

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ACRONYMS

ACR	American Carbon Registry
AEAs	Accredited Energy Auditors
AEF	Agreed Electronic Formats
A6	Article 6
A6IP	Article 6 Implementation Partnership
BAC	Baseline-and-Credit System
BEE	Bureau of Energy Efficiency
BRSR	Business Responsibility and Sustainability Reporting
CA	Corresponding Adjustments
CAR	Climate Action Reserve
CARP	Centralised Accounting and Reporting Platform
CBAM	Carbon Border Adjustment Mechanism
CCCs	Carbon Credit Certificates
CCPs	Core Carbon Principles
CCTS	Carbon Credit Trading System
CCUS	Carbon Capture Utilisation and Storage
CDM	Clean Development Mechanism
CDR	Carbon Dioxide Removals
CERC	Central Electricity Regulatory Commission
CERs	Certified Emissions Reductions
CGS	Center for Global Sustainability
CM	Compliance Market
CoP28	Conference of the Parties 28
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CO2e	Carbon Dioxide Equivalent
DCs	Designated Consumers
DNAs	Designated National Authorities
DoEs	Designated Operational Entities
EA	Electricity Act
EITE	Emissions Intensive Trade Exposed
ERs	Emission Reductions
ESCs	Energy Saving Certificates
ETS	Emissions Trading System
EU	European Union
FY	Financial Year
GCIL	Grid Controller of India Limited
GCP	Green Credit Program
GDP	Gross Domestic Product
GHG	Global Greenhouse Gas
$GTCO_2$	Gigatonne CO_2
ICAO	International Civil Aviation Organization
ICM	Indian Carbon Market
ICROA	International Carbon Reduction and Offsetting Accreditation
ICVCM	Integrity Council for the Voluntary Carbon Market
IETA	International Emissions Trading Association
IEX	Indian Energy Exchange
INDC	Intended Nationally Determined Contribution
ITMOs	Internationally Transferred Mitigation Outcomes
JCM	Joint Crediting Mechanism
LiFE	Lifestyle for the Environment
LT-LEDS	Long Term Low Carbon Emission Development Strategy
MACC	Marginal Abatement Cost Curves
MCUs	Mitigation Contribution Units
MISTHI	Mangrove Initiative for Shoreline Habitats & Tangible Incomes
MNRE	Ministry of New & Renewable Energy
MSW	Municipal Solid Waste
Mtoe	Million Metric Tonnes of Oil Equivalent
MWh	Megawatt-Hour
NCDMA	National Clean Development Mechanism Authority
NCM	National Carbon Market
NDAIAPA	National Designated Authority for the Implementation of the Paris Agreement
NDCs	Nationally Determined Contributions
NMEEE	National Mission for Enhanced Energy Efficiency
NSC	National Steering Committee
NSCICM	National Steering Committee for the Indian Carbon Market
OIMP	Other International Mitigation Purposes
OMGE	Overall Mitigation in Global Emissions
O&M	Operations and Maintenance
PAT	Perform-Achieve and Trade
PIB	Press Information Bureau
PXIL	Power Exchange of India Ltd
RECs	Renewable Energy Certificates
RPOs	Renewable Purchase Obligations
SB	Supervisory Body
SBSTA	Subsidiary Body for Scientific and Technological Advice
SDG	Sustainable Development Goal
SEC	Specific Energy Consumption
SOPs	Share of proceeds
tCO_2e	Tonne of Carbon Dioxide Equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCMII	Voluntary Carbon Markets Integrity Initiative
VCS	Verra's Verified Carbon Standard

CHAPTER 1. INTRODUCTION

INDIA IS ONE OF THE WORLD'S FASTEST GROWING ECONOMIES, WITH VAST OPPORTUNITIES FOR MARKET-BASED CLIMATE POLICY INSTRUMENTS TO SUPPORT THE TRANSITION TOWARDS NET-ZERO.

With an aspiration to be among world's top 3 largest economies within this decade, its emissions are expected to increase from the 2.9 GTCO2 as of 2019 to peak at 3.8 GTCO2 around 2040 in the current scenario. In an accelerated transition scenario, India could peak at 3.4 GtCO2 already before 2030 and then decline towards its net-zero target in 2070. [1] Much of this growth continues to arise from coal power generation and fossil fuel combustion in the energy sector, in addition to increasing emissions from industry, transportation needs and land-use changes. However, carbon markets can play a vital role in helping India in its low-carbon transformation towards net-zero.

Historically, India has been a large supplier of carbon credits to international markets during the Clean Development Mechanism (CDM) and in the voluntary carbon market (VCM). Under the Paris Agreement, India has set a nationally determined contribution (NDC) to reduce its emissions intensity by 45% below 2005 levels by 2030 and to increase the share of non-fossil power capacity to 50% by 2030. In addition, India has pledged to become net zero by 2070. Recently, several steps have been taken towards the development of a domestic compliance market, "carbon credit trading system" (CCTS) and towards international cooperation under Article 6 of the Paris Agreement.

To advance the development of an efficient and high-integrity carbon market framework in India, the International Emissions Trading Association (IETA) initiated the IETA India scoping group in May 2023. The group consists of a select group of thought-leaders and private sector stakeholders from India and internationally, brought together by a strong conviction that carbon markets can play a key role in supporting low-carbon development in India.

This paper outlines how well-designed carbon markets, including the Carbon Credit Trading Scheme (CCTS), Voluntary Carbon Market (VCM) and Article 6, can play a critical role in reaching and enhancing India's climate targets, in advancing low-carbon solutions and channelling finance towards sustainable development.

We aim to develop deeper analysis of specific sections of this paper (e.g., on the design considerations of the CCTS, the demand for Article 6 credits and the potential impact of the EU Carbon Border Adjustment Mechanism "CBAM") in upcoming publications together with IETA members.

We look forward to engaging constructively with government officials, private sector stakeholders, international partners and non-governmental organisations in India.

Find out more about IETA and how to reach us at www.ieta.org. For any comments or questions on this paper, do not hesitate to reach out to Björn Fondén, International Policy Advisor, IETA (fonden@ieta.org).

IETA is a non-profit business association established in 1999. With over 325 members representing all parts of the carbon market ecosystem, IETA is the trusted business voice on market-based solutions to the climate emergency.

IETA aims to achieve our mission by using our expertise to:

- promote carbon market and pricing solutions to climate change;
- help design effective rules for market operation and integrity; and
- provide the most up-to-date and credible information on greenhouse gas emissions trading and market activity- can help India implement its NDC and access financial resources, promoting economic growth and community development.

1 Rajat Gupta, Shirish Sankhe, Naveen Unni, Divy Malik (2022), Decarbonising India: Charting a pathway for sustainable growth

CHAPTER 2. BACKGROUND

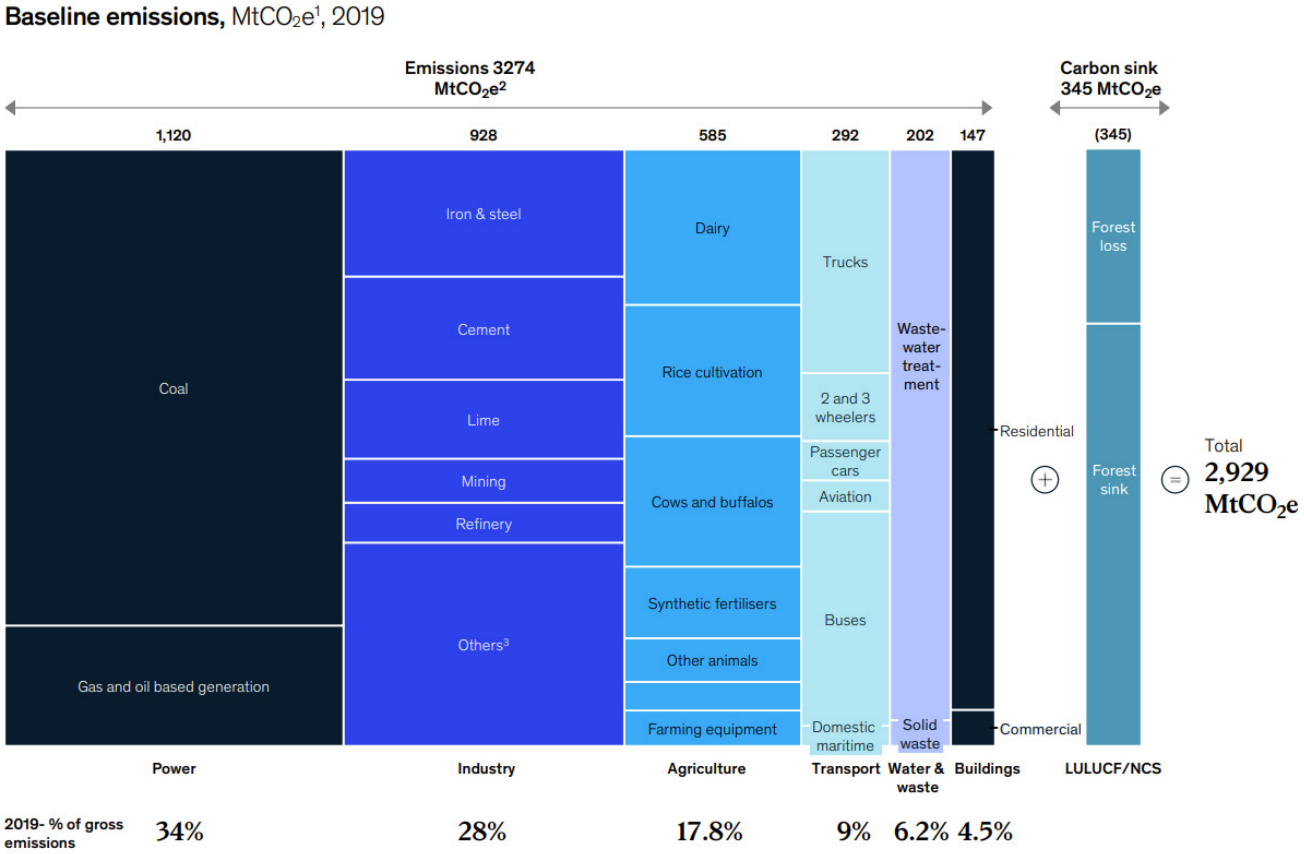
2.1 THE DEVELOPMENT OF CARBON MARKETS IN INDIA

Arising as a concept in the late 1900's, carbon markets have in recent years spread across the world, covering an ever-larger share of global greenhouse gas (GHG) emissions (with emissions trading schemes currently covering around 17% of global emissions).[2] Offering a cost-efficient and predictable path to reduce emissions by the trading of carbon credits, each representing 1 tonne of CO2 or CO2e (carbon dioxide equivalent), carbon markets have successfully demonstrated to be competent instruments in addressing climate change at the national, regional and international level. As efforts to address climate change intensify across the globe, carbon markets are poised to become increasingly important and play a vital role in the reduction of emissions and driving the adoption of cleaner technologies.

India communicated its Intended Nationally Determined Contribution (INDC) in 2015 and subsequently submitted its update in August 2022 which included:

- To reduce emissions intensity of its GDP by 45 percent by 2030, from 2005 level;
- To achieve 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030;
- To create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.

Further, at the UNFCCC COP27 climate change conference, India released its 'long term low carbon emission development strategy' (LT-LEDS) document. The LT-LEDS is also informed by the vision of LiFE, Lifestyle for the Environment, that calls for a world-wide paradigm shift from mindless and destructive consumption to mindful and deliberate utilization.[3] Key pillars of India's strategy include: 1) Low-carbon electricity systems consistent with development, 2) Integrated, efficient and inclusive low-carbon transport systems, 3) Energy and material-efficiency in buildings, 4) Decoupling growth from emissions and developing an efficient, low-emission industrial system, 5) CO2 removal and related engineering solutions, 6) Enhancing forest cover consistent with socioeconomic and ecological considerations, 7) Increasing climate resilience in poverty eradication and employment creation.



INDIA'S CURRENT CARBON EMISSIONS MIX (SOURCE: MCKINSEY)[4]

2 ICAP (2023), Emissions Trading Worldwide: Status Report 2023

3 Press Information Bureau, Government of India (2022), India Submits its Long-Term Low Emission Development Strategy to UNFCCC

4 Rajat Gupta, Shirish Sankhe, Naveen Unni, Divy Malik (2022), Decarbonising India: Charting a pathway for sustainable growth

Carbon markets – voluntary, compliance and international, under Article 6 – are increasingly seen as a pathway for India to support its low-carbon development. Engagement with market-based climate policy instruments is not new to India though, with significant previous experience from the CDM, the Perform-Achieve and Trade (PAT) scheme and Renewable Energy Certificates (RECs) trading.

Under the Kyoto Protocol, three different flexible mechanisms were introduced, which offered pathways for countries to trade emission certificates between each other. One of them, the Clean Development Mechanism (CDM), gained significant prominence and has, till March 2022, a total of 7,846 projects registered around the world and generated 2,169 million certified emissions reductions (CERs). More than 21% of these projects have been implemented in India, facilitating significant revenue and foreign financial flows into renewable energy generation, energy efficiency projects, waste management and sustainable development.

In addition to the CDM, the Government of India introduced trading in RECs in 2010 as a means to further support the deployment of solar and wind power. At the same time, state governments were mandated to achieve certain degrees of Renewable Purchase Obligations (RPOs) to drive demand. Whilst aiming to support the energy transition, REC trading in India has faced significant implementation challenges (see more below) and electricity generated from fossil fuels still represent more than 76% of the energy mix in India – the country's largest source of GHG emissions.

Finally, the government introduced the PAT scheme in 2012, which is a market-based mechanism aiming to increase energy efficiency in energy intensive sectors. Following its introduction, the PAT scheme has faced significant implementation challenges but also contributed to the lowering of GHG emissions in heavy industry through efficiency measures and helped form the foundations of the new carbon market framework.

As India is now embarking on its journey to achieve net-zero by 2070 at the latest, and to achieve its dual NDC ambition of reducing emissions intensity by 45% below 2005 levels by 2030 and increasing the share of non-fossil power capacity to 50% by 2030, the government is looking to set up a domestic carbon market, known as the Carbon Credit Trading Scheme (CCTS). During recent years, several announcements have been made regarding the development of the Indian Carbon Market (ICM), which will be analysed further in this document. In addition to the emergence of the domestic compliance market, the government is also considering its participation in international cooperative approaches through Article 6 of the Paris Agreement, as well as the role of the VCM in channelling much-needed finance towards low-carbon development in India.

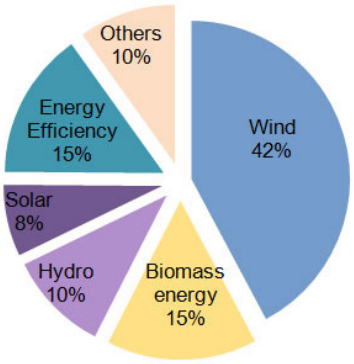
Several papers have been written about the positive impacts and shortcomings of the PAT scheme, RECs trading and CDM in India. These considerations are therefore not expanded in depth in this paper. Rather, we aim to analyse how lessons learned, including from other carbon markets across the world, may support the development of an effective deployment of the new ICM through a number of clear recommendations by the industry.

2.2 THE CLEAN DEVELOPMENT MECHANISM

The CDM was one of the mechanisms under the Kyoto Protocol aimed at reducing greenhouse gas emissions and promoting sustainable development. The CDM allows industrialised countries to invest in emission reduction projects in developing countries and receive Certified Emission Reductions (CERs) as credits for their own emissions reduction targets.

Early, India became one of the leading countries in terms of CDM project activities and supply of CERs to the international market. Till March 2022, India had 1,685 registered projects under CDM and 276 million CERs issued[5], which was the second highest after China. India's engagement with the CDM started with the establishment of the National Clean Development Mechanism Authority (NCDMA) in 2003 under the under Ministry of Environment & Forests (MoEF, currently MoEFCC), which was responsible for facilitating and overseeing carbon market activities in India. NCDMA was set up to provide guidance and approval for CDM projects, and Designated National Authorities (DNAs) were appointed to coordinate CDM activities at the state level. Large availability of low mitigation cost activities made India successful in attracting significant foreign capital towards the development of low-carbon solutions. CDM activities included the deployment of renewable energy, methane capture and waste management, clean cookstoves and energy efficiency projects. For example, energy-efficient lighting systems (UJALA scheme), energy-efficient appliances, and improvements in industrial processes have been implemented through CDM. The CDM has also played a significant part in the early deployment of renewable energy projects, particularly wind and solar power, in India – reducing the dependence on fossil fuels and improving livelihoods across the country.[6]

Figure 2: CDM projects in India by Type, as of March 1, 2015



Although facing significant criticism and challenges, including around additionality concerns, social and environmental safeguards and the complexity of the CDM project cycle limiting participation to a small group of players, the CDM can overall be seen as having had a positive impact on sustainable development in India. It has also significantly strengthened capacity among government officials as well as private sector stakeholders, including project developers and designated operational entities (DOEs) who conduct the validation and verification of CERs, on the opportunities of international carbon markets.

5 Sai Krishna Muthyanolla (2022), Review: What is the status of Clean Development Mechanism (CDM) projects

6 M Rahul (2015), Clean Development Mechanism (CDM)

2.3 THE REC MECHANISM

Renewable Energy Certificates (RECs) are market-based instruments that certify a bearer owns one megawatt-hour (MWh) of electricity generated by a renewable resource. RECs are issued to renewable energy producers who can sell them separately from the electricity they generate. REC mechanism was introduced in the year 2010 under the Electricity Act 2003 ("EA 2003") and the National Tariff Policy 2006 ("Tariff Policy 2006") to address the mismatch between the availability of Resources and the requirement of the obligated entities to fulfil their renewable purchase obligation (RPO).

RPOs are the minimum percentage of electricity that states have to procure from renewable sources. RECs provide spatial flexibility for green power generation and consumption, as states with resource constraints or RPO shortfalls can buy RECs from states with surplus renewable energy. However, due to several factors, the REC market in India has faced significant challenges over the last decade. Due to an over allocation of RPOs, and limited enforcement of non-compliance, demand and prices have remained low. In 2020, the RECs trading was even suspended for more than a year after a legal dispute over changing the floor price to zero by the Central Electricity Regulatory Commission (CERC). Trading resumed in November 2021 with some amendments to the REC regulations. Some of these amendments included:

- A floor price and a forbearance price for RECs to ensure price stability and investor confidence.
- A certificate multiplier for certain technologies or regions, which means that more than one REC can be issued for each MWh of renewable energy generation, to incentivize development in those areas/technologies.
- A vintage multiplier for existing RECs, which means that the value of the old RECs will be multiplied by a factor depending on their vintage, to clear the inventory of unsold RECs and protect the interests of the generators.
- A shelf life of 365 days for new RECs, which means that they will expire if not sold within a year, to prevent accumulation of RECs and ensure market liquidity.

The mechanism was further modified by REC Regulations issued on 9 May 2022 by CERC. As per the regulation, the REC multiplier was introduced for different RE technologies including hydro as shown in the table below, the price of REC shall be as discovered in the Power Exchange(s) or as mutually agreed between eligible entities and the electricity traders (no mention of floor or forbearance price).

RENEWABLE ENERGY TECHNOLOGIES	REC MULTIPLIER
On-shore Wind and Solar	1
Hydro	1.5
Municipal Solid Waste (MSW) and non-fossil fuel-based cogeneration	2
Biomass and Biofuel	2.5

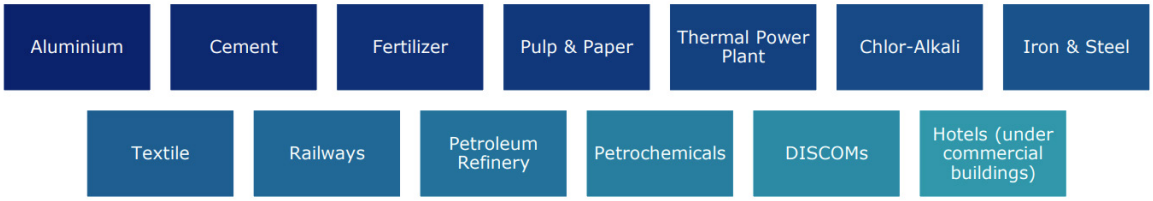
These developments are expected to provide a safety net to the renewable energy developers and revive the REC market in India. However, policy efforts must also focus on creating greater demand for renewable energy-based power and enforcing compliance with RPOs in the country.

2.4 THE PAT SCHEME

The Perform, Achieve, Trade (PAT) scheme in India is a market-based mechanism that was introduced by the Bureau of Energy Efficiency (BEE) under the National Mission for Enhanced Energy Efficiency (NMEEE) in 2012. The objective was to improve energy efficiency in energy-intensive industries through accelerated adoption of efficient and low-carbon technologies, thereby reducing their carbon emissions. The programme has been implemented over seven cycles (three years each) covering 964 entities in different sectors and industries. In the scheme, selected designated consumers (DCs) were assigned mandatory Specific Energy Consumption (SEC) targets (measured in tonne of oil equivalent per tonne of product), based on their performance relative to sector peers. If the obligated entities overperformed relative to the target, they earn Energy Saving Certificates (ESCs) which can be traded and sold on the market to other entities who face a shortfall. Although price instability and limited demand has been prevalent in the market, the trading of ESCs has contributed to the understanding of market-based climate policy instruments, providing incentives for developing low-carbon technologies and generated significant revenue.

In the first cycle, 468 entities were covered across eight sectors and saved energy to the tune of 8.67 million metric tonnes of oil equivalent (Mtoe). Since then, a total of seven cycles of the PAT scheme have been launched, covering various sectors and targets, with the latest PAT cycle –VII notified in October 2021 for the period 2022-23 to 2024-25 wherein 707 entities have been identified with overall energy saving target of 8.485 MTOE. Cycle-wise details relating to the number of DCs, sectors and energy saved are given in the table below. Also given in the subsequent table are the 13 sectors and corresponding DCs covered across PAT cycles. To meet their targets, industries have implemented a number of new technologies and practices.

[7]PAT Cycle	Number of Designated Consumers (DCs)	Sectors	Energy Saved (Mtoe)
I (FY 13-15)	478	8	8.67
II (FY 17-19)	621	11	14.08
III (FY 18-20)	116	6	1.745
IV (FY 19-21)	109	8	0.6998
V (FY 20-22)	110	8	0.513
VI (FY 21-23)	135	6	1.277
VII (FY 23-25)	707	9	8.485 (Target)



THE 13 SECTORS COVERED BY THE PAT SCHEME.[8]

The PAT scheme has contributed to significant energy savings and emission reductions in India's industrial sector. It has incentivized energy-intensive industries to adopt energy-efficient technologies, practices, and processes. The scheme has been periodically expanded to include additional sectors and aims to drive continuous improvements in energy efficiency across industries.

In addition to the above, the PAT scheme has contributed to the following learnings which will be instrumental in the transition to a compliance carbon market:

- Increased Awareness and Capacity Building: The PAT scheme has contributed to significantly increased awareness and capacity building on energy efficiency among companies and government officials. More than 45,000 professionals across the country have been trained through various capacity-building programs and workshops.

- Monitoring, Verification, and Compliance: The deployment of the PAT scheme has supported the expansion of MRV practitioners and infrastructure in India. To ensure the accuracy of reported energy savings, Accredited Energy Auditors (AEAs) conducted audits and verified energy consumption data. Non-compliance penalties were imposed on entities failing to achieve their targets, ranging from the obligation to purchase additional ESCs to financial penalties.

- Policy Alignment and Institutional Support: The PAT scheme aligned with national energy efficiency policies, such as the National Mission for Enhanced Energy Efficiency (NMEEE) and the Energy Conservation Act, 2001, ensuring policy coherence and support. Regulatory bodies, such as the Bureau of Energy Efficiency (BEE) and State Designated Agencies (SDAs), provided institutional support and guidance to industries throughout the implementation of the scheme.

- Trading of climate-related instruments: The trading of ESCs provided a market-based approach for achieving energy-saving targets. They were traded on the power exchanges namely Indian Energy Exchange (IEX) and Power Exchange of India Ltd (PXIL). Over 31 million ESCs had been traded on the market by the end of 2019. The market price of ESCs has fluctuated significantly over time, varying from 200 INR to 1,200 INR till 2019. Trading has again started from February 2023, with a floor price which is 10% of the penalty price determined for each PAT cycle. Currently, trading is going on for a second PAT cycle with a floor price of 1,840 INR.

- Collaboration and Knowledge Sharing: The PAT scheme fostered collaboration between industries, government agencies, and energy experts. Platforms such as industry-led forums, workshops, and conferences facilitated knowledge sharing, best practice dissemination, and the replication of successful energy-saving measures.

7 Bureau of Energy Efficiency: Government of India, Ministry of Power (2023), Perform Achieve and Trade (PAT)

8 Bureau of Energy Efficiency (2022), Draft Blueprint on "National Carbon Market"

2.5 LEARNINGS FOR THE FUTURE

The initiatives above have provided valuable insights into the necessary design considerations for the development of carbon markets in India. They emphasise the importance of target setting, market mechanisms, monitoring and verification, stringent enforcement protocols, and sustainable development co-benefits in achieving climate and energy goals. Some of the key learnings for the future include:

Monitoring and verification	Robust monitoring and verification mechanisms are essential for the successful implementation of market-based instruments. Regular audits and third-party verification ensure that results are accurately measured and reported. Projects also need to undergo a rigorous process of validation and verification to ensure their environmental integrity. Independent auditors accredited according to international standards and designated operational entities should review projects to confirm emission reductions and sustainable development benefits. It is important to make certain that such auditors have the necessary capacity and processes in place to keep high integrity and ensure trust in the process.
Carbon finance to encourage clean energy and technology adoption	Market-based instruments can provide significant financial incentives for the scaling up of sustainable energy sources and cleaner technologies. The financial rewards encourage businesses and industries to invest in sustainable practices, which can accelerate the transition to a low-carbon economy.
Target-based approach and need for stringency	A target-based approach has proven effective in driving energy efficiency improvements. For example, under the PAT-scheme, energy-intensive industries are assigned specific energy consumption reduction targets. They are required to achieve these targets within a stipulated time frame. However, when targets are not ambitious enough, or enforcement is lacking, the incentives for decarbonization are significantly reduced. This highlights the need for stringent targets to drive demand.
Need for enforcement and oversight	Similarly, lessons learned from implementation of previous schemes highlights that targets will only be achieved if there is oversight and enforcement in place. It will be important for the government to coordinate effectively internally, with oversight bodies and market participants to avoid any free-rider dilemma.
Technology transfer and sustainable development	Projects implemented under the previously outlined schemes have contributed to the transfer of technology and sustainable development. They encourage the adoption of cleaner and more efficient technologies, leading to reduced emissions and improved environmental performance.
Baseline establishment	The establishment of robust baselines are crucial to ensure that any projects environmental benefits are not overstated but accurately captured.

2.6 MOVING TOWARDS A NEW CARBON MARKET REGIME IN INDIA

In October 2021, India took the next steps towards the implementation of a carbon market with the release of a draft blueprint for stakeholder consultation of the national carbon market framework by BEE.[9] Subsequently, the Energy Conservation (Amendment) Bill, 2022 was introduced in the Lower house of the Parliament (Lok Sabha) in August 2022 to amend the Energy Conservation Act of 2001. As per Section 14 of the bill, it empowers the central government to specify a carbon credit trading scheme. The bill was passed in the Lok Sabha in August 2022 and upper house (Rajya Sabha) in December 2022 becoming a Parliamentary Act which has come in force from 1 January 2023. Thus India is seen quickly moving towards the establishment of a new carbon market regime, including the launch of a voluntary carbon market transition into a compliance market and eligible activities for international cooperative approaches under Article 6 of the Paris Agreement.

In the following chapters, the new Carbon Credit Trading Scheme (CCTS), the Green Credit Scheme, Article 6 and Voluntary Carbon Markets are examined, with industry recommendations building on the learnings from previous instruments and experiences from other parts of the world.

9 Bureau of Energy Efficiency (2022), Draft Blueprint on “National Carbon Market”

CHAPTER 3. THE DOMESTIC COMPLIANCE MARKET IN INDIA

3.1 INTRODUCTION TO THE PROPOSED CARBON CREDIT TRADING SCHEME (CCTS)

To facilitate the achievement of India's enhanced NDC targets, the Government has initiated the development of the 'Indian Carbon Market' (ICM), a unified carbon market mechanism which will mobilize new mitigation opportunities through demand for emission reduction credits by private and public entities. A single market at the national level, as opposed to having multiple sectoral market instruments, would reduce transaction costs, improve liquidity, enhance a common understanding and targeted capacity development, and streamline the accounting and verification procedures.

The proposed Carbon Credit Trading Scheme (CCTS) was notified on 28 June 2023, by the Ministry of Power,[10] under the purview of the Energy Conservation Act, 2001. Through the CCTS, the Government of India establishes the national framework with an objective to reduce or remove or avoid the greenhouse gases emissions from the Indian economy by pricing greenhouse gas emissions through trading of carbon credit certificates. Under the CCTS, the emission reduction targets will be notified under the the Environment (Protection) Act, 1986 which empowers the Government to specify standards for emission or discharge of pollutant for the obligated sectors.

The CCTS is designed as a baseline-and-credit system (BAC), and will set emissions intensity targets for the obligated entities. This differs to many other long-running compliance markets such as the EU ETS, which sets absolute emission caps for covered industries. This shift in approach is driven by concerns that strict quantitative limits could hinder economic growth. Whilst an absolute quantity-based cap offers predictability in terms of emission levels, intensity-based targets will allow emissions to vary based on changes in economic development which is seen as more suited to the national context.

In the compliance mechanism, obligated entities which also include Designated Consumers from the on-going PAT scheme shall be required to reduce GHG emission intensity in terms of tonne of carbon dioxide equivalent (tCO2e) per unit of equivalent product. Obligated entities that reduce their emissions below the baseline will be issued carbon credit certificates (CCCs), which can be sold to other obligated entities who exceed their emissions baseline and need to purchase CCCs to cover their shortfall.

The CCTS is expected to be introduced gradually over the coming years, however the timeline for implementation, entities to be covered and targets are still to be confirmed.

3.2 GOVERNANCE STRUCTURE

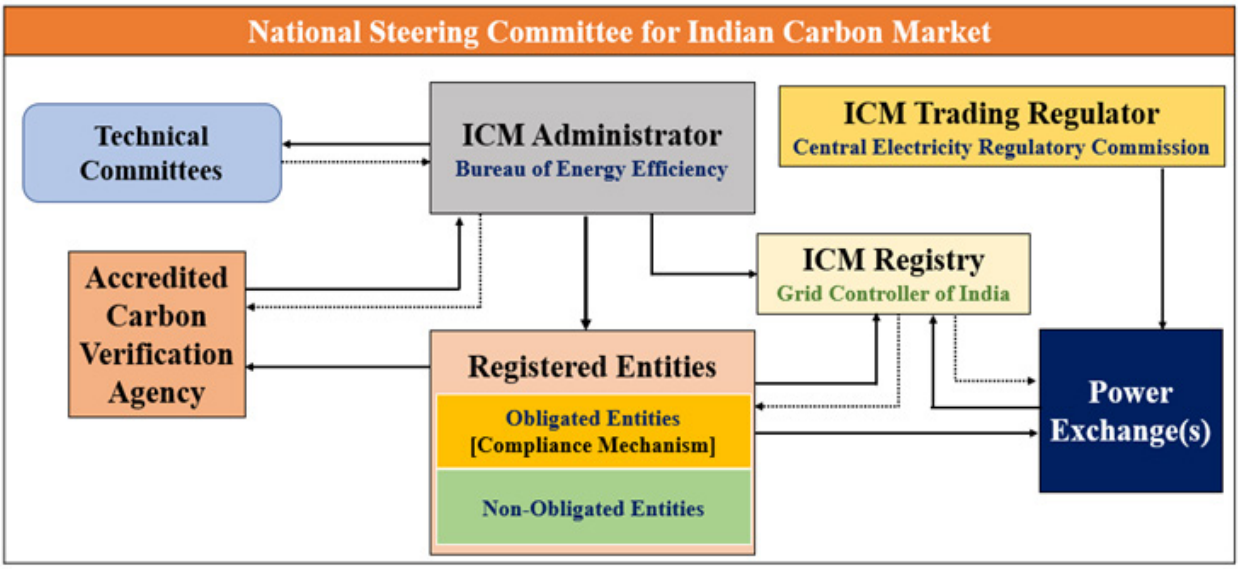
The Central Government has constituted the National Steering Committee for the Indian Carbon Market (NSCICM) to oversee the administrative and regulatory functioning of the ICM. The board will be chaired by the Secretary, Ministry of Power and co-chaired by the Ministry of Environment and Climate Change. The board will consist of 19-22 members from different ministries and states, as well as experts who have knowledge of carbon trading, emissions accounting and energy.[11]

The steering committee aims to formalize its inputs through the Bureau of Energy Efficiency (BEE), which will act as the market administrator. The BEE will hold a crucial responsibility in the market's operations, ensuring the balance of credit demand and supply. Consequently, the BEE will bear the responsibility of developing the carbon market rules, which include setting industry-specific emission reduction targets, establishing measurement approaches for baseline emissions and reductions, defining procedures for accrediting carbon credit verifiers, and overseeing credit issuance.

The certificates issued will be registered with the ICM Registry. The Grid Controller of India Limited (GCIL) will act as a Registry for ICM. The ICM Registry will also function as Meta-Registry for India, i.e., it will be the national GHG registry for the country and will establish the linkages with any national or international registry of any market-based mechanism. The ICM registry will act as master registry of the country, which will be linked with other international registries.

10 Press Information Bureau, Government of India (2023), Ministry of Power & Ministry of Environment, Forests & Climate Change to develop Carbon Credit Trading Scheme for Decarbonisation

11 Ministry of Power (2023), The Gazette of India: Extraordinary



SOURCE: BEE – STAKEHOLDER CONSULTATION FOR ACCREDITED CARBON VERIFIERS UNDER ICM

The ICM Administrator will issue the CCCs as recommended by the NSCICM. The Administrator will develop and maintain the IT infrastructure including the knowledge platform required for ICM. The CERC will be the trading regulator for the ICM. Both the obligated and non-obligated entities can trade the CCCs through the power exchanges.

The Accredited Carbon Verification Agency will conduct the verification to assess and quantify the CCCs which can be issued or to be entitled to purchase to the registered entities.

3.3 SCOPE AND TIMELINE

The notification lacks a clear timeline for the implementation of the carbon market, leaving uncertainty about which section of the market will commence first. It defines obligated entities as those covered under the compliance mechanism, while non-obligated entities can voluntarily purchase CCCs. From the stakeholder consultations held by the BEE, it appears that obligated entities align with those already covered by the existing PAT scheme, which continues until 2025. However, it remains unclear whether the CCTS mandates all or only some of these entities to transition to the carbon credit market. Therefore, it becomes essential to establish a well-defined timeline.

The National Carbon Market has identified eleven sectors for inclusion, namely petroleum refineries, cement, steel, chlor-alkali, aluminium, thermal power plants, and fertilisers. However, it is uncertain whether the list will expand to more sectors in the future. If additional sectors are to be incorporated, the question arises as to how these will be identified and incorporated into the market. A transparent and well-defined process will be essential to determine the eligibility and inclusion criteria for any potential new sectors, ensuring a comprehensive and inclusive carbon market.

The sectors and the obligated entities to be covered under the compliance mechanism shall be decided by the Ministry of Power based on recommendations of BEE. The National Steering Committee for ICM and other authorities shall develop the detailed procedure for operationalizing the ICM, in accordance with this Scheme.

In the current development, there are no direct linkages of CCTS with the PAT and REC scheme. The Designated Consumers under the PAT scheme will eventually move to CCTS, thereby phasing out the PAT scheme in the long run. However, the ESCerts/REC owned by such entities will not be converted into CCC.

3.4 NEXT STEPS AND RECOMMENDATIONS

While the detailed procedures for operationalising the ICM are in development, the most critical decisions will be:

- Identifying which sectors should be included in the trading scheme;
- Developing emission trajectories and targets for the sectors to be included, and;
- Developing mechanisms for market stability.

In developing the rules for the compliance scheme, the National Steering Committee for the ICM should draw upon learnings from previous market-based instruments, experience from other international compliance markets as well as the knowledge in the private sector. To effectively allocate capital towards low carbon development through emissions trading, the market requires a number of key elements:

- The CCTS is designed, implemented, and administered in a fashion to achieve a central goal (e.g., achieving a particular emission reduction by a defined date) along with defined secondary goals (e.g., increasing green jobs, generating revenue for the government, or advancing low carbon technologies) which does not undermine the primary goal.
- Scarcity of emission allowances to create a strong price signal, encouraging individual and aggregate actions to reduce emissions;
- Long-term clarity and predictability of rules and targets, with regular program-wide reviews aiming to assess its performance and recommending changes to ensure that key objectives are met;

- Transparency of design and operation, particularly with respect to the performance of enterprises that must comply with the requirements, ETS administrators, and the allowances and offsets that are transacted;
- Authority to develop and administer the ETS is derived from a sound underlying legal foundation that eliminates uncertainty amongst stakeholders.
- A means by which actual emissions can be accurately monitored, reported to the enterprise and the government, and verified by the government;
- An administrative mechanism that allows ETS participants to register and store allowances so that they can be tracked, held for use, and/or offered for sale at a later date;
- CCTS program administration responsibilities are clearly delegated to the central and various local governments;
- No artificial barriers to access or participation;
- Low transaction costs and limited bureaucracy;
- Delivery without intervention (i.e. no price caps or price floors, no artificial supply barriers such as limits on the use of reduction units from projects);
- Adequate offset availability and enabling environment to ensure liquidity and trading (through exchanges) for true price discovery;
- A fair and equitable allowance allocation process that does not withdraw capital from the firms and industries covered by the scheme, nor grants windfall profits (free allowances may be distributed by considering a facility's historical emissions rate, its comparative emissions intensity, and its exposure to competition from similar enterprises outside of the ETS. Allowances not distributed for free can enter the market via auctions);
- Recognition of the important link between the holder of allowances and the initiation of actions that create the reductions;
- A quantity of allowances held by the ETS administrator and released as per prescribed protocols (such as to fund auctions or to enhance or moderate volatility) or augmented by withdrawing previously distributed or acquired allowances from individual enterprises;
- The need for trading systems to recognise all verifiable key abatement technologies, including Carbon Capture and Storage;
- Flexibility for enterprises to achieve emissions reduction in a variety of ways, for example: one or multiple sources on-site at a given enterprise, through another source within the control of an enterprise, or by paying another enterprise covered by the program to make the reductions instead.
- A means by which the ETS administrator can impose meaningful consequences upon ETS participants (enterprises and traders) that emit more than allowed or act in other ways that are contrary to the ETS rules.
- ETS is based on accurate and ever-improving data;
- Transparent publication of market data;
- A robust marketplace that provides a means by which allowances and qualifying offsets can be transacted (e.g., through government-sponsored auctions, exchanges [private or government sanctioned], over the counter [directly between two parties], or by another means as dictated by the needs of the CCTS and its participants; Guidance provided to the ETS administrator as to how collected fees (e.g., from auctions, penalties, and fines) are to be disbursed in a fashion that support objectives consistent with those underlying the ETS itself (e.g., facilitating a low carbon fuel transformation, supporting sustainable alternatives, addressing environmental justice concerns, and mitigating the adverse consequences of climate change);
- Continuing capacity building programs to help ensure program success and involvement from private sector entities.
- A process that encourages the involvement of stakeholders (e.g., enterprises, government agencies, civil society, service providers, and the public) in the CCTS development, administration, and evaluation processes;

In the longer term, the market should grow and evolve to provide wide sectoral, geographic and GHG coverage, leading to a global trading regime. This will require similar rules and enforcement within an array of approaches, mechanisms to link different approaches (e.g., through Article 6) and an offset mechanism based on verifiable emission reduction projects and programmes. Offset based mechanisms offer the opportunity for countries yet to introduce an allowance-based approach to participate in the market. Offset mechanisms should be created through a transparent process that recognizes business decision-making realities and is both environmentally effective and economically efficient. However, the use of offset mechanisms should not be unduly constrained.[12]

In its current state, the CCTS notification lacks sufficient industry consultation as it does not include any representation from industry members on the steering committee. Involving industry stakeholders should be a fundamental aspect of any effective carbon action plan. A successful carbon trading scheme must actively engage and incentivise the industry to become interested and invested stakeholders. This can be achieved through iterative, close coordination, extensive consultations, and significant capacity-building exercises that are integrated into the scheme.

12 IETA (2023), Our Principles.

CHAPTER 4. UNLOCKING INTERNATIONAL CARBON MARKETS THROUGH ARTICLE 6

4.1 INTRODUCTION

The agreement on the principles governing Article 6 of the Paris Agreement was hailed as one of the major successes of UNFCCC climate negotiations at COP26. Article 6 provides the basis for voluntary cooperation in the implementation of nationally determined contributions (NDCs). This includes bilateral or multilateral arrangements for trading emissions abatement between countries under Article 6.2, a centralised market mechanism for carbon credits under Article 6.4, and non-market approaches under Article 6.8.[13] In contrast to the Kyoto Protocol regime in which emissions reduction commitments were limited to select developed economies, all Parties now independently develop and submit their own NDCs. This has also been accompanied by a new regime of international carbon markets replacing the Kyoto Protocol mechanisms including the CDM.

Recent research on Article 6 has highlighted the vast potential for international carbon markets to help channel finance, support technology transfer, increase ambition towards Paris Agreement targets, and contribute to sustainable development. India, in particular, stands to gain up to $12.5bn per year in international carbon market revenues by 2030, if all countries engage proactively through Article 6.[14] This chapter examines the different approaches available under and key considerations for engagement with Article 6, the status of negotiations and the role India could play in the international carbon market.

4.2 WHAT IS ARTICLE 6.2 AND THE ARTICLE 6.4 MECHANISM?

Article 6.2 provides a pathway for cooperative implementation of NDCs via the transfer of Internationally Transferred Mitigation Outcomes (ITMOs) between different actors, including countries and private sector companies, through bilateral or multilateral agreements (decentralized system). Article 6.4 introduces a centralized carbon market mechanism under oversight of the Article 6.4 Supervisory Body (A6.4SB) and supported by the UNFCCC Secretariat, which allows for the trading of verified Article 6.4 emission reductions (A6.4ERs) between companies, countries, and other stakeholders (centralized multilateral mechanism).

Finally, Article 6.8 provides for non-market approaches to promote mitigation and adaptation through international cooperation on finance, technology transfer, and capacity building, where no trading of emission reductions is involved.[15] Since the focus of this position paper is on carbon markets, the discussion excludes a detailed treatment of Article 6.8 on non-market approaches.

The salient facets of the two market-based mechanisms under Articles 6.2 and 6.4 are illustrated on the next page.

One of the central features of Article 6 is the application of corresponding adjustments (CA) for ITMOs, which was introduced to avoid double counting of emissions reductions. This means that when a Party transfers mitigation outcomes internationally to be used towards NDC fulfilment of another Party or other international mitigation purposes (OIMP), the greenhouse gas inventory of the host country must be adjusted for the transfer. As an example, consider a renewable energy project implemented in India that generates emissions reduction totalling 1,000 tonnes of CO2 equivalent, which are then transferred to another country for its NDC achievement. In this case, India cannot count the emissions reduction achieved by the project towards its own emissions reduction target and must correspondingly adjust its emissions inventory with the same amount. This is illustrated in Figure 1: Application of corresponding adjustments for ITMOs.[16]

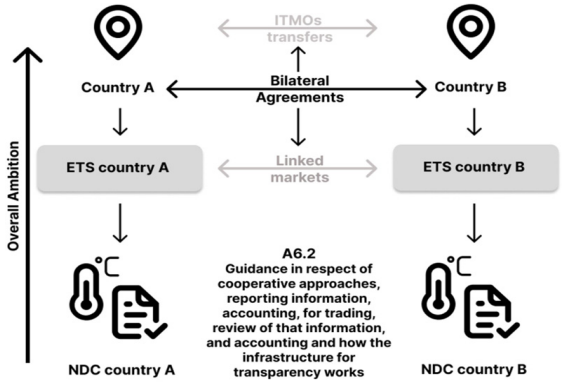
This provision introduces a new dynamic in the international carbon market, where host countries with low marginal abatement costs and high mitigation potential can strategically consider which credits to authorize for international transfer. This allows them to optimize their involvement in Article 6 mechanisms by avoiding the risk of overselling while maximizing the benefits it presents.This is explored further in the following sections.

13 UNFCC (2015), Paris Agreement

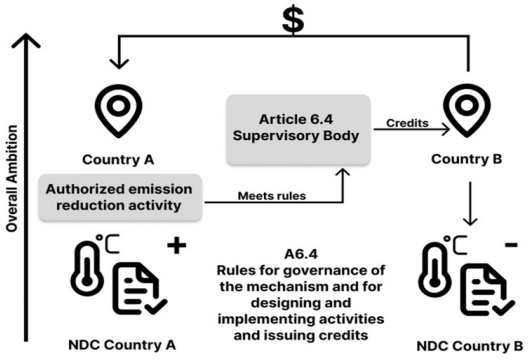
14 IETA (2023), IETA Input to the Article 6.4 Supervisory Body: Structured Public Consultation on Removal Activities under the Article 6.4 Mechanism

15 World Bank (2022), What is Article 6?

16 ALLCOT Trading (2023), Corresponding Adjustment, A Safeguard Mechanism In The Carbon Market



Source: Own adaptation / UNFCCC



Source: Own adaptation / UNFCCC

TABLE 1 - COMPARISON BETWEEN ARTICLES 6.2 AND 6.4

PARAMETER	ARTICLE 6.2	ARTICLE 6.4
Denomination of internationally transferred mitigation outcomes (ITMOs)[1]	Either tonnes of CO_2 equivalent (tCO_2 e) or non-GHG metrics	tCO_2e
Mode of transaction	Mutual agreement between countries	via centralised market
Application of corresponding adjustments	For all ITMOs	Only necessary if authorized for use towards NDC or other international mitigation purposes (OIMP)[4], not for "mitigation contribution units" (MCUs) 5
Share of proceeds (SOPs) for adaptation[2]	No mandatory provisions; Parties are encouraged to contribute resources towards adaptation	Mandatory 5% of Article 6.4 emission reductions (A6.4ERs) at issuance
Overall mitigation in global emissions (OMGE)[3]	No mandatory provisions; Parties are encouraged to undertake voluntary cancellation for the purpose of delivering OMGE	Mandatory cancellation of 2% of issued A6.4ERs at first transfer

Note:

1. ITMO refers to emission reductions and removals when internationally transferred.
2. SOP for adaptation refers to provisions for setting aside a share of credits from Article 6 trades for the purpose of contributing to the UFCCC's Adaptation Fund.
3. OMGE refers to provisions for mandatory cancellation of a share of credits at issuance so that Article 6 cooperation results in emissions reduction beyond mere zero-sum offsetting.
4. OIMP refers to "Other International Mitigation Purposes" and includes programmes such as the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
5. MCUs refers to A6.4ERs not authorised for use towards the achievement of NDCs and/or for OIMP.

Source: UNFCCC (2021)[1] and UNFCCC (2022).[2]

1 UNFCCC (2021), Outcomes of the Glasgow Climate Change Conference - Advance Unedited Versions (AUVs)

2 UNFCCC (2022), Decisions taken at the Sharm El-Sheikh Climate Change Conference

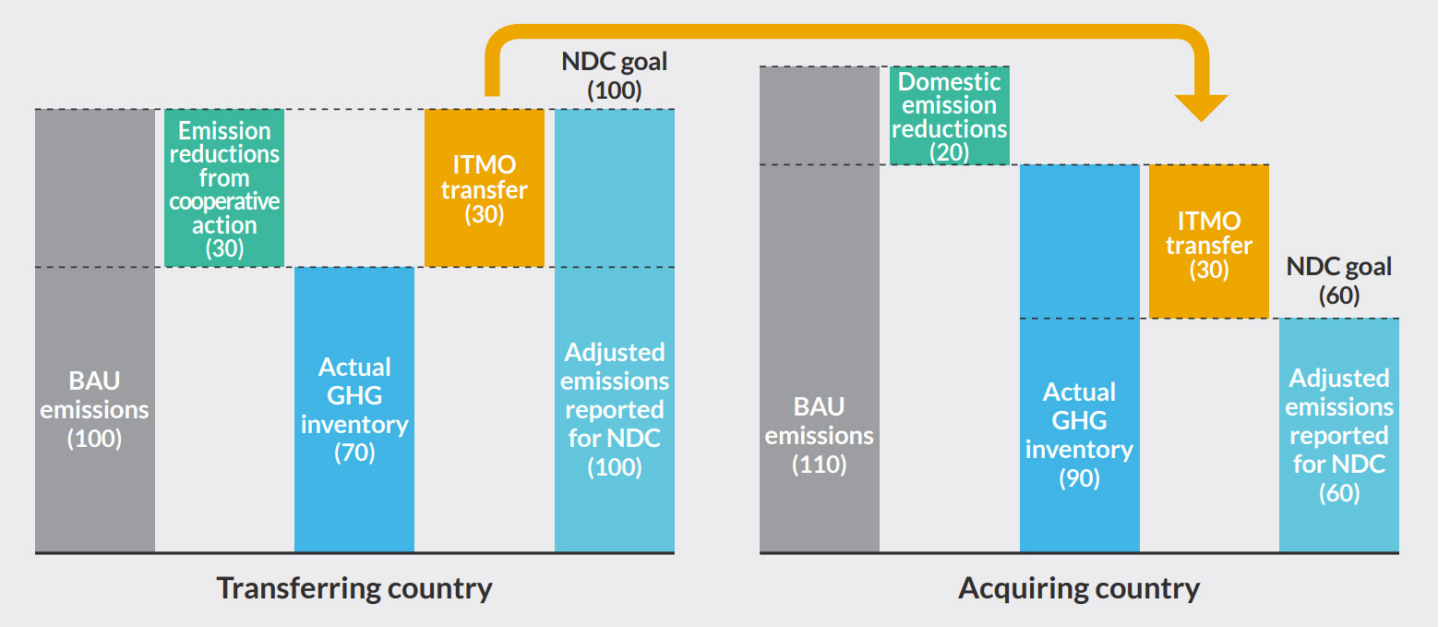


FIGURE 1. VISUALISATION OF CORRESPONDING ADJUSTMENT

SOURCE: GLOBAL GREEN GROWTH INSTITUTE (2021)

4.3 OPPORTUNITIES PRESENTED BY ARTICLE 6

Voluntary cooperation by Parties through Article 6 mechanisms can generate substantial and multifaceted benefits. Given the considerable variations in marginal abatement costs between countries, some countries could find it cost effective to purchase ITMOs from those with lower abatement costs instead of relying solely on reducing their own emissions. At the same time, this could generate considerable revenues as well as co-benefits for the host country.

Recently published research by IETA and the Center for Global Sustainability (CGS) at the University of Maryland have highlighted the potential of Article 6 cooperation to lower mitigation costs, contribute to sustainable development and raise global climate ambition.[17] Results from this modelling study show that:

- International carbon markets under Article 6 may surpass a value of $100 billion by 2030, if all Parties choose to implement their NDCs cooperatively.
- In a 1.5-degree scenario, the market value of financial flows between countries could exceed $1 trillion per year in 2050 and reduce mitigation costs by $21 trillion between 2020 and 2050.
- If the savings from cooperative implementation of NDCs using Article 6 were reinvested in increased ambition, emissions mitigation could be more than doubled, without additional cost.

For India in particular, the results indicate that:

- Due to a high availability of mitigation activities with relatively low marginal abatement costs, India could earn significant revenues from engaging proactively in Article 6 cooperation.
- In a net-zero scenario with full international cooperation, India could earn up to $12.5 billion annually in international carbon market revenues by 2030.
- The total cumulative financial flows from sales of carbon credits from 2025 to 2050 could amount to more than $200 billion, helping to facilitate important international financing towards additional mitigation activities in India.

17 Edmonds, J., George, M., Yu, S., Forrister, D., and Bonzanni, A. (2023), Modelling the Economics of Article 6, International Emissions Trading Association and Center for Global Sustainability (CBS) at the University of Maryland

Besides revenues from the sale of ITMOs, Article 6 cooperation can also help address key obstacles and thereby advance global climate action. One of these is overcoming physical constraints to decarbonisation, such as those pertaining to land that several countries could face. Through Article 6 cooperation, countries with greater land relative to their own requirements could contribute to the global low-carbon transition by selling ITMOs and thereby enabling countries with physical constraints to decarbonise.[18] Increased engagement with Article 6 markets could be a potential alternative for those countries to pursue climate action during such supply chain shocks. It may also help in the difficult but much-needed transition of fossil-fuel based energy sources, specifically through phasing down coal, oil and gas, scaling up sustainable energy generation, storage and introducing negative emissions technologies (also known as carbon dioxide removals, CDR)

Finally, the share of proceeds procedures provisions associated with the trading of Article 6.4 credits can help generate resources to support adaptation efforts in climate-vulnerable countries. Vibrant Article 6 markets can thus also become an avenue for mobilising much-needed finance towards adaptation measures in developing countries, such as India.

Whilst some of the final rules for the implementation of Article 6.2 and the 6.4 mechanism at scale remain to be defined by the Article 6.4 Supervisory Body and Parties at COP28, several countries have already started signing bilateral agreements for cooperation under Article 6.2. Most of these agreements are still at an early stage, and Switzerland is so far the only country that has produced an initial report – which is a requirement for participation in international trade under Article 6. An overview of existing agreements is presented in Figure 2. In addition to the below, Japan has signed agreements with 27 partner countries under the Joint Crediting Mechanism (JCM) with a view to align with 6.2 guidance.

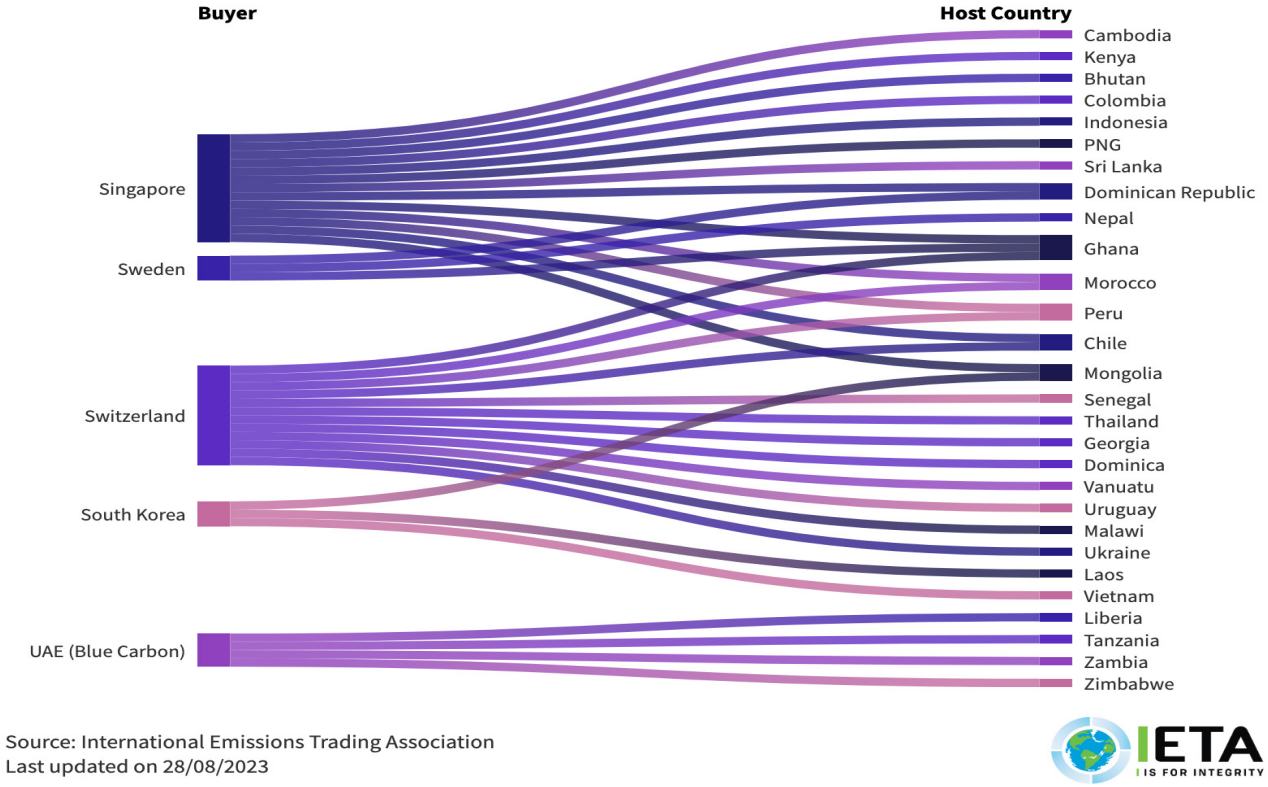


FIGURE 2. ARTICLE 6.2 BILATERAL AGREEMENTS OR MOUs

18 Yu, S., Edmonds, J., Forrister, D., Munnings, C., Hoekstra, J., Steponaviciute, I., and Lochner, E. (2021), The Potential Role of Article 6 Compatible Carbon Markets in Reaching Net-Zero, International Emissions Trading Association and University of Maryland, Working Paper

4.4 STRATEGIC CONSIDERATIONS FOR ARTICLE 6 ENGAGEMENT

In deciding to participate in voluntary cooperation under Article 6, host Parties should carefully consider their NDC, Long-term Low Emission Development Strategy (LT-LEDS) and the potential for Article 6 to contribute to these objectives by developing a clear market strategy. The development of such a strategy should consider the following "ingredients for success":[19]

Intention	Countries should declare intention regarding Article 6 participation - whether they intend to limit themselves to direct participation, authorise entities in their jurisdictions to participate, or both. Further, they should indicate whether they intend to participate/allow participation as buyers, sellers, or both.
Authorisation	Countries should provide guidance on which sectors, activities and vintages will be eligible for Article 6 participation. Further, they should specify whether activities are authorised for use towards NDCs, or other international mitigation purposes (e.g., CORSIA, VCMs), or both. The strategic selection of activities for eligibility under Article 6 is discussed further below.
Transparency	Countries should clearly establish how Article 6 participation will help finance their NDCs as opposed to furthering activities not covered by their NDCs. Further, countries should specify policy and procedural frameworks they will adopt when engaging in Article 6 mechanisms to provide clarity to market participants. This would help reduce uncertainty and facilitate investment.
Interoperability	Countries should establish interaction between compliance markets within their jurisdiction and voluntary markets, as this could encourage greater investment. Further, credits that are fungible between compliance and voluntary markets could support the development of a liquid asset class and facilitate streamlined trading and risk management.
Accountability	Countries should ensure that suitable infrastructure for GHG accounting and reporting is in place. Further, countries should identify mechanisms to address the sovereign risk to projects e.g., delays or arbitrary changes in authorisation, changes in the scope of eligible sectors etc.
Capacity building	Countries should identify areas where capacity building is needed and the role of international organisations in addressing them.

When it comes to the selection of sectors and allowed activities to be eligible for Article 6, each country must make a strategic choice in terms of the activities to authorize for international transfer that can maximise benefits whilst simultaneously not compromising on the achievement of their own NDC by overselling. In this regard, the following are some examples of strategic activities that could benefit from linking with Article 6 markets:

Activities with high abatement costs: Countries could view Article 6 cooperation as an avenue for mobilising capital specifically for activities which represent expensive decarbonisation alternatives. For the same, designated agencies in each country could consider developing marginal abatement cost curves (MACC) for their respective jurisdictions. Activities located towards the right side (higher cost) of the curve, which may include activities such as offshore wind, and carbon capture, utilisation, and storage (CCUS), could be prioritised for selection. By actively looking at activities which may now be costly but can be transformational in nature, it can support the achievement of long-term net-zero targets and LT-LEDS.

Activities that are financially underserved: Countries could also view Article 6 markets as a channel to direct capital towards activities that are financially underserved as the result of limited track records of business models, technologies, or the inferior creditworthiness of asset owners. Green hydrogen and small-scale distributed renewable energy powered livelihood applications could be two examples of such activities. The former represents a $100 billion opportunity for India, while the latter of represents a $50 billion opportunity in rural India.

Activities that advance sustainable development co-benefits: Besides focussing on emissions mitigation, countries could also utilise Article 6 market participation to prioritise activities that advance sustainable development co-benefits. For example, the deployment of clean cookstoves can deliver gains across ten SDGs, including climate action (SDG 13) (Global Alliance for Clean Cookstoves, n.d.). Prioritising such activities could also help advance a just transition.

19 IETA (2022), How Governments Can Implement NDCs Cooperatively and Encourage Private Sector Investment

4.5 THE STATE OF ARTICLE 6 IN INDIA

Whilst it is still early days for Article 6 implementation, India has signalled its intention and willingness to participate in cooperative approaches through the establishment of its National Designated Authority for the Implementation of the Paris Agreement (NDAIAPA), under the Ministry of Environment, Forest and Climate Change, and the publication of activities eligible for international cooperation under Article 6.2. This whitelist was officially notified in February 2023, and includes the following activities:

1. **GHG Mitigation Activities:**
   Renewable energy with storage (only stored component), Solar thermal power, Off- shore wind, Green Hydrogen, Compressed bio-gas, Emerging mobility solutions like fuel cells, High end technology for energy efficiency, Sustainable Aviation Fuel, Best available technologies for process improvement in hard to abate sectors, Tidal energy, Ocean Thermal Energy, Ocean Salt Gradient Energy, Ocean Wave Energy and Ocean Current Energy, High Voltage Direct Current Transmission in conjunction with the renewal energy projects;

2. **Alternate Materials:** Green Ammonia; and

3. **Removal Activities:** Carbon Capture Utilization and Storage.

The government has indicated that the transfer of emerging technologies and mobilisation of international finance are the key objectives of Article 6.2 participation, implying that India's immediate preference is to operate as a seller of credits. However, the NDAIAPA is yet to provide clarity on the volume of credits they expect to authorise for use towards NDC or OIMP, and the extent to which India proposes to act as a seller of credits without corresponding adjustments under the 6.4 mechanism through the so-called mitigation contribution units (MCUs). These MCUs represent a clear pathway, together with voluntary carbon market credits, that can help facilitate international finance towards the achievement of India's NDC, without requiring the application of corresponding adjustments.

India has not yet signed any memorandums of understanding or bilateral agreements for cooperation under Article 6.2. However, it recently joined the Article 6 Implementation Partnership (A6IP) led by the Government of Japan, which aims to build capacity, facilitate understanding of A6 rules and linkages with NDCs, share good practices for institutional arrangements, conduct mutual learning and trainings for A6 reporting and review, and support the development of methodological tools, e.g. for baselines.[20]

Another key consideration for India will be the transition of CDM activities to Article 6. The A6.4SB, at its sixth meeting in July 2023 (SB006), adopted the standard and procedure for the transition of CDM activities to the Article 6.4 Mechanism. The standard outlines considerations guiding activity design and other attributes of CDM projects that may transition while the procedure outlines the steps for such a transition. A dedicated portal for the submission of transition requests has also been created.[21] Transition requests must be submitted to the Secretariat by 31 December, 2023, after which the host party must approve the project and it must fulfil the criteria for the Article 6.4 mechanism. 977 CDM activities based in India are eligible to transition to Article 6.4, whereas CERs associated with 302 of these activities (registered on or after 1 January 2013) amounting to around 101 million CERs, may be used towards NDC compliance during the first NDC commitment period.[22] The government should actively consider the use of CERs towards the first NDC commitment period, the transition of existing CDM projects and whether to authorise the issuance of ITMOs from such projects, or let them continue under Article 6.4 generating mitigation contribution units (MCUs) without the need for corresponding adjustments.

20 Paris Agreement Article 6 Implementation Partnership: Towards high integrity carbon markets (2023)

21 UNFCCC (2023b), Transition of CDM activities to Article 6.4 mechanism

22 UNEPCCC (2023), CDM Pipeline

4.6 THE NEED FOR POLICY CLARITY AT THE UNFCCC LEVEL

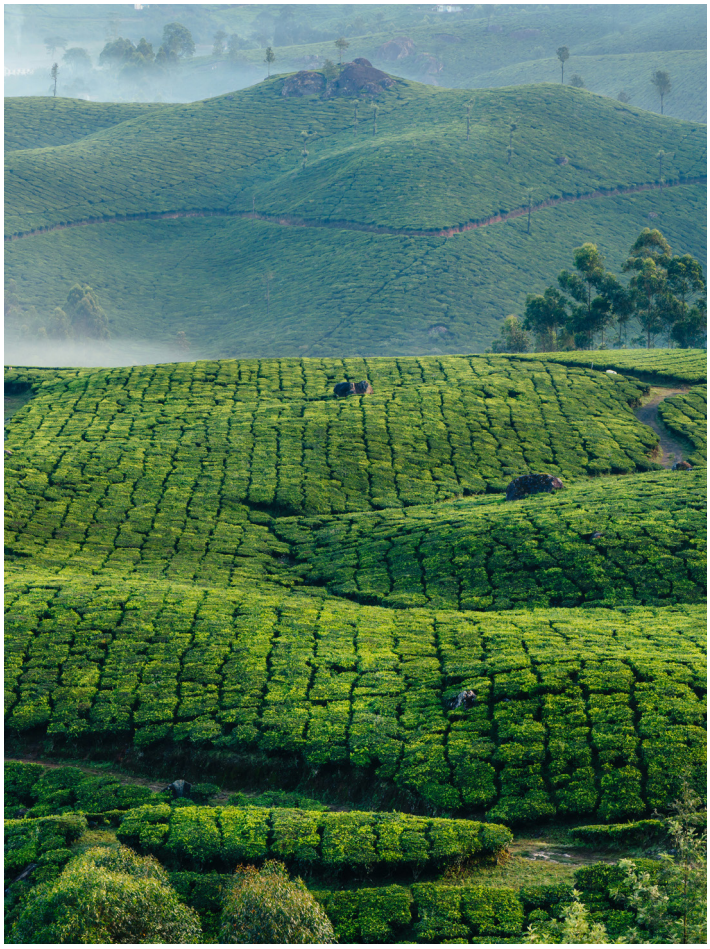
Whilst the overall rulebook for Article 6 was adopted at COP26 in Glasgow, greater clarity or elaboration is still necessary on a few issues through the international negotiations at the COPs and by the Article 6.4 Mechanism Supervisory Body to advance full-scale implementation of Article 6.

1. Authorisation – The current text does not clearly define the process for authorisation and possible changes and/or revocations to authorised ITMOs. If rules eventually allow for arbitrary and/or unlimited changes or revocations to authorisation, it could severely undermine confidence and affect private sector participation. Negotiators must avoid opening such avenues for revocations and narrowly define the scope and circumstances for possible changes to ensure greater predictability for market participants.

2. Eligibility of avoidance and conservation enhancement activities – Conferring eligibility on emissions avoidance and conservation enhancement activities is another part of the items up for negotiations at COP28 in Dubai this year. The discussion is largely driven by a small number of Parties that wish to seek eligibility for crediting avoided use of fossil fuel resources. However, there are other negotiators who also see forestry as part of this terminology. There is hence a need to agree on a common definition of such activities before deciding on their eligibility.

3. Confidentiality provisions – Article 6.2 provisions offer Parties the option of designating information provided to the technical expert review team as confidential, which would preclude it from being publicly available on the Centralised Accounting and Reporting Platform (CARP). While Parties are required to provide a basis for requesting the confidentiality of information, existing provisions do not specify grounds under which information may be designated as confidential in the first instance. This leaves the door open to potential abuse of the confidentiality provision. The resulting opacity from the arbitrary use of this provision could undermine confidence in Article 6 markets. To prevent any misuse, negotiators may consider defining special circumstances under which this clause may be invoked.

4. The set up of the international registry and Article 6.4 mechanism registry – As the Article 6 negotiations move into a more technical space, one of the key discussions remains around the set up and development of the international registry, the Article 6.4 mechanism registry, their interoperability, functions, and connections to Parties' national registries. To move forward with the full and effective scale up of Article 6 activities, clarity on these issues will be required from Parties at COP28.



5. Methodologies and provisions, including for removals, under the Article 6.4 mechanism – In addition to the negotiations taking place at COP serving as the meeting of the Parties to the Paris Agreement (CMA) and the Subsidiary Body for Scientific and Technological Advice (SBSTA), significant work is also progressing through the Article 6.4 Supervisory Body. The A6.4SB is composed of 12 members from Parties to the Paris Agreement, serving in an individual expert capacity. During 2023, the SB are expected to hold at least five official meetings, discussing the role of removal activities, the transition of CDM projects, safeguarding of environmental and social impacts of project activities, requirement for mechanism methodologies, and the project cycle procedure.[23] In the case of removals, clear definitions of activities, standardised monitoring and reporting requirements, accounting frameworks, and mechanisms to address risks of reversals are some of the key areas where guidance is necessary.[24]

Other important areas requiring further guidance includes CARP and the Article 6 database, comprising draft agreed electronic formats (AEF); as well as the sequencing and timing of initial reports by Parties.

23 UNFCC (2023), Information note: Workplan of the Supervisory Body 2023, Version 01.0

24 IETA (2023), IETA Input to the Article 6.4 Supervisory Body: Structured Public Consultation on Removal Activities under the Article 6.4 Mechanism

4.7 RECOMMENDATIONS

While a few key facets of Article 6 rules require fine-tuning at the UNFCCC level (section V), complementary actions are also necessary at the country level to operationalise Article 6 markets. We commend the Government of India's efforts through the NDAIAPA to publish the whitelist for eligible activities under Article 6.2 and the proactive engagement with stakeholders in the private sector. In addition, building on the IETA "ingredients for success", we recommend the following:

- **Communicate a clear strategy for authorisation, volumes and how it relates to long-term strategy:** India's intention to participate in the Article 6.2 mechanism has already been declared.[25] Transfer of emerging technologies and mobilisation of international finance were stated as objectives of Article 6.2 participation, implying that India's immediate preference is to operate as a seller of credits (ibid). However, the NDAIAPA should clarify the amounts of credits that India intends to authorise for sale towards other Parties' NDC achievement or OIMP. The NDAIAPA should also clarify how Article 6 may support the long-term low emission development strategy of India and reaching net-zero by 2070. One issue in this regard is that current NDC periods are too short to attract investments at scale in low-carbon activities given that project lives for a number of activities would extend beyond the target date of 2030, if crediting periods are limited to the same timeframe. A collaborative approach with private sector stakeholders in developing the key elements of a long-term strategy for Article 6 cooperation (e.g., longer crediting periods that extend beyond NDC period) will be critical for the scale up of low-carbon investments in innovative technologies.

- **Clarify the interconnection with the voluntary carbon market and the promotion of Article 6.4 MCUs:** In addition to developing a clear strategy for authorised credits which require corresponding adjustments, the NDAIAPA should also clear a pathway for issuance of 6.4 mitigation contribution units (MCUs) and their interactions with VCM, which may help attract financing for the achievement of India's NDC without the application of CA. Guidance on these matters would provide certainty for investors in such projects and allay any concerns over the application of restrictions at a later stage.

- **Utilisation of CERs and transition of CDM activities:** Noting the large amount of CERs eligible for use towards the fulfilment of the first NDC, and the vast number of active CDM projects in India, facilitating the utilisation of these CERs towards India's NDC and the transition of CDM projects to the Article 6.4 mechanism will be important to instil trust in the market and facilitate recovery of sunk costs for project developers. At the same time, it will be important for the government to consider how such projects would fit into the framework of eligible activities for authorisation towards international use under the 6.4 mechanism, as technologies implemented during the CDM may no longer be the "high-hanging fruit". An alternative pathway could be to specify that a majority of the transitioning CDM projects, if not on the government whitelist, will be approved by the NDAIAPA for issuance of 6.4 MCUs which could generate important financing towards the achievement of India's NDC.

- **Facilitate private sector participation:** Initiate capacity building programmes for local actors on eligible activities, the application of corresponding adjustments and the authorisation process to equip them to participate in Article 6 markets. Further, engage proactively with the private sector to seek inputs in the design of key features (e.g., crediting periods). The NDAIAPA should publish model letters of authorisation to streamline the process – for all kind of uses and timelines. In addition, developing a platform to facilitate Article 6 participation at GIFT IFSC, India's international facing financial services centre, might be an interesting opportunity to attract investors. The government should also clearly define a dispute resolution process for private investors engaged in Article 6 activities.

- **Consider initiating a consultative process encompassing relevant government agencies, industry and think tanks to identify areas where capacity building is necessary:** Indian negotiators could consider highlighting the areas thus identified during upcoming UNFCCC climate negotiations.

- **Set up of registry and fungibility of credits:** As various agencies under the supervision of the National Steering Committee for Indian Carbon Market are setting up the registry and exchange for the evolving CCTS, the government should over time consider the interoperability and strive towards fungibility between the CCTS and Article 6 credits. This would facilitate the linking of the CCTS with international markets and the flow of new sources of capital into India. As discussed under Chapter 3 on the Domestic Compliance Market in India, the interoperability of international carbon credits through Article 6.2 in the CCTS may allow for increased liquidity, cost effective mitigation and strengthened international cooperation. The registry should be set up in such as a way that interoperability with the 6.4 mechanism registry and international registry is facilitated, and that potential buyer countries easily can interact with the process. For this purpose, the NDAIAPA should coordinate closely with the National Steering Committee for Indian Carbon Market.

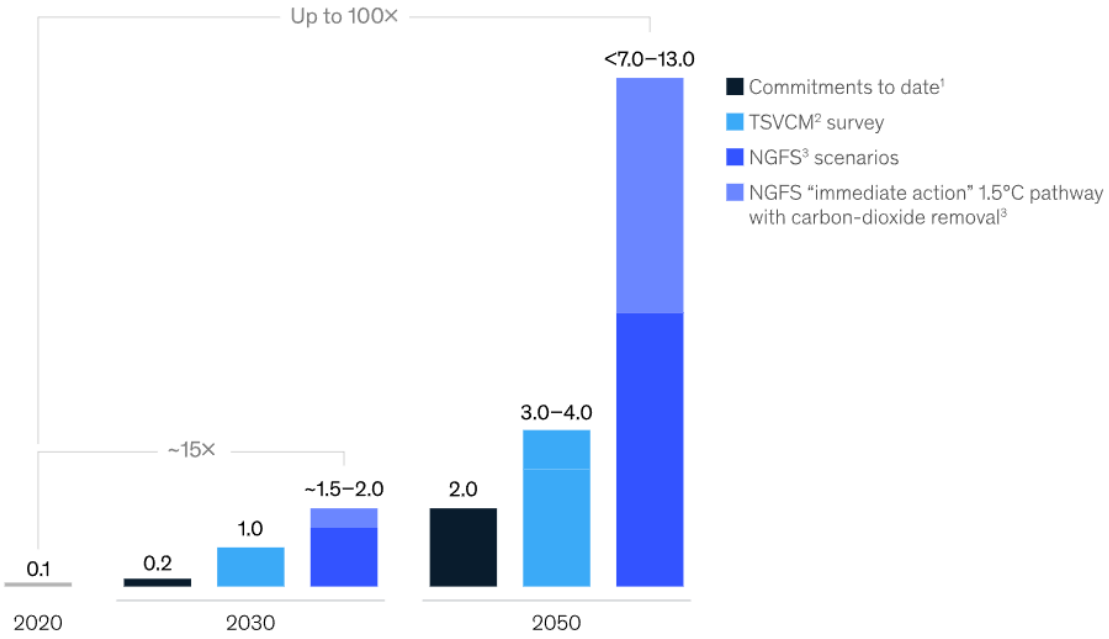
25 Press Information Bureau, Government of India (2023), Activities finalised to be considered for trading of carbon credits under Article 6.2 mechanism to facilitate transfer of emerging technologies and mobilise international finance in India

CHAPTER 5. VOLUNTARY MARKETS TO PROVIDE FINANCE AND INCREASE AMBITION

In recent years, the scale of the voluntary carbon market, driven by an increase of net-zero commitments in the private sector, has been growing rapidly. In comparison to compliance markets such as emissions trading systems (cap-and-trade) where obligated entities are mandated to report and reduce or offset their emissions, the trade of credits in the VCM is purely voluntary. So far, most of the demand in the VCM is arising from large, international companies who, in addition to setting ambitious climate targets in their own operations and value chain, offset their residual emissions by purchasing carbon credits. These credits facilitate investments into forest conservation, renewable energy deployment, new low-carbon technologies, sustainable solutions, and increasingly, into projects that remove CO_2 from the atmosphere, including both nature-based approaches and negative emission technologies.

Global demand for voluntary carbon credits could increase by a factor of 15 by 2030 and a factor of 100 by 2050.

Voluntary demand scenarios for carbon credits, gigatons per year



[1]These amounts reflect demand established by climate commitments of more than 700 large companies. They are lower bounds because they do not account for likely growth in commitments and do not represent all companies worldwide.
[2]TSVCM = Taskforce on Scaling Voluntary Carbon Markets. These amounts reflect demand based on a survey of subject-matter experts in the TSVCM.
[3]NGFS = Network for Greening the Financial System. These amounts reflect demand based on carbon-dioxide removal and sequestration requirements under the NGFS's 1.5°C and 2.0°C scenarios. Both amounts reflect an assumption that all carbon-dioxide removal and sequestration results from carbon credits purchased on the voluntary market (whereas some removal and sequestration will result from carbon credits purchased in compliance markets and some will result from efforts other than carbon-offsetting projects).
Source: NGFS; TSVCM; McKinsey analysis

In 2022, voluntary buyers retired around 156 million carbon credits, each representing one tonne of CO_2 emissions, and over 275 million credits were issued on the market through various projects. During the year, renewable energy overtook natural climate solutions to become the leading category of credit issuances. Combined, these two categories represented two-thirds of issuances in 2022.[26] Most of these credits were issued through independent crediting standards such as Verra's Verified Carbon Standard (VCS) (almost 70%), Gold Standard (17%) as well as the American Carbon Registry (ACR) and the Climate Action Reserve (CAR). In the coming years, experts expect voluntary carbon markets to grow significantly, with a factor of up to 15x by 2030 and 100x by 2050,[27] reaching a market size of over $250 bn USD and facilitating billions of tonnes of emission reductions.[28]

Importantly, this represents an indispensable pathway for developing countries, such as India, to channel much-needed international finance towards NDC achievement and low-carbon development. Already, India has been a prominent contributor to the voluntary carbon market with issuance of over 278 million CERs between 2010 and 2022, which represents 17% of total global supply.[29] This has provided billions of dollars in revenue for India and considerable co-benefits such as better air quality, biodiversity conservation, new employment, increased community engagement and improved water quality. As of July 2023, however, India had the largest volume of non-retired carbon credits issued on the VCM, representing over 127 million tonnes of CO_2 reductions.[30] While voluntary carbon markets represent a great opportunity for India to help achieve its sustainable growth targets, they have faced significant challenges in recent times – mainly relating to two key aspects, which are discussed further in the following segment:

1. Regulatory uncertainty
2. Environmental integrity concerns

5.1 REGULATORY UNCERTAINTY

With the adoption of the Paris Agreement, the application of CAs for ITMOs under Article 6 and a perception of a need to better capture the value of carbon credits, a number of governments across the world have introduced new regulation to govern carbon markets. This has had a significant impact, not just on compliance markets which are traditionally set up by the government itself, but also on VCMs governed by independent crediting programmes. In India, a blanket-ban on the export of all carbon credits from the country was discussed in August 2022 before being clarified at a later stage as only applying for correspondingly adjusted credits to the extent required to achieve India's NDC. Policy uncertainty on this front still remains as to which pathways will be available for project developers to issue, sell and export carbon credits from India. This ultimately risks diminishing the positive potential of the VCM to help finance NDC achievement and contribute to sustainable development in India, if not clarified.

Article 6 under the Paris Agreement does not regulate voluntary carbon markets. However, the adoption of Article 6 has changed the context under which the VCM operates. Countries and companies can still use VCM pathways without corresponding adjustments, thereby supporting the achievement of India's NDC. As the voluntary carbon market evolves, a growing number of standards and initiatives may see a requirement for corresponding adjustments for carbon credits issued under the VCM, therefore shaping a convergence between compliance markets, Article 6 and voluntary markets at the international level. As a large number of Indian companies move towards setting their own net-zero targets, there will be an increasing domestic demand for carbon credits from the VCM to offset any residual emissions in hard-to-abate sectors. To enable development of a vibrant VCM in India, the government should avoid excessive regulation of the market, view the VCM as an opportunity to attract international finance and support the growth alongside the compliance market, with a view of converging the two markets over time.

5.2 ENVIRONMENTAL INTEGRITY IN THE VCM

Recently, the VCM has faced significant challenges, with several reports and articles highlighting issues relating to environmental integrity, overestimation of baselines, low additionality, inadequate consultations with local stakeholders, impermanence, and risks of leakage. All of these are critical concerns which are, and have been, increasingly addressed by various players involved in the VCM; from issuing standards to registries, project developers, auditors and buyers, to improve the functioning of the market. In the meanwhile, a large number of new initiatives, notably the Integrity Council for the Voluntary Carbon Market (ICVCM), and the Voluntary Carbon Markets Integrity Initiative (VCMI), have launched in recent years to support trust and integrity in the market. Existing programs such as the International Carbon Reduction and Offsetting Accreditation (ICROA) – which has been in place since 2008 – continue to update their frameworks regularly to address challenges, and further enhance quality and support the integrity in the VCM. These initiatives are briefly explained:

26 Climate focus (2022); Voluntary Carbon Market

27 Christopher Blaufelder, Cindy Levy, Peter Mannion, and Dickon Pinner (2021), A blueprint for scaling voluntary carbon markets to meet the climate challenge

28 Morgan Stanley (2023), Where the Carbon Offset Market Is Poised to Surge

29 Ruchira Singh, Agamoni Ghosh (2023), India's national carbon market to seek links with international registries

30 Climate Focus (2023), Voluntary Carbon Market Dashboard

International Carbon Reduction and Offsetting Accreditation (ICROA):

ICROA is a leading industry Accreditation Programme aiming to enhance integrity in the voluntary carbon market in support of the Paris Agreement Goals. Based on the ICROA Code of Best Practice, the Accreditation Programme certifies best practice in GHG emissions reduction and offsetting through the use of high-quality carbon credits. ICROA issues a Standards Endorsement procedure to assess the rigour of Standards for inclusion in the Code of Best Practice. The endorsement ensures that the Standards operate with high integrity including good governance, open access as well as robust validation and verification of carbon projects. The Programme is open to all organisations that offer carbon credits as well as emissions reduction and offsetting service. ICROA provides open and interactive forums to advance the VCM by tackling the most pressing issues and fostering innovation. [31]

The Integrity Council for the Voluntary Carbon Market (ICVCM):

The ICVCM[32] is an independent governance body that aims to set and maintain a global standard for quality in the voluntary carbon market. ICVCM's Core Carbon Principles (CCPs) are intended to establish fundamental principles for high-quality carbon credits that create a verifiable climate impact, based on the latest science and best practice. ICVCM recently issued the Program-level Assessment Framework and the Assessment Procedures, both designed to assist carbon-crediting programs in verifying that such programs and the credits that they issue comply with the CCPs.

The Voluntary Carbon Markets Integrity Initiative (VCMI):

The VCMI[33] is an international non-profit organization with a mission to enable high-integrity voluntary carbon markets. In comparison to the CCPs, VCMI's Claims Code of Practice outlines guidelines for companies to credibly make claims regarding the voluntary use of carbon credits. On the supply-side, the VCM Access Strategy Toolkit provides guidance for countries to engage in high-integrity VCMs in support of national climate and economic prosperity.

Through these initiatives, high-integrity carbon markets can scale up to deliver on sustainable solutions, low-carbon development and vast co-benefits arising from projects in the VCM. With these recent international initiatives to strengthen the integrity in voluntary carbon markets, their legitimacy and importance is expected to grow in coming years – representing a significant opportunity for developing countries such as India with vast experience from VCM and considerable mitigation potential across number of sectors. India should take a proactive stance in supporting these initiatives.

So far, the VCM represents a minimal proportion of the global emissions trading market (around 2%), but with the emergence of Article 6 and hybrid approaches, it is expected that voluntary standards will play a larger part of the market and we will move towards a general convergence between voluntary and compliance schemes.

5.3 LOW- CARBON PROJECTS BENEFITTING FROM A SCALED UP VCM IN INDIA

For India to continue its sustainable economic development whilst improving the lives of the poorest segments of the population and at the same time adapting to the impacts of climate change through heatwaves and extreme weather events, India will require large volumes of finance. Voluntary carbon markets could play an important role in facilitating this transition.

In particular, the deployment of important emission reduction projects such as renewable energy generation, energy storage, improved cookstove technologies, forest conservation and agricultural improvements, all require high upfront investment costs which are usually offset by lower operations and maintenance (O&M) costs over the project lifetime. Funds from the sale of carbon credits from such projects in the international VCM is one of the most important enablers for these projects by providing additional revenue streams to make them financially viable and ensuring availability of equipment at a lower price point for end-users. In addition, by providing initial financial support and risk mitigation mechanisms, international finance institutions and initiatives create an enabling environment for private sector participation. This not only mobilises additional investment but also leverages the expertise and innovation of the private sector to drive carbon mitigation efforts.

31 ICROA (2023), About

32 The Integrity Council for the Voluntary Carbon Market (2023)

33 Voluntary Carbon Market Integrity Initiative (2023)

Following are a few examples of projects in India which can generate high quality carbon credits with substantial co-benefits:

- Sustainable Forestry and Afforestation Projects: India's forests cover about 70 million[34] hectares or about 21% of the country's landscape, but are currently facing deforestation at a rapid pace. India has over 100 million[35] hectares of wasteland and degraded forests. Some estimates suggest that between 2001 and 2018, India lost more than 20,000 km^2, which is more than 7% of the country's forest cover[36]. Government's initiatives should be catalysed through public-private partnership along with a community approach (C-PPP approach) by sharing of best practices, world class management practices and tools. Government initiatives like the Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISTHI) can further enable these actions. India's forests can be protected through carbon finance, specifically where carbon credit projects can be established that ensure sustainable harvesting and reduced deforestation. Such projects have huge potential to generate high quality carbon credits for the VCM.

- Agroforestry and Sustainable Agriculture Practices: Agriculture plays a significant role in carbon reduction efforts in India. Agroforestry practices such as integrating trees with agricultural systems could help sequester carbon in both biomass and soil. Agroforestry systems provide multiple benefits, including carbon sequestration, improved soil fertility and enhanced water retention. Agroforestry projects require substantial upfront capital and have longer payout time, hence are adopted by a few large farmers only. Large scale implementation of such initiatives can enable dual benefit of increasing income sources for farmers and creating carbon sinks. Revenue from the sale of carbon credits from such projects can provide a catalytic effect to improve adoption of these practices.

- Clean Cooking Initiatives: India's population being predominantly rural, uses a significant amount of biomass (wood, crop residues, and dung) in traditional mud stoves or three brick stoves (chullas) for cooking. These biomass-based mud stoves are cheap but extremely inefficient, leading to substantial indoor smoke negatively impacting health and increasing greenhouse gas emissions. Whilst there are alternatives, such as improved cook stoves, solar or thermal-storage based cooking solutions, these come at a higher cost, limiting their adoption. The VCM could play a crucial role in providing the financing necessary to scale up these approaches in local communities. For example, a large number of improved cook stoves with efficiency 2-3X of traditional chulla are being deployed in rural areas, reducing carbon emissions by 40-50%, improving indoor air quality, enhancing well-being and supporting the achievement of India's long-term sustainable development targets.

Ultimately, the activities mentioned above represents just a few examples and there are a large number of other important opportunities including waste management, industry decarbonisation, energy efficiency measures, carbon dioxide removals (CDR), green hydrogen and innovative technologies where the VCM could make a significant impact in India.

5.4 DEMAND FOR INDIA BASED CARBON CREDITS IN THE VCM

Demand in the voluntary market of India is being driven by three key areas:

1. International Corporate Commitments. An increased number of corporate commitments to reduce greenhouse gas emissions has resulted in the rapid growth of the voluntary carbon market to meet carbon neutrality goals and secure offset supply lines. More than 5,000[37] companies have set net-zero or science-based targets to reduce carbon emissions. This collective effort is projected to increase global demand for carbon credits 15X by 2030 and potentially up to 40X by 2050, highlighting the market's crucial role in driving a sustainable, low-carbon future. By participating in this market, businesses contribute to emissions reduction, achieve sustainability goals, and promote innovative solutions for sustainable development.

2. Net Zero Commitments by domestic industry in India. In alignment with the government's commitments, Indian corporations have set internal decarbonisation targets to become carbon neutral by 2050 or sooner with many of India's most valuable companies aiming to reach net zero by 2035. Up to 100 companies[38] have voluntarily disclosed information on their sustainability strategy for FY22 under the Corporate Responsibility and Sustainability Reporting Standards (BRSR) recommended by the Indian market regulator. BRSR will become mandatory for the top 1,000 Indian companies from FY23. These corporations depend heavily on carbon credits from the VCM to meet their net zero commitments, driving current and future demand of the VCM in India.

3. Sectoral Commitments. Apart from commitments from various corporates, specific energy intensive sectors are voluntarily adopting net-zero targets, creating demand for carbon credits in the VCM. The Aviation sector's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a global scheme which can result in greater levels of CO2 mitigation in international aviation than could be achieved through domestic policy measures, is an example showcasing the sector's dedication to sustainability and collective action against climate change. Their commitment demonstrates responsibility for their environmental impact and inspires other sectors to follow suit, driving global progress in mitigating industry related climate effects. These associations play a crucial role in accelerating the transition to a sustainable future, setting a strong example for industries to thrive while preserving the planet for future generations. With India's aviation sector's commitment to join such CORSIA from 2027, domestic demand for carbon credits under the VCM is expected to grow significantly.

34 Forest Survey of India (FSI): India State of Forest 2015

35 Centre for Education and Documentation (2023), Forest and climate change in India

36 Alice Haughan, Dr Nathalie Pettorelli, Prof Simon Potts, Dr Deepa Senapathi, (2022), How climate change is driving forest loss in India

37 Kenneth M. Kulak, Mark A. Lazaroff, Mark A. Lazaroff, Christina Renner, Pamela T. Wu (2023), Net-zero Commitments to Carbon Offsets: Current Trends in Corporate Sustainability

38 Anand Gupta (2022), Net Zero: Many India Inc majors could be net zero by 2050

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA):

CORSIA is the first mandatory carbon pricing scheme for aviation, promoting low carbon growth since 2020. The International Civil Aviation Organisation (ICAO) mandated airlines to monitor emissions from 2019 and buy emission reduction units from other sectors to offset CO_2 increases after 2020 from 2021. CORSIA has three phases of implementation, the pilot phase (2021-2023) and first phase (2024-2026) are voluntary, while the second phase (2027-2035) is obligatory for all member States.

The aviation sector's GHG emissions contribute to 2.5% of global CO_2 emissions, with a rising trend. India's involvement in initiatives like CORSIA makes it a vital player in sustainable development and climate change mitigation. Participating in CORSIA can attract international investment and demonstrates India's commitment to reducing emissions. Host country authorisation prevent double counting, enabling India to secure climate finance for carbon-related projects in various sectors. Using CORSIA to fund carbon reduction and removal projects can help India implement its NDC and access financial resources, promoting economic growth and community development.

5.5 A NATIONAL VOLUNTARY CREDIT PROGRAMME EMERGES

The Ministry of Environment, Forests, and Climate Change released the draft Green Credit Program Implementation Rules on 27 June 2023, which is seen as a voluntary scheme for green credits. Under this programme, green credits could be generated for any activities supporting the government's "Mission LiFE" which is Lifestyle for Environment[39], encouraging individuals to undertake simple acts in their daily lives that can contribute significantly to climate change mitigation when embraced around the world. In contrast to the carbon market (CCTS) which prices carbon emissions per tonne, the Green Credit Program (GCP) currently lacks a standardised measurement unit for the benefits generated from diverse activities such as tree plantations and sustainable infrastructure. **The GCP is intended to operate as an independent market mechanism; however, it might intersect with the carbon market if the "green credit" also leads to a reduction in carbon emissions, as mentioned in the programme draft.**

The GCP shall be based on voluntary participation of all stakeholders, with the main highlights being:

- Create a market-based mechanism for providing incentives in the form of Green credits to various organizations, cooperatives and private sector for environment positive actions;
- Green credits will be tradable on domestic market platforms;
- An activity generating green credits under the GCP, such as reduction or removal of carbon emissions, may also generate carbon credits from the same activity under the carbon market;
- The Indian Council of Forestry Research and Education shall be the administrator of the program;
- As compared to the CCTS compliance scheme, the GCP involves other sectors and non-binding commitments for participants;

Sectors/activities identified for green credits in the draft rules include tree plantation, water conservation, sustainable agriculture, waste management, air pollution reduction, mangrove conservation, 'Ecomark' labelling, and sustainable buildings and infrastructure. Whilst being seen as a voluntary pathway of incentivizing eco-friendly development domestically, more clarity is required on the demand of these 'green credits' and if the price will be enough to incentivise any meaningful action. It is of utmost importance that credit quality is high, with robust rules for accounting, monitoring, verification, baseline setting, additionality requirements and permanence. Otherwise, it may risk undermining the integrity of India's voluntary markets which could ultimately have a negative impact on the prospects of achieving the country's long-term net-zero targets and the goals of the Paris Agreement.

39 Mission LiFE – Ministry of Environment, Forest and Climate Change (2023)

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

WELL-DESIGNED CARBON MARKETS, INCLUDING THE CARBON CREDIT TRADING SCHEME, THE VOLUNTARY CARBON MARKET AND ARTICLE 6, CAN PLAY A CRITICAL ROLE IN INDIA'S GREEN TRANSFORMATION.

This paper has outlined the potential for carbon markets to support India's commitment to address the urgent challenge of climate change while promoting sustainable economic growth. Through the analysis of the Indian carbon market landscape, it is evident that the implementation of market-based climate policy instruments holds substantial potential to reduce greenhouse gas emissions, stimulate the adoption of clean technology, and facilitate the transition to a low-carbon economy. However, it is crucial that the development of the policy framework is effectively designed to fulfil its potential and prevent any negative consequences. In conclusion, the IETA India Scoping Group would like to reiterate the following recommendations:

- **The development of the carbon market framework should be approached collaboratively, fostering active engagement and participation from private sector stakeholders.** By involving key players from industries, businesses, and enterprises, the framework can draw upon a diverse range of expertise and insights. This collaborative design ensures that the carbon market is not only effectively tailored to address specific sectoral challenges but also promotes a sense of shared responsibility and ownership among participants. Private sector involvement enhances the framework's adaptability, responsiveness, and overall effectiveness in achieving emission reduction goals, while also fostering a conducive environment for innovation, investment, and sustainable growth.

- **Policy stability in alignment with long-term low emissions development pathways is vital.** A deciding factor in the effectiveness of the carbon market will be to ensure policy stability in alignment with India's long-term economic, social and environmental development strategies. As seen from the implementation of previous market-based instruments, and learning from other emission trading schemes from across the world, policy uncertainty in carbon markets risks deterring participation, inhibiting investments, and undermining the credibility of these markets, ultimately impeding their effectiveness in driving emissions reduction and contributing to sustainable development goals. There is also a need to harmonise the use of concepts and terminology relating to carbon markets in India to avoid creating unnecessary uncertainty in the market.

- **Coordination and capacity building among government ministries as well as market participants will be crucial.** With the establishment of the NSCISM to govern the CCTS and NDAIAPA to govern Article 6 approaches, India has taken several important steps towards setting up a functioning governance structure for carbon markets in the country. However, as the compliance market, voluntary market and international market start to converge under Article 6, the need for holistic coordination among government agencies will increase. In addition, the need for capacity building, both for government officials and private sector participants is high. A recent report highlighted that a large number of potential market participants in India still lack a basic understanding of concepts and market dynamics that may arise from the implementation of a compliance trading scheme.[40] The government, together with market participants, industry associations and international partners, should proactively implement such training programmes to bridge this gap.

With regard to the development and set up of the carbon credit trading scheme (CCTS), the following recommendations may be considered:

- Clarity on timeline, sectors covered and scope: In order to foster the effective implementation of carbon markets in India, it is imperative to provide clear and transparent specifications regarding the timeline, sectors encompassed, and the overall scope within the compliance market framework. This clarity will not only guide participants and stakeholders but also enhance the market's credibility, stimulate investor interest, and facilitate informed decision-making, ultimately contributing to the achievement of emission reduction goals.

- Follow a phased implementation approach with increasing stringency over time: To ensure the successful implementation of the CCTS, a phased approach is recommended, progressing systematically from voluntary participation to intensity-based targets, and eventually transitioning to absolute emissions reduction caps. This incremental approach will allow industries and stakeholders to adapt progressively, promoting smoother market integration and fostering the adoption of cleaner technologies. Special consideration should be given to emissions-intensive trade-exposed (EITE) sectors which face higher risks of carbon leakage. By implementing increasingly stringent targets over time, India can navigate the complex transition to a low-carbon economy and support the achievement of its 2070 net-zero target, while minimising disruptions and optimising the market's potential for emissions mitigation.

- Effective governance and oversight: Prioritising effective governance mechanisms is paramount to shaping the CCTS. This includes establishing rigorous oversight, robust enforcement procedures, efficient allocation strategies, and minimizing transaction costs. The government should draw on learnings from the RECs trading and PAT Scheme to ensure that monitoring, reporting, verification, and any non-compliance is effectively handled. By emphasizing a well-structured governance and MRV framework, the CCTS will be able to instil market integrity, deter malpractice, and uphold transparency, fostering trust among participants.

When it comes to international market mechanisms and voluntary cooperation under Article 6, the Government of India may consider the following recommendations:

- Provide strategic direction and long-term clarity on authorisation of ITMOs: In addition to the outlined eligible activities under Article 6.2, the NDAIAPA should aim to articulate a transparent strategy encompassing the timeline and volume of emission reductions targeted for authorisation towards other Parties' NDC achievement and OIMP. Considering the need for long-term clarity for project developers and private sector investors, beyond current NDC periods, a longer term view should be developed which aligns with India's LT-LEDS. In addition to developing a clear strategy for authorised credits, the NDAIAPA should consider clearing a pathway for issuance of 6.4 mitigation contribution units (MCUs) and their interactions with the voluntary carbon markets, which may help attract financing for the achievement of India's NDC without the application of corresponding adjustments. Further, the NDAIAPA should facilitate the utilisation of unsold CERs towards India's NDC and the transition of CDM projects to the Article 6.4 mechanism.

40 Josh Margolis (2023), Indian Carbon Market Simulation Training Exercise Report

- Engage proactively with buyer countries through small-scale pilot projects: Whilst India improves its readiness for Article 6 activities, it should also take a proactive stance and engage with international partners where possible to build capacity about cooperative approaches under Article 6. By engaging early in the market, India can leverage the advantage of gaining valuable insights, identifying potential challenges, and fine-tuning strategies. Small bilateral agreements and pilot projects can serve as experimental grounds to test and refine the approach. Targeted capacity-building programs to educate local stakeholders about eligible activities, corresponding adjustments, and authorisation processes will be crucial. For this purpose, the NDAIAPA should consider initiating a consultative process encompassing relevant government agencies, industry and think tanks to identify areas where capacity building is necessary.

- Maximise benefits through linking the domestic compliance market with international markets under Article 6: Over time and as the market matures, India should actively pursue the strategic linkage of its national compliance market with international carbon markets through Article 6 mechanisms. This linkage presents a unique opportunity to unlock substantial benefits on multiple fronts. Firstly, it enhances the credibility of India's emission reduction efforts by aligning them with globally recognised standards. Secondly, Article 6 represents a vast potential for India to attract foreign investments, fostering technology transfer and mobilizing additional finance. In a net-zero scenario with full international cooperation, India could realise up to USD $12.5 billion annually in international carbon market revenues by 2030. The total cumulative financial flows from sales of carbon credits from 2025 to 2050 could amount to more than $200 billion. For this to take place, India will be required to continue increasing its own NDC ambition over time and phasing out of inefficient subsidies – positioning itself as an attractive country for conscious buyer Parties and corporates. Finally, these linkages can enable increased global climate ambition towards the achievement of Paris Agreement goals by unlocking access to a broader pool of relatively low-cost mitigation options internationally.

Finally, in terms of the voluntary carbon market, the following can be recommended:

- Harnessing the VCM for financing the low-carbon transition and sustainable development: The VCM remains a key pathway to channel international finance towards low-carbon development in India. Over the last decades, India has benefitted greatly from the sales of carbon credits internationally and with the amount of mitigation opportunities available, can continue to do so as the expected growth of the VCM continues in coming years. This offers an attractive alternative pathway to secure climate financing from private sector stakeholders without the need for corresponding adjustments, while contributing to global emissions reduction efforts and positioning India as a proactive participant in the transition to a sustainable, low-carbon future.

- Ensure policy certainty for project developers and buyers: Similarly to what was mentioned above, certainty with regards to any potential restrictions on transfers, fees or regulation of VCM activities should aim to be provided by the government to avoid hampering the market. Previous uncertainties in India and other countries have led to a significant slowdown in the market, halting of projects and diminished trust from market participants. In order to re-establish India as a leading host of sustainable carbon mitigation projects, the government should avoid any disproportionate restrictions on transfers and support the development of an effective, well-functioning and high-integrity VCM in India. This includes proactively engaging with and supporting initiatives such as the ICVCM and VCMI which aims to promote quality and trust in the market – potentially leading to significant benefits for India and other ambitious host countries.

Throughout this paper, we have delved into the key facets of India's carbon market journey, examining the policy framework, regulatory mechanisms, and the connection with international markets. The experiences of other countries and previous market-based policy instruments serve as valuable lessons, illustrating both successes and challenges that can inform India's path forward.

As India grapples with its dual objectives of environmental preservation and socio-economic development, the role of carbon markets cannot be underestimated. The potential for these markets to mobilize financial resources for low-carbon projects, foster innovation, and contribute to sustainable development is substantial. However, realizing these benefits requires continued commitment from policymakers, industry stakeholders, and the broader society.

In conclusion, the evolution of carbon markets in India is not merely a reflection of the nation's environmental ambitions, but a testament to its resolve in balancing ecological imperatives with sustainable economic progress. As India moves forward, the successful implementation of carbon markets has the potential to reshape industries, drive innovation, and pave the way for a more resilient and greener future. Through collaborative efforts with the private sector, India can position itself as a global leader in the fight against climate change, reach its NDC and long-term net-zero targets, whilst inspiring others to follow suit in the pursuit of a more sustainable future.

The IETA India Scoping Group stands ready to support the Government of India in these efforts.

SCAN TO VIEW ONLINE:


MUQADDAR HOTEL

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