



Potential of Carbon Trading Mechanisms and Market for Pakistan

FINAL REPORT

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terea.net

78, la Canebière +33 (0) 491 941 539
13001 Marseille france@terea.net



78, la Canebière
13001 Marseille

+33 (0)491 941 539
france@terea.net

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	Surname, First name, function	Date
Written by	Frédéric Jacquemont - Team leader, TEREА	March 2022
Reviewed by	Coline Seyller, Project Coordinator, TEREА	MARCH 2022
Validated by	Coline Seyller, Project Coordinator, TEREА	March 2022

terea.net

78, la Canebière +33 (0) 491 941 539
13001 Marseille france@terea.net

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1. ABBREVIATIONS & ACRONYMS

AAU	Assigned Amount Unit
AD	Avoided Deforestation
ADB	Asian Development Bank
AEDB	Alternate Energy Development Board
AFOLU	Agriculture, Forestry and Other Land Use
AIP	Apex Industrial Platforms
AR	Afforestation Reforestation
ART TREES	Architecture for REDD+ Transactions
ASPI	Asian Society Policy Institute
BM	Benefit Matrix
Bol	Board of Investment
CBD	Convention on Biodiversity
CC	Carbon Credit
CCB	Climate Community and Biodiversity Standard
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CMP	Carbon Market Program
CMS	Convention on Conservation of Migratory Species of wild animals
CO ₂	Carbon Dioxide
COP	Conference of Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
COVID	Coronaviruses Disease
CWs	Consultative Workshops
EBRD	European Bank for Reconstruction and Development
ERs	Emission Reductions
ETS	Emission Trading Scheme
EU	European Union
EU ETS	EU Emissions Trading System

FAO	Food and Agriculture Organisation
FCPF	Forest Carbon Partnership Facility
FGRM	Feedback and Grievance Redress Mechanism
FREL	Forest Reference Emission Levels
FS	Forestry Sector
GCF	Green Climate Fund
GGI	Green Growth Initiative
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoP	Government of Pakistan
GS	Gold Standard
IAM	Institutional Assessment Matrix
ICAO	International Civil Aviation Organisation
ICIMOD	International Centre for Integrated Mountain Development
ICROA	International Carbon Reduction and Offset Alliance
IETA	International Emissions Trading Association
IGF	Inspector General of Forest
ISFL	Initiative for Sustainable Forest Landscapes
ITMO	Internationally Transferred Mitigation Outcomes
JC	Joint Committee
JCM	Joint Crediting Mechanism
KIIs	Key Informant Interviews
KQG	Key Question Grouping
LEDS	Low Emission Development Strategies
LFA	Legislative Framework Assessment
LOU	Landowners & Users
LULUCF	Land Use, Land use Changes and Forestry
MoCC	Ministry of Climate Change
MoE	Ministry of Environment
MoU	Memorandum of Understanding

MRV	Measuring, Reporting and Verification
MT	Mega Tonnes
NAMA	Nationally Appropriate Mitigation Actions
NCCP	National Climate Change Policy
NCEC	National Committee on the Establishment of Carbon Market
NDC	Nationally Determined Contributions
NFMS	National Forest Monitory System
NFP REDD+	National Focal Point Reducing Emissions from Deforestation and Forest Degradation
NICA	Nordic Initiative for Cooperative Approaches
NPO	Non-Profit Organisation
NRS	National REDD+ Strategy
NSC	National Steering Committee
OPP	Past programmes & projects
PEPA	Pakistan Environmental Protection Agency
PES	Payment for Ecosystem Services
PFI	Pakistan Forest Institute
PGIUs	Provincial REDD+ Grievance and Implementation Units
PPO	Public-Private Organisations
PPP	Prevailing relevant Programmes and Projects
PSDP	Public Sector Development Programme
RDA	Relevant Development Agencies
REDD+	Reducing Emissions from Deforestation and forest Degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries
REM	REDD+ Early Movers Program
RFM	Other relevant Federal Ministries, Departments
RGGI	Regional Greenhouse Gas Initiative
RP	Regional Programmes
RPM	Relevant Provincial Ministries
R-PP	REDD+ Preparedness Proposal
SAM	Stakeholder Assessment Matrix

SBSTTA	Subsidiary Body for Scientific Technical and Technological
SCF	Standardised Crediting Framework
SDGs	Sustainable Development Goals
SEMED	Southern and Eastern Mediterranean
SES	Social & Environmental Standards Initiative
SESA	Strategic Environmental and Social Assessment
SIS	Safeguards Information System
SRM&D	Secondary reference material and available data
SWF	Sovereign Wealth Fund
TFCC	Task Force for Climate Change
ToA	Trade-off Analysis
UN	United Nations
UNCCD	United Nation Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
USD / US\$	United States Dollar
VCs	Verified Carbon Unit
VERs	Verified Emission Reductions
vFGDs	virtual Focus Group Discussions
vSF	virtual Structured Forms
WB	World Bank
WB MAAP	WB Mitigation Action Assessment Protocol
WB TCAF	WB Transformative Carbon Asset Facility
WFR	Warsaw Framework
WG	Working Group
WWA	West African Alliance on Carbon Markets and Carbon Finance
WWF	World Wide Fund for Nature
WWF-P	World Wildlife Fund-Pakistan

2. EXECUTIVE SUMMARY

Carbon pricing instruments use is growing and their implementation is extending from developed countries to developing countries that undertake more mitigation commitments. There are numerous ETS national or regional, or carbon tax being applied, when result-based payments programs exist to both provide opportunity to implement and scale up REDD+ as pilot. When the global voluntary market, driven by net-zero commitments and Nature-based solution, is flexible enough to allow a large of opportunities (especially in forestry sector) for private sector entities to participate in this carbon market anywhere and in Pakistan in particular.

However, development under Article 6 Paris Agreement late development in Glasgow (November 2021) with the requirement of a 'corresponding adjustment' for transactions may impact the voluntary market in a medium term depending on the claim that private entity make when using those voluntary offsets, or regarding the type (stringent or conditional) NDCs under which that claim is made, or the project host country NDCs. In any case, a transition period is needed. The requirement for corresponding adjustments for compliance offsets under Article 6.2 and 6.4 of the Paris Agreement means that many countries are likely to develop their capacity for corresponding adjustments in the long run. Any implementation of a regime that requires corresponding adjustment needs to acknowledge that today's voluntary carbon market requires no such adjustments for the moment.

Regarding entry points for Pakistan into carbon markets, Pakistan has some entry points for entering into the voluntary global market as the low hanging fruit, and into some national voluntary scheme such as the Japan Joint Crediting Mechanism. When the government needs to formalise its participation in the Japanese Joint Crediting Mechanism, participation in the global voluntary market depends on the private incentives to invest and forest project opportunities. Access to forest projects can be done together in partnership with the concerned provincial forest departments. Same entry opportunities exist with the CORSIA compliance programme that allow offsets from jurisdictional REDD+ program and some particular AR projects.

Similar opportunities exist with result-based programs, but these opportunities are limited by application time limitation and conditions. All of these programs require REDD+ jurisdictional approach to be led by a jurisdiction (see table 1), which may result in a long and cumbersome process to validate such jurisdictional REDD+ programs that can discourage private sector involvement, and prices offered under these programs are usually below current market prices to the exception of the LEAF program.

It just needs government willingness to engage with the different actors to join to participate, leading as an initiator when scoping together with provincial authorities REDD+ jurisdictional programmes that could leverage both international and national private actors participation in the forestry.

When contemplating a sectorial national level or a province level for a market-based approach, Pakistan according to its NDC target may combine both approaches. The Columbia emission pricing instrument scheme that combines both a carbon tax and the use of offsets for companies to fulfil their compliance obligations either by paying the carbon tax or offsetting emissions. Following that example, a carbon tax could be applied in the energy sector to both reduce emissions in that sector and yield funding to achieve

the 60% renewable energy target at national level, and stimulate demand of offsets from forestry project that could be implemented in a private-public partnership at province level.

The government should implement strong safeguards to secure the integrity, transparency, additionality, and permanence of that national offsetting system as a robust and credible alternative to the carbon tax, and thus allowing flexibility and at the same time promoting forests as a national sink.

3. INTRODUCTION

Pakistan has been implementing REDD+ activities since 2010 to mitigate climate change through reduced carbon emissions from forestry sector. In December 2013, Pakistan secured US\$ 3.8 million through submission of REDD+ Readiness Proposal (R-PP) to the Forest Carbon Partnership Facility (FCPF) of the World Bank. The World Bank and Government of Pakistan signed a grant agreement in June 2015 of US\$ 3.8 million to help the country prepare for REDD+ Readiness. So far, Pakistan has finalised the first phase of REDD+, which is called the Readiness Phase that ensures sound institutional arrangements at the country level comprising: (i) a national strategy or action plan; (ii) a national forest reference emission level and/or forest reference level (FREL/FRL); (iii) a robust and transparent National Forest Monitoring System (NFMS) to meet Measurement Reporting and Verification (MRV) requirements for REDD+; (iv) and a system for providing information on safeguards.

The second phase starts when REDD+ countries begin to implement their strategies, qualifying procedures, as well as commencing legal and policy reforms and the execution of demonstration activities. These two phases enable countries to enter the third phase, when the countries start receiving results-based payments. Therefore, the Ministry of Climate Change is interesting in (i) assessing private sector engagement in forestry sector and REDD+ and measures to promote it, and (ii) in exploring potential carbon trading mechanism and markets for Pakistan to achieve its climate change action plan and the nationally determined contributions (NDC).

This report focuses on the second objective on assessment of carbon trading mechanism and carbon markets and potential entry points for Pakistan for entering into carbon trading within country and internationally, including suggested framework for emissions trading.

Carbon pricing is a valuable policy instrument to help accelerate clean energy transitions, by providing a clear signal that greenhouse gas emissions (GHG) are a cost to the environment and to society. Carbon pricing can stimulate investments in low-carbon technological innovations, foster multilateral cooperation and create synergies between energy and climate policies. Carbon pricing instruments comprise carbon taxes and emissions trading systems (ETS). Carbon taxes consist of direct taxation on emissions, when ETS are market-based instruments that create incentives to reduce emissions where these are most cost-effective. In most ETS, the government sets an emissions cap in one or more sectors, and the entities that are covered are allowed to trade allocated emissions permits or offsets generated by emission reductions projects with the view to meet an emission cap.

Usually, ETS set emissions cap on big GHG emitters, from the power sector and heavy industry (e.g., cement manufacturers, metals, chemicals, the oil and gas industry, ceramics, pulp and paper, mining, etc.). One distinguishes compliance carbon markets implemented by law and voluntary carbon markets where there is no GHG cap obligation imposed by law but voluntary emission reduction and offset self-commitments.

As of April 2022, there are 68 carbon pricing instruments operating. This includes 37 carbon taxes and 34 ETS.¹ A new carbon tax in Uruguay commenced in January 2022 and three new ETSs also commenced in

¹ State and Trends of Carbon Pricing, the World Bank (2022).

the past year in subnational jurisdictions in North America—Oregon, New Brunswick, and Ontario. One US state, Washington, as well as Indonesia have carbon pricing instruments scheduled for implementation. Approximately 23% of total global GHG emissions are currently covered by operating carbon pricing instruments, which is similar to global coverage in 2021. When China domestic carbon market², launched on February 1st, 2021, becomes instantly the world’s largest emissions trading program regulating 4.5 billion metric tons of CO₂ equivalent (tCO₂e) per year of China’s total annual carbon emissions of 10,000 MtCO₂e, over 30% of China’s total GHG emissions.³

An increasing number of ETS, including California, Québec, China’s pilots and South-Korea, cover transport fuels. When, the European Union (EU) ETS⁴ applies to flights within the EU and proposal to include shipping emissions beginning in 2023 and covering 100% of emissions for voyages between member state ports and 50% for voyages between EU ports and third-country ports by 2026 is on the table, as for South Korea’s ETS⁵ includes aviation, and the sector will also be included in China’s national ETS. The Regional Greenhouse Gas Initiative (RGGI) is the only existing cap-and-trade programme that applies to the power sector only. Furthermore, the EU set a proposal to adopt carbon border adjustment mechanism with twofold objectives, safeguard European industry competitiveness and avoid carbon leakage.⁶

Some domestic carbon pricing programs cover forestry sector and allow for forestry removal offsets such as in Australia⁷, California⁸, Columbia⁹, Québec¹⁰, South Africa¹¹ and in New Zealand¹², when others such as the EU ETS expressly rules out forestry removal offsets. The South-Korean ETS has established methodologies for afforestation, reforestation, and forest restoration removal offsets. Most of these programs favour forestry offset projects within their jurisdictions.

Linking different ETS together allow more trading units widening the pool of participants to trade which reduces costs, as California and Québec did link their respective ETS together, when linking New Zealand

² The 2021 National Measures for the Administration of Carbon Emission Trading.

³ See: Ecosystem Marketplace, “Green Growth Spurt”, State of Forest Carbon Finance 2021.

⁴ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC as amended by Directive (EU) 2018/410 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments that entered into force on 8 April 2018 and sets the framework for the fourth trading period from 2021 to 2030.

⁵ The 2012 Act on Allocation and Trading of Greenhouse Gas Emissions Allowances (ETS Act) and the Presidential Decree promulgated thereunder were enacted on November 15, 2012, introducing a national emissions trading (cap-and-trade) system that began on January 1, 2015.

⁶ According to the proposal, the carbon boarder adjustment would apply to the import of electricity and specified goods in the steel, iron, cement, fertilizer, and aluminum sectors. The proposal is currently under review by the European Parliament and the European Council: https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf

⁷ Carbon Farming Initiative Amendment Act 2014 to the Australian Carbon Credits (Carbon Farming Initiative) Act 2011.

⁸ 2006 Global Warming Solutions Act (AB 32).

⁹ Law 1819 of 2016 on the National Carbon Tax and 2017 Decree 926 setting criteria to allowing the use of offset for carbon neutrality.

¹⁰ The 2013 Regulation respecting a cap-and-trade system for greenhouse gas emission allowances pursuant to section 46.5 of the Environment Quality Act.

¹¹ Carbon Offsets Regulations in terms of Section 19(C) of the Carbon Tax Act, 2019 (Act No 15 Of 2019).

¹² The 2002 Climate Change Response Act establishing the New Zealand Emissions Trading Scheme.

ETs is contemplated.¹³ The EU ETS is linked together with Norway, Iceland, Liechtenstein, and Switzerland ETS. However, some technical, methodological, and legal obstacles must be overcome to allow full fungibility of offsets between different ETS.

The aviation Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) has launched a pilot phase in 2021, and it is the first international compliance sectorial carbon offsetting program to allow forestry removal offsets from jurisdictional REDD+ verified under voluntary standards (VCS and ART TREES), giving a strong signal to the market on the potential opportunity of jurisdictional REDD+ offsets. In the meantime, the Colombia carbon tax mechanism allows the use of REDD+ project-based offsets as an alternative to pay the tax.

Allowing removal offsets from forest projects or programs carbon pricing programs raise the questions of addressing emission reductions (ERs) quantification, additionality, baselines, leakage, monitoring, uncertainty, permanency, double counting and third-party review, which are critical aspects for ensuring environmental integrity of these offsets.¹⁴ Carbon standards and their methodologies are there to secure as much as possible environmental integrity of these removal offsets.

The voluntary market has many different standards such as ISO 14064-2, American Carbon Registry (ACR), Climate Action Reserve (CAR), VCS, Gold Standard, Plan Vivo, and a specific new standard for REDD+, the Architecture for REDD+ Transactions initiative with the Environmental Excellence Standard (ART TREES) since 2020. This variety of standards doesn't stop the voluntary market growth. For example, forestry offsets volume transacted was of 36,7 million tCO₂e (MtCO₂e) in 2019, 48 MtCO₂e in 2020, up to 115MtCO₂e in August 2021 for a total value of 159 M USD in 2019 up to 544 M USD in August 2021.¹⁵

In addition, specific initiatives such as the Forest Carbon Partnership Facility (FCPF) Carbon Fund that uses its own methodological framework to account for ERs, the Green Climate Fund (GCF) for REDD+ results-based payment that uses the Warsaw Framework for REDD+ defines procedures for setting FRELs/FRLs and, abiding by this principle, each country chooses its own reference level methodology in its submission to the UNFCCC. Same with the new initiative Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition which is a public private partnership back by the Norwegian, UK and the US governments have accelerated the development of jurisdictional REDD+ programmes that uses the ART TREE standard. This variety of methodologies to account ERs from forestry projects or programs may question the fungibility of these offsets into various carbon pricing programs to meet various obligations or commitments.

To the extent that REDD+ offsets will be linked to carbon markets it must create a uniform 'currency' that can be used to meet regulatory or voluntary mitigation obligations. Thus, the line between compliance and voluntary is becoming blur. For example, CORSIA is allowing the use of voluntary standards offsets such as ART TREES and VCS JNR or FCPF offsets for compliance purpose, the same is occurring with countries that use voluntary forest offsets under their National Determined Contributions (NDC). Under Article 6 of the UNFCCC Paris Agreement, countries may use market-based mechanisms and account

¹³ Climate ministers from New Zealand, Quebec and California signed an agreement on November 9, 2021, that could eventually lead to New Zealand ETS joining the established Quebec-California market partnership.

¹⁴ For these questions see: Discussion paper for the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): Crediting Forest-related Mitigation under International Carbon Market Mechanisms- A Synthesis of Environmental Integrity Risks and Options to Address them (2018)

¹⁵ See: "State of the Voluntary Market 2021", Ecosystem Marketplace.

voluntary offsets under their NDC or that can be exchange as an Internationally Transferred Mitigation Options (ITMO).

Direct carbon prices have reached record levels across multiple jurisdictions over the past year, driven by a combination of policy decisions, increased speculation, and broader economic trends, in particular global energy prices. However, prices in most jurisdictions remain below what is needed to meet the Paris Agreement’s goals of keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.¹⁶

The objectives of this study are to provide an assessment of carbon trading mechanisms and carbon markets and potential entry points for Pakistan for entering into carbon trading within country and internationally, including suggested framework for emissions trading set up at sectoral or province level that allows forest offsets.

4. METHODOLOGY

Among its objectives, the study intends to assess entry points to carbon trading mechanism and carbon markets and suggest framework and approach for emission trading based on extensive literature and carbon pricing instruments review. A first exercise of review of existing carbon market mechanisms and pilot initiatives under Article 6 of the UNFCCC Paris was done and results were produced in the inception report dated February 2021. To be consistent with the promotion of REDD+ in Pakistan, the review of carbon pricing instruments favoured programs allowing or promoting forest offsets. Later, during interviews with private sector companies in Pakistan in November 2021 and April 2022), with both energy and textile companies some side questions were asked on preferred carbon pricing instrument such as carbon markets with cap or carbon tax. Answers were that regulating emissions is inevitable in a near future in Pakistan, and that carbon pricing instruments such as carbon tax or emission trading have both their favour. In addition, most of the interviewees involved in some reforestation projects want to valorise their investment in those forestry projects or participate in large governmental reforestation programs such as the Ten Billion Trees program.

In order to achieve its proposed objectives, the preparation of this study followed a stepwise approach consisting of:

A review of the main existing carbon markets and result-based programs that include forestry projects, to be consistent with the task of promoting REDD+ in Pakistan, being implemented nationally, internationally, which are mandatory or voluntary, was undertaken. Taking in to account the current context of Pakistan, in terms of climate policies and regulations, entry points for Pakistan to these carbon markets and programs are explained, when looking, among others, at specific case studies from selected jurisdictions which could serve as reference to Pakistan for the implementation of carbon pricing instruments.

¹⁶ State and Trends of Carbon Pricing, the World Bank (2022).

A review of the international market mechanisms developments under the UNFCCC Paris Agreement article 6 and consequences on the global voluntary market.

An analysis for suggesting a framework for emissions trading set up at sectoral or province level with relevant elements of the domestic context which need to be factored in when considering the development of a domestic carbon pricing approach. This would need to consider elements such as: i) the socioeconomic context and national policy objectives; ii) the current and evolving GHG emissions profile of Pakistan; and iii) the readiness status and safeguards.

5. REVIEW OF CARBON MARKETS AND PROGRAMS ALLOWING FOREST OFFSETS

This section reviews national and subnational compliance carbon markets allowing forest offsets, when many other compliance carbon markets such as the EU ETS rules out expressly forest offsets for concerns around leakage, permanence, additionality, and the complexity of forest carbon accounting. Therefore, the EU ETS and programs excluding forestry offsets are not covered in this report. Following, a review of potential entry points for Pakistan forestry offsets into emerging carbon markets and programs.

5.1 National and subnational compliance carbon pricing instruments

With the view to address climate change, attention has turned to the use of forests for carbon sequestration the last twenty years. This is because the global forests provided a net carbon sink that absorbed twice as much CO₂ (16 billion metric tons per year) as they emitted each year (8.1 billion metric tons per year) between 2001 and 2019.¹⁷ Averaged over 2015–2017, global loss of tropical forests contributed about 4.8 billion tonnes of carbon dioxide per year, about 8-10% of annual human emissions of carbon dioxide.¹⁸

Emissions reductions associated with forestry projects are eligible for generating carbon credits for purchase on the ETS market, allowing emitters to offset their emissions while buying time to enable them to develop and adopt emission-reducing technologies, as practiced in several active and pilot schemes. Forest and related natural climate solutions are appealing and have the potential to provide the most cost-effective solution to carbon sequestration in comparison to other carbon capture technologies.¹⁹

Currently, forest offset has been leveraged in several carbon pricing systems as an opportunity to meet compliance with their targets. Thus, many compliance carbon markets allow the use of forest offsets such as: Alberta Cap and Trade System, British Columbia Neutral Government Regulation, and Québec Cap and-trade System in Canada; the California Compliance Market and the Regional Greenhouse Gas Initiative (RDGGI) in the USA; the Colombia Carbon Tax; Australia’s Emissions Reduction Fund, New Zealand ETS,

¹⁷ Harris et al. 2021.

¹⁸ IUCN 2021.

¹⁹ Anil Shrestha, Sarah Eshpeter, Nuyun Li, Jinliang Li, John O. Nile & Guangyu Wang: “Inclusion of forestry offsets in emission trading schemes: insights from global experts”, Journal of Forestry Research volume 33, pages 279–287 (2022).

Japan Saimata ETS and Tokyo Cap and Trade in Japan, the Republic of Korea ETS, the China National ETS and the China Subnational ETS Programs.

Most of these markets allow domestic forest offsets, forestry projects developed within their jurisdiction only, with a twofold objective, allowing cost effectiveness opportunities of investment for emitters under emission reduction obligations, and to promote forest as carbon sequestration sink nationally. Otherwise, they limit drastically the use of these forest offsets from projects outside their jurisdiction such as the California Compliance Market. If the South Korean ETS allowed regulated entities to use forest offsets to fulfil up to 10% of their compliance obligation, it concerned only domestic forest offsets during the first phase (2015-2017), when phases 2 (2018-2020) some limited number of international offsets were allowed, but more restrictive limitations are in force in phase III (2021-2023).

Unless Pakistan foresees to implement a mandatory carbon pricing instruments (ETS or carbon tax), there is no entry point for offsets generated from project located in Pakistan under foreign domestic compliance regime yet, to the exception to CORSIA or under Article 6 of Paris Agreement to certain conditions. In its updated NDC submitted before COP26, Pakistan doesn't implement ETS nationally yet, but the document refers to the instruments on enhanced ambition provided in Article 6 of the Paris Agreement.

Indeed, Pakistan has already identified market and non-market-based approaches to help diversify the funding sources, including Nature Performance Bonds, Green/Blue Bonds, and/or Carbon Pricing Instrument (that could be either carbon tax or a market instrument) in its NDC.

Furthermore, in its updated Climate Change Policy 2021, Pakistan intends to establish a robust and cohesive carbon market. To develop local "carbon trading" and participate in international carbon market, the MoCC has conducted a study on the Introduction of carbon pricing Instruments with support of UNFCCC.²⁰ As a result of the study, the National Committee on the Establishment of Carbon Market (NCEC) was established after approval of Prime Minister.²¹

This particular forum has been set up to examine and prepare recommendations on various aspects linked to carbon markets in the country such as: (i) increasing source of revenue; (ii) spurring investment into innovative technologies; (iii) introducing new financial products in the market; (iv) engaging the private sector in addressing climate change; (v) becoming part of the global carbon market, and (vi) engaging multilaterals actors on implementing the Article 6.2 of the Paris Agreement. Further, the NCEC is tasked to review proposed mechanisms and design domestic Emission Trading Scheme (ETS) framework, Monitoring, Reporting and Verification (MRV) infrastructure and procedures.

However, Pakistan is facing the challenges of gathering enough quality data, understand complexities, ramifications to come up with an ETS structure and design to be implemented nationally today. Therefore, other national pricing instruments such as the Colombian national carbon pricing instruments that combine both carbon tax and forest offsets could be used as model for Pakistan. This will be developed in section 6 on suggested framework for emissions trading.

²⁰ Study on the Introduction of Carbon Pricing Instruments in Pakistan (2019).

²¹ December 2019

Columbia national carbon pricing instruments case study:

An interesting example for Pakistan when contemplating a national mandatory carbon pricing instrument is the Columbia carbon tax in South America. In 2016, Colombian government passed a National Carbon Tax that came into force on January 1st, 2017, set at a level of approximately US\$5/tCO₂e, and that applies to the sales and imports of all fossil fuels, including all petroleum derivatives, except for coal. The tax is set to increase annually by 1 point plus inflation until the price reaches 1 UVT (approximately US\$10/tCO₂e). The expected tax revenues are of approximately US\$220 million per year. The tax covers the 16% of Colombia's total emissions and 50% of emissions from fossil fuels.

In 2017, this by Decree, the government established requirements for reducing tax liability through carbon neutral certification via offsets. It allows companies, under certain conditions, to avoid paying the tax by buying carbon offsets from Colombian emission reduction projects, including those that conserve threatened natural ecosystems such as peatlands, forests, and mangrove swamp. Those offsets must be generated from projects following methodologies of Clean Development Mechanism (CDM), or those developed by certification programs or carbon standards that have been either publicly consulted and verified by a third party appropriately accredited or issued by the UNFCCC, or recognized by the national government through a National Normalization Body, or meet the requirements for the registration of initiatives established by the REDD+ registry.

To qualify for the neutrality, private entities need to submit an exemption request ahead of the tax compliance deadline, accompanied by a "Voluntary Cancellation Certificate" and a "Declaration of Verification" of eligible offsets equal to its emissions. The Voluntary Cancellation Certificate will be issued by certification programmes or carbon standards and must include a report of the emission reductions according to the National Emissions Register.

To avoid double counting, these emissions or removals must be cancelled previously in the GHG certification program of origin before being issued in the National Emissions Register. The Declaration of Verification must contain the name of the mitigation activity, the number of verified emissions reductions and removals, and the verification methodology implemented.

This verification statement must be issued by an authorised verification body duly accredited under the National Accreditation Body of Colombia (ONAC, for its acronym in Spanish). The verification body shall issue a statement indicating that the GHG emission reductions or removals were performed in accordance with the ISO 14064-2:2006 methodology and the results obtained under ISO 14064-3 or other suitable norms. All verifications carried out by a CDM-accredited entity will only be valid until 31 December 2018. In view of the creation of a national accreditation system, after that date, only verifications carried out by accredited bodies (i.e., ONAC) will be accepted.

The carbon tax can also be offset with voluntary carbon offsets, if they have been verified according to the methodology established by ISO 14064-2:2006 or other suitable standard, in compliance with the regulation.

The fact that Colombia allows entities to compensate 100% of their tax obligation via offsets, has encouraged the development of projects that have been registered, verified, and certified to mitigate carbon emissions. Since 2017, 17 new projects have applied for certification, this represents the 32% of

the total registered projects in Colombia (53 projects in the Country).²² Projects in the Agriculture, Forestry and Other Land Use sector are increasing faster than others. There are now seventeen (17) AFOLU projects, compared to twenty-two (22) energy projects, two (2) manufacturing projects and two (2) waste projects), REDD+ is the sector with more registered projects in the country.

The government of Colombia has generated over USD \$440 million in tax revenue since the implementation of the carbon tax in 2017, meaning approximately 84.28 million tons of carbon emissions have been paid for through the tax and not neutralized (offset) with verified emission reductions/removals. When in date of September 2019, September 2019, 17.2 million VCUs have been surrendered in lieu of paying the carbon tax.

5.2 Review of emerging carbon markets and programs: entry points for Pakistan

Emerging international and national carbon markets and programs consist of a diverse range of sources of supply, sources of demand, and recent trading frameworks that establish a demand from a range of compliance obligations established under international agreements and national laws, as well as voluntary or pilot commitments

Federal Greenhouse Gas Offset Credit System, Mexico ETS Pilot Program that has been running for three years, before transitioning to a national ETS in 2022, and Colombia National Program of Tradable GHG Emission Quota to complement the Carbon Tax program, and the South Africa Carbon Tax accept forest offsets from projects within their respective jurisdictions. However, there is no entry points for Pakistan, as offsets allowed within these programs must be generated from projects within their jurisdictions.

5.2.1 CORSIA

The Carbon Offsetting and Reduction Scheme for International Aviation CORSIA can be considered as an international compliance market where airlines companies purchase eligible offsets for meeting their obligations established under that international scheme.

107 countries have joined voluntarily the International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to participate in the pilot phase (2021-2023), before the universal implementation of CORSIA during its first phase (2024- 2026), and second phase (2027-2035) to the exception of some countries because of their low development level, being Island States, or very low contribution in terms of flight traffic. The ICAO that administers the CORSIA projects foresees 333 MtCO₂e of offsets will be required to achieve compliance by 2035.

CORSIA requires aircrafts operators to offset any increase of CO₂ emissions from international flights between participating countries above a 2020 baseline, through the purchase and cancellation of eligible

²² <https://verra.org/data-insights/colombia/july-2020/>

offsets. All member States are responsible for the monitoring, verification, and reporting (MRV) of their national aircraft operators' emissions.

CORSIA lists offset programmes, whose offsets may be used by aircraft operators to meet their obligations. Amongst them are: American Carbon Registry (ACR) Nested REDD+ Standard, VCS Jurisdictional and Nested REDD+ (JNR)²³ and from ART TREES, when in 2019 the FCPF was conditionally approved as an eligible ERs program.

CORSIA allows the use of REDD+ offsets issued from REDD+ jurisdictional programs, and small-scale REDD+ activities, those generating less than 7,000 emission reduction/removals per year) can be implemented as standalone projects across all eligible GHG programs, and a variety of Agriculture, Forestry and Other Land Use (AFOLU) activities in the agricultural soil carbon, blue carbon and grasslands sectors can be implemented as standalone project. Same for offsets from afforestation and reforestation activities under Clean Development Mechanism (CDM), the China GHG Voluntary Emission Reduction Program, the Global Carbon Council (GCC) and the Gold Standard.²⁴

CORSIA pilot phase started on January 1, 2021, but offsets demand remains low as international air travel remains depressed by the COVID-19 pandemic. That is reflected in offset average price has dropped from USD 4.89/tCO₂e in 2020 to USD 3.08/tCO₂e in 2021.²⁵ More demand could emerge later this decade, when airlines traffic will recover and expand again, international air travel is expected to almost double between 2016 and 2035.²⁶

Entry points for Pakistan:

Entry point for Pakistan in CORSIA compliance programme would be to develop a REDD+ program either at provincial, inter-provincial or national levels under any of the three currently eligible standards: ACR, VCS JNR or ART TREES standards. When, for private sector participants, another entry point into CORSIA would be to develop Afforestation/Reforestation (AR) projects under the Clean Development Mechanism (CDM) and/or the Gold Standard (GS).

²³ Jurisdictional and Nested REDD+ (JNR), the approach under the VCS Program by which reduced emissions from deforestation, reduced emissions from degradation and removals from carbon stock enhancements can be credited at the jurisdictional and/or nested project levels. It allows a jurisdictional approach at either provincial level or national level, with a jurisdiction emissions baseline, under which many individual project can be nested (included) to achieve ERs.

²⁴ CORSIA eligible Emissions Units see at: https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/ICAO%20Document%2008_CORSIA%20Eligible%20Emissions%20Units_March%202022.pdf

²⁵ <https://www.ecosystemmarketplace.com/articles/now-available-corsia-eligible-carbon-market-data-from-ecosystem-marketplaceicao-environment-corsia-newsletter/>

²⁶ <https://www.forest-trends.org/pressroom/ecosystem-marketplace-forecasts-ample-supply-of-corsia-carbon-credits-if-icao-council-limits-eligibility-to-post-2016-offsets/>.

5.2.2 Result-based payments initiatives

Result-based payments initiatives refer to purchase of offsets from mitigation programs by governments or international organisations for the purpose of incentivising emissions reductions or meeting national targets such as NDCs.

REDD+ result-based payments initiatives have started their implementation phase now, the **FCPF Carbon Fund** have signed several purchase agreements, when the Green Climate Fund has approved for 500M USD REDD+ results-based payments to Argentina, Brazil, Chile Colombia, Costa Rica, Indonesia and Paraguay. The term of the FCPF Carbon Fund can be extended by unanimous consent of the REDD Country Participants and the Donor Participants. Discussions are still going on whether the FCPF Carbon Fund, could launch a second commitment period beyond 31 December 2024, which is the end of the first commitment period.

If REDD+ proposal submission is closed for the FCPF Carbon Fund, the **Green Climate Fund (GCF)** is still open to proposals from countries that have completed the first two phases of REDD+ for results generated from the end of 2013 to the end of 2018 until the last GCF Board meeting in 2022. This however excludes Pakistan that didn't complete its two REDD Readiness phases by 2018.

The World Bank is also helping countries prepare to participate in international voluntary and compliance markets under the Paris Agreement through its Climate Warehouse initiative and to deploy results-based climate finance through its Climate Emissions Reduction Facility (CERF).

The World Bank's **Climate Emissions Reduction Facility** is an umbrella program established in 2020, with the aim to providing operational liquidity at scale for low-carbon development projects on results-based payments for developing countries. Over a 10-year period, the facility will disburse results-based climate finance, helping developing countries develop low-carbon development pathways by providing operational liquidity over the lifecycle of a project, scale up transformative mitigation action and potentially motivate client countries to set more ambitious emissions reduction targets.

Thus, CERF will help developing countries to accelerate fulfilment and increase the ambition of their NDCs, while also incentivising private sector financing and providing potentially tradable carbon assets, to facilitate trading as Internationally Transferred Mitigation Outcomes (ITMOs) in line with Article 6. It targets the agriculture, forestry and other land use (AFOLU), energy, water, transport, urban and financial and banking sectors

Finally, CERF will incorporate experience the World Bank has in reducing emissions from REDD+, including jurisdictional approaches such as the Forest Carbon Partnership Facility (FCPF) and the BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL).

The **BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)** is a multilateral facility that promotes and rewards reduced greenhouse gas (GHG) Emissions and increased sequestration through better land management, including REDD+, climate smart agriculture, and smarter land use planning and policies. ISFL ER Programs are required to demonstrate that they are undertaken using a jurisdictional and Integrated Landscape Management approach, in accordance with the ISFL's vision. The ISFL will provide

significant results-based climate finance over a 10–15-year period by purchasing verified emission reductions.²⁷

The **Lowering Emissions by Accelerating Forest Finance** (LEAF)²⁸, initiative was launched in April 2021, is a public-private partnership that finances jurisdictional REDD+ from tropical and subtropical forests. The initial group of donors includes the governments of Norway, the United Kingdom, and the United States and a group of leading international companies including Amazon, Airbnb, Bayer, BCG, GSK, McKinsey, Nestlé, Salesforce and Unilever, raising \$1 billion USD. Emergent, a US non-profit organization and participant in the coalition, will serve as the administrative coordinator of LEAF. It uses ART TREES program for jurisdictional REDD+, transacting the at 10 USD per tCO₂e.

Call for project proposal was open up to interested jurisdictions until July 30th, 2021, for the crediting period 2022-2026 with the aim of signing contracts before the end of 2021. So far 25 jurisdictions²⁹ amongst them 7 Brazilian States, have submitted proposals, when 4 letters of Intent are signed to date. Now the possibility of submitting proposals is closed, another occasion may be open before the end of the first crediting period 2022-2026, leaving the possibility of a submission.

With these initiatives, the price, volume and duration of credits are negotiated in advance, actions can be counted as ERs at the national level, but often a lengthy and cumbersome in relation to the binding framework for donors, a program often developed by donors or their subcontractors, which results in little room for manoeuvre for the host country. In addition, prices for buying ER under these programs result-based payments are lower than prices in the markets now.

Entry points for Pakistan:

When completing its first REDD+ Readiness Phase, Pakistan is entitled to apply for results-based payment programs achieving emission reductions from forest sectors. However, some stringent conditions such as reporting requirements are to be fulfilled to be eligible.³⁰ In addition, a governmental leadership to develop results-based payment programs ideas and proposals is needed at either national or provincial level.

Therefore, the MoCC should closely monitor opportunities with such initiatives, comply with UNFCCC REDD+ reporting, and finally starts to engage now with to prepare proposals when the occasion presents, and scope and select possible REDD+ jurisdictional project involving provincial governments and private sector relevant stakeholders.

²⁷ <https://www.biocarbonfund-isfl.org/sites/isfl/files/2020-04/ISFL%20Vision.pdf> and ISL process requirements: https://www.biocarbonfund-isfl.org/sites/isfl/files/2022-02/ISFL%20Process%20Requirements_2021.pdf

²⁸ <https://leafcoalition.org>

²⁹ Acre (Brazil); Amapá (Brazil); Amazonas (Brazil); Burkina Faso; Costa Rica; Ecuador; Ghana; Guyana; Jalisco (Mexico); Kenya; Maranhão (Brazil); Mato Grosso (Brazil); Nepal; Nigeria; Papua New Guinea; Para (Brazil); Province of Tshuapa (DRC); Quintana Roo (Mexico); Roraima (Brazil); Tocantins (Brazil); Uganda; Vietnam, and Zambia

³⁰ <https://redd.unfccc.int/fact-sheets/redd-mrv-and-results-based-payments.html>

5.3 Voluntary Markets

Voluntary carbon markets consist of (mostly private) entities purchasing carbon credits for the purpose of complying with voluntary mitigation commitments. They largely consist of offsets issued under independent crediting standards, though some entities also purchase those issued under international or domestic crediting mechanisms.

Demand derives from a range of compliance obligations established under international agreements and national laws, as well as voluntary commitments adopted by companies, governments, and other organisations.

One may distinguish the national voluntary markets from the global voluntary market, when the latter has no geographical restriction, the first market may have some access restrictions. Only project type, location to originate offsets, methodologies that reflect the various independent standards you opt for, may result in different characteristics and prices. For now, most market activity remains centred on the voluntary carbon market. Voluntary carbon markets grew 48% in 2021. The total number of credits issued from international, domestic, and independent credit mechanisms³¹ increased from 327 million to 478 million USD.³²

5.3.1. Global voluntary market

According to Ecosystem Marketplace for the first time, the total value of the voluntary carbon markets exceeded more than USD 1 billion in November 2021, when the market has further grown to USD 1.4 billion as of the writing of this report.³³ Global average offsets prices moved from USD 2.49/tCO₂e in 2020 to USD 5.95/tCO₂e in 2021, while the volume of credits transacted in the voluntary market exceeded 362 million credits, 92% more than in 2020.³⁴

This rapid increase in value reflects both rising prices and rising demand from corporate buyers leading to higher transacted volumes. The voluntary climate targets from the corporate world are still the main force behind the increasing demand for offsets. These targets should commit to ambitious decarbonisation in the company's own value chain while compensating or neutralising residual emissions. The plans for achieving these targets, however, vary in terms of scope, coverage, timelines, and intended use of offsets.

It is the growing corporate net zero commitments³⁵ that are driving demand in the voluntary carbon market currently. Large purchasers in 2021 came from a range of sectors such as energy companies, large

³¹ American Carbon Registry, Climate Action Reserve, Gold Standard, the Verified Carbon Standard from Verra, Plan Vivo, and the Global Carbon Council.

³² State and Trends of Carbon Pricing, the World Bank (2022).

³³ Voluntary carbon market data is provided by Forest Trends' non-profit initiative Ecosystem Marketplace. Ecosystem Marketplace data contains trade details such as price, volume, and other carbon credit project and transaction attributes.

³⁴ <https://www.ecosystemmarketplace.com/articles/voluntary-carbon-markets-top-1-billion-in-2021-with-newly-reported-trades-special-ecosystem-marketplace-cop26-bulletin/>

³⁵ In order to meet the 1.5°C global warming target in the Paris Agreement, global carbon emissions should reach net zero around mid-century. In order to meet the net zero objective by 2050, companies must reduce their

oil and gas producers anticipating large volume demands in the future. The financial sectors and brokers increased its carbon offsets purchases, as banks set climate targets for their operations and others act as intermediaries for corporates and speculators from the market.³⁶

Most analysis forecasts show an increase demand to 1,5 – 2 gigatons of tCo₂ (GtCo₂) per year by 2030 up to 10 GtCo₂ annual removals needed by mid-century to maintain the 1.5 C pathway, this will lead of an increase price from the current global average carbon price of <\$5/tCO₂ to an estimated average \$50–150/tCO₂ by 2030.³⁷

This forecasted growth is to be driven by an increasing number of corporate net-zero commitments in combination with an increased supply of technologies and nature-based solutions. Nature-based solutions relate to projects that protect, transform, or restore land that absorbs Co₂ emissions and becoming eligible for issuance of offsets, such as REDD+ projects or others land use related projects.³⁸

The global voluntary market comprises a range of different project types that either remove carbon from the atmosphere (carbon removals) or prevent more carbon from going into the atmosphere (avoidance/reduction). Agriculture, forestry, and other Land Use (AFOLU) projects generate the largest portion of voluntary market offsets, which, together with renewable-energy-related credits, make up about 90 percent of all voluntary market issuances. Within AFOLU, REDD+ projects account for more than 90 percent of issuances.

Within the net-zero context, forest and land-use projects are gaining in popularity with buyers that largely depend on offsets to neutralise the emissions that cannot be reduced, though the concerns around additionality, permanence, and baseline accuracy.³⁹ While there are several existing certification bodies and registries, they all have different processes for assessing and describing projects and credits, which doesn't bring clarity.

Therefore, it is critical to develop stringent and transparent baselines and Measurement, Reporting, and Verification (MRV) standards to ensure verifiable additional emissions reductions, and robust evaluation of whether MRV standards are met by third-party certifiers. These standards should also regularly be strengthened and made more stringent to ensure that projects in the voluntary market remain additional.

emissions through improved technologies and seek to compensate though emission reductions or neutralise through removals residual emissions with offsets.

³⁶ State and Trends of Carbon Pricing, the World Bank (2022).

³⁷ Global Financial Markets Association (gfma): "Unlocking the potential of carbon markets to achieve global net zero" (October 2021).

³⁸ Forestry and land-use project types include afforestation/reforestation, avoided deforestation, improved forest management, avoided conversion, reduced emissions in agriculture, carbon sequestration in agriculture, and wetland restorations.

³⁹ Additionality is one of the core principles of carbon finance. Under this principle, a project can issue carbon credits only if that project is not already legally required, common practice, or financially attractive in the absence of credit revenues. The permanence principle implies that the impact of the GHG emission avoidance or removal must not to be at risk of reversal and it has to result in a permanent drop in emissions. Accuracy is the non-overestimation principle – requires carbon projects to ensure that the number of credits issued matches the reduction of CO₂ emissions obtained.

Currently VERRA the organisation managing VCS standards, the most used standard in the global voluntary market, is in the process of consolidating REDD+ methodologies for the past two years creating uncertainties for investors to invest in REDD+ projects now until complete release of the consolidated methodologies. In the meantime, REDD+ methodology framework VM0007 updated to expand its applicability to tidal wetland conservation and restoration, including activities on mangroves, seagrasses, and salt marshes, which opens opportunities for Pakistan for mangrove projects.⁴⁰

The only major restriction would be the treatment of offsets generated under Article 6 of the Paris Agreement and host country options to treat these offsets with their NDCs, as per consequence of the COP 26 outcome in Glasgow last November 2021. It enlists the rules to be followed by nations that intend to use carbon offsets to reach their national climate goals, the Nationally Determined Contributions, and consequently private companies and individuals to offset their unavoidable carbon emissions on a completely voluntary basis (see section 5.4 below).⁴¹

Finally, some initiatives are emerging to address ongoing global voluntary market integrity concerns by guiding the supply and demand toward high-integrity credits and net zero strategies. This includes the Integrity Council for the Voluntary Carbon Market, established in October 2021, a private-sector-led initiative working on scaling up the transactions for voluntary commitments by promoting high-quality carbon credits, define which carbon-crediting programs and methodology types are eligible, provide guidance for aligning the voluntary carbon market with the Paris Agreement's goals, and clarity to private sector on which types of credit can be used for which types of claim.⁴²

Entry Point for Pakistan:

The advantage of the global voluntary market is that it is open to all actors, national or international, to develop projects in Pakistan. No restrictions exist in Pakistan at either national or provincial level to prevent the private actors to do so. Private actors alone or together with local governments may pick up the best suited standard program available (ART TREE, VCS, Plan Vivo, the Gold Standard), depending on the approach taken, a standalone project or a jurisdictional approach, as well on the targeted end-buyers. What is needed is lands availability to develop forestry projects. Private public partnership together with Provincial Forest Departments that have land available following the Delta Blue Carbon Project the only AFOLU project validated under VCS in Pakistan.

5.3.2. National Voluntary market, the Japan Joint Crediting Mechanism

National voluntary markets⁴³ allow forest offsets from projects within their respective jurisdictions only, to the exception of the Japan Joint Crediting Mechanism (JCM). The JCM is a system to cooperate with

⁴⁰ The only forestry project to be verified under the VCS is mangrove restoration project, DELTA BLUE CARBON-1: <https://registry.verra.org/app/projectDetail/VCS/2250>.

⁴¹ Silvia Favasuli, Debate on avoidance and REDD+ carbon projects to dominate the next UN Climate Conference, January 2022.

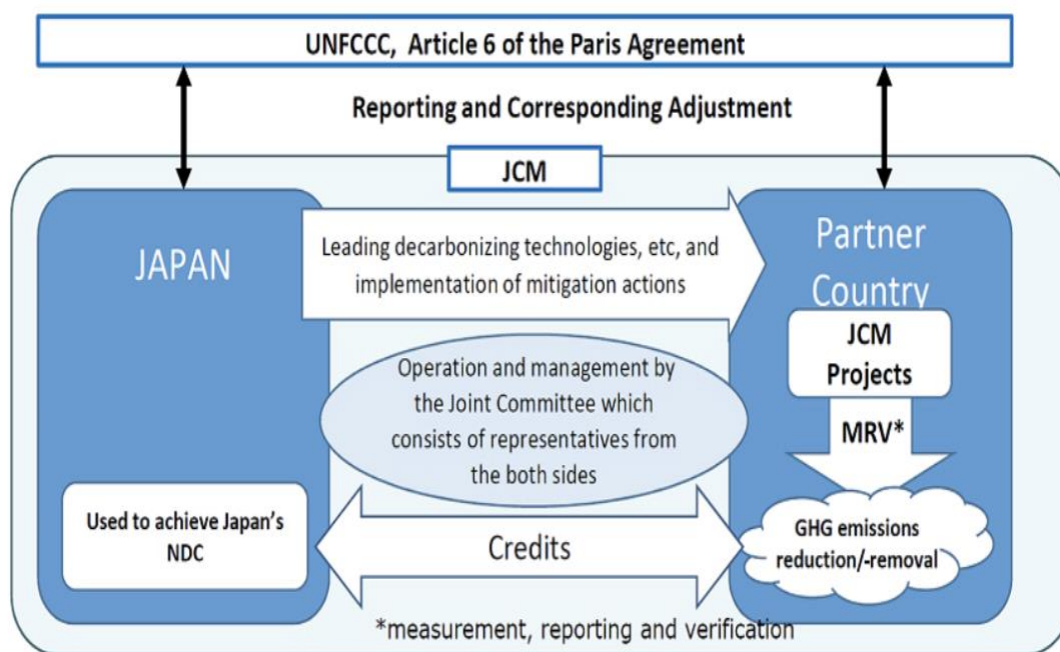
⁴² <https://icvcm.org>

⁴³ United Kingdom Woodland Carbon Code, Netherlands Green Deal, the Japan Credit System, all these programs include methodologies for forestry projects within their respective jurisdiction: AR and improved forest management.

developing countries for reducing greenhouse gas emissions, in which the result of reductions is assessed as contribution by both partner countries and credited towards Japan NDC.⁴⁴

Since 2011, Japan has held consultations for the JCM with developing countries and has established the JCM agreements with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines. To date 172 projects has been developed through the JCM program, whose majority relates to renewable energy and energy efficiency projects.

Figure 2: JCM mechanism overview



Source: The Joint Crediting Mechanism (JCM)

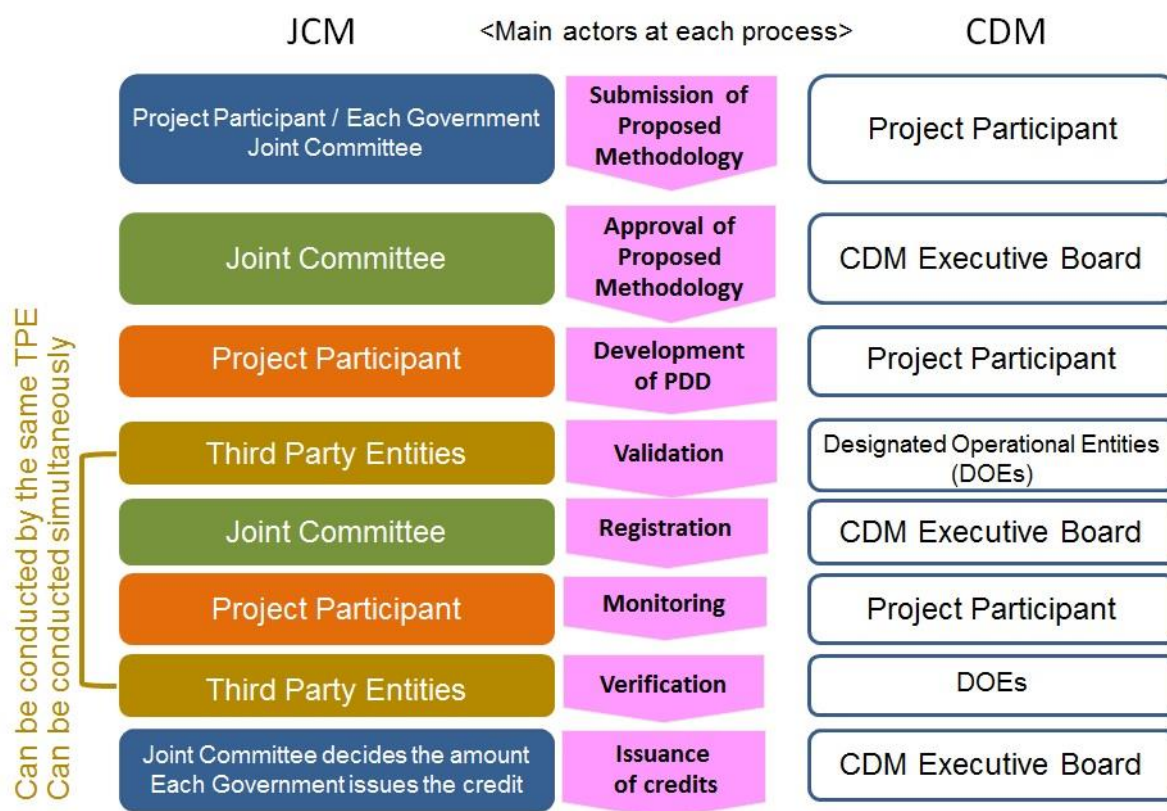
However, three REDD+ projects have been developed through the program: (i) in Cambodia with the 120,000 ha Prey Lang Wildlife Sanctuary with the view to implement effective law enforcement to secure forest resources and guard against forest loss, when at the same time developing sustainable livelihoods for the communities to move away from unsustainable economic activities resulting in deforestation, by avoiding up to 441,000 tCO₂e by 2029 (ii) in Indonesia with the Boalemo District REDD+ project to stop deforestation associated with agriculture avoiding 86,520 tCO₂e per year, and finally in Laos with the Luang Prabang REDD+ project, where deforestation and forest degradation is due by shifting cultivation,

⁴⁴ https://www.mofa.go.jp/ic/ch/page1we_000105.html

the 30,000 ha project activities are forest management measures and providing alternative livelihood, it will avoid an estimated 140,000tCO₂e/year.

None of these projects have issued JCN credits so far. Project developers are mostly Japanese companies partnering with local host entities. The Japanese government has initiated some workshops on how to certify carbon credits generated from offset projects under the Joint Crediting Mechanism (JCM) as ITMO under Article 6 of the Paris Agreement.

Figure 3: JCM project development procedure



Source: The Joint Crediting Mechanism (JCM)

Entry Point for Pakistan:

The MoCC could start negotiations with the Japanese Ministry of Foreign Affairs to sign an umbrella agreement to participate in the JCM, regulating the use and share of ERs achieve under the programme, the composition of the Joint Committee (JC), etc.

The JC develops rules and guidelines necessary for the implementation of the JCM, approves or rejects the proposed methodologies, as well as develops JCM methodologies, designates the third-party entities for project validation and verification, decides on whether to register JCM projects which have been validated by the third party. Each Government establishes and maintains a registry, and based on

notification for issuance of credits by the JC, each Government issues the notified number of credits to its registry.

Project developers could be Japanese companies such as Mitsubishi that operates in Pakistanis partners, such a Provincial Forest Department to develop A/R or REDD+ projects.

Table 1: Entry points for Pakistan in markets and programs

Markets/Programs	Conditions	Entry points for Pakistan
CORSIA	Condition to the CORSIA approved programs for forest projects	Yes
FCPF Carbon Fund	Closing of the fund by 31 December 2024	No
Climate Emissions Reduction Facility (CERF)	Need to release participation conditions	-
Lowering Emissions by Accelerating Forest Finance (LEAF)	Call for jurisdiction project proposal for the crediting period 2022-2026 closed by July 2021.	No
Green Climate Fund (GCF)	Conditions for jurisdiction REDD+ proposal are that countries completed the first two phases of REDD+ before the last GCF Board meeting in 2022. This however excludes Pakistan that didn't complete its two REDD Readiness phases by 2018.	No
BioCarbon Fund	Call for proposals closed by April 2020.	No
Global voluntary market	No restrictions for both public or private entities, need to follow standards' requirements.	Yes
National Voluntary market, the Japan Joint Crediting Mechanism (JCM)	Sign an umbrella agreement to participate in the JCM	Yes

5.4 Cooperative arrangements under Article 6 of the Paris Agreement

The Paris Agreement under its Article 6 provides flexibility to governments to engage in voluntary cooperation in the implementation of their NDCs “to allow for higher ambition in their mitigation and adaptation actions”. In the Paris Agreement, emission reductions that pass from one country’s greenhouse gas inventory to another country’s inventory are called Internationally Transferred Mitigation Outcomes (ITMOs). Like all carbon credits, ITMOs are created by projects that either reduce emissions or remove gasses in one place, with the payments coming from another place.

They become ITMOs when those places are in different countries and the reduction is transferred from one country’s national greenhouse-gas inventory to another country’s greenhouse-gas inventory. This can happen in two cases: (i) at the government level, for example as when a country A purchased ITMOs from a country B, or (ii) at the corporate level when a company in one country purchases ITMOs from abroad to meet compliance or voluntary commitments at home.

The Article 6 requires “corresponding adjustments” when an ITMO is passed in this way. Glasgow outcomes open the way for implementing these flexible mechanisms, but still leave questions and

uncertainties on how these offsets will be treated especially with the requirement of corresponding adjustment for the voluntary markets' transactions.

Corresponding adjustment means that the host country where the project is located, must first authorise the transfer of offsets and then adjust its own greenhouse gas inventory to reflect the fact that the emission reduction achieved inside its borders is being credited to another country. The buying country then adjusts its greenhouse gas inventory by the same amount. Both countries then compare the adjusted balance with their target level to assess whether they have achieved their target. This approach ensures that only the buyer country can use transferred emission reductions, and thus avoids double counting.

This is an important outcome, given the growing recognition that a corresponding adjustment can provide a safeguard for buyers looking to offset their emissions, ensuring unique ownership and assurance that their offsetting claim will not be undermined by the displacement of other action within the host country to meet its NDC. However, some developing countries say they don't want to transfer emission reductions abroad, and ITMOs aren't the only international carbon assets.⁴⁵

Article 6.2 covers bilateral actions to reduce or remove GHG emissions. Article 6.4 creates a new multilateral mechanism to replace the old CDM mechanism. Article 6.8 addresses non-market international cooperation among governments. These new rules cover both government-to-government and government-to-private sector markets. Some early signals suggest these new rules guide the practices of fully private sector or voluntary carbon market activities. We will look at Article 6.2 and 6.4 only as they deal with carbon trading mechanisms.

5.4.1 Article 6.2

Under Article 6.2 emission reductions or removals can be transferred between countries as Internationally Transferable Mitigation Outcomes (ITMOs)

The Article 6.2 Glasgow Decision enables host countries to authorise 'internationally transferred mitigation outcomes' ('ITMOs') for use not only by other governments towards their NDCs, but also for 'international mitigation purposes' (which is understood to include CORSIA, given that international aviation sits outside of NDCs) and 'other purposes' (which is understood to include the voluntary carbon market).

Article 6.2 implementation guidelines require "corresponding adjustments" for all authorized all ITMOs. This means that governments have decided that a corresponding adjustment is not only a tool that can be applied for transfers between two countries, but that host countries can also choose to apply an accounting adjustment for mitigation such as offset used by private entities – including companies in the voluntary carbon market.

While governments did not agree, nor were they ever expected to, the forms of claim that can be used by companies purchasing credits in the voluntary carbon market, the Article 6 outcome does provide a clear framework for the two routes for voluntary climate action. One might distinguish, that (i) the purchase of

⁴⁵ <https://www.ecosystemmarketplace.com/articles/article-6-and-its-glasgow-rulebook-the-basics/>

adjusted offsets, which are suitable for offsetting claims, and (ii) the purchase of non-adjusted offsets, which are compatible with non-offsetting claims in the voluntary markets.

5.4.2 Article 6.4

Under Article 6.4, comprehensive rules for a new carbon crediting mechanism, that replaces the CDM under the Kyoto Protocol. Once the project is authorised by the host country government and once ERs and removals are certified, they generate Article 6.4 Emission Reductions (Art.6.4 ERs). These Article 6.4 ERs can either be authorised to be used for NDC achievement, international mitigation purposes, and other purposes such as for voluntary used.

Former Certified Emission Reductions (CERs) from CDM projects would be used towards countries' NDCs, governments agreed at COP26 that projects will be able to transition from the Clean Development Mechanism to the new Article 6.4 mechanism. They will not be able to receive issuances for post-2020 emission reductions unless and until they have done so, with credits then issued under the new mechanism.

The proposed text sets out criteria for countries to use CERs towards their NDC from projects registered after January 1, 2013, but exclude Temporary CERs and long-term CERs from Afforestation and Reforestation (AR) CDM projects. Nevertheless, it doesn't mean that AR CDM projects are totally excluded. The Article 6.4 Supervisory Body will have to approve AR methodologies that account for emission reductions and removals.

Authorised Art.6.4 ERs fall under the definition of ITMOs and, thus, corresponding adjustments may accompany the transfer of Art.6.4ER units. CERs issued from CDM projects that cannot be used towards NDC can be freely transferred without corresponding adjustment, when other CERs to be transferred would be under the condition of applying the corresponding adjustment.

5.4.3 Consequences on global voluntary market

As seen above, the global voluntary carbon market is growing rapidly, in part due to the large number of companies and other non-state entities setting net zero targets. However, at the same time the voluntary carbon market also faces a new challenge because all countries have reduction targets under the Paris Agreement, and there may be nowhere to generate carbon offset that reduce emissions below what would happen anyway (the additionality requirement).

Article 6 rules provide flexibility to project host countries to decide on how voluntary market transactions can take place. These may range from not requiring corresponding adjustments for using carbon offsets for voluntary commitments to a comprehensive requirement for Article 6 authorisation and therefore the application of corresponding adjustment for any carbon offset that is transferred out of the jurisdiction.

The global voluntary market encompasses all transactions of carbon offsets that are not purchased with the intention to surrender into an active regulated carbon market. It does include offsets that are purchased with the intent to re-sell or retire to meet net zero, carbon neutral, or other climate claims. Whether these claims require corresponding adjustment it is still discuss. In many cases, national governments will need to provide guidance on corporate claims such as carbon neutrality.

Some NGOs have advocated for imposing corresponding adjustments on voluntary carbon transactions, and there is a lively debate over what sorts of claims the buying company can make. Firstly, because the fundamental requirement that voluntary offsets must achieve a lower level of emissions than would have happened anyway. Secondly, they fear that voluntary offset projects may replace alternative policies or actions, and therefore not achieve a level of emissions below what would have happened anyway. A corresponding adjustment would ensure that offset projects do not replace alternative actions.⁴⁶

Over 7 countries by signing the San José Principles, have already committed to apply corresponding adjustment on offsets certified by independent voluntary standards and used by private actors for voluntary commitments.⁴⁷

When other countries have been reluctant to commit to corresponding adjustments for offsets used in the voluntary carbon market, as the nature of these transactions is voluntary, not mandated or accounted for under any regulatory or compliance system.⁴⁸ Additional concerns are that corresponding adjustments will limit the growth of the voluntary carbon market.

Host countries may refuse or be unable to make corresponding adjustments, and this may restrict the supply of carbon offset. The uncertainty around whether or which countries will agree to make corresponding adjustments will hold back investment in offset projects.⁴⁹ In addition, host countries may also levy a fee for making corresponding adjustments, which would add to the price of offsets and consequently reduce demand.

Independent voluntary standards have reacted differently to the question of whether to back carbon offsets with corresponding adjustments. The Gold Standard has said that it considers corresponding adjustments necessary for carbon offsetting and carbon neutral claims.⁵⁰ When Verra announced that it will issue carbon offsets for voluntary actions with for IMTO and CORSIA, or without corresponding adjustments for pure voluntary actions.⁵¹ Both standards will distinguish between adjusted and unadjusted credits in their registries.

Two issues are at the heart of the accounting issue for voluntary carbon offsets: (i) the type of corporate claim on the carbon offset, and (ii) the nature of the NDC in the host country.

Firstly, corporates acquire carbon offsets in order to reduce their carbon footprint and claim **net zero or carbon neutrality** by offsetting their emissions, meaning that the firm's emissions of Co2 have been

⁴⁶ Brander, M, Broekhoff, D & Hewlett, O 2022 'The Future of the Voluntary Offset Market: The Need for Corresponding Adjustments', see at: <https://www.research.ed.ac.uk/en/publications/the-future-of-the-voluntary-offset-market-the-need-for-correspond>

⁴⁷ See: <https://cambioclimatico.go.cr/sanjoseprinciples/about-the-san-jose-principles/>

⁴⁸ Charlotte Streck, Corresponding Adjustments for Voluntary Markets – Seriously?, see at: <https://www.ecosystemmarketplace.com/articles/shades-of-redd-corresponding-adjustments-for-voluntary-markets-seriously/>

⁴⁹ VCM and Article 6 interaction, Discussion paper on the use of Corresponding Adjustments for voluntary carbon credit transfers, Trove Research, January 2021, see at: <https://globalcarbonoffsets.com/wp-content/uploads/2021/01/VCM-and-Article-6-interaction-6-Jan-2021-1.pdf>

⁵⁰ https://www.goldstandard.org/sites/default/files/documents/guidance_correspondingadjustments_feb2021.pdf

⁵¹ <https://verra.org/the-future-of-the-voluntary-carbon-market/>

neutralised by an equivalent amount, resulting in no net increase in emissions. However, if a project that generates a carbon offset falls under another entity's emissions cap – for example a national NDC of the project host country – then ambiguity is introduced, therefore the need for corresponding adjustment.

An alternative use of carbon offsets is to make a '**contribution**' claim to have supported climate change mitigation activities outside of one's own GHG inventory jurisdiction (but not to claim to have offset emissions). This avoids the problem of determining whether a project is additional to what a country might achieve under its NDC. The efforts of the company making a voluntary action and that of the government of the country where the project takes place are aligned. This type of claim does not require a corresponding adjustment. It is yet to be seen whether there would be demand for such offsets, as current demand is predominantly driven by net zero claims, and a contribution is not a net zero claim.

It is also possible to create a more nuanced claim that sits between the carbon offset claim and contributions claim. For example, some companies are using the general term "**use of emission reductions**" in association with their climate achievements, and are avoiding the use of the term "offsets". In this case it is not clear whether the company is claiming additionality, although if the intention is to sell a carbon neutral product or service then the implication would be closer to claim net zero, and therefore doesn't avoid corresponding adjustment.⁵²

Secondly, not all NDCs are equal under the Paris Agreement, some have stringent legally binding emission targets, when other have more lenient objectives, or are conditional to additional finance for most developing countries. Developed countries have the capacity to understand their emission projections, the costs of emission reduction measures and to set targets that they believe are achievable. They also have the legal systems to set and implement appropriate regulations and to enforce compliance.

When developing countries, especially least developed countries, the NDCs are more likely to be seen as aspirational, with higher levels of uncertainty over whether the targets will be achieved. In many countries, even if legislation is passed, enforcement is difficult to achieve on the ground. This is certainly the case in land-use activities, such as the protection of forests, where governments often lack the resources to adequately police and enforce national policies.

NDCs are created voluntarily, all countries should be able to set NDCs that are stretching but achievable. Many NDCs of developing countries reflect this uncertainty. They often allow for growth in energy use and emissions in line with economic growth, or are partial, setting targets for some sectors of the economy. In a country falling short of its NDC target, it is easier to argue that the emission reductions from a project funded voluntarily would not have been achieved elsewhere. Such a project would therefore be more likely to be additional – and by implication – be achieved without the need of a corresponding adjustment.

Conditional NDCs could be used as an alternative to a corresponding adjustment in order to ensure emission reductions are not double claimed through voluntary market transactions. Conditional NDCs were introduced to incentivise governments to set more ambitious NDCs if they had greater access to international finance. One of the sources of international finance could be the voluntary carbon market. conditional NDCs are considerably less robust and well-developed than underlying NDCs. Thus,

⁵² Ibid 49

conditional NDCs could provide a mechanism to ensure voluntary carbon market transactions are not double claimed by voluntary buyers and host governments.⁵³

With this approach corresponding adjustment would be applied at the level of the country according to whether the country “developed”, “developing” or “least developed”, and consequent NDCs.

Finally, the buyers of carbon offsets would also have the option of adjusting their claims according to the source of the offset. For example, if a buyer wants to claim the offsets for “offsetting” their emissions (net-zero), and they want to source them from a developed country (or one where policies, financing and enforcement processes are in place), then they would need to use offsets with corresponding adjustment. If the claim was not for offsetting, but worded in a way that suggested financing or assisting a country in achieving its NDC, then a corresponding adjustment would not be required. If, however, the buyer intends to use offset from a least developed country where all financing is helpful to achieving reductions in emissions, a corresponding adjustment would not be required not matter what the claim is.

In any case, a transition period is needed. The requirement for corresponding adjustments for compliance offsets under Article 6.2 and 6.4 of the Paris Agreement means that many countries are likely to develop their capacity for corresponding adjustments in the long run, but additional support may be needed for least developed countries. Any implementation of a regime that requires corresponding adjustment needs to acknowledge that today’s voluntary carbon market requires no such adjustments.

Such a transition period should be consistent with the process for revising national NDCs under the Paris Agreement. This starts in December 2021 and the assessment of NDCs is likely to run into 2022. A grace period could therefore be extended to the end of 2022 for the start date for new projects. After this date a new regime for applying corresponding adjustment for claims of offsets could be introduced for specific countries only.

5.4.4 REDD+ under Article 6

Article 5 of the Paris Agreement encourages nations to incentivise activities that reduce emissions coming from deforestation and forest degradation, and also to support conservation projects, the sustainable management of forests and enhancement of forest carbon stocks in developing countries.

Since Article 6 treats the land sector like any other sector, there is no special treatment forestry projects under that article. However, in a last-minute effort at Glasgow, the Coalition of Rainforest Nations led by Papua New Guinea wanted to secure a broad recognition of all REDD+ emission reductions generated under the Warsaw Framework for REDD+, but this attempt failed. There were significant concerns about whether REDD+ would meet the quality criteria of Article 6.2 or 6.4.

The Glasgow decisions clarify that “emissions avoidance” — formulated to respond to proposals to credit decisions not to extract fossil fuels, but also applicable to protect forests (such as REDD+ that avoids the release in the atmosphere of further greenhouse gas (GHG) emissions that differs from removals that remove already existing GHG emission from the atmosphere and store them for example in newly built forests) that are not under immediate threat—cannot generate any eligible mitigation outcome.

⁵³ Ibid. 49

Final decision was that the Subsidiary Body for Scientific and Technological Advice (SBSTA) was requested in Glasgow to develop recommendations on "whether activities (under the 6.4 mechanism) could include emissions avoidance and conservation enhancement activities".

The SBSTA will come up with some recommendations that allow REDD+ under Article 6 by setting a high-quality threshold certainly. The debate on REDD+ and avoidance projects under Article 6 will also resonate across the whole voluntary carbon market and impact investment in REDD+ avoiding deforestation project type.

6. SUGGESTED FRAMEWORK FOR MARKET BASED ACTIVITIES SET UP AT SECTORAL OR PROVINCE LEVEL

Carbon pricing instruments can target economic sector only (energy, transport, agriculture), or apply at jurisdiction level and according to the country political system (federal versus centralised) and efficiency/feasibility implemented at either at national or provincial level depending on the sector covered and powers between national and provincial level.

Implementing carbon pricing instruments (tax or ETS) within Pakistan has been studied and lead by the MoCC resulting in the establishment of the National Committee on the Establishment of Carbon Market (NCEC) by the Prime Minister in November 2019.

The NCEC is tasked to review proposed mechanisms and design domestic Emission Trading Scheme (ETS) framework, Monitoring, Reporting and Verification (MRV) infrastructure and procedures. So far, no concrete proposals were submitted. When interviewed, corporates from the energy sector see carbon pricing instruments inevitable in a near future in Pakistan. They favour indifferently a carbon tax or an ETS. As well they are willing to contribute in the national Ten Billion Tree Tsunami Programme against some benefit in terms of emissions compensation.

In the absence of carbon pricing instruments in Pakistan yet, voluntary market is the best available possibility for the national private actors to voluntary undertake climate mitigations actions and develop offset projects nationally and/or abroad. The textile sector committed to net-zero target by 2050 under the Net Zero Pakistan Coalition launched in 2020, they may participate in transactions involving the transfer of mitigation outcomes through the instruments of Article 6 of the Paris Agreement or using voluntary markets.⁵⁴

This section will discuss how a suggested sector approach for carbon pricing instruments at national level or province level, allowing private sector for market-based activities, and according to Pakistan climate ambition priorities.

⁵⁴ <https://pakenvironment.org/net-zero-pakistan/>

6.1 National sectoral approach vs Province level

What is the main national sector to be targeted to achieve most mitigation outcomes in Pakistan? Thus, according to the share of power between the federal and province level, what is the best level of action?

According to the Pakistan constitution federal government has power to impose taxes (especially on mineral oil, natural gas and mineral for use of power generation) and on futures markets with objects and business not confined to one Province (which is the case of an ETS established at national level). However, forestry and lands are of the competence of the provinces. Federal government's role in the context of forestry and REDD+ is limited to policy development, coordination, awareness creation and training, and compliance with international agreements.

In 2018, Pakistan GHG Inventory shows the total emissions from Pakistan are 489.87 MtCO₂eq for the year 2018, with (i) the Energy sector contributing (218.94), (ii) Industrial processes (25.76), (iii) Agriculture, Forestry and Land Use (223.45) and (iv) Waste (21.72) MtCO₂ equivalent, respectively. Both Energy and industrial process represent more than half of Pakistan total emissions.

Pakistan NDC conditional target intends to set a cumulative ambitious conditional target of overall 50% reduction of its projected emissions by 2030, with 15% from the country's own resources and 35% subject to provision of international grant finance that would require USD 101 billion just for energy transition.

To reach the target, Pakistan aims to shift to 60% renewable energy, and 30% electric vehicles by 2030 and completely ban imported coal. Therefore, the priority sector targeted is the energy sector immediately. Indeed, the energy sector is the largest contributor to GHG emissions in Pakistan, with its share forecasted to increase from 46% in 2015 to 56% in 2030, as stated in the NDC. Efforts to promote sustainable energy in Pakistan face two main hurdles: the lack of access to sustainable energy sources and products (energy poverty); and an imbalance between supply and demand in the electricity sector.

In Pakistan, the AFOLU sector accounted for 37% of total GHG emissions in 2017 mostly driven by the agriculture sector accounting for 92% of total AFOLU sector emissions, corresponding to 132.96 Mt CO₂-eq. When, the forestry sector was responsible for 3% of total GHG emissions in 2017, when it accounted for 2.6% of Pakistan total emissions in 2015. As per the GHG inventory, these are due to the release of CO₂ from changes in forest and other woody biomass stocks.

According to the NDC, forest cover in Pakistan corresponds to 5% of the total land area, which is significantly below the 12% recommended by the UN, thereby making it a low forest cover country. On the other hand, it is expected that the country can become a net sink in 2040 with aggressive plans for reforestation. The Ten Billion Tree Tsunami Program (TBTP)—will sequester 148.76 MtCO₂e emissions over the next 10 years, with the view to sequester CO₂ of around 500 Mt CO₂e by 2040, if implemented fully. Then covering Pakistan's total emissions as per 2018 are 489.87 MtCO₂e if Pakistan total emissions don't increase by 2040.

Currently, according to NDC's priorities, energy sector is where most emissions reductions shall be achieved, when forests shall be developed as a large emissions sink for Pakistan.

Most private sector engaged in forestry projects in Pakistan complain of the lack of land availability to develop voluntary forestry offset projects when Provincial Forest department have lands under their control. The only forestry project to be verified under the independent voluntary standard VCS is the mangrove restoration project, which is the result of a private partnership between a private actor (Indus Delta REDD) and the Sindh government that provides access to land.⁵⁵ Furthermore, province governments can allocate carbon rights to the private project proponent.

With regard to private sector contributing to increase forest as a sink with the help of market-based activities, such as the voluntary carbon market, best suited approach is at the provincial level, fostering private-public partnerships together with project developers and Province Forest Departments. The Delta Blue Carbon Project public-private partnership could be reproduced across the different provinces of Pakistan.

When reducing energy sector emissions are critical for Pakistan, best level of taking mitigation actions in this sector is at national level. A combine approach using pricing instruments to incentivise emissions reduction in the energy sector, while promoting forest projects by private entities under the carbon tax will be discussed in the following section.

6.2 A reconciliation approach that combines a sector level approach and Province level

Study on the Introduction of Carbon Pricing Instruments in Pakistan (2019) evaluates different approaches merits of applying a carbon tax, applying an ETS or having a hybrid approach (combining both a carbon tax and an ETS) to achieve emissions reductions especially in the energy sector.

Therefore, we won't recall the different merits of the two approaches but recommend in a first phase the implementation of a carbon tax to fossil fuels in the energy sector only. An ETS is generally more complex to develop and operate than a carbon tax. Among several reasons, this is due to the higher number of design parameters that need to be considered, the need to establish an institutional and legal infrastructure to support the market, and the set-up of an MRV framework for effective operation. Some of the most complex and critical choices in designing an ETS relate to the cap setting and allowance distribution.

6.2.1 A carbon tax

With a carbon tax system, the price of emissions is set by policy makers rather than by a market mechanism. The price level determines the level of economically viable abatement and the emissions result that is achieved. A carbon tax allows regulators control over the price of carbon emissions. However, governments have less direct control over the environmental outcome, like the emissions reductions that are actually achieved. It creates a fiscal liability for the emission of GHG, and taxed entities may either incur the liability or reduce it by investing in abatement measures.

A carbon tax is an effective source of government revenue but can also put the brakes on carbon dioxide emissions through fossil fuels and other carbon intensive industries. The yields from this tax can be utilised

⁵⁵ <https://deltabluecarbon.com>

for subsidising the development of alternate renewable energy sources, sustaining the NDC goal to shift to 60% renewable energy. Finally, carbon tax levied by governments in developed countries was efficient, an effective revenue-generator, and an environmental safeguard.

Direct carbon pricing through carbon taxes and ETs have to date largely been implemented in high- and middle-income countries, when indirect carbon pricing, such as fuel excise, are more commonly implemented in many developing countries. From a carbon tax one may transition to an ETS approach covering one or several sectors of large emitters. This approach enables fixing a carbon price first while at the same time the collection of emission data to establish a cap for an ETS in the future.

A carbon tax on oil, coal and gas will help Pakistan to depend less on imported fossil fuels, when contributing the large emitters (energy, cement, textile, and fertiliser companies) in reducing their emissions, with the view to achieve net-zero by 2050 for example. Adjusting the already existing Petroleum Development Levy (PDL), to reflect the GHG emissions of the fuels covered represents a relatively smooth and low-risk option. This option would build on existing fiscal structures, involve relatively low administrative costs, and leave low-income households mostly unaffected. This levy could subsequently be expanded to other fuels.

Therefore, a carbon tax targeting in a first phase the energy sector, can be easily implemented at national level. A national sectoral approach would be easily implemented, with the advantage of covering all actors in the targeted sector and with a fair distribution at national level. The Government could set at a level of approximately US\$5/tCO_{2e}, and that applies to the sales and imports of all fossil fuels, including all petroleum derivatives, except for coal that would be progressively banned. The tax is set to increase annually by 1 point plus inflation until the price reaches 1 UVT (approximately US\$10/ tCO_{2e}).

Following the Colombian example, the Pakistan could allow the option of offsetting or pay the carbon tax to the complying entities, thus creating an alternative incentive to develop forest offsets projects and develop the sink potential within Pakistan together with the provinces.

6.2.2 Combining Carbon Tax and offsetting

A carbon tax is imposed but entities can use forest offsets for achieving compliance, for example to reduce their net emissions which are subject to taxation. This option allows the achievement of compliance obligations at a lower cost than by paying the tax while extending the price signal from the carbon tax to other sectors in the form of an incentive for emission reductions.

This option can also create a market for forest offsets nationally. Colombia provides a good example of this approach: since January 2017 a tax is charged on all liquid fossil fuels imported or nationally produced; however, 100% of the tax obligation can be met through the purchase of offsets. This will path the way to net-zero for big emitters.

Province governments can play a role creating partnership with interested private entities in developing forest project or buying offsets from projects.

This system should follow the principles below:

- **Establishing trust with transparent information and avoid double counting:** setting a **National Registry** platform to manage information about GHG mitigation projects available to the general public, independent voluntary standards allowed for forest projects. Registering carbon tax paying entities that request tax exemption for offsetting, and cancelled offsets and administrative verification of amount of cancelled offsets match real emission from the entity during the relevant period. Make sure that the claimed offsets are really cancelled in the relevant independent voluntary standard registry (certification from that standard registry).
- **Environmental integrity:** establish a strong MRV system and data collection system at national level. Make sure that the forest offset projects are really additional (set additionality criteria at national level or recognise independent voluntary standards whose methodologies secure real additionality from projects). Avoid 'hot air' with lenient project baseline by requesting that REDD+ projects and programs will be nested within the Forest Reference Emission Level (calculating emissions reduction from deforestation).
- **Permanency** of the forest stock: a key risk of forest projects is the possible reversal of emission reductions or removals, as carbon stocks that are preserved or enhanced could be lost through natural or anthropogenic disturbances at a later point in time. One criteria for offsetting could be to require that offsets must represent emissions reductions, avoidance, or carbon sequestration that are permanent and/or require that if there is risk of reductions or removals being reversed, then either (i) such offsets are not eligible or (ii) mitigation measures are in place to monitor, mitigate, and compensate any material incidence of non-permanence.

7. CONCLUSION

Carbon pricing instruments use is growing and their implementation is extending from developed countries to developing countries that undertake more mitigation commitments. There are numerous ETS national or regional, or carbon tax being applied, when result-based payments programs exist to both provide opportunity to implement and scale up REDD+ as pilot. When the global voluntary market, driven by net-zero commitments and Nature-based solution, is flexible enough to allow a large of opportunities (especially in forestry sector) for private sector entities to participate in this carbon market anywhere and in Pakistan in particular.

However, development under Article 6 late development in Glasgow (November 2021) with the requirement of a ‘corresponding adjustment’ may impact the voluntary market in a medium term depending on the claim that private entity make when using those voluntary offsets, or regarding the type (stringent or conditional) NDCs under which that claim is made, or the NDC of project host country. In any case, a transition period is needed. The requirement for corresponding adjustments for compliance offsets under Article 6.2 and 6.4 of the Paris Agreement means that many countries are likely to develop their capacity for corresponding adjustments in the long run. Any implementation of a regime that requires corresponding adjustment needs to acknowledge that today’s voluntary carbon market requires no such adjustments for the moment.

Regarding entry points for Pakistan carbon markets, Pakistan has entry points for entering into the voluntary global market principally, and into some national voluntary market such as the Japan Joint Crediting Mechanism. When the government needs to formalise its participation in the Japanese Joint Crediting Mechanism, participation in the global voluntary market depends on private sector incentives to invest and forest project opportunities. Access to projects can be done together in partnership with the concerned provincial forest departments. Same entry opportunities exist with the CORSIA compliance programme that allow offsets from jurisdictional REDD+ program and some specific AR projects.

Similar opportunities exist with result-based programs, but these opportunities are limited by time constrain for proposals and application conditions. Overall, they require REDD+ jurisdictional approach to be led by a jurisdiction (see table 1), which may result into a long and cumbersome process to validate such jurisdictional REDD+ programs that can discourage private sector involvement. Offset prices under these programs are usually below current market prices to the exception of the LEAF program so far.

It just needs government willingness to engage with the different actors and initiate the process to join these programs when the proponent would be the provincial authorities for REDD+ jurisdictional programmes. It could leverage both international and national private actors participation in the sector.

When contemplating a sectorial national level or a province level for a market-based approach, Pakistan according to its NDC target may combine both approaches. The Columbia emission pricing instrument scheme that combines both a carbon tax and the use of offsets for companies to fulfil their compliance obligations by either paying the carbon tax or offsetting emissions. Following that example, a carbon tax could be applied in the energy sector to both reduce emissions in that sector and yield funding to achieve the 60% renewable energy target, when stimulating the demand of offsets from forestry projects that could be developed in a private-public partnership at province level.

The government should implement strong safeguards to secure the integrity, transparency, additionality, and permanence of that national offsetting system as a robust and credible alternative to the carbon tax, thus allowing flexibility and at the same time, promoting forests as a national sink.

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