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Tapping the Carbon Markets Potential

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by

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I. Introduction

Carbon markets serve as tool to price carbon emissions to enable trade in carbon credits or carbon offsets. A carbon credit is the basic trading unit, generally recognized as a tradeable certificate or permit which grants the right to emit a certain amount of carbon dioxide (usually 1 metric ton) or an equivalent amount of different greenhouse gases. Carbon trading facilitates cost-effective achievement of both the global carbon mitigation targets and flexible compliance with the commitments embodied in the Nationally Determined Contributions. These markets, if intelligently accessed, unfold numerous co-benefits, particularly to developing countries. The Carbon Development Mechanism (CDM) under the Kyoto Protocol, despite its deficits and weaknesses, already demonstrated the efficacy of the utility of carbon trading.

There are two primary types of carbon markets in vogue: compliance and voluntary. The former are largely government-regulated systems to establish limits to greenhouse gas (GHG) emissions e.g., “cap-and-trade principle” to set a cap on the total GHGs for reducing emissions over a certain period. The businesses which reduce their emissions, below the set limits, can thus trade their surplus ‘allowance’ as carbon credits to those exceeding the emission limits. The latter could buy additional allowances through either official auctions or from those who have surplus allowances. The market independently determines the carbon price through the supply and demand of emission allowances. This incentivizes the companies for investments in cost-effective low carbon technologies.

Voluntary carbon markets provide a platform for businesses to counterbalance their GHG emissions on their own volition to acquire carbon credits from authentic project developers or brokers based on well-defined criteria and verification by independent, third-party standard organizations such as Verra and Gold Standard Foundation.

While the official global carbon market is still in the making, a voluntary carbon market has already evolved with a potential of generating billions of dollars (estimated around \$969 billion) to allow the transition of developing countries to low-carbon low-energy systems. Some governments through individual initiatives provide stimulus to ensure smooth and sustainable operation of voluntary carbon markets e.g., the Australian Emissions Reduction Fund (ERF) and the Thailand Voluntary Emission Reduction Program.

The United Nations has also been resolutely pursuing the establishment of international carbon market, as envisioned in Article 6 of the Paris Agreement, for which multilateral negotiations over how the inter-country carbon market would function to enable the countries to offset their emissions by purchasing credits created by their greenhouse gas-reduction programs. However, Previously, developing countries, particularly India, China, and Brazil, benefited considerably from a similar carbon market under the Kyoto Protocol's Clean Development Mechanism (CDM). The 2015 Paris Agreement, however, altered the global landscape by requiring even emerging countries to set carbon reduction targets.

II. Benefits of Carbon Markets

Following are some of the specific benefits of the carbon markets to (a) achieve sustainable growth with equity; (b) reduce GHG emissions; and (c) combat the adverse impacts of climate change on the planet.

- Carbon markets put a price on carbon and facilitate its trade to incentivize emissions reduction by offering financial rewards.
- For countries to meet the target of keeping global warming within 2°C and ideally below 1.5°C, greenhouse gases need to be reduced, by at least 43%, by 2030. Carbon market encourage countries to reduce their greenhouse gas emissions.
- The voluntary carbon market allows domestic projects or entities of developing countries to participate in international crediting programs and earn revenues to achieve their development goals.

III. Pakistan Situation Analysis

Pakistan is one of the most vulnerable countries to extremity of the climate change and is ranked fifth most vulnerable globally¹. In order to address the climate change impact, the country updated its Nationally Determined Contribution (NDC) in 2021 which, inter alia,

¹ pid.gov.pk <https://pid.gov.pk> > site >

envisaged a conditional target of reducing emissions by 50% by 2030 (15% from domestic sources and 35% from international grants); shifting to 60% renewable energy and 30% electric vehicles by 2030; and a complete ban imported coal.² With overall ranking at 30 on the Climate Change Performance Index 2024, the country was rated low in climate policy category, a very low in renewable energy and high in GHG emissions and energy use. The major challenges identified for lack of satisfactory performance were: lack of coordination between state institutions; deficits in policy frameworks (e.g., to phase out phase-out of fossil fuels, absence of mechanism to account of corporate sector emission, absence of disposal and dumping mechanism for banned and highly hazardous chemicals, persistent organic pollutants-POPs etc.); lack of transparency to share the information.

While the country assumes a leadership and proactive role at the international climate change related forums and at the national level is engaged in conjunction with development partners like GTZ, UNDP and World Bank in formulating long term low-carbon strategies e.g., the Pathways 2050 platform and robust afforestation program etc., but weak implementation, lack of inclusive and accountable long term vision, policy and institutional apparatus, gender insensitivity, absence of integration of local knowledge and practices and neglect of benefiting from the new technologies for nature-based solution fail to encourage sustainable management of the natural resources, mitigate the climate change impact. The country has also not benefited from the huge potential of carbon trading and earn much needed revenues through supply of carbon offset to address the twin challenges of sustaining economic growth and reducing emissions.

On the contrary, India is the second largest earner of carbon credits with its voluntary carbon market estimated to exceed \$1.2 billion. It has as of May 2023, registered or in the process of registering more than 1,451 projects with two prominent registries, Verra and Gold Standard. The country has already fetched approximately \$652 million in revenue from the sale of carbon credits utilized for offsetting emissions. It currently operates two market-based emission reduction schemes: Perform, Achieve and Trade (PAT) scheme and the Renewable Energy Certificates (REC) system. The former involves energy-intensive industries (aluminum, cement, chlor-alkali, fertilizer, iron and steel, paper and pulp, railways, thermal power and textiles) and sets sector specific energy reduction targets, known as specific energy consumption (SEC) to allow companies with less energy per unit of production compared to the established targets, earn certificates (ESCerts) as a reward for saving energy. These certificates can be traded on Power Exchanges and purchased by other units participating in the PAT scheme to fulfill their compliance needs.

² Climate Change Performance Index 2024 <https://ccpi.org/country/pak/#:~:text=Pakistan%20ranks%2030th%20ov>

The REC system, under the Renewable Purchase Obligation (RPO) which promotes the use of renewable energy sources, obligates electricity generators to produce a certain percentage of their total power from renewable sources like solar and wind, etc. The certificates so obtained can be traded to earn carbon credits.

Indian government is also actively engaged in establishing a fully operational government-regulated carbon market. The draft Carbon Credit Trading Scheme (CCTS), released as part of the Energy Conservation (Amendment) Act 2022, is a significant step toward creating a domestic carbon market in India.

Pakistan also has substantial, as of yet untapped potential for carbon investments, especially in view of its NDCs to reducing its overall projected emissions by 50% from the projected levels by 2030. Though establishing well-functioning Carbon Markets is a complex task, the government need to develop technical and regulatory policy and institutional systems to support the industry and private sector and open up international market inter-connectivity to avail (a) voluntary emissions trading schemes, which would enable Pakistan to unlock private finance through carbon credits; (b) learn from various initiatives and perspectives on reducing carbon emissions to leverage carbon markets (Engro Foundation, Shell, Serena Hotels, Pakistan Business Council, K-electric, iTechnologi, Daraz, National Insurance Company Ltd, Loreal Pakistan, Artistic Milliners, Baig Group, Amreli Steels Ltd., Strategic Initiative, Control Union Pakistan, Pakistan Business Council, and Utopia already undertook initiatives how to access Carbon Markets)

IV. Potential for Pakistan

Pakistan seems to have acquired at least preliminary capacity to be able to formally operationalize the carbon market system:

- In 2005, it ratified the Kyoto Protocol which allowed Clean Development Mechanism (CDM) project activities in developing countries to generate “certified emissions reductions” and sell the credits to developed countries to meet their emissions targets.
- In 2010, the Pakistan government allocated funds for carbon trading in its annual budget. However, by 2012, Pakistan’s share of CDM projects was less than one percent while China and India accounted for 60% and 30% of global CDM projects respectively.
- In the budget for the fiscal year 2015-16, the Pakistani finance ministry allocated PKR 34 million (approximately USD 340,000) for carbon-neutral

projects to help the industrial sectors sell and buy carbon credits in a local market.

- The Pakistan Climate Change Act, 2017 provides the legal and institutional framework for climate change policy in Pakistan and delegates the responsibility to the Ministry of Climate Change (MoCC) for designing and establishing a national registry and database on greenhouse gas (GHG) emissions.
- In 2018, the National Committee on the Establishment of Carbon Markets (NCEC) was formed to assess the country's potential for implementing domestic and participating in international carbon markets. A draft report on the introduction of carbon pricing instruments in Pakistan which recommends implementing a domestic emissions trading scheme (ETS) is already prepared to initially cover large emitters from the power and industry sectors accounting for 168 Mt of CO₂ equivalent emissions

V. Challenges

There is a multiplicity of challenges for Pakistan to fully harness the massive potential of the global carbon market and to build a more sustainable, equitable and climate resilient economy. These challenges include both lack of upstream policy, regulatory and strategy frameworks and downstream implementation and operational mechanisms. The capacity deficit at the federal, provincial and local level across all entities obligated to reduce carbon foot prints, is also a major issue to be able to access the carbon markets and augment the resources required to shift to low-carbon economy.

At the international level, as earlier stated, the establishment of a robust, transparent, creditable and effective system of global markets remains a contentious issue due to a lack of consensus even in the post COP28 debates, discourse and disagreements over what emissions to consider, challenges in validation and verification of carbon credit trading and the intricacies and complexities associated with the setting of such a universally regulated market system. In the absence thereof, carbon trading tends to become more susceptible to exploitation by high income countries which with a view to avoiding reduction in their greenhouse gas emissions, purchase sufficient credits to sustain their high-pollution operations. There is also a propensity tend to relocate the polluting operations to the developing countries to gain from their weak and lax carbon emission regulations due to lack of fiduciary, technical, and implementation capacity. The situation is further aggravated since the mechanisms to credibly measure carbon absorption

capacity of activities like tree plantation, waste to energy conversion etc., are either at rudimentary level or suffer from cumbersome complexities.

VI. Recommendations:

The following specific set of measures is recommended to enable and capacitate Pakistan to benefit from carbon trading and access the carbon markets

- 1. Policy, Legal and Regulatory Frameworks:** The existing policy and regulatory frameworks are at best highly inadequate or non-existent to facilitate carbon trading in Pakistan. These need to be updated based on available best practices e.g., European Union (cap-and-trade system) together with its legal and regulatory framework. This should be accompanied by monitoring, reporting, and verification (MRV) protocols for GHG emissions.
- 2. Institutional Mechanism:** Pakistan should establish an independent regulatory body in conjunction with the Ministry of Climate Change and the related Provincial departments for ensuring and overseeing transparent and smooth operation of carbon markets in the country. The government should also consider devolving major functions of MoCC like climate finance, access to Global Environment Facility, Climate Finance, Green Climate Fund, renewable energy related matters to accelerate the development and operation of the carbon markets and simultaneous integration of climate change in the economically and socially vulnerable sectors for low-carbon-climate-resilient development. This will also ensure better leveraging of the global carbon market and a more effective management and responsive distribution of the benefits especially to the communities affected by climate change.
- 3. Nationally Determined Contributions:** Carbon markets would allow Pakistan to meet its Nationally Determined Contributions (NDCs) targets. Pakistan's goal is to reduce emissions by up to 20% below Business as Usual (BAU) by 2030.
- 4. Commodity Trading:** Pakistan could explore how the outcomes of projects like the billions of trees plantation could be developed into a commodity for trading in the international carbon markets. Indonesia has already earned substantial carbon credits through its sustainable forestry management projects. Pakistan can learn from and replicate these strategies³.

³ [Vision of Humanity https://www.visionofhumanity.org/how-Pakistan-can-...](https://www.visionofhumanity.org/how-Pakistan-can-...)

- 5. Increased Revenue:** China, Saudi Arabia and UAE have substantial carbon footprints. Owing to its geo-strategic location, the country could avail huge carbon credit market and potentially generate \$2 to 5 Billion by 2030. China, in particular, is set to launch the world's largest carbon emissions trading scheme by 2025 (the 14th five-year plan, prioritizes carbon trading, including online trading)⁴. Pakistan could avail China's program by developing carbon offsets locally and selling carbon credits to China at comparatively cheaper rates.
- 6. New Model of International engagement.** Paradigm shift from grant and aid model to value proposition could enable Pakistan to present climate related and energy sectors through establishment of a conducive FDI environment for investments.
- 7. International Funding:** Pakistan could unlock Green Climate Fund with carbon-offset projects like mangrove restoration having higher values and trade carbon credits for prices ranging from \$1 to \$50, with credible organizations like Verra and Gold Standard. Sindh government two major carbon credit projects i.e., Delta Blue Carbon 1 and 2 are expected to generate \$12 billion by 2075 and mangrove restoration project (450,000 ha by 2030) to offset 240 million tons of carbon dioxide equivalent.
- 8. The Carbon Border Adjustment Mechanism (CBAM).** CBAM obligates the importers to equate the inter-country cost of carbon emissions within the respective Emissions Trading System. Pakistan needs to prepare itself to be able to access in future the carbon markets 2030 when EU enforces Carbon Border Adjustment Mechanism (CBAM).

⁴ Vision of Humanity <https://www.visionofhumanity.org> › how-Pakistan-can-...