Utilizing CPEC for benefitting from Carbon Markets

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A major economic drive, the China-Pakistan Economic Corridor (CPEC) aims to increase economic cooperation between the two countries. Significant investments have been made throughout the span of three five-year phases of CPEC's development, with a particular emphasis on energy infrastructure, Gwadar port, transportation infrastructure, and industrial cooperation. Around USD 35.7 billion, or more than half of the USD 56 billion total CPEC investment, will be directed toward energy infrastructure by 2030, boosting 16,379.7 MW of installed generation capacity.

These major energy infrastructure projects are critical to Pakistan. Poor planning, supply shortages, and distribution issues cause expenses of up to 2% of GDP growth per year. Along with the challenge of power loss during transmission and distribution, Pakistan's electricity shortfall has risen to 6623 MW. Furthermore, 65.88% of Pakistan's electricity is generated from fossil fuels, costing USD 12.33 billion per year and accounting for 28.3% of the country's greenhouse gas emissions.

The environmental impact, specifically CO2 emissions, is a major concern for the long-term viability of CPEC investment, given the large-scale development of transportation infrastructure, industrial cooperation, and energy infrastructure across various sectors, from coal to nuclear energy power plants, transportation systems, and industrial development, all of which could potentially lead to significant changes in CO2 emissions. These concerns are similar to those raised by China's investment through the Belt and Road Initiative, which has the potential to greatly contribute to international growth while simultaneously reshaping the pattern of carbon emissions. There is a growing understanding that hydropower and nuclear cooperation will provide greener energy to host nations. However, significant concerns exist about fossil fuel electricity, particularly coal-fired plants.

"China and Pakistan must jointly develop a robust green investment roadmap that incorporates the Corridor's socio-environmental risks"

These plants, particularly coal-fired plants, contribute significantly to environmental degradation. We can analyze similar scenarios to look for solutions, for example, we can see how Indonesia prioritized economic growth over environmental and social sustainability, or how increased fossil fuel generation capacity resulted in higher carbon emissions, which varied across different scenarios.

If the potential environmental risk is managed effectively in timely manner, the China's Belt and Road Initiative has the potential to become the largest means of disseminating cleaner energy technologies throughout the developing world, subject to recipient countries enforcing more

stringent ecological standards and changes in Chinese overseas investment policies.

Carbon trading could play an important role in mitigating the environmental risks connected with China's Belt and Road Initiative.

Future of notwithstanding its drawbacks and restrictions, the UNFCCC's Clean Development Mechanism (CDM) under the Kyoto Protocol shown that carbon trading may significantly and economically help meet global carbon mitigation targets. In order to comply with the goals and pledges stated in the Nationally Determined Contributions, it also guarantees flexibility within the larger framework of regulatory requirements. Carbon markets have the potential to provide many co-benefits, especially for developing nations, if they are well conceived and implemented.

These elements clearly illustrate the significance of carbon markets within the framework of The Paris Climate Agreement. Article 6 of the Agreement presents the idea of Cooperative Mechanisms, which includes both Market Mechanisms (as outlined in Articles 6.2 and 6.4) and Non-Market Mechanisms (detailed in Article 6.8). The primary objective of Article 6 is to facilitate international collaboration and the application of market-oriented strategies aimed at the global reduction of greenhouse gas emissions. This approach is predicated on the recognition that developing nations have the capacity for economically viable reductions in GHG emissions, which can be realized through investments from the private sector. Pakistan, like many developing countries, possesses significant yet largely unexploited potential for carbon investments, along with several inherent advantages. The nation has pledged in its Nationally Determined Contributions (NDCs) to cut its projected emissions by 50% by 2030. While considerable initiatives are being implemented across various sectors, including energy, transportation, and agriculture, some areas, particularly industry, have seen limited engagement. Although there are isolated efforts within the industrial sector, its substantial potential indicates that further action is necessary.

Currently, the industrial sector contributes approximately 25.76 MtCO2e to the overall emissions inventory, with projections suggesting that energy, agriculture, and industry will be the primary contributors in the future.

"Pakistan is the fifth Fastest growing country In the world"

Pakistan ranks among the top ten countries most vulnerable to climate change, and it stands to gain considerably from international carbon markets. The potential for carbon reduction initiatives can lead to essential improvements in energy efficiency and processes within various industries, aid in the transition to sustainable energy sources, and bolster the ongoing evolution of the agricultural sector.

Furthermore, there are significant and largely unexplored opportunities for decarbonizing urban transportation, which could play a crucial role in helping Pakistan fulfill its Nationally Determined Contributions (NDCs) through a blend of concessional financing and investments focused on carbon reduction. However, the establishment of carbon markets is a complex endeavor, necessitating support for the industry and the broader private sector.

In 2010, the government of Pakistan designated financial resources for carbon trading within its yearly budget. Nevertheless, by 2012, Pakistan's participation in Clean Development Mechanism (CDM) projects was under one percent, in stark contrast to China and India, which represented 60% and 30% of the global CDM project share, respectively.

In the fiscal year 2015-16, the finance ministry of Pakistan designated PKR 34 million (around USD 340,000) for initiatives aimed at achieving carbon neutrality, facilitating the trading of carbon credits within the industrial sector in a local marketplace. The Pakistan Climate Change Act of 2017 established a comprehensive legal and institutional framework for addressing climate change, assigning the Ministry of Climate Change (MoCC) the task of creating a national registry and database to monitor greenhouse gas (GHG) emissions. In 2018, the National Committee on the Establishment of Carbon Markets (NCEC) was established to evaluate the country's capacity for engaging in both domestic and international carbon markets. The implementation of a domestic emissions trading scheme (ETS) targeting major emitters in the power and industrial sectors, responsible for 168 million tons of CO2 equivalent emissions.

"Pakistan needs to Shift business model"

Considering genuine funding payments have been slow and have addressed less than one-fourth of the harms evaluated, Pakistan is currently concentrating on the need to shift its business model and go to the carbon credits market.

After being certified by an administration or independent organization, carbon credits or balances are traded. By supporting initiatives that reduce emissions elsewhere, such as promoting renewable power and preserving forests, carbon balancing enables compounds to compensate for their ozone-damaging substance emissions.

Focusing the way forward, specific set of measures is proposed to empower Pakistan to engage effectively in carbon trading and access carbon markets. Firstly, the current policy, legal, and regulatory frameworks are insufficient for facilitating carbon trading in the country. It is essential to revise these frameworks in line with established best practices, such as the European Union's cap-and-trade system, while also implementing robust monitoring, reporting, and verification (MRV) protocols for greenhouse gas emissions. Secondly, Pakistan should create an independent regulatory authority in collaboration with the Ministry of Climate Change and relevant provincial departments to ensure the transparent and efficient functioning of carbon markets. The government might also consider delegating significant responsibilities from the Ministry of Climate Change, including climate finance and access to international funds like the Global Environment Facility and the Green Climate Fund, to enhance the development and operation of carbon markets. This approach would facilitate the integration of climate change initiatives into economically and socially vulnerable sectors, promoting low-carbon and climate-resilient development while optimizing the benefits from the global carbon market, particularly for communities impacted by climate change. Thirdly, participation in carbon markets can assist Pakistan in achieving its Nationally Determined Contributions (NDCs), with a target of reducing emissions by up to 20% below Business as Usual (BAU) levels by 2030. Lastly and most importantly, Pakistan has a considerable opportunity to join China's program by developing carbon offsets locally and selling them to China. In its 14th five-year plan, China emphasized carbon trading, including online trading.

It is reasonable to conclude that numerous sectors within Pakistan's economy could present an appealing carbon investment opportunity for both local and international investors, particularly under CPEC. In addition to assistance with technical and regulatory frameworks, fostering international connections and promoting collaboration is vital for success.

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Picture obtained from Thar Coal and Energy Board, Government of Sindh