

Developments in Climate Finance and Implications for Pakistan

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This article is based on a report prepared by the International Growth Center (IGC) and the Consortium for Development Policy Research (CDPR). The Principal Investigators were William P. Mako (CDPR fellow, former World Bank Lead specialist) and Ijaz Nabi (IGC Pakistan Country Director, CDPR fellow and former World Bank Sector Manager) with support from Amna Mahmood (IGC Country Economist) and Shehryar Khan (CDPR RA).

The Government of Pakistan (GoP) has ambitious plans for reducing its 2030 greenhouse gas (GHG) emissions to 50% of the 2016 baseline projected levels. According to the GoP's updated climate action plan, the Nationally Determined Contributions (NDCs) 2021, it aims to do so by shifting to 60% renewable energy (RE) and 30% electric vehicles (EV) by 2030, banning imported coal, and sequestering carbon through natural carbon storage initiatives (such as the Ten Billion Tree Tsunami Programme (TBTP) and Protected Areas Initiative). In the GoP's view, this reduction in projected emissions should be financed 15% from domestic sources and 35% from international sources, and the latter should be mostly on a concessional basis (i.e. below market rate and on generous terms). Whether Pakistan reduces its emissions to meet its commitments by 2030 will, hence, hinge primarily on the availability of concessional international climate finance (CF). Pakistan's access to international CF

flows to date, however, has been very limited.

Globally Available Climate Finance

CF refers to local, national or transnational financing that is targeted towards supporting mitigation and adaptation actions that address climate change. The United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement call upon parties with more financial resources to assist those that are less endowed and more vulnerable, so that progress towards the global objective of stabilizing GHG concentrations in the atmosphere can be made. There is also an added expectation that developed countries will take the lead in mobilizing CF.

CF instruments and mechanisms include green bonds (for new investments in renewable energy), blue bonds (e.g., sovereign debt restructuring for expanded maritime carbon sinks), brown bonds (for decommissioning of land-based carbon emitters), equity investment, construction-phase loans, grants, and guarantees (such as cover losses and credit guarantees that can cover risks in the event of debt service default). Major CF providers include project sponsors; environment, social, and governance (ESG) funds; commercial banks; bilateral donors; multilateral development banks or institutions; and guarantee agencies.

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Concessional CF can be critical to de-risk, leverage, and mobilize additional CF. Priority areas/ sectors that attract multilateral and bilateral development financial institutions (DFIs) concessional CF include sustainable forest/ ecosystem and bio-diversity management, resilient urban development and infrastructure, low-carbon transportation, energy efficiency, climate risk insurance and financing, disaster risk reduction, and policy support and capacity building.

amongst the world's CO<sub>2</sub> emitters, Pakistan's profile of relatively high emissions and relatively low GDP per capita may allow it to attract concessional mitigation-oriented CF based on its potential threat to the climate and relative poverty. But accessing concessional international CF will require meeting stringent qualifying criteria. Globally, the volume of concessional finance has been modest. Of the total CF of USD 632 billion in 2019-20, USD 65 billion was concessional finance by multinationals to East Asian economies and only USD 20 billion was grants to the poorest countries.

Opportunities for Accessing International Climate Finance

Accounting for 0.6% of global CO<sub>2</sub> emissions in 2018, Pakistan ranked 27<sup>th</sup> from the top

Exhibit 1: CO<sub>2</sub> Emissions by Top Countries, 2018 (million tons)

China	10,313	Australia	387
U.S.	4,981	U.K.	359
India	2,435	Italy	325
Russia	1,608	Poland	313
Japan	1,106	France	310
Germany	710	Spain	258
Korea	631	Thailand	258
Iran	630	Vietnam	258
Indonesia	583	Egypt	246
Canada	574	Malaysia	240
Saudi Arabia	515	Kazakhstan	220
Mexico	472	Pakistan	208*
South Africa	433	Subtotal	29,214
Brazil	428	Other	4,827
Turkey	413	World Total	34,041

Source: <http://data.worldbank.org>.

\*Per a broader measure for all greenhouse gases (GHG), including methane, Pakistan emitted 490 million tons of CO<sub>2</sub>-equivalent in 2018.

Exhibit 2: Worldwide CF, Annual Averages 2011-2020 (USD billions)

2011-2012	364
2013-2014	365
2015-2016	463
2017-2018	574
2019-2020	632

Source: Climate Policy Initiative, Global Landscape of Climate Finance 2021 ("CPI"), December 2021, 2.

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Furthermore, the great majority of Pakistan's planned mitigation spending is for RE. RE accounted for just 5% of electricity generation in 2019 (the NDC 2021 RE target is 60% by 2030 as mentioned earlier). Pakistan has enormous hydro, solar and wind potential. Only 14% of the estimated hydro-power potential of around 60,000 MW is currently exploited. If the solar power potential (mainly in Balochistan) is utilized, all of the country's existing energy needs can be met with solar power alone. Pakistan could come close to 100% no-carbon but at a highly unaffordable cost, as transitioning to the proposed energy mix will require investments to the grid, changes to operational procedures, and proper planning of Variable

Renewable Energy (VRE) expansion with storage facilities. The GoP's current plans anticipate USD 101 billion for energy transition alone by 2030. However, as the costs of RE alternatives fall within the range for fossil fuel options, non-concessional financing for RE investments has become the norm. Investors expect RE investments to cover their costs and provide an adequate return on investment and would not qualify for concessional CF. Recent trends show the same. Of about USD 324 billion in recent worldwide annual funding for RE, a large proportion was market-rate debt and private equity. This poses a significant challenge to Pakistan's expectations of financing emission reductions through external sources.

Exhibit 3: Global Levelized Cost of Electricity from Newly Commissioned Utility-Scale RE Generation Technologies vs. Fossil Fuel: 2010 vs. 2020



Source: CPI, 19.

Recommendations

Achievement of GHG emission reduction targets will require Pakistan to develop an innovative strategy to target external CF for both RE and for other climate change investments. The GoP can explore the following options.

Working with Conservation Financials to Organize Nature-based Debt Swaps, for e.g., to Accelerate The TBTP

In November 2021, the largest debt refinancing to date for ocean conservation was negotiated between The Nature Conservancy (TNC), an environmental organization, and the Government of Belize (GoB). According to the terms agreed, GoB

committed to protecting 30% of Belize's ocean (as well as a range of other conservation initiatives) in exchange for USD 362 million debt-for-nature swap that reduced Belize's debt by 12% of GDP. Pakistan can also explore financing nature conservation projects, such as the TBTP, through a similar settlement. In April 2021, GoP issued 30-year bond for USD 500 million. If GoP can borrow to redeem the outstanding April 2021 bond, it could generate debt servicing savings that could potentially fund 5.7 billion trees over the bonds' remaining maturity period.

Working with Multilateral/ Bilateral DFIs to use Carbon-trading Provisions in The 2015 Paris Agreement to Finance The De-commissioning of Heavily

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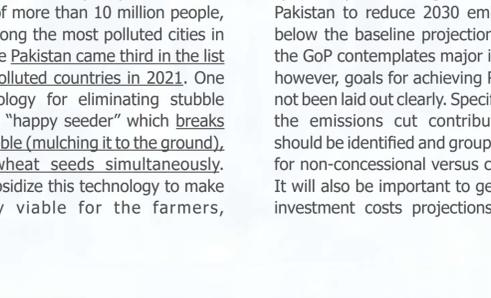
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Polluting Coal-fired Plants

Coal consumption has tripled over the past five years to 21.5 million tons/year because of growing demand from industry (especially cement) and due to local coal power production starting in 2018. When compared to coal-fired plants in the US, Russia, and Europe that have a higher average age of 30-40 years, Pakistan coal fleet is fairly young, and the GoP could use this to its advantage when negotiating coal plant retirements. Who would de-commission a new coal-fired plant without some sort of concessional financing?

Moreover, emission reduction that would accrue as a result of de-commissioning can be calculated by measuring the current annual emissions and assuming that these savings would continue for the remaining years of the expected life of the plant. Given reasonable expectations on investor returns, plant utilization and emissions, de-commissioning costs, and the future value of carbon credits, it should be possible to borrow enough from DFIs to (i) buy out the investors for major coal-fired plants and pay de-commissioning costs, and (ii) rely on the revenue from future carbon credits to pay off this DFI borrowing.

Exhibit 4: Announced Average Coal Power Plant Retirements: Historical vs. Announced Pledges and Zero Net Emissions by 2050 Scenarios



Source: International Energy Association, World Energy Outlook 2021, October 2021, 58.

Stressing Climate Change Priorities in Sectoral Strategies to Identify Emissions Reducing Opportunities Such as Mitigating Crop Burning via Investment in Better Planting Technologies

For three weeks straddling October-November, farmers in the Punjab province resort to stubble burning of the harvested rice crop to prepare the fields for wheat sowing. As a consequence of this (and also of low-grade fuel, industrial emissions and dust particles), many cities in Punjab experience a sharp deterioration in air quality. Lahore, with a population of more than 10 million people, now ranks among the most polluted cities in the world while Pakistan came third in the list of the most polluted countries in 2021. One known technology for eliminating stubble burning is the "happy seeder" which breaks down rice stubble (mulching it to the ground), and plants wheat seeds simultaneously. Options to subsidize this technology to make it financially viable for the farmers,

incorporate a premium price for farmers if they commit to non-burning, or approaching environmental organization (such as the TNC above) to fund crop stubble burning abatement can be explored. And, more broadly:

Converting Pakistan's NDCs 2021 into a Comprehensive Document for Climate Investors

Potential CF financiers might appreciate a more fully developed presentation of emission reduction plans. It will be important to show specifically what changes would be needed in Pakistan to reduce 2030 emissions to 50% below the baseline projection. For example, the GoP contemplates major increases in RE, however, goals for achieving RE targets have not been laid out clearly. Specific projects, and the emissions cut contribution for each, should be identified and grouped by suitability for non-conditional versus concessional CF. It will also be important to generate credible investment costs projections, for e.g., the

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Refining Domestic Guidelines for Green Bonds to Minimize Burdens on Investors, While Assuring that Green Bond Sale Proceeds Contribute to Climate Mitigation or Adaptation

The International Capital Market Association (ICMA) is a non-profit association and is responsible for the development and monitoring of the Green Bond Principles that provide guidelines on transparency, disclosure and reporting on funding to projects that contribute to environmental sustainability. In September 2021, the Securities Exchange Commission of Pakistan's (SECP) approved the national guidelines for green bonds. These guidelines recognize, but go beyond, the ICMA principles for green investment requiring more work for the issuer and regulator. For example, SECP requires issuer to map the project to the UN Sustainable Development Goals; describe the criteria for evaluation, selection and financing of projects in the asset pool of the green bond; and disclose external review report (undertaken before issuance of the green bond) on issuers website. Consistent with its overall approach to securities regulation, the SECP may wish to bring green bond disclosures in line with ICMA requirements and simply ensure that required

disclosures are included in each green bond prospectus, leaving it to potential investors to make their own assessments about a bond's greenness.

Enhancing Pakistan's Competitiveness vis-à-vis other Major Commitments on Private Investment by Improving its Country Risk Rating, Especially rule-of-law Indicators

A country's risk rating can affect the overall credit rating for a public private partnership (PPP) project company, and hence the cost of its debt and the rate at which it can profitably sell an infrastructure service (for e.g., electricity) within the country. In order to make inroads into the proposed recommendations above, it will be important to simultaneously improve Pakistan's risk rating. Although Pakistan's overall PPP rating exceeds the average for South Asia (and is about on par with the average for high-income countries), it currently ranks at about 25<sup>th</sup> percentile from the bottom on rule of law indicators, well below the averages for South Asia and other regions. To raise Pakistan's attractiveness to potential foreign PPP sponsors, GoP could learn from other countries who have excelled in particular aspects of PPP (project preparation, procurement, contract management, treatment of unsolicited proposals), and work to improve the country's rule of law rating in order to enhance investor confidence in contract enforcement, property rights, and physical security.

Exhibit 5: Rule of Law Rank: Selected Regions & Countries, 2020



Source: <http://info.worldbank.org/governance/wgi/Home/Reports>.

To summarize, recent CF developments have major implications for Pakistan. The Ukraine war further clouds prospects for substantial increase in overall volume of funds. Attracting CF would require Pakistan to pursue nature-based bonds, work with potential investors to de-commission coal plants, encourage more domestic issuance of green bonds, invest in

green technologies, and improve investor perceptions of country risk. Importantly, it will be critical to build capacity and technical expertise within the Ministry of Finance so it can identify and mobilize financing from the range of CF instruments and means available internationally.

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