

STRAIGHT TO THE POINT

- » In its NDC, Pakistan aims to reduce greenhouse gas emissions by 20 percent below its projected 2030 emissions under a business-as-usual scenario.
- » Pakistan is one of the top ten countries affected by climate change due to its diverse climate vulnerabilities, losing an estimated USD 4 billion in average annual economic loss due to extreme climate-related events.
- » The energy sector is the largest emissions contributor in Pakistan, contributing 46 percent of total emissions, followed by agriculture (43 percent) and industrial processes (5 percent), with growth expected in both energy and industrial processes.
- » Pakistan's 2016 Climate Change Act has initiated the Climate Change Council, the Climate Change Authority, and the Climate Change Fund; it is important for these instruments to coordinate and streamline roles, processes, and activities together with the Ministry of Climate Change.
- » A comprehensive NDC plan that emphasizes deployment of renewable energy technologies and frameworks for channeling funds toward low-emission energy projects are among the main opportunities for engagement of the NDC Partnership.

BACKGROUND

VISION FOR ECONOMIC TRANSFORMATION

Pakistan has great opportunities to grow quickly and in a sustainable manner. Energy and food security, transportation, infrastructure, communications, and human capacity development are considered important preconditions for growth.

As part of its growth plan, Vision 2025¹ is focused on seven major areas to transform Pakistan. These include: 1) human and social capital; 2) sustained indigenous inclusive growth; 3) democratic governance, institutional reform, and modernization of the public sector; 4) energy, food, and water security; 5) private sector-led growth; 6) developing a competitive knowledge economy through value addition; and 7) modernizing infrastructure and strengthening regional connectivity.² More specifically this consists of eliminating the energy demand-supply gap through a mixture of renewables (solar, hydro, biomass, wind), gas, coal, and nuclear, which has been tied into the country's Nationally Determined Contribution (NDC).

The Vision 2025 plan aims for an average growth rate of 7 percent until 2025, with increasing rates thereafter. This follows an average growth rate of 4.9 percent from 1952 to 2015. Initiatives to achieve Pakistan's desired high level of growth include investments in infrastructure, energy, and industrial projects.

In recent years, the country's economic conditions are showing positive signs. Estimated GDP growth for fiscal year 2016/2017 is 5.3 percent, which is predicted to strengthen to six percent over the medium term. The financial sector and the overall macroeconomic situation are stable, with inflation gradually increasing

¹ Pakistan's Vision 2025.

² <http://pc.gov.pk/web/vision>



recently. Some challenges to Pakistan's growth include a spike in oil prices and insufficient exports.³ Current exports are dominated by textiles and apparel—over 50 percent of total manufacturing exports, and 15 percent of the country's income.⁴ Agriculture accounts for another significant part of GDP and reached an all-time high in 2015.⁵

As the sixth most populous country in the world and second fastest urbanizing country in South Asia, Pakistan is expected to continue to grow and change. Its youth bulge has the potential to create significant economic growth and development in the coming years. The country will need to create 1.5 million jobs each year to keep unemployment low and engage its youth. While this growth is promising for Pakistan, energy security concerns must be addressed, inter alia, which are incorporated both into its climate and sustainable development plans

Efforts to promote sustainable energy in Pakistan face two main hurdles: the lack of access to sustainable energy sources and products (energy poverty); and a power sector demand and supply gap.⁶ Per the World Energy Outlook 2013, 55 million people in Pakistan (roughly 28 percent) do not have access to modern sources of energy. In response, the Pakistani Government has cited their intention to use a diverse energy portfolio including oil, gas, hydro, coal, nuclear, solar, wind, and biomass.⁷

Additional development challenges include a small tax base; dependence on foreign development partners; the need to expand access to education and healthcare; and a business environment that could be strengthened. Implementing the China-Pakistan Economic Corridor (CPEC), an investment program focused on energy and infrastructure sectors⁸, addresses some of these challenges; increased investment from CPEC is also advancing GDP growth.⁹

HIGH CLIMATE VULNERABILITY, HIGH ECONOMIC BURDEN

Pakistan contributes only 0.8 percent of global emissions but is one of the top ten countries affected by climate change.¹⁰ Because of the country's geographic diversity, it has similarly varied climate vulnerabilities, which include melting glaciers, droughts, monsoons, and desertification, among others. Correspondingly, Pakistan has experienced several extreme climate-related events, such as floods, which have resulted in an estimated USD 4 billion in average annual economic loss.¹¹ Climate change-related expenses already take up a significant portion of the Government's budget, estimated between 5.8 to 7.6 percent of the federal budget in the year leading up to the 2015 UN Climate Change Conference (COP21). Expenses are expected to increase further, drawing on funding that could have otherwise been spent on development efforts.

COUNTRY AMBITION

GROWING WHILE MITIGATING CLIMATE CHANGE

The Islamic Republic of Pakistan's goal is to reduce greenhouse gas (GHG) emissions by 20 percent below its projected 2030 emissions under a business-as-usual (BAU) scenario. The country's NDC provided estimates for financing both mitigation and adaptation efforts to achieve this goal. Pakistan has created

1 <https://www.imf.org/en/Publications/CR/Issues/2017/07/13/Pakistan-2017-Article-IV-Consultation-Press-Release-Staff-Report-Informational-Annex-and-45078>
2 <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/3361.pdf>
3 <https://tradingeconomics.com/pakistan/gdp-from-agriculture>
4 <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/3361.pdf>
5 <https://tradingeconomics.com/pakistan/gdp-from-agriculture>
6 United Nations, Pakistan's Intended Nationally Determined Contribution, http://www.unfccc.int/Submissions/INDC/Published_percent20Documents/Pakistan/1/Pak-INDC.pdf.

7 <http://www.worldenergyoutlook.org/weo2013/>
8 <http://cpec.gov.pk/>
9 <https://www.imf.org/en/Publications/CR/Issues/2017/07/13/Pakistan-2017-Article-IV-Consultation-Press-Release-Staff-Report-Informational-Annex-and-45078>
10 <https://germanwatch.org/en/download/16411.pdf>
11 http://www.unfccc.int/ndcregistry/PublishedDocuments/Pakistan_percent20First/Pak-INDC.pdf



a Ministry of Climate Change (MoCC), passed a Climate Change Policy, addressed climate in its Vision 2025, and most recently passed the Climate Change Act in early 2017, which foresees the setup of three instruments: the Climate Change Council, the Climate Change Authority, and the Climate Change Fund.

Pakistan acknowledges adaptation as a priority given its high vulnerability to the effects of climate change and its acknowledgment that adaptation will be inevitable. The most critical sector within adaptation is agriculture—the country's main livelihood source. This consideration is being incorporated into the National Adaptation Plan (NAP) as well as sectoral and sub-national plans. Specific features of the adaptation roadmap include:

- » Near-term vision (2020-2025): Developing a National Adaptation Plan (NAP); strengthening sub-national adaptation planning capacity; and enhancing disaster risk management capacity.
- » Up to 2030 vision: Addressing the vulnerabilities within water, agriculture, and infrastructure sectors by improving irrigation; enhancing water resource management; improving emergency response mechanisms; implementing climate smart agriculture (CSA) programs; building climate-resilient infrastructure; and strengthening risk management systems.
- » Long-term vision: Building a resilient society and economy so that climate change is mainstreamed into the economy.
- » Support: Developing professionals in the field of climate change through education and training; and providing financial support with some support needed from the international community.

For mitigation, Pakistan is considering several options, categorized by priority level, that work across the energy and agriculture sectors:

- » High Priority: Increase grid efficiency; improve coal efficiency; establish a large scale and distributed grid connected to solar, wind, and hydroelectricity; increase efficiency in irrigation motors and pumps; replace bulbs with light-emitting diode (LED) light bulbs; scale up use of efficient electronics (stoves, water heaters); replace boilers and furnaces; improve irrigation and water management (general and in rice cultivation); agroforestry practices; and better use and management of manure.
- » Medium Priority: Scale up the use of efficient technologies (space heaters, refrigerators, air conditioners); produce sustainable fertilizers; reduce methane production; and promote no-till farming.
- » Low Priority: Carbon sequestration; improve roof insulation; adopt more productive breeds of cattle; implement ideal cropping patterns; and introduce genetically modified crops that are more carbon responsive.

The energy sector is the largest contributor to emissions in Pakistan, contributing 46 percent of total emissions, followed by agriculture (43 percent) and industrial processes (five percent), with expected growth in both energy and industrial processes.¹²

¹² <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Pakistan%20First/Pak-INDC.pdf>



To better identify priority areas for the country's mitigation and adaptation efforts, Pakistan acknowledges the need to assess capacity building in three key sectors through the following activities:

- >> **Energy** / raise awareness, build technical expertise, and foster public sector capacity on energy efficiency;
- >> **Transport** / incentivize the use of efficient vehicles, modernize rail services, upgrade public transport systems, and build public sector monitoring and evaluation capacity; and
- >> **Agriculture** / pursue climate smart agriculture (CSA) and strengthen risk management systems.

STATE OF PLAY

PROGRESS IN CONNECTING THE PROVINCIAL AND NATIONAL LEVEL

In 2010, through a constitutional amendment, the management of environmental, food, and agricultural issues, as well as the responsibility to respond to climate change, was delegated to Pakistan's four provinces. Some promising results from this set-up include the production of 200 micro-hydropower projects in Khyber Pakhtunkhwa, with 150 more planned for completion by the end of 2017.

Pakistan's NDC builds on the Climate Change Policy, which passed in 2012. On 17 March 2017, the Pakistan Parliament passed the Climate Change Act. In addition to establishing the Climate Change Council, the Climate Change Authority, and the Climate Change Fund, it serves to prepare and supervise the implementation of projects to reduce emissions and adapt to climate impacts. The bill was intended to strengthen the institutional capacity at the federal level and implement a "whole-of-government" approach, targeting energy and agriculture primarily, but still covering all sectors affected by climate change. It will build on existing programs like the National Climate Change Policy (NCCP), the Vision 2025 of Pakistan, and other existing programs.¹³

The establishment of the Climate Change Council is a positive signal and has been designed to incorporate a diverse array of expertise to guide its objectives. In addition to federal and provincial ministers, the Council includes scientists, researchers, business and industry representatives, and representatives from non-governmental organizations.¹⁴ However, roles and responsibilities between ministries, provinces, and other bodies remain blurred, potentially limiting the effectiveness of climate change initiatives in the overall development picture.

A PROMISING FUTURE

The most significant mitigation efforts in Pakistan will be related to energy and agriculture.

For energy, a priority will be to increase grid efficiency; the grid currently experiences energy losses of 18 percent. Greater reliance on renewable energy sources like wind, solar, and hydropower would benefit Pakistan, although the Government is still committed to expanding coal generation efforts through greater generation efficiency to reduce the power demand gap. The share of renewables on the grid is currently above four percent; Pakistan aims for five percent of commercial energy to be supplied by renewables by 2030. The Government is considering revising this target to between 15 to 20 percent.¹⁵ Efficiency alone will serve as a major mitigation tool through more efficient irrigation motors and pumps, and more efficient buildings by addressing heating and lighting.

¹³ Notes from GIZ Meeting on NDCP, Sachtsund NDC Partnership, March 22, 2017.

¹⁴ Saeed Khan, Rina. "Pakistan passes climate change act, reviving hopes – and skepticism." Reuters. <http://www.reuters.com/article/us-pakistan-climatechange-lawmaking-idUSKBN16V19N>.

¹⁵ <http://global-climatescope.org/en/country/pakistan/#/details>



The World Bank is currently working on providing strategic support for energy efficiency in Pakistan through knowledge exchange of demand side energy efficiency; policies and frameworks for appliance standards and energy label certification; investment strategies and project mapping; as well as a three-year business plan for the National Energy Efficiency and Conservation Authority (NEECA). In addition, the German Financial and Technical Development Cooperation is providing [euro sign]195 million to support the promotion of renewable energy and energy efficiency in the period 2009 to 2019.

Pakistan is also planning to greatly expand its share of nuclear-generated electricity, growing from three percent to eight percent of the country's total energy portfolio. The 8,880 MW expansion would represent 21.7 to 58.8 million tons of carbon dioxide-equivalent (CO₂e) avoided by 2030.¹⁶

For agriculture, most mitigation efforts will be managed through measures for improved irrigation and water management, reduction of methane released from rice cultivation, improved management of waste and fertilizers, and agroforestry projects.

In terms of adaptation efforts, there is a strong focus on ensuring water and food security, and sustainable forest management. The World Bank has already begun planning a REDD+ initiative called "Green Pakistan Program." Furthermore, by improving the emergency response mechanism for managing climate events, and strengthening the development of disaster reduction and relief management systems based on risk assessments, Pakistan plans to bolster its ability to address climate-related disasters. These efforts are aligned with the goals of the Sendai Framework on Disaster Risk Reduction 2015–2030. Additionally, there are plans to finalize the National Adaptation Plan (NAP) and align it with a long-term strategy for meeting the country's NDC.

NDC PARTNERSHIP ENGAGEMENT

MAKING USE OF THE NDC PARTNERSHIP TO ESTABLISH A CLEAR PATH TOWARD NDC ACHIEVEMENT

Pakistan is an active member of the NDC Partnership and is keen to take actions and engage with all global partners to assist and facilitate the country's aspirations toward low emission development pathways as indicated in its NDC. The country hosted a kick-off workshop in April 2017 with the NDC Partnership Support Unit, which included discussions with 20+ stakeholders in Pakistan. Following up on this workshop, GIZ on behalf of BMZ, offered support to Pakistan, amongst others, focusing on developing an NDC implementation roadmap, implementing the 2017 Climate Change Act, including the setting up of a Climate Change Authority.

Together, Pakistan and the NDC Partnership identified the need for inter-sectoral and vertical cooperation within the country. Needs were identified as strengthening the Ministry of Climate Change's (MoCC) human and institutional capacity to implement the new climate change act and provide guidance on NDC implementation; "unpacking" its NDC at the federal and provincial level; and empowering MoCC in facilitating a revitalized environment/climate development partner coordination group and reflect NDCs in already established development partner coordination mechanisms. Additionally, the GIZ's Global Project "NDC Assist" has reserved funding for small-scale but rapid technical assistance to support the Government of Pakistan and MoCC in kick-starting actions in preparation of NDC implementation.

¹⁶ United Nations, Pakistan's Intended Nationally Determined Contribution, http://www4.unfccc.int/Submissions/INDC/Published_percent20Documents/Pakistan/1/Pak-INDC.pdf



At the provincial level, the GIZ NDC Assist Project is also helping with the exercise to “unpack” NDC implementation, which will include, amongst others, taking energy efficiency measures and renewable energy deployment into consideration for developing provincial NDCs.

The NDC Partnership has also made progress in the form of a recent engagement with the Collaborative Instruments for Ambitious Climate Action (CIACA) initiative at the UNFCCC. The initial meeting focused on how the NDC Partnership and CIACA can best collaborate on efforts to kick-start a process that will work toward pricing carbon in Pakistan.

OPPORTUNITIES FOR PARTNERSHIP

BUILDING UP THE RIGHT FOUNDATION TO PREVENT LOCK-IN

Pakistan’s NDC estimates that it would cost USD 40 billion at current prices to achieve their mitigation goal, and that adaptation efforts would cost an estimated USD 7 to 14 billion per year.¹⁷

In terms of energy poverty as well as renewable energy ambitions, USD 27.6 billion is currently set to be invested through the China Pakistan Economic Corridor (CPEC) to fund the construction of coal-fired power plants with a capacity of 7,650 Megawatts. Pakistan may, however, have more flexibility in its energy sector if it avoided being locked into new fossil infrastructure.

While the NDC identifies a goal of 20 percent below 2030 projections, it is unclear which actions are conditional upon receiving foreign funds. In the absence of that information, it is difficult to prioritize actions and evaluate feasibility. This provides an opportunity to align actions against investment gaps, both foreign and domestic.

Further clarifications of roles and responsibilities of the Climate Change Council, Ministry of Climate Change (MoCC), and provincial governments would help avoid any duplications of efforts and ensure streamlining of funding channels for NDC implementation.

Stakeholder engagement at the local and regional level was identified as a potential gap that may prevent Pakistan from achieving its NDC.¹⁸ Additionally, according to Ejaz Ahmad, Sindh Provinces Environmental Protection Agency (which was established in 1997) currently has fewer than a dozen officers and they lack the capacity and resources to inspect industries being developed in Karachi.¹⁹ More national support to the provinces would help address the multi-dimensional nature of responding to climate change, which requires a high degree of technical oversight and planning, in order to effectively manage responses to climate impact.

An additional gap for adaptation is an assessment of financial mechanisms; additional gaps for mitigation include the development of a comprehensive investment roadmap including ‘bankable’ projects to attract climate finance; strong incentives for renewable energy and other low-carbon initiatives; and emphasizing the importance of fiscal policy, carbon price signals, and market-based policy interventions.

FRAMEWORK FOR INVESTMENT

Pakistan has taken positive steps to create frameworks for NDC implementation, but additional support could strengthen existing systems and bolster efforts to achieve mitigation and adaptation goals. Because

¹⁷ United Nations, *Pakistan's Intended Nationally Determined Contribution*, <http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Pakistan/1/Pak-INDC.pdf>.

¹⁸ WRI Country Call Summary with Ministry of Climate Change, February 10, 2017.

¹⁹ Saeed Khan, Rina. “Pakistan passes climate change act, reviving hopes – and skepticism.” Reuters. <http://www.reuters.com/article/us-pakistan-climatechange-lawmaking-idUSKBN16V19N>



of Pakistan's growth trajectory, the most impactful contribution of the Partnership would be mainstreaming its NDC into an Investment Framework.

There may be a need for further strengthening the financial components necessary for achieving Pakistan's NDC objectives, by providing support and oversight for the Climate Change Fund as created by the Climate Change Act in 2017. This fund has the potential for raising additional climate finance by pooling and blending resources; investing through innovative financial and risk mitigation instruments; and engaging with the private sector to attract investment. This will help strengthen the renewable energy industry and push Pakistan toward more rapid adoption of low-carbon energy generation as a primary energy source.

SOUTH-SOUTH EXCHANGE: PLANS AND FUNDS AS TOOLS TO MOVE FORWARD

To attract finance, Pakistan can look to Belize as an example for developing a thought-out investment plan. Belize's Ministry of Finance and Economic Development engaged key stakeholders from civil society, the private sector, NGOs, and the public sector while developing its National Climate Resilience Investment Plan (NCRIP) to ensure a transparent way forward.²⁰ To ensure Belize's investment context is clear, the NCRIP includes conducting risk assessments and collecting geospatial data; strengthening drainage and transport networks; and identifying interventions for comprehensive disaster risk management. Belize recognizes this as an iterative process and has welcomed feedback and input from various national actors. Moving forward, Belize expects to fully integrate the NCRIP into its development strategy and carry out the Plan's recommendations to reduce climate vulnerability.

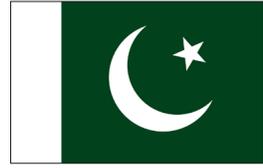
Having a focused plan that identifies areas of improvement helps to create a more trustworthy investment environment to attract the necessary finance the country needs. Pakistan could look to a similar approach to bring in investment.

In its ambitions to establish a green growth fund, Pakistan can also look to Rwanda, which has created the a national Green Climate Fund. The Green Climate Fund manages an in-country climate grant fund to support private, public, and civil society-led projects that contribute to climate change and economic development goals.²¹

²⁰ <http://www.worldbank.org/en/results/2014/08/27/stakeholders-engage-build-belize-climate-resilience>

²¹ <http://www.fonerwa.org/>

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