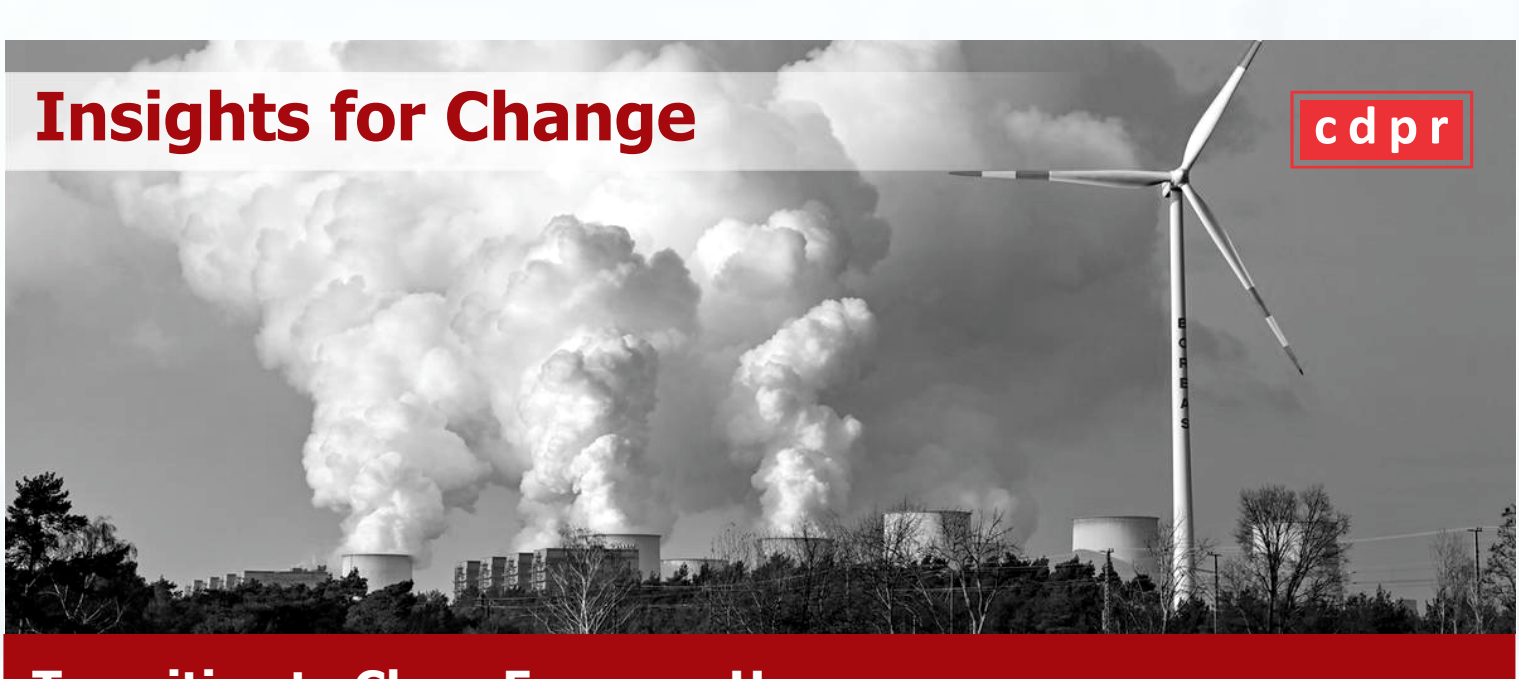

Transition to Clean Energy – How is power, capitalism and politics perpetuating coal use in Pakistan?

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Introduction

Coal is a big contributor to climate change. The Paris Agreement calls for world-wide elimination of coal use in the power sector by 2050. Despite global rhetoric on renewables, coal use in Pakistan is rising. A fifth of its energy needs are met using coal while the energy sector contributes 41% to its greenhouse gas (GHG) emissions (Nabi et al., 2022). At the same time, most of this coal is imported. An import-driven energy policy is likely not sustainable for Pakistan, especially given the global context that is leading to rising fuel prices and disrupted supply chains due to Ukraine-Russia War.

Pakistan has begun large-scale coal extraction to shift away from imported coal. The Thar district in Sindh province contains 175 billion tons of coal, exceeding the oil reserves of both Saudi Arabia and Iran (Siddiqui, 2022), with the capacity to make Pakistan energy sufficient for two centuries (Global Village Space, 2022). Proponents say Pakistan's primary focus should be on becoming energy secure, especially given its low carbon footprint (Jamal, 2022). Indigenous coal can help Pakistan become energy sufficient, but coal remains one of the most polluting fossil fuels and Pakistan is also committed to halving its emissions by 2030 under the Paris Agreement

Can Pakistan balance its green goals and become energy secure? This article analyses the persistence of coal in Pakistan's energy mix and how it can approach coal closure. It does not present a solution per se but introduces different narratives about what could potentially steer Pakistan on a path to sustainable energy.

The discussion is embedded in a political economy approach that situates global environmental governance within broader concepts of governance, highlighting the role of markets versus governments in energy transitions (Pearse, 2021). The analysis is underpinned by an approach that incorporates the impact of institutions and resources on policy outcomes (Tanner & Allouche, 2011) beyond simple economic policy analysis (Besley, 2004). Powerful nations and alliances continue to impact energy transition and its framing across

weaker nations (Bouzarovski, 2018) where energy can be an important determinant of a post-colonial identity for countries like Pakistan. Understanding why entrenchment of coal happens is a critical step towards confronting and eventually reversing coal use.

Global Commitments

The UN's 2021 Climate Change Conference (COP26) acknowledged fossil fuel's contribution to global warming. All 120 countries agreed to 'phase down' use of unabated coal i.e. coal not mitigated to reduce carbon emissions (UN, 2021). The initial goal was a phase out but India and China intervened to alter the language to 'phase down' (Yusuf, 2021). The two countries account for about 64% of global coal consumption (followed by US, Germany and Russia) (Statista).

Wealthier nations continue endorsing green policies without being ready to walk the talk (de Freitas Netto et al., 2020). Recently, China stopped funding overseas coal projects but continues to use coal domestically. The US has also pledged to decarbonise its power sector by 2035, but only one-third of its coal plants are sche-duled for retirement by then. Most companies on the global coal exit list have not yet given an exit date and are still investing in coal (Ainger, 2022).

Even following the call by the UN's 2018 Intergovernmental Panel on Climate Change to reduce coal-generated electricity to under 7%, coal use continued to rise. New mining projects across South Africa, Australia and India etc. are set to increase thermal coal production by more than 30% (Carrington, 2022). In fact, fuel supply disruptions caused by the Ukraine-Russia war may further increase coal use by at least 0.7% in FY23 (Ainger, 2022).

Pakistan's interest in Thar coal began a decade back, ironically at the same time when several developed economies began contemplating retiring coal from their energy portfolios. Coal was discovered in Thar in 1992. In 2012 Sindh Engro Coal Mining Company (SECMC), a collaboration between a local power generation company, Sindh Government, and the Chinese, launched coal-mining (Kamran, 2022).

Coal use of any sort cuts against Pakistan's dominant discourse on energy and climate change. Pakistan announced a moratorium on coal at the Climate Ambition Summit held in 2021 (Isaad 2021). However, the reality of energy security in Pakistan requires continued, and perhaps increased, coal use to generate electricity in the coming years. Even though the coal found in Thar is lignite, one of the dirtiest forms of coal (Majendie & Mangi, 2019) its expected contribution to Pakistan's emissions is under 0.10% (Kamran, 2022).

Coal's Importance for Pakistan

For many former colonies, coal remains instrumental to a new postcolonial identity as it provides an opportunity to become incorporated "into circuits of capital accumulation" (Brown & Spiegel, 2019). Several countries consider its use a necessary evil to achieve competitiveness. Resource nationalism (tendency to assert control over natural resources) and subsequently indigenisation of the energy mix remains high on Pakistan's agenda (Koch & Perreault, 2019).

Incumbents support narratives that shape perceptions about given resources and their future role and alter them to suit changing global contexts. Experience of enclosure and displacement at sites of extraction like Thar mirror colonial patterns of exploitation. Such

exploitation and conflicts are often regarded as inevitable "trade-offs," to achieve energy security (Brown & Spiegel, 2019). In Thar, 4000 villagers lost their land through a colonial-era Land Acquisition Act, allowing state acquisitions on behalf of private corporations, for the sake of public welfare (Alam, 2021).

For years, Pakistan kept coal underground, to bargain during global climate negotiations for easier access to international climate finance and technology. It was unable to sustain this, as rising fuel prices and debt servicing squeezed Pakistan's fiscal capacity to invest in renewables while two-thirds of rural Pakistan still lacks electricity. Pakistan thus refers to Thar coal as a "game changer."

Indigenous coal – lesser of two evils?

The debate around coal use in Pakistan is framed as a choice between using imported or indigenous coal but not eliminating its use. Pakistan annually imports almost 19 million tons of coal (having tripled since 2015), half of which is consumed by the power sector (Ali, 2022). As part of its 10-year energy roadmap, Pakistan is keen to run all its power plants on indigenous coal (Ebrahim, 2021) saving approximately $2.5 billion in energy imports. Besides being a burden on foreign exchange reserves, coal imports also expose the economy to international energy price shocks.

Advocates of indigenous coal extraction argue that natural capital is substitutable (Neumayer, 2013). Tree plantation programs are posited to offset emissions from new coal extraction. This approach, however, does not incorporate impacts on ecology and local communities in terms of lost livelihoods, land, access to clean drinking water and green cover (Lashari, 2022.). Mine dewatering in Thar could potentially disrupt water supply to 1.65 million residents (Dawn, 2020).

Investment in indigenous coal also represents a spatial fix, i.e. a geographical restructuring of capital to temporarily escape the ecological crisis caused by capitalism by opening-up new markets, production capacity or resources amongst other possibilities (Harvey, 2002). Shifting to local coal can usher a new area of capitalist expansion (Harvey, 2001) in Thar by promoting proliferation of coal industries, creating new sites of accumulation for others and creating jobs.

However, most literature on energy transitions in the global south inadequately captures (Goldthau et al., 2020) specific circumstances that make a low-carbon future harder to embrace for countries like Pakistan.

Determining energy pathways – who is in control?

Who controls decisions around energy resources and investments? Carbon-based energy regimes across many countries in Asia and Africa are perpetuated by economic and political control of the coal industry and coal-producing nations (Brown & Spiegel, 2019). Pro-coal governments in US, Japan, Australia etc. weaken the role of multilateral agreements and global governance, making coal phase-out challenging. Coal use in Pakistan is linked to extractivist regimes in Australia and South Africa. The former recognises Pakistan as a key growth market (Nicholas & Gorringe, 2022) whereas over 25% of South Africa's coal goes to Pakistan (Nicholas, 2021). These coal imports represent a regime of accumulation that perpetuates carbon-lock in countries like Pakistan.

Altered dynamics between states and markets in a globalised world implies corporations also hold more power. Financial institutions remain a key enabler of coal-based energy systems. Unless these adopt closure plans, coal companies will not transition. A rating of coal policies of 500 financial institutions across Asia found only 28 had an effective coal exit policy while many had none (CoalPolicyTool). The absence of regulatory frameworks to incentivise financial institutions to fund energy transitions (Wong, 2021) also support expansion of the coal industry.

Green advocates often quote China's example of cutting domestic coal use. Yet many Chinese companies continue to invest in coal-fired plants in Pakistan. At the same time, multilateral funding for coal plants has also globally shrunk (Bhandary & Gallagher, 2022). However, despite a pledge in 2013 to

not finance coal projects, Word Bank assistance is linked to six Thar coal projects that reached financial closure between 2016 and 2020 (Alam, 2022).

Practical implementation of coal retirement is also difficult due to local policy and financing conditions. Investments in coal infrastructure and long-term agreements with coal plants in Pakistan create path-dependent returns that delay appropriation of low-carbon/green technologies and renewables despite economic viability. Many coal plants need to run for 15-20 years more to pay back debt (Tingyao Lin, 2022). Without access to concessional financing Pakistan is reluctant to de-commission these plants (Mako, 2021).

Other factors also discourage the use of local versus imported coal for power generation. The most significant one remains the quality of the coal found in Pakistan. This coal has high moisture and mineral content, especially sodium and sulphur, which reduces power plant efficiency. Some independent power plants have thus been reluctant to use local coal.

Finally, Pakistan's access to international climate finance remains limited. Most climate finance ends up with multilateral organisations and international firms while governments, private firms and local NGOs in the global south receive a much smaller share (Oppewal, 2022). Moreover, for renewables, non-concessional financing is the norm. Incidentally Pakistan's planned mitigation spending of $101 billion until 2030 is mostly for renewables (Nabi et al., 2022).

Creating Alternate Narratives

Is coal-extraction in the interests of Pakistan? Yes, if outcomes are measured as maximising GDP and minimising domestic energy costs. These measures, however, ignore externalities impacting ecological and climate change outcomes. Degrowth/post-development theories thus urge re-examination of dominant economic values (Martínez-Alier et al., 2010), suggesting GDP may not be the best metric to measure well-being. Other intangible elements such as healthy eco-systems, pollutant-free environment, and preservation of local culture matter equally.

When determining Pakistan's obligation to implementing no-new-coal energy policies, distributive justice is a major concern (Martinez-Alier et al., 2016). Pakistan's contribution to global emissions is under 1% compared to over 50% by China, US, European Union and India (Ritchie et al., 2020). Yet Pakistan remains amongst the most vulnerable countries to climate change (German Watch, 2022). Recent floods displaced 33 million and killed 1700 Pakistanis with economic losses estimated at 15% of Pakistan's GDP. Two months on, Pakistan is still waiting for most funds pledged by wealthy nations. Of the promised $160 million only $51 million have so far been received (Lo, 2022).

By keeping coal underground, Pakistan alone would bear the burden of adjustment. However, its primary responsibility is protecting the right to subsistence energy for its citizens. Pakistan also lacks the funds required to invest in renewables. Globally no major country has reached even 50% renewable generation(Thurber, 2019).

Designing energy pathways is not an apolitical process. Neither are green transitions always just. Even simple technological solutions involve value judgments requiring transitions to be seen as transformations, beyond technical fixes (Huber & McCarthy, 2017) as social and political systems do not automatically adjust to sustainable energy pathways. If not done right, moving away from coal could create further imbalances in energy systems. Recognising the complexity of coal-based regimes and beginning a discourse focused on climate justice is essential. Who will be affected, how will they be compensated and can vested interests be counterbalanced remain pertinent questions (Jakob et al., 2020).

One approach could be to emphasise the possibility of deploying decentralised small

scale solutions as viable alternatives (Stephens, 2019) and frame energy transitions to focus on fiscal justice, energy/eco-conservation, health/well-being etc rather than climate change.

Conclusion

The debate around coal phase-out in Pakistan is underpinned by political, environmental, and economic tensions. Recent developments, including the Ukraine-Russia war, have led some countries to consider a (temporary) reversion to coal. At the same time, several global voices are seeking endorsement for a fossil fuel non-proliferation treaty (Simms and Newell 2018). But until Pakistan has access to equitable climate finance to fund investments in green alternatives, until it is compensated for the adverse effects it has suffered from global warming, and until it has a plan that focuses on just energy transitions, Pakistan will consider local coal a critical energy source for the future.

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