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Policy Research Institute
for Equitable Development

Megawatts of Betrayal

Sahiwal Power Plant and the Broken Social Contract

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List of Abbreviations

AKLA	Anwar Kamal Law Associates
CEMS	Continuous Emission Monitoring System
CPEC	China Pakistan Economic Corridor
CPHGC	China Power Hub Generation Company
CPPA-G	Central Power Purchasing Agency
CSR	Corporate Social Responsibility
DGMKPK	Directorate General of Mines & Minerals, Khyber Pakhtunkhwa
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESP	Electrostatic Precipitator
FGD	Flue Gas Desulfurization
HSD	High Speed Diesel
HSR	Huaneng Shandong Ruyi
HSRPEL	Huaneng Shandong Ruyi Pakistan Energy Private Limited
IGSPL	Independent Generation Supply Private Limited
IPP	Independent Power Producer
KWh	Kilowatt-hour
LBDC	Lower Bari Doab Canal
MNA	Member of National Assembly
MPA	Member of Provincial Assembly
MW	Megawatt
NAB	National Accountability Bureau
NEPRA	National Electric Power Regulatory Authority
NEQS	National Environmental Quality Standards
NOC	No Objection Certificate
NPCC	National Power Control Centre
PbMDC	Punjab Mineral Development Corporation
PLAC	Partial Load Adjustment Charges
PPA	Power Purchase Agreement
PPDB	Punjab Power Development Board
PQEPCPL	Port Qasim Electric Power Company Private Limited
SCR	Selective Catalytic Reduction
SEPCO	Southern Electric Power Company
SO_2	Sulphur Dioxide
US EPA	United States Environmental Protection Agency

Contents

Part I

This section offers a comprehensive introduction to the Sahiwal coal power plant, drawing on an extensive review of existing literature alongside a critical review of official documents, including licensing approvals and the Environmental Impact Assessment (EIA). It also analyzes relevant media coverage to contextualize the project within broader public and political economy discourse.

1 Introduction

A flagship initiative under the China-Pakistan Economic Corridor (CPEC), the Sahiwal coal-fired power plant encompasses significant historical, technical, environmental and social complexities that render the project unviable, both from a sustainable development perspective and the socio-economic and environmental impacts that make it a bane - not boon, as framed by the authorities - for the villagers and communities that live within its reach and influence.

Located in an agriculturally fertile region, the facility was meant to symbolize both promise and potential for accelerated energy production; what it has come to encompass, instead, is profound negative impacts borne by local communities and ecosystems.

Financed through a combination of debt and equity, the project includes comprehensive commitments to environmental safeguards and community development benefits. This document is based on community voices and concerns and serves as an introductory analysis of the commitments made by the project. It also discusses the role of the state and the corporate sector and whether they fulfilled those commitments and promises or overlooked them in utter disregard of the welfare of communities.

PRIED, an independent public interest think tank, intends to facilitate and publish subsequent research studies to examine the multifarious facets and impacts of the Sahiwal coal-fired power plant.

CPEC, initiated in 2013 and officially formalized in 2015, is an integral component of China's Belt and Road Initiative (BRI). Conceptualized as an enduring partnership for enhanced connectivity, infrastructure, and trade, CPEC has delivered substantial investments to Pakistan's energy sector. The initiative has incorporated coal, hydropower, solar, and wind projects into the national power grid, addressing electricity shortages and fueling industrial growth. In addition to the energy infrastructure, CPEC encompasses highway construction, railway development, upgrading the deep-sea Gwadar Port and establishment of special economic zones, positioning it as fundamental to Pakistan's developmental ambitions, trajectory and strategic outlook.[1]

While pledging to deliver all this, the project runs against the global environmental concerns and international commitments to reduce carbon emissions, with nations actively pursuing transitions away from environmentally hazardous energy sources, especially coal, widely regarded as the most polluting of fossil fuel options.

When China, capitalizing on its solar energy achievements, proposed a 62 billion US dollars investment package for CPEC, many Pakistanis held optimistic expectations for the development of a clean energy future. However, such hopes were dashed as the CPEC's 34 billion US dollars "clean energy portfolio" was substantially compromised by the incorporation of at least nine coal-fired power facilities.[2]

Consequently, CPEC's operational projects continue to rely heavily on coal that constitutes 38 percent of their total generation capacity, with wind and solar contributing only eight

percent and hydro-electric power accounting for 54 percent, leaving Pakistan far short of its 2030 goal of achieving 30 percent renewable energy generation. This dependency persists despite coal's severe public health impacts. In Pakistan, air pollution causes annually an estimated 128,000 deaths.[3] Three of the country's biggest cities are also often found among the world's most polluted human settlements.[4]

Table 1: Energy projects in Pakistan under CPEC[5]

S.No	Project	Installed Capacity (in megawatts)
1.	Sahiwal Coal-fired Power Plant	1320
2.	Coal-fired Power Plant at Port Qasim, Karachi	1320
3.	China Hub Coal Power Project, Hub, Balochistan	1320
4.	Engro Thar Coal Power Project	660
5.	Quaid-e-Azam Solar Park, Bahawalpur	400 / 600
6.	China Dawood Wind Farm, Gharo, Thatta	50
7.	UEP Wind Farm, Jhimpir, Thatta	100
8.	Sachal Wind Farm, Jhimpir, Thatta	50
9.	Three Gorges Second and Third Wind Power Project	100
10.	Karot Hydropower Project, Azad Jammu and Kashmir	720
11.	HUBCO Thar Coal Power Project (Thar Energy)	330
12.	Shanghai Electric SSRL Thar Coal Block-I mine of 7.8 MTPA	1320
13.	HUBCO ThalNova Thar Coal Power Project	330
14.	Suki Kinari Hydropower Project, Khyber Pakhtunkhwa	870
15.	Matiari to Lahore Transmission Line	With 4,000 megawatts evacuation capacity

1. https://www.csis.org/analysis/china-pakistan-economic-corridor-five
2. https://cscr.pk/explore/themes/energy-environment/dirty-energy-in-new-pakistan/
3. https://www.dawn.com/news/1708833/toxic-air-kills-over-128000-pakistanis-every-year
4. https://www.theguardian.com/environment/2025/mar/11/only-seven-countries-worldwide-meet-who-dirty-air-guidelines-study-shows
5. https://cpec.gov.pk/energy

This study situates the Sahiwal coal-fired power project within the aforementioned broader context but without losing sight of the local realities, concerns and circumstances that have come to pass in its wake. Highlighting the plant's operational decline, environmental damage, and socio-economic disruptions, it aims to underscore the disparities between official narratives and actual experience of the community. Drawing on both desk research and extensive fieldwork in 12 villages adjacent to the power plant, the study synthesizes fragmented evidence to provide a comprehensive account of the plant's impacts on livelihoods, ecosystems, and governance. Bringing a critical lens to such areas of inquiry as procurement irregularities, weak regulatory oversight, environmental hazards, public health risks, and the displacement of farming communities, this study serves two salient purposes; first, to prioritize community concerns, putting them at the heart of a particular development project; and second, to extend a critical development debate beyond technical and economic indicators, tinted by rosy official narratives around the CPEC related energy development initiatives.

Existing literature often examines such projects in isolation, overlooking, indeed silencing through repressive tactics as this study reveals, the perspectives of those directly affected. In contrast, this research documents how the plant has reshaped, for the worse, local lives and landscapes, revealing systemic flaws in Pakistan's energy development planning, often carried out without incorporating concerns of the communities that bear the brunt of such flaws.

Finally, the research findings seek to guide and inform future advocacy efforts for equitable energy policies, strengthening community voices and claims for fair compensation, and ecological reparation and restoration. In doing so, it hopes to bolster civil society initiatives for promoting transparent, responsible and accountable decision-making. Ultimately, the analysis underscores the importance and relevance of global and national debates for clean energy, and the critical need for a just transition away from coal dependency toward sustainable energy alternatives in Pakistan.

Colonial Transformation and the Punjab Canal Colonies

Nestled between the Ravi and Sutlej rivers in central Punjab, Sahiwal boasts a rich historical and agricultural legacy dating back to the Indus Valley Civilization. The ancient settlement of Harappa, located on the city's periphery, reveals sophisticated urban design through archaeological excavations conducted in the 1920s. However, much of its brickwork was repurposed for railway development in the 1850s, establishing Sahiwal's early connection to transportation networks. A key trade crossroads through the Mughal, Sikh, and British rule, the region – renamed Montgomery under the British Raj – became a hub for the Punjab Canal

Colonies project.[6] The semi-arid landscape through which flows the Lower Bari Doab Canal (LBDC) was transformed into one of South Asia's most fertile agricultural zones, attracting skilled farmers that reshaped its demographic and economic profile. The Lahore-Karachi railway brought about a further integration of Sahiwal into the colonial economy under the Raj. Post-independence, Sahiwal established its agricultural prominence and was globally recognized for its heat-tolerant, high-yield cattle breed and a thriving agro-industrial base, including textile mills and food processing operations. In time, however, the shift to water-intensive crops like maize, rice, and potatoes has strained the LBDC. The LBDC is a part of the second-largest irrigation system of the Punjab, located in the south-west of Lahore and running alongside the River Ravi. It serves approximately 275,000 farmsteads in the province.[7]

The Sahiwal Coal-fired Power Plant: A Flagship CPEC Enterprise

Fired up by coal, the power generation facility at Sahiwal is a 1,320 megawatt (MW) supercritical technology plant – first of its kind in Pakistan.[8] Located at Qadirabad, 15 kilometres northeast of Sahiwal city, the installation covers a thousand acres of fertile land. It is linked to Port Qasim through the ML-1 railway and intersected by the N-5 highway and the LBDC infrastructure.[9] Comprising two 660 MW units with a net output of 1,227 MW, the facility utilizes boiler and steam turbine technology from Chinese manufactures – Donfang, Shanghai and Harbin – achieving 42 per cent gross efficiency and exceeding 38 per cent net efficiency. Designed for a lifespan of 30 years, the plant annually consumes 4.4 million tons of imported sub-bituminous and bituminous coal sourced from Indonesia, South Africa, and Australia, with high-speed diesel serving as start-up fuel. Coal shipments arrive at Port Qasim from where they are transported by rail to the Yousafwala station close to the plant for storage in a 434,000-ton open-air facility, while cooling water is sourced from the LBDC.[10] The table below provides a comprehensive summary of the technical, financial, operational, and institutional details of the 1,320 MW Sahiwal coal-fired power plant.

Table 2: A summary of the technical, financial, operational, and institutional details of the Sahiwal coal-fired power plant.

Project	Information
Project name	1320MW Sahiwal Coal-fired Power Plant (or Sahiwal 2 x 660 MW Coal-Fired Power Plant Project)
Location / Province	Qadirabad, Sahiwal, in the Punjab Province. The plant utilizes the Lower Bari Doab Canal (LBDC) as its cooling source.
Ownership / Sponsors	**Project Company**: Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited (HSRPEL). **Sponsors:** Huaneng Shandong Ruyi Group, China. HSRPEL is a joint venture (Huaneng Shandong Power Generation Co. Ltd. holds 51 per cent ownership).

6. https://en.wikipedia.org/wiki/Punjab_Canal_Colonies
7. https://web.archive.org/web/20120705023126/http://lbdcip.irrigation.punjab.gov.pk/
8. https://cpec.gov.pk/project-details/2
9. https://www.researchgate.net/publication/340037577_Sahiwal_Coal-Fired_Power_Plant
10. Generation Licence No. IGSPL/60/2015, Licence Application No. LAG-292, Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Limited

Project Launch	Launched in 2013 after a Memorandum of Understanding (MoU) was signed in November that year. An inaugural ceremony was held on May 30, 2014.
License Granted / Official Approval	Letter of Intention (LOI) granted on May 21, 2014. NEPRA Generation License (IGSPL/60/2015) granted in 2015. Received a letter of support on April 17, 2015.
Construction Start	Construction began on July 31, 2015 – in some accounts it is reported to have started in June 2015 or generally in 2015.
Power Production Start	Unit 1 starts operating on May 24, 2017. Unit 2 on June 8, 2017. Began commercial operation in July 2017.
Operational Start (COD)	Achieved Commercial Operations Date (COD) on October 28, 2017. The current status is Operational.
Capacity	1,320 MW (Installed Capacity), composed of two 660 MW units. Net deliverable capacity is 1,243.52 MW. Net output is approximately 1,227 MW.
Fuel	Coal (Imported). Units use bituminous coal. Also uses imported sub-bituminous and bituminous coal (Indonesia, South Africa, Australia). High-Speed Diesel is used as start-up fuel. The plant is not a mine-mouth (one built close to a coal mine) plant.
Coal Consumption	4.4 million tons per year
Technology / Efficiency	Super Critical technology; specifically, supercritical boiler and steam turbine technology (from Donfang, Shanghai, Harbin companies). Guaranteed efficiency is 39.75 per cent. General efficiency reported as approximately 42 per cent gross, exceeding 38 per cent net
Design Life	30 years
Estimated Project Cost	Total cost is reported as 1.808 billion US dollars. Also cited in certain accounts as 1.912 billion US dollars.
Financers and Banks	Implemented as an Independent Power Producer (IPP). Mainly funded under the CPEC framework. Financed by a syndicated buyer's credit from four Chinese state-owned commercial banks: Industrial and Commercial Bank of China (ICBC), Bank of China (BOC), China Construction Bank (CCB), and Agricultural Bank of China (ABC).
Debt	Syndicated buyer's credit (loan) of 1.44 billion US dollars. The financing structure was based on a debt-to-equity ratio of 75:25. Debt amount reported as 75 per cent (approximately 1.35 billion US dollars)
Equity	Equity provided by sponsors totaled 360 million US dollars. Represents 25 per cent of financing. Equity amount reported as approximately 450 million US dollars.
Power Purchase Agreement	30-year PPA signed with the Central Power Purchasing Agency Guarantee (CPPA-G).
Tariff	The upfront tariff was Rs 8.12/kWh plus Rs 1.07/kWh for coal transport. The regulator allows an Internal Rate of Return (IRR) of 27.2 per cent for imported coal usage.

The Social and Environmental Commitments

A look at the planning documents of the project reveals a bevy of advanced environmental safeguards, pledged to align the coal power project with international standards of sustainability. Committing to install environment-friendly technology for power generation - like electrostatic precipitators (ESP), flue gas desulfurization (FGD), and selective catalytic reduction (SCR) systems – it aimed to control air pollution and prevent groundwater contamination through ash handling mechanisms. The nearby cement factories were meant to utilize fly ash, ensuring minimal waste.[11]

The Institute of International Relations and Media Research (IIRMR), a relatively unknown organization based in Islamabad, claims the project's design incorporated several protective features. "In the coal yard, water spraying guns were installed to suppress coal dust, and a catch fence, two meters higher than the coal piles, was erected to contain particulate spread. For ash disposal, the yard followed Chinese engineering standards, with a polyethylene geo-membrane (two cloth, one membrane) serving as an artificial barrier, designed with a permeability coefficient of 1.0×10^{-13} cm/s. The coefficient indicates a low permeability, meaning that water moves very slowly through a substance like soil or rock. In environmental terms, this slow movement is characteristic of fine-grained materials like clay or silt, which act as a natural barrier, restricting the flow of groundwater and pollutants. This is beneficial for preventing the rapid spread of contamination through soil. This was further reinforced by a 1.5-meter thick clay layer, ensuring strict seepage control."[12]

The Punjab Environmental Protection Agency (EPA) granted a No Objection Certificate (NOC) to the project, making it mandatory that the facility should be monitored ensuring environmental stewardship and bi-annual reporting thereof.

Beyond environmental commitments, the project contained elements of social obligations towards the community. It pledged to create over 3,700 jobs during construction and 1,600 permanent positions once operational. Additionally, corporate social responsibility (CSR) initiatives were announced, including healthcare facilities, clean drinking water schemes, and technical training centers to strengthen local development.[13]

Such social and environmental commitments portrayed the Sahiwal coal-fired power plant as more than just another energy venture. Positioned as a model of sustainable progress under the CPEC, it combined technological safeguards with socio-economic contributions to gain public and institutional legitimacy.

11. Generation Licence No. IGSPL/60/2015, Licence Application No. LAG-292, Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Limited
    The information given in the table is obtained from following links:
    https://cpec.gov.pk/project-details/
    https://china.aiddata.org/projects/52659/
    https://www.gem.wiki/Sahiwal_power_station
12. https://www.brecorder.com/news/40334375/sahiwal-coal-fired-power-plant-keeps-emission-level-to-a-minimum-iirmr
13. Generation Licence No. IGSPL/60/2015, Licence Application No. LAG-292, Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Limited

Sahiwal power plant view from LBDC side where canal water is used for cooling

This, the study reveals, turned out to be a pipe-dream, however, as is often the case with most development projects the state continues to pursue in isolation and at the cost of public interest.

Contrary to repeated assurances from the authorities about the pledges made to people, the Sahiwal coal-fired power plant has thrown up a plethora of socio-economic and environmental challenges for the communities living around it. Heavy coal transportation has caused extensive coal-dust pollution along railway tracks, leaving hazardous particles in surrounding villages, both in air and over the agricultural lands. It is little consolation that a recent Asian Development Bank (ADB) report on Pakistan's power sector has noted that ash handling and disposal problems linked to such coal power plants are likely to further intensify environmental concerns.[14]

Such worries as voiced by the community or the ADB are already discernible at the local level, with persistent exposure to harmful emissions and waste threatening respiratory health and damaging crops, undermining local agriculture. The plant's enormous demand for water - drawn from the Lower Bari Doab Canal - has drastically reduced canal supplies to downstream farmers. Many have been forced to turn to groundwater, not only raising irrigation costs but depleting the water table by an estimated 15 feet. Moreover, ash water and industrial waste have heightened fears about contamination of freshwater resources, multiplying the existent risks to both public health and farming livelihoods.[15]

14. https://www.dawn.com/news/1387105/cpec-coal-based-power-plants-to-
15. https://www.thenews.com.pk/tns/detail/568327-dirty-deadly-business damage-environment-adb

In an investigative report published by the now defunct *Herald* magazine, the Sahiwal coal-fired power plant was described as a "double disaster". Quoted in the story, the former advisor to Prime Minister on Climate Change, Malik Amin Aslam warned that the project threatened food security and could potentially accelerate climate-related risks. Emitting substantial carbon and other air pollutants in a densely populated rural area, it has contributed to rampant respiratory and cardiovascular diseases among the residents. The worsening health situation as a result of the emissions have eroded community trust in the environmental safeguards the project had promised to deliver.[16]

And that's just the harm caused locally. Increasingly, broader concerns have been raised about Pakistan's growing reliance on imported coal plants, including the Sahiwal coal-fired power plant. This dependence on coal, analysts note, has shifted the country's energy pursuits away from international commitments regarding pursuing renewable options, placing long-term strain on economic resilience that is not planned within the imperatives of sustainable development. Far from meeting the energy needs equitably, it has burdened taxpayers with environmental disasters and unsustainable generation costs, fueling social discontent over inequitable access to affordable energy.[17]

16. https://herald.dawn.com/news/1398877/the-problems-caused-by-mishandled-industrial-waste
17. https://www.energyupdate.com.pk/2022/01/23/coal-fired-power-plants-are-causing-havoc-in-pakistan/

2 Planning Gaps and Environment Impact Assessment (EIA) Critique

The Sahiwal coal-fired power plant illustrates a deeper malaise at the heart of how governments, states and capital works, as reflected in the gap between official narratives and on-ground realities. While the project-license assured compliance with environmental standards and minimal harm, the plant has caused significant ecological degradation and social disruption. This failure to acknowledge the loss of agricultural land, the rise in pollution, and the hazardous impacts on communities demonstrates a deep, systemic weakness in Pakistan's development agenda, particularly energy governance, planning and design. Environmental assessments are treated as mere procedural hurdles rather than guarantees for rigorous, sustainable safeguards.

The Sahiwal power plant was given a NOC by the Punjab Environmental Protection Agency (EPA) with the proviso that it would comply with conditions including regular monitoring of the facility and bi-annual reporting on its social and environmental commitments, among other things.

While license documents highlighted the technical suitability of the site including its proximity to a canal, access to grid infrastructure, and transport connectivity, they failed to mention that the land acquired was highly fertile agriculturally. Years later, as the project is celebrated for its sustainability by CPEC related websites[18], and the state news agencies[19], there is no account or accountability for the farmers displaced from their homes and lands in the wake of the project. Nor do they hint at how the facility has permanently scuttled agricultural activity and productivity in the area, leaving farmers in one of the most fertile regions of Punjab in a desperate lurch. Water drawn from the LBDC is increasingly unavailable for irrigation, while wastewater discharges risk contaminating groundwater. Ash disposal remains an ongoing challenge, with evidence of seepage and dust spread despite the promised safeguards.

Despite assurances of compliance with environmental standards, the plant has generated significant air, water, and soil pollution. Coal burning has increased particulate matter, sulfur dioxide, and nitrogen oxides in the surrounding area, leading to respiratory illnesses among local residents. The generation license issued by the National Electric Power Regulatory Authority (NEPRA) had conveniently ignored the environmental costs of transporting millions of tons of imported coal from Karachi to Sahiwal. The long supply chain not only adds to the carbon footprint but also contributes to air pollution and traffic congestion along the rail route. The environmental cost and the loss of agricultural land contradicts the official claim that the project is an "economically feasible" solution to Pakistan's energy needs, giving the lie to assertions that the site is the "best in every context."

18. https://thedailycpec.com/sahiwal-power-plant-leads-with-sustainable-practices/
19. https://www.app.com.pk/national/sahiwal-power-plant-marks-a-decade-of-reliable-power-efficiency-local-growth/

Power plant seen from Chak 76-5R, located next to agricultural fields.

Typically, local communities were left out of the official parleys and project-planning. They were not adequately consulted regarding the feasibility and sustainability of the plant. The compensation they received was far from satisfactory, given the immediate losses and those that surfaced later in the form of environmental and social hazards. Concerns raised by independent experts during the licensing stage fell on deaf ears or were discounted on procedural grounds. All of which reflect a serious lack of transparency and accountability on one hand and a cavalier indifference to public interest on the other.

Anwar Kamal Law Associate (AKLA), a legal firm that analyzed the license application on legal grounds commented that in its opinion the location of the Sahiwal coal-fired power plant was not suitable, mainly because its fuel was imported coal, requiring in-land transportation from Karachi to Sahiwal. That alone would considerably escalate the cost of electricity produced from the generation facility. ALKA stated that the supply of electricity from the South to mid-country would be more feasible considering the coal transportation costs and impacts. In view of these and the environmental degradation concerns, AKLA opposed the government move to grant a generation-license to HSRPEPL. Moreover, AKLA suggested that a public hearing may be conducted, preferably near Sahiwal, to elicit and consider views of the people living within the impact zone of the power plant.

AKLA's concerns have been validated by alarming developments ever since the plant's operations started. Residents have reported mounting health problems, reduced agricultural income and environmental stress. They confirm the fears that the social cost of the generation facility is far greater than the benefits purportedly claimed by NEPRA and the managing company.

The table below compares community-reported impacts with the Environmental Impact Assessment's claims:

Aspect		Official Claims	Community Experiences
	**Land Acquisition & Compensation**	639 acres of government, 50 acres of private land acquired under the Land Acquisition Act 1894. Compensation paid; livelihood support offered.	Acquisition was coercive, abrupt, and non-consultative. Compensation undervalued (PKR 2–2.1 million per acre vs. PKR 6 million per acre claimed). Inheritance laws exploited to weaken resistance. No alternative land provided.
	**Legal Resistance**	Consultations at multiple levels; no mention of local resistance.	Legal avenues seen as inaccessible and manipulated. Cases were dismissed. No legal relief.
	**Water Availability & Quality**	4.7 cusecs from canal; minor groundwater changes reported. Wastewater tested; some samples exceeded NEQS. Tube wells/ water pumps used when the canal closed. Wastewater to Seem Nalah after treatment.	Canal outlets reduced; groundwater dropped from 68 to 172 ft; >80 percent report poor quality; orchards/crops damaged; wastewater reuse harms soil. 10 tube wells installed; locals allege pumps run even when canal water is available, depleting aquifers. The water from Saeem Nalah eventually flows into the Ravi River.
	**Air Quality & Health Impacts**	Air pollutants listed with control techs (ESP, FGD, Low-NOx burners); dispersion modeling shows compliance with NEQS; includes long-term weather data.	89 percent report soot; 96 percent note temperature rise; 47 percent respiratory issues; cases of cancer, hepatitis, animal illness.
	**Noise Pollution**	Noise within NEQS limits; mitigation includes barriers, timing restrictions, dust suppression. Noise during plant would be significantly blocked by trees to be planted all along the periphery of the project area. Tree plantation should be started during the construction phase. It recommends that this plantation should begin during the construction phase. The EIA also suggests declaring the area a 'No Horn Zone' to further reduce noise levels.	Over 60 percent disturbed by noise and lights; affects sleep and animals. Community members report that, as of 2025, no such tree plantation has been carried out to buffer the noise. The sound from the plant continues to disturb them. They also point out the impracticality of enforcing a 'No Horn Zone' in the local context. Given that this is a rural area in Pakistan, with regular movement of trucks and various vehicles in and out of the plant, implementing such a restriction is seen as nearly impossible.
	**Employment Opportunities**	4,000 construction jobs + 247 operational jobs, majority local; skills training and business growth expected.	<50 jobs created for 67 percent of respondents; mostly low-wage (~PKR 25k locals); high-skilled jobs to outsiders; 66 percent say economic conditions worsened.

Assessing Environmental Impact: Promises and Realities

The Environmental Impact Assessment report for the Sahiwal coal-fired power plant outlines a comprehensive set of environmental mitigation measures across several domains of concern including gender dynamics, air pollution, noise, and wastewater management. However, there is little by way of attention to structural gaps, enforcement mechanisms, or local context and impact. While these measures demonstrate technical awareness referring to established environmental standards, their effectiveness hinges almost entirely on proper implementation.

Among the potential impacts, as identified by the EIA, are those related to gender concerns; the influx of workers from outside causing socio-cultural disruptions, particularly on women's mobility and privacy. The proposed mitigation, however, leaves this to the discretion of workers. It is limited to behavioral directives urging plant staff to respect local culture and norms. Such soft non-binding measures, reliant on training individuals in behavioral attitude and compliance, lack enforceable mechanisms or physical safeguards to ensure protection, safety and mobility of the local population, especially women. Again, even within the mitigation measures, there is no indication of institutional oversight, nor any community engagement or gender-sensitive modifications to the plant design and operational details to suggest that the concern and commitment are genuine, both in letter and spirit.

In the case of air pollution, the EIA report recommends advanced mitigation technologies including Flue Gas Desulphurization (FGD) for toxic sulfur-dioxide (SO_2) removal, Electrostatic Precipitators (ESPs) for particulate matter, and a Selective Catalytic Reduction (SCR) system for NO_x. A Continuous Emissions Monitoring System (CEMS) is also proposed. While these reflect both strong technical planning and a serious commitment to mitigation, the report fails to provide critical information regarding who will operate, monitor, and report emissions data. There is no clarity on long-term maintenance plans either, nor on critical concerns like the public disclosure of data or regulatory enforcement, leaving one in doubt about the transparency, accountability, governance, and thereby effectiveness, of the entire mitigation exercise.

For noise pollution, the EIA has proposed a combination of noise barriers, boundary wall height adjustments to contain noise, greenbelts, and monitoring to comply with NEQS limits. Although the measures seem adequate on paper, the lack of baseline data and localized planning weakens their credibility. There is no evidence of site-specific assessment for sensitive areas such as schools or health facilities, nor is there a grievance mechanism in place for noise-related complaints from nearby communities.

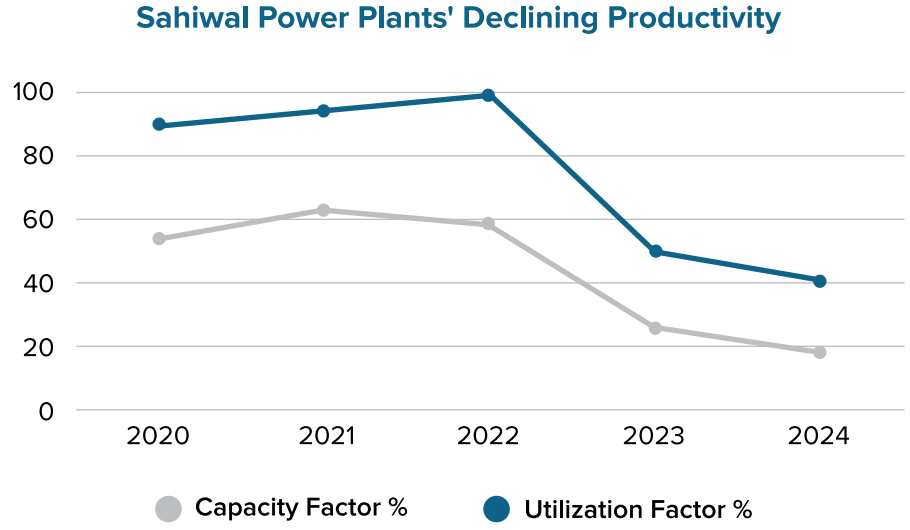
On paper, the wastewater management plan appears quite comprehensive, including treatment systems for coal, industrial, and sanitary wastewater, and provisions for internal reuse and discharge in compliance with NEQS and the US EPA standards. However, the plan to eventually discharge treated effluent into a drain leading to the River Ravi raises serious legal and environmental concerns. The Canal and Drainage Act of 1873, still in practice, prohibits pollution or obstruction of water bodies including rivers. Yet the EIA does not explain how it will avoid a violation of this law or mitigate downstream ecological risks. Moreover, the assumption that all systems will function flawlessly over the plant's lifespan ignores accidental hazards such as the ever-present possibility of technical failure, contamination, and regulatory lapses.

Yusaf wala railway station

In short, while the EIA displays technical sophistication and a structured approach to environmental management on paper, it lacks the depth and rigour necessary for practical enforcement. The report focuses more on ticking compliance checklists rather than addressing systemic governance issues, institutional accountability, or local socio-environmental complexities. The mitigation strategies, though well-articulated, remain merely aspirational in absence of clear mechanisms for monitoring, enforcement, and public transparency. In view of the aforementioned factors, the EIA report of the Sahiwal coal-fired power plant falls distinctly short of ensuring a robust environmental and social protection plan for the neighborhoods and communities marked by the project's imprint.

3 Licensing Details

The Sahiwal coal-fired power plant stands as a case study illustrating how failure of regulatory oversight can misalign policy conditions with operational realities. The NEPRA generation license awarded to Huaneng Shandong Ruyi (Pakistan) Energy (Pvt.) Ltd. for the Sahiwal coal-fired power plant presents an overly optimistic scenario amidst an incomplete picture of the project's environmental and social impacts. The situation on ground since the plant became operational, however, is far from what could be explained, at best, as the "official take" on reality, as conveyed in official narratives.



The NEPRA approval document in case of the HSRPEL application for unconditional acceptance of Upfront Coal Tariff for 2x660 MW Site of plant spells out certain conditions regarding site selection. However, for the Sahiwal coal-fired power plant, these conditions were either vaguely defined, inconsistently applied, or ignored altogether. The license and supporting documents including the EIA report claim, in view of the environmental concerns, the selected site was "ideal in every respect."

The licensing document requires the plant to be located "near" a load center, yet it does not specify what "near" means by way of measurable distance. The nearest major load centers to Sahiwal are Faisalabad, at 113.1 km, and Lahore, at 156 km. While these distances could be interpreted as "near" in a broad sense, the lack of a defined benchmark makes the condition ambiguous. If "near" is left open to interpretation, the vagueness undermines the credibility of the requirement - nearness - and allows disparate and discretionary interpretation of the term.

The guidelines further state that coal-based plants should be close to the source of local coal, and if reliant on imported coal, they should be near the coast. The Sahiwal coal-fired power plant satisfies neither condition. It does not operate on local coal from Thar, nor is it near the coast to facilitate imports and transportation. Instead, coal must be transported from Karachi to Sahiwal over long distances, creating avoidable logistical complications and compounding environmental costs.[20]

NEPRA's approval also stipulated that coal transportation should be "manageable" to guarantee uninterrupted supply. In practice, this condition has proven unrealistic given the minimal railway capacity. Reports indicate an acute shortage of railway wagons, with only 540–590 wagons dispatched daily against a requirement of around 1,000. This consistent deficit of 44 to 51 per cent has left coal inventories at the plant critically low on supply, at risk of falling below 50,000 tonnes, and has threatened uninterrupted operations and national grid stability.[21]

Taken together, these issues expose serious flaws in the regulatory approval process. NEPRA's conditions on site selection - -meant to safeguard efficiency, reliability, and sustainability-- were either inadequately defined or poorly enforced. The reality on the ground, from vague distance benchmarks to impractical coal transportation routes and security failures, demonstrates that the approval did not account for practical and operational challenges.

The HSRPEPL request for modification of its generation license drew a range of responses from stakeholders. NEPRA circulated the request widely and received feedback from as many as eight stakeholders. The Punjab Power Development Board (PPDB) endorsed the proposed modifications stating that the revised ramping rates and synchronization times aligned with the manufacturer's specifications and accurately reflected how the plant operates in practice. The China Power Hub Generation Company (CPHGC) and the Port Qasim Electric Power Company (PQEPCPL) also backed the proposal. They noted that their own coal-based facilities encountered identical challenges, urging NEPRA to approve technical parameters that reflect actual operational conditions. The Punjab Mineral Development Corporation (PbMDC) raised no objections to the changes. The Directorate General of Mines & Minerals, KPK (DGMKPK) offered no comments. The National Transmission and Dispatch Company (NTDC) recognized the issue but referred specific concerns to other authorities: Dispatch related matters to the National Power Construction Company (NPCC)and tariff related implications to Central Power Purchasing Agency (CPPA-G).

The major objections came from the CPPA-G and Anwar Kamal Law Associates (AKLA). CPPA-G argued that reducing ramping rates and increasing synchronization times would negatively affect dispatch efficiency, prolong start-up times, and increase start-up and partial load adjustment costs (PLAC). These additional costs, CPPA-G warned, could eventually be transferred to consumers. AKLA called for a comprehensive review of how the changes would affect tariff and contractual obligations under the PPA, particularly regarding startup charges and PLAC costs.

20. Approval of National Electric Power Regulatory Authority in the matter of Application of Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited (HSRPEL) for Unconditional Acceptance of Upfront Coal Tariff for 2x660 MW
    Coal Power Plant [Case No. NEPRA/TRF-308/HSRPEL-20151
21. https://www.brecorder.com/news/40375901/sahiwal-coal-plant-says-concerned-at-shortage-of-railway-wagons

In its response, HSRPEPL explained that its plant design was finalized before NEPRA raised the coal calorific value requirement to 5500 kcal/kg. This meant the earlier approved parameters were now technically impossible to achieve. The company stressed that imposing higher ramping rates could cause damage to boilers and related equipment, reduce the plant's operational lifespan, and create safety risks. HSRPEPL reassured stakeholders that tariff impacts would remain negligible because the plant operates at a base-load facility with infrequent startups. The company backed its claims with certificates from the manufacturer and verification from independent engineers.

NEPRA's evaluation recognized that ramping rates were fundamentally design parameters determined by the manufacturer. The Authority confirmed that HSRPEPL's proposed parameters matched the manufacturer-provided loading curves and were necessary for safe, sustainable operations. It noted that since the facility functioned as a base-load plant, it would not undergo frequent start-ups, making and any tariff impact from the modification minimal. NEPRA accepted HSRPEPL's reasoning as plausible and supported by evidence, concluding that the modification complied with licensing regulations, ensured system reliability and consumer protection, and complied with the NEPRA Act.

In its final decision, NEPRA approved the modification under Regulation 10(11) (a) of the Licensing Regulations, officially revising Generation License No. IGSPL/60/2015 to incorporate the new ramping rates and synchronization times. The resolution was signed by Chairman Tariq Saddozai, Vice Chairman Saif Ullah Chattha, and Members Himayat Ullah Khan, Syed Masood-ul-Hassan Naqvi, and Maj. (R) Haroon Rashid.[22]

The decision reflects NEPRA's acknowledgment of the technical constraints faced by large imported coal power plants and its effort to balance system stability, plant sustainability, and consumer interests. Although most stakeholders supported the modification, CPPA-G and AKLA raised concerns over financial and dispatch implications. NEPRA ultimately sided with the manufacturer-certified parameters. It deemed the tariff impact negligible, prioritizing what it called the long-term safe and reliable operation of the supercritical technology of Sahiwal coal-fired power plant.

22. Modification-I in Generation Licence No: IGSPL/60/2015 Licence Application No. LAG-292 Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited (HSRPEPL)

4 Controversies

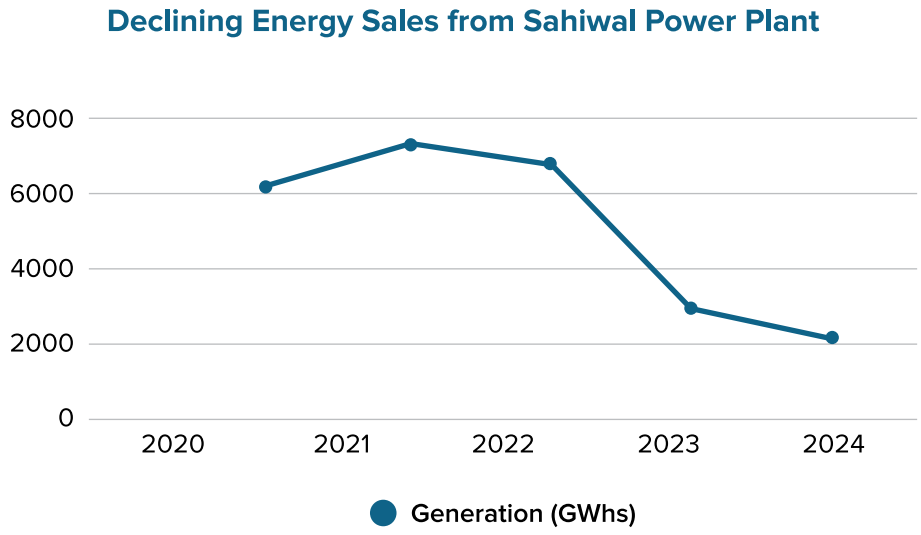
At the heart of the regulatory approval controversy lie allegations of corruption, cost inflation, and flawed procurement processes. In 2024, a NEPRA fact finding committee uncovered serious irregularities in the coal procurement contracts, including limited competition, inflated prices, and procedural changes that restricted fair bidding. These revelations emerged after the former Energy Minister Muhammad Ali initiated an inquiry in response to mounting stakeholder concerns. While the Chinese operator, Huaneng Shandong Ruyi (HSR), categorically denied any wrongdoing and defended its procurement procedures as transparent and fair, the committee›s findings painted a complicated picture.

NEPRA's investigation revealed that many tenders attracted only one qualified bidder, enabling potential price manipulation. The mandatory 60-day notice for bidding was reportedly removed without any transparent justification, which may have discouraged wider participation. Pricing inconsistencies were also identified- coal was reportedly contracted at 75,000 Pak rupees per tonne while other industries paid 45,000 Pak rupees for comparable quality. Tariffs were benchmarked to higher calorific values than the coal actually supplied, enabling hidden profits at consumers' expense. Perhaps most crucially, NEPRA acknowledged the absence of formal guidelines for long-term coal procurement, suggesting that an independent authority be created to regulate future contracts for stronger oversight.[23]

HSRPEL has recently filed legal proceedings against NEPRA and the Central Power Purchasing Agency (CPPAG), challenging the "lowest available price" requirement for coal procurement. The company seeks authorization to purchase coal from a preferred supplier at a pre-negotiated discount-- arguing that such flexibility was embedded in its original financial model and contractual framework. NEPRA and CPPAG have responded by referencing Rule 5 of the Public Procurement Rules, 2004, along with established competitive-bidding guidelines. These regulations mandate that fuel be procured at the lowest evaluated market price to protect consumer interests, particularly because fuel costs are passed on to electricity consumers.[24]

Payment disputes have significantly strained energy relations between Pakistan and China. By the end of the fiscal year 2024-2025, the Sahiwal coal-fired plant alone was owed 87 billion Pak rupees. This is part of a larger problem, whereby the Chinese Independent Power Producers (IPPs) operating under the CPEC face overdue payments of 500 billion Pak rupees.[25] These delays triggered early diplomatic friction, with the Chinese government repeatedly raising concerns through formal channels. In response, China linked future investment and loan disbursements to Pakistan›s ability to settle outstanding dues, slowing progress on new energy cooperation initiatives.

23. https://profit.pakistantoday.com.pk/2025/02/11/nepra-committee-flags-irregularities-in-sahiwal-power-plants-coal-procurement-report/
24. https://tribune.com.pk/story/2560863/sahiwal-plant-sues-nepra-over-price
25. https://profit.pakistantoday.com.pk/2025/06/30/cpec-power-plants-await-1-72-billion-in-overdue-payments/



Despite initial optimism, the plant's performance faltered, with energy output dropping from 7,500 GWh in 2021 to 2,000 GWh in 2024 due to surging global coal prices, exposing vulnerabilities in procurement and governance. Utilization fell from 99 per cent (2020–2022) to 41 per cent, with capacity factors declining from 54–63 per cent to 19 per cent by 2024, undermining its energy security goals.[26]

The National Accountability Bureau (NAB) inquiries into over-invoicing and excessive returns on investment, along with wider concerns over the financial viability of projects and estimated overpayments, intensified China's frustration and reluctance to commit new financial resources to Pakistan. Chinese lenders grew increasingly hesitant, citing the mounting stock of outstanding payments and the country's unstable economic climate.

The diplomatic fallout of these financial disputes was significant. The issue practically necessitated direct, high-level interventions from Islamabad, where Prime Minister Shehbaz Sharif raised the question of energy sector repayments in meetings with President Xi Jinping. Pakistan also made large "bullet payments" to Chinese power plants - a move described as essential to "break the ice" to restore trust in order to unlock new loans and project financing.[27]

This financial impasse was further illustrated by the stance of the China Export and Credit Insurance Corporation (Sinosure), which cited Pakistan's "due arrears" and "overdue payment of other CPEC projects" as reasons for its reluctance to approve funding for new hydropower ventures. As a result, the matter had to be escalated and "taken up again at a higher level between the Government of Pakistan and the Government of China" to seek resolution and restore momentum in bilateral cooperation.[28]

26. https://nepra.org.pk/publications/State%20of%20Industry%20Reports/State%20of%20Industry%20Report%202024.pdf
27. https://www.reuters.com/world/asia-pacific/pakistan-prime-minister-sharif-meets-chinas-xi-beijing-ahead-imf-talks-2024-06-07/
https://tribune.com.pk/story/2469642/pakistan-eyes-loans-infra-deals-during-pms-china-visit
28. https://theprint.in/world/chinese-firm-reluctant-to-fund-cpec-project-citing-due-payments/958754/

Despite being Pakistan's flagship imported-coal power station, Sahiwal has been plagued by serious coal theft incidents. The most notable case involved a shipment of roughly 22 tonnes disappearing from a freight train travelling from Karachi to the plant, suspected to be deliberate unloading or leakage in transit. Local plant officials and Chinese engineers disputed the railway's claim that the loss was accidental, pointing to systemic negligence and security gaps. More recently, railway wagon shortages have become a major bottleneck, with daily supply running at only 540–590 wagons against a requirement of about 1,000. This shortage threatens coal transportation and risks forcing plant outages.[29]

Despite HSR's claims of advanced environmental safeguards - including Continuous Emission Monitoring Systems (CEMS), Flue Gas Desulfurization (FGD), and electrostatic precipitators - independent experts remain skeptical. The plant's reliance on lower-grade sub-bituminous coal imported from abroad has not only increased its carbon footprint but also exposed it to volatile global market prices. To address these vulnerabilities, the government has proposed converting imported coal plants to Thar coal, with projected annual savings of 800 million dollars. However, this transition remains uncertain due to technical complexities and the need for Chinese approval. Importantly, the projected savings are not limited to the Sahiwal coal-fired power plant but part of a broader plan to convert multiple imported coal-based plants - including Sahiwal, Port Qasim, and Hubco - to local Thar coal in order to reduce dependence on costly imported fuel and stabilize foreign exchange outflows.[30] According to these reports, such a shift could save up to 800 million dollars annually while reducing electricity prices by Rs. 3 per unit.[31] Energy sector stakeholders have welcomed the government's emphasis on indigenous resources like Thar coal, calling it "the need of the hour." If implemented effectively, the conversion plan for the three plants could strengthen Pakistan's energy security and deliver broader economic benefits.[32]

The Sahiwal coal-fired plant has become embroiled in significant controversies, particularly surrounding its coercive land acquisition process. The acquisition of over 1,000 acres of fertile agricultural land in Qadirabad, executed under the Land Acquisition Act of 1894, sparked widespread discontent due to its lack of transparency and consultation. Farmers like Muhammad Siddique and Rana Ali Hassan from Chak 76-5 R reported being pressured to sell ancestral lands at undervalued rates- approximately 2.07 million rupees per acre- without viable alternatives, facing tactics such as police intimidation, including late-night raids and threats of legal action with terrorism clauses.

A 2015 legal challenge by two dozen residents and the Al-Khidmat Foundation at the Lahore High Court highlighted the rushed Environmental Impact Assessment (EIA) and violations of environmental laws. The petitioners argued that the plant's location on prime agricultural land posed risks to crops, livestock, and public health through ash dispersal and water

29. https://www.brecorder.com/news/40375901/sahiwal-coal-plant-says-concerned-at-shortage-of-railway-wagons
30. https://tribune.com.pk/story/2373874/shifting-to-local-coal-could-save-over-800m-annually-experts
31. https://www.thenews.com.pk/tns/detail/1298275-energy-independence
32. https://tribune.com.pk/story/2373874/shifting-to-local-coal-could-save-over-800m-annually-experts

Power plant seen from Chak 76-5R, located next to agricultural fields.

contamination. Although the court dismissed the case in 2016 after government assurances of environmental compliance, unfulfilled promises of clean water, healthcare, and fair compensation fueled perceptions of betrayal. Villagers like Siddique noted that no promised amenities were delivered. This controversy is underscored by a significant population decline in Qadirabad between 2014 and 2024.[33] Aforementioned impacts and hazards reflect a broader narrative of governance failures and environmental neglect. The situation positions the plant as a case study in prioritizing national energy goals over local livelihoods and ecological sustainability.

Based on the afore-mentioned controversies, pressure from civil society groups, local communities and policy analysts is mounting on the government to phase-out the Sahiwal coal-fired power plant. In several recent protests, farmers from numerous villages near Sahiwal - including Qadirabad and Yousafwala - have demanded that coal power plants like the one in Sahiwal be shut down by 2030, citing damage to public health, declining groundwater, and rising costs.[34] Some policy reports have also called for its early retirement. For example, a report by Sustainable Development Policy Institute (SDPI) titled "Coal to Clean Credit" Initiative identifies Sahiwal coal-fired power plant as a priority case for accelerated shutdown.[35] Another SDPI report, *Transitioning Away from Coal*, ranks Sahiwal coal-fired power plant high among coal plants for early orderly retirement based on the large outstanding debt, inefficient capacity, and unsustainable reliance on imported coal.[36]

33. https://thepenpk.com/time-to-shift-from-carbon-to-zero-carbon/
34. https://www.dawn.com/news/1940784/farmers-mark-asia-day-of-action-against-coal
35. https://sdpi.org/assets/lib/uploads/Report%20-%20Coal%20to%20Clean%20Credit%20Initiative_compressed.pdf?
36. https://sdpi.org/assets/lib/uploads/Report%20-%20Transitioning%20away%20from%20coal.pdf?

Part II

A PRIED team carried out field studies in 12 villages around the Sahiwal coal-fired power plant, seeking community perspectives on the plant's socioeconomic and socio-environmental impacts. In addition, consultations with the community were undertaken in the form of focus group discussions to understand the afore-mentioned concerns, as well as those around land acquisition, air and water quality degradation, health issues, and livelihood disruptions. This section provides the methodology, data, and the findings of the field studies.

1 Methodology

A research team comprising two males and one female researcher conducted field visits to villages located within a five-kilometre radius of the Sahiwal coal-fired power plant. These villages were selected based on their proximity to the power plant and their potential exposure to its environmental and social impacts. The discussion points explored several impact areas across the selected villages, which are presented in the table here.

Villages situated on the right bank of the LBDC are denoted with an "R", while those on the left bank are marked as "L". To gather diverse perspectives on the socio-environmental implications of the plant, a mixed-methods approach was adopted, engaging a total sample of 100 respondents. Data were collected using both open-ended and closed-ended questionnaires. The field enumerator gathered responses from residents across the twelve selected villages. These respondents included individuals both directly and indirectly impacted by the plant, including women, the elderly community members and the power plant workers. The objective was to develop a comprehensive understanding of the social and environmental impacts associated with the plant.

Village Name	Sample size
75-5R	14
76-5R	47
77-5R	23
74-4R	5
78-5R	1
62-4R	1
63-4R	1
64-5L	2
65-5R	1
Yousafwala	1
Qadirabad	1
56-5L	3

A Focus Group Discussion (FGD) was also conducted in village 76-5R, one of the villages most directly affected by the plant. The FGD took place on June 24, 2025, in village 76/5-R, Tehsil Sahiwal, District Sahiwal. Most participants were locals - the majority of them descendants of early settlers in the region - whose lands were acquired by the Punjab Government through the district administration. All participants were directly affected, having experienced physical displacement, livelihood losses, or both. Participants included the village *lumberdar* or headman, a retired high school teacher, a lawyer from the District Courts of Sahiwal, a former agriculturist, a local agricultural trader, and a journalist.

2 Findings

A complex socio-economic and socio-environmental reality contradicting the official narratives emerged from the field-based research conducted in the 12 villages surrounding the power plant. Through analyzing and synthesizing focus group discussions, household surveys, and community testimonies, study aims to understand, document and address this alternative reality of suffering and loss. Contrary to the rosy picture of success and accomplishments that the authorities paint of the Sahiwal coal-fired power plant, rural communities in central Punjab are grappling with severe hazardous consequences due to the presence of the facility amidst them and their lands. From deteriorating air quality, declining groundwater levels, reduced farm productivity, and rising public health risks, these hazards have not only undermined local livelihoods but have triggered widespread psycho-social stress. While the plant contributes electricity to the national grid and profits to national and international power-sector investors including states, the burden of its externalities falls disproportionately on the local communities living nearby. Evidence gathered from there points to this troubling imbalance -- concentrated benefits for the state and energy sector, but widely dispersed tangible losses borne by local residents, often without adequate compensation or redress.

1. Losses of Land and Livelihoods

One of the most pressing concerns regarding the Sahiwal coal-fired power plant is the forced acquisition of fertile agricultural land that many local residents opposed. This not only displaced farmers but also contributed to a marked decline in agricultural productivity in the region.

In addition to the loss of farmland, the plant-related environmental impacts like emissions from coal combustion, including particulate matter and other pollutants, have adversely affected nearby crops, contributing to a noticeable decrease in crop yields over time. The plant operations have disrupted local hydrological systems, altering water availability and quality, further hampering agricultural activities and worsening the hazards affecting the daily lives of residents. A villager from 76-5R recalled, "We had been cultivating this land for generations, and suddenly it was taken from us. Farming was our only source of livelihood, and now we struggle to make ends meet."

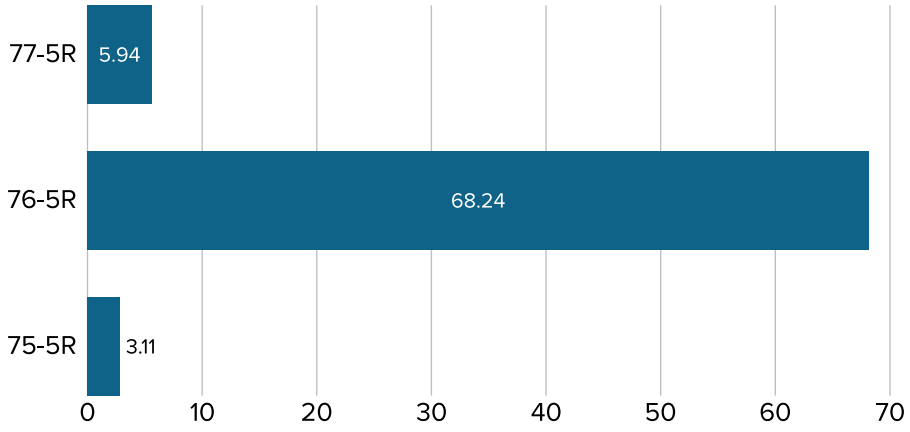
Increased security measures, including road closures, have restricted travel and mobility, severely disrupting local trade and market activities that are a lifeline to the local farming communities. These restrictions have made it difficult for small businesses and vendors to operate, disrupting livelihoods in an area where opportunities for alternative employment are few. More worryingly, local crime rates have spiraled since the plant›s construction, according to some community members - although this requires further investigation.

Land acquisition for the project was not a straightforward transaction but a complex and contested process, marked by power imbalances, state-led coercion, and fragmented community resistance. The study findings reveal a multi-pronged strategy by state authorities to acquire 1,004 acres of fertile agricultural land, without much thought to how a farming community would sustain itself in its wake, leaving many landowners feeling dispossessed and disenfranchised. The analysis here delves into four key dimensions of the process: The underpriced and non-participatory nature of the acquisition and compensation mechanisms, the strategic use of inheritance laws to divide landowners, legal discrepancies, and the eventual failure of court cases that challenged them.

a. Coercive acquisition and unfair compensation

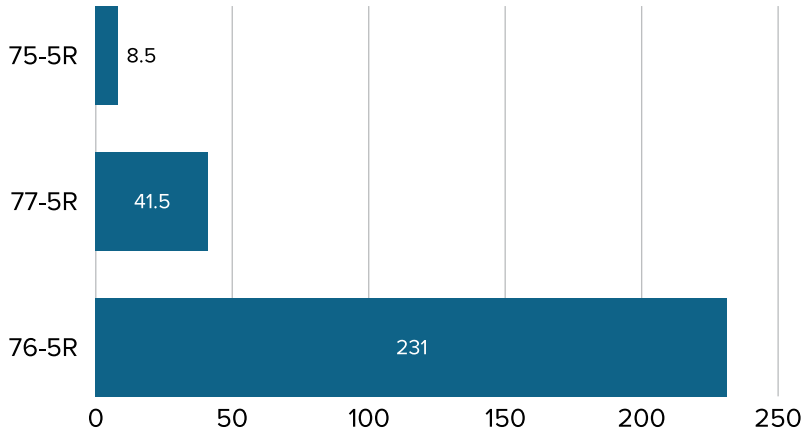
Described as “abrupt” and “rapid” by many a member of the community, the land acquisition process was marked by a complete absence of formal consultation. Landowners were not engaged as stakeholders but were, instead, subjected to a top-down decision taken by the district administration and imposed on the people. Information was disseminated among the communities through informal, politically-aligned channels, such as a local influential or elected representative. Coming from the powerful and the influential, the acquisition was immediately framed and presented as a foregone conclusion to the community that took it as such. A process that started with a lack of transparency was further compounded by aggressive tactics, as suggested by the account of a schoolteacher. That he was threatened with disciplinary action by a district education official for hesitating to accept compensation exemplifies the coordinated pressure exerted by various state departments- including the police, revenue officials, and district administration- to enforce compliance.

Village-wise total compensation received (in million rupees)



The graph below illustrates the extent of land acquisition in three villages, with largest land area acquired in Village 76-5R. Out of 12 villages, the land acquired was mainly from the above mentioned three villages. While the official compensation was set at an average 2.07 million rupees per acre, residents overwhelmingly rejected this figure. They considered it a significant undervaluation of their land's true agricultural worth. However, their position was undermined by their own long-standing tax practices. Many landowners had declared the land value lower than the actual market rate, sometimes as little as 700,000 rupees per acre, to avoid taxation. This discrepancy was later used to justify the low compensation, weakening their claims for fair payment.

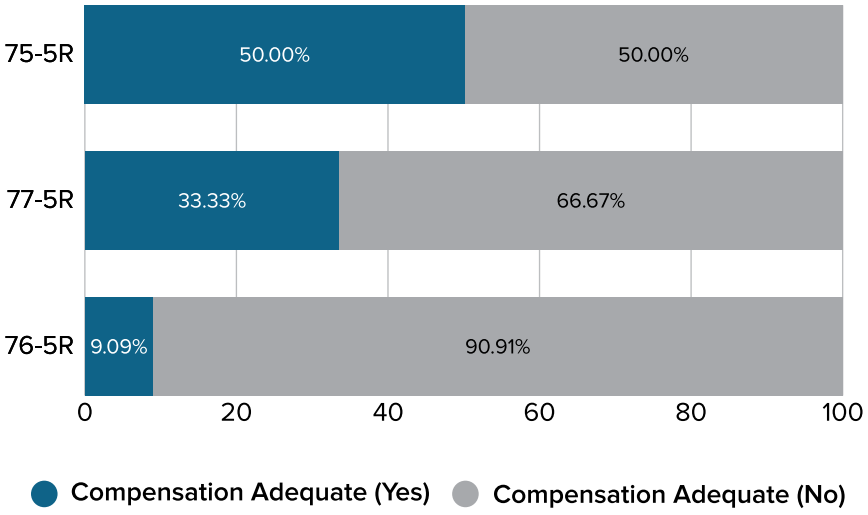
Village-wise land acquisition details (in acres)



Correspondingly, the graph on the left shows that Village 76-5R received the highest compensation, totaling 68.24 million rupees. Village 77-5R received a mid-level amount of 5.94 million rupees, while Village 75-5R received the lowest, at just 3.11 million rupees. On average, compensation across all three villages stood at approximately 25.76 million rupees. However, a closer look at the residents' perception reveals that the total amount received did not necessarily translate into a sense of fairness or satisfaction.

Village 75-5R shows a split perception of adequate payment with half of the respondents considering the compensation fair while the remaining half disagreeing. In contrast, Village 76-5R reported very low satisfaction, with only nearly nine per cent of residents viewing the compensation as adequate and 91 per cent rejecting its fairness. Village 77-5R fell in between, with approximately 33 per cent expressing satisfaction and 67 per cent voicing dissatisfaction. The bullet-point data reveals a striking contradiction, suggesting corruption on part of authorities due to the discrepancy in payments: Although some official documents reflected higher compensation figures, such as 6 million rupees per acre, participants reported receiving far less, often just 2 million rupees to 2.1 million per acre.

Compensation adequacy responses per village



This suggests that even if the final settlements appeared uniform on paper, the actual disbursement process was marked by confusion, unexplained deductions, or sharp differences between initial offers and final payments. The lack of transparency and perceived unfairness fueled widespread dissatisfaction -- even among those who received payment without delay. There were no alternative modes of compensation extended to the residents of these villages either, other than the cash payment. Particularly, for the farmer community, the absence of provision of alternative agricultural land in exchange for their own only deepened the economic and social disruption, as the cash compensation fell far short of replacing the livelihood lost by farming families.

The feeling of loss among residents extended far beyond financial concerns, however. For many, land was not merely an economic asset but the very foundation of their identity and generational connection to place. One participant described the experience as **"another 1947,"** invoking the memory of a massive upheaval in the wake of the Indian subcontinent's Partition, to capture the depth of grief and the enduring pain caused by the loss of ancestral land to the Sahiwal coal-fired power plant. Their displacement brought forth memories, when millions were stripped of their homes and lands, driven into voluntary or involuntary migration, and left in a state of homelessness. Just as the Partition

shattered communities and severed ties to familiar soil, the acquisition of agricultural land for the Sahiwal coal-fired power plant brought a deep sense of dispossession and up-rootedness.

b. Fragmenting families, fracturing resistance

A particularly revealing aspect of the state›s strategy was the unilateral and inconsistent application of the inheritance law. Instead of negotiating with the heads of families who controlled large, unified landholdings (one participant›s family owned six *Murabas*)[37], the government unilaterally processed the hereditary division of land. Compensation was issued directly to individual heirs, including women. A female Assistant Commissioner was engaged to encourage female heirs to claim their share - while ostensibly a progressive move for gender equity, it served the backhanded purpose the state sought, effectively atomizing land ownership and transforming a few powerful landowning families into hundreds, and eventually thousands, of individual stakeholders. By fracturing collective holdings and creating potential intra-family disputes over money, the government systematically dismantled the potential for a unified resistance, making for a manageable and controlled acquisition process.

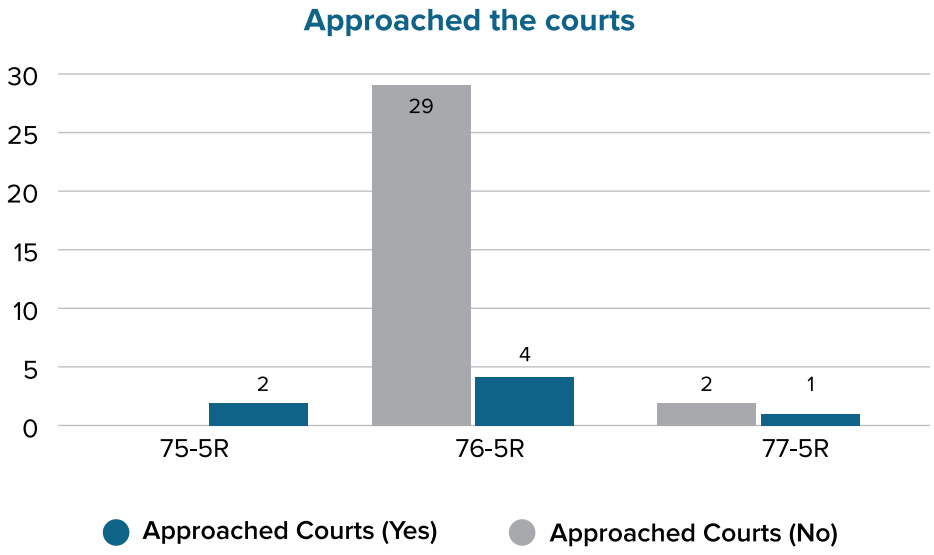
c. Legally defeated in the name of national interest

The landowners' efforts to resist the acquisition through legal means proved largely ineffective, blocked both by the state's overwhelming authority and their own delayed response. Participants such as Najam, a landowner, acknowledged that they had failed to challenge the acquisition under Sections 4 and 11 of the Land Acquisition Act within the required timeframe. This lapse closed a critical window of opportunity that could have stalled or prevented the process altogether.

When legal action was eventually pursued, it met a swift and decisive end. The Multan High Court dismissed 42 pending cases to expedite hearing of the Sahiwal coal-fired power plant case, which was then dismissed on grounds of "national interest." This act illustrates a clear alignment of the judiciary with the executive›s interests and priorities. It left residents with the widespread sentiment that institutional mechanisms were rigged against them, prioritizing national-scale infrastructure over the rights and grievances of the citizens. The legal defeat only deepened their sense of powerlessness, leaving them no choice but to accept compensation after losing their land and the legal battle.

The research data supports this experience. Village 76-5R showed the highest engagement with the courts, with 29 respondents saying they had approached the judiciary, compared to just four who did not. In contrast, no respondents from Village 75-5R reported taking legal action, possibly due to lack of awareness, social pressure, or a perceived futility of the effort. Village 77-5R showed only minimal legal engagement, with two respondents saying yes and one saying no.

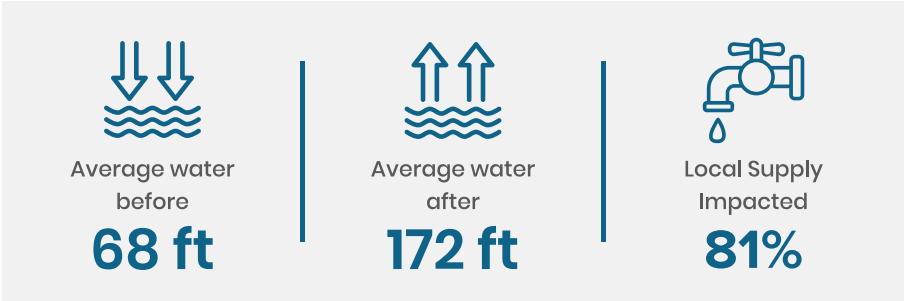
37. **Muraba** is a local unit of land that is equal to 25 acres.



Participants pointed to a "divide and rule" approach used by authorities to fracture local solidarity. This was particularly evident in Village 76-5R, from where much of the land for the power plant was acquired. The existing clan (*biradari*) and political divisions were deliberately exploited to weaken collective resistance. By pitting one group against another, officials and political figures undermined potential unified opposition. Local leaders, including the local member of provincial assembly from the Khagga family and Member National Assembly Pir Imran Shah, were reportedly instrumental in gaining early support from the community, promising economic prosperity, development, and long-term financial benefits, and portraying the project as a once-in-a-generation opportunity.

These promises never materialized, however. Once the land was acquired and the plant became operational, participants said, all commitments were forgotten. The optimism that had initially shaped their consent was replaced by a deep sense of betrayal, reinforcing the view that both legal and political systems had failed them.

2. Water scarcity crisis



The escalating water crisis in the villages surrounding the Sahiwal coal-fired power plant reveals a disturbing interplay between declining canal supply, groundwater depletion, and deteriorating water quality. Field evidence paints a stark picture of water insecurity, both in quantity and quality, underscoring the broader negative consequences of unchecked

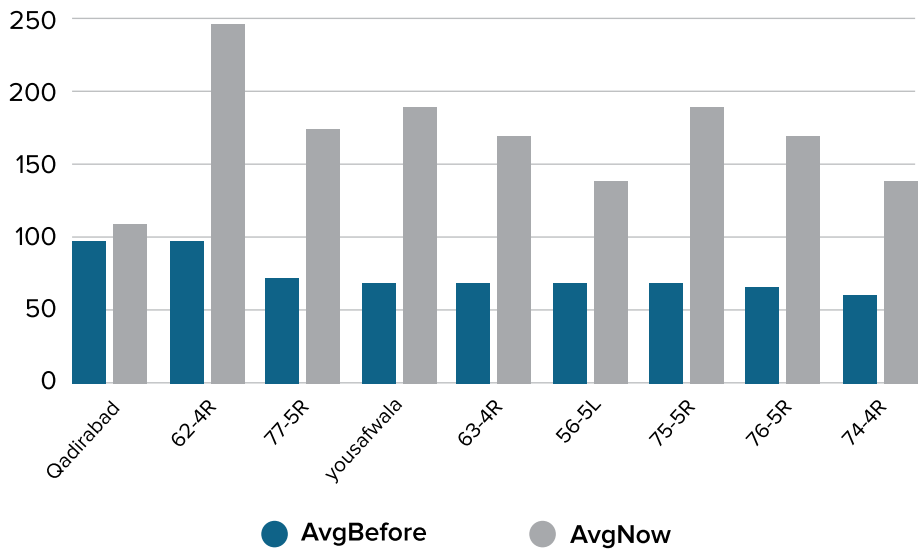
industrial operations on rural agrarian life. According to community responses, 81 per cent of residents believed that their local water supply (canal water) was directly impacted by the operations of the plant.

Traditionally, villages in the area relied on three *moghas* (canal water outlets) for irrigation. However, since the establishment of the plant, only one remains operational, with the other two shut down by the Irrigation Department. Despite repeated complaints to the Executive Engineer (XEN) of the LBDC, no steps have been taken to restore these outlets. Left with no official recourse, local communities attempted to construct an informal *mogha* through a collective effort. In absence of departmental approval, it remains non-functional, however.

The reduction in canal water has severely disrupted agricultural routines, forcing farmers to turn to groundwater for irrigation. However, this shift has brought its own set of challenges. For example, the farmers have to bear the additional costs such as fuel (diesel) to run tube-wells, and expenses on the operation and maintenance of tube-wells.

The survey results establish that the groundwater levels have dropped dramatically, with the post-project average depth now recorded at 172 feet, compared to the earlier average of just 68 feet. This observation is consistent with field data showing that most villages now access water at depths exceeding 140 feet. In the most severe cases, such as in Village 62-4R, the depth has plunged from 100 feet to 250 feet. The growing dependence on groundwater means that farmers must now invest in deep bore-wells, maintain expensive tube wells, and purchase solar or donkey-powered pumps to sustain their crops.

Village-wise underground water levels before vs now (ft)

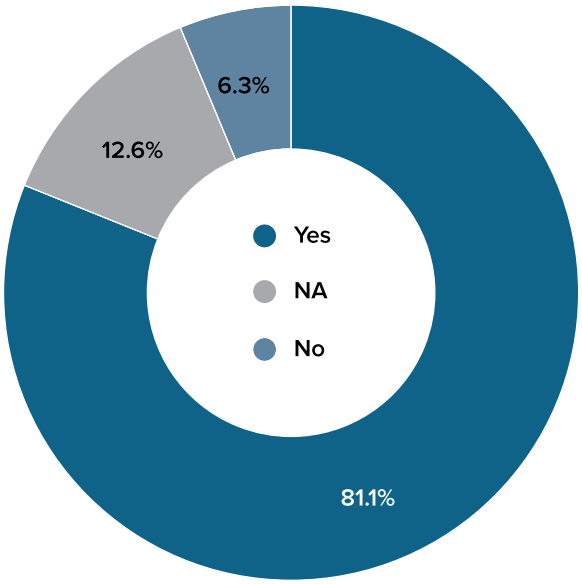


Quantitative survey results further emphasize the deteriorating situation. More than 80 per cent of respondents reported a decline in water quality, while only six per cent noted no change. A remaining 12.6 per cent of responses were unclassified, pointing to gaps in data collection or potentially unmonitored sources. In practical terms, this means the majority of households and farms are grappling with water-related issues. The consequences are not limited to water access alone. Although cropping patterns have remained relatively stable, fruit orchards have suffered significant damage. Farmers reported that fruit trees, once abundant, have mostly disappeared due to the dual pressure of water scarcity and soil degradation. The crisis is even more acute in villages like 75-5R and 77-5R. Local groundwater is no longer potable, forcing residents to fetch drinking water from hand-pumps situated along the LBDC. Additionally, eight to 10 *murabas* (with each *muraba* spread over 25 acres) of farmland remain disconnected from canal irrigation, contributing to falling yields and growing livelihood insecurity.

Infrastructure limitations have compounded the crisis. The absence of a functional sewerage system, together with aggressive groundwater extraction, has further strained the water table. Between nine to 12 turbines have reportedly been installed on government land near Chak 76 to pump out groundwater, depleting the aquifers even more and raising concerns about long-term sustainability.

The cumulative impact of these factors- reduced canal supply, rapidly depleting and contaminated groundwater, increased agricultural costs, and institutional inaction- has created an unsustainable situation for the region's farmers and residents. Without urgent and coordinated interventions from the relevant authorities, this water crisis threatens to erode the economic and social fabric of the affected communities beyond repair.

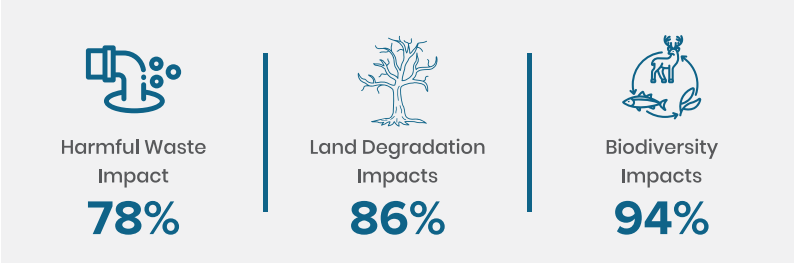
Water Deterioration



Groundwater turbines (about 9–12) operate when canal water is unavailable.

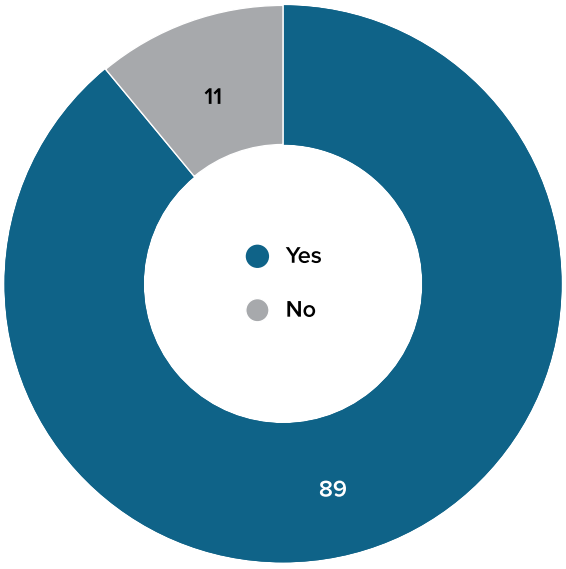
Water extracted from the LBDC has reduced availability for irrigation, while wastewater discharges risk contaminating groundwater. Ash disposal remains an ongoing challenge, with evidence of seepage and dust spread despite the promised safeguards.

3. Environmental Degradation and its Toll on Air, Soil, and Public Health



Residents from 12 villages surrounding the power plant voiced deep and growing alarm over the environmental degradation they now face. Revealing a disturbing pattern of ecological damage that has reshaped daily life in the region, their stories speak of polluted air and contaminated water, and a marked decline in biodiversity and agricultural productivity. The plant's operations have touched nearly every aspect of the local environment- and every home.

Increase in air pollution

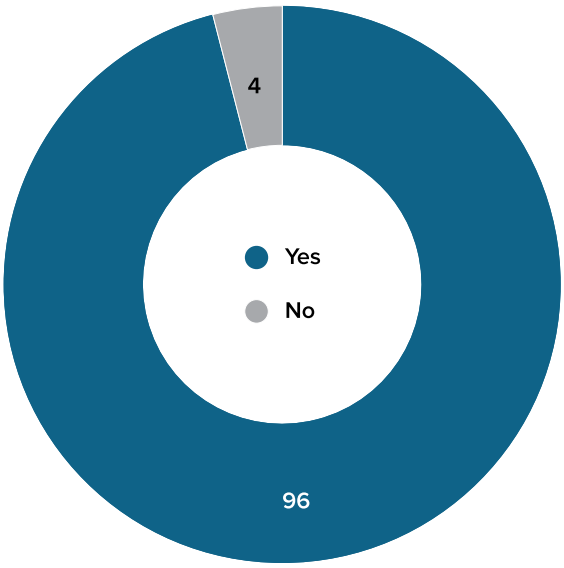


The most consistent and pressing concern was the sharp deterioration in air quality. A staggering 89 per cent of respondents said the air has grown noticeably worse since the plant became operational. In the words of one resident: "Black soot settles over clothes left outside overnight, especially during summer."

Rickshaw drivers shared that the winter air has become increasingly polluted, making it difficult to breathe, a problem they never experienced in the past. These changes are not merely anecdotal, either - with an astounding 96 per cent of respondents reporting a noticeable rise in ambient temperatures. This is often attributed to the heat emissions and smoke plumes from the coal power plant. Local residents also recall a criminal cutting of trees to clear land for the plant's construction.

While some replantation efforts were made within the power project's premises, the saplings and trees have been slow to grow, primarily due to their dependence on natural rainfall. But contaminated water sources, too, have hindered healthy growth, according to the local population, contributing to a reduced green cover in the area. This decline in vegetation has likely intensified the local heat, as fewer trees mean diminished natural cooling. As one resident from Village 64-5L remarked: "This has been the hottest summer I've experienced in 40 years."

Increase in temperature

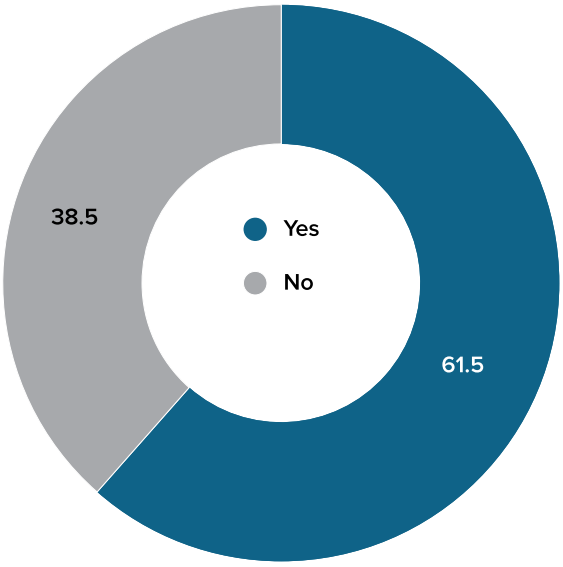


His observation echoes a broader community sentiment about the increasing severity of summer heat, which many believe has worsened since the plant began its operations.

Environmental harm goes well beyond air and health. Villagers spoke of once-flourishing orchards that no longer bear fruit. Guava and black plum trees are withering, their growth visibly stunted. "The trees don't grow like before, and fruits have disappeared," said a farmer, blaming the decline on coal ash, contaminated irrigation water, and falling moisture levels. Dust from the plant also disrupts crop drying. Coal dust both dries out crops by coating leaves and blocking sunlight, and at the same time it can alter the ripening process, either slowing it due to reduced photosynthesis or hastening it by stressing the plants. The effect depends on the crop type and level of exposure, adding to the burden on farmers.

Pervasive noise pollution has become a daily irritant for the nearby communities, with over 60 per cent of respondents reporting constant disturbances caused by the plant's heavy machinery and the steady flow of heavy vehicle traffic. Residents described a continuous influx of trucks, cars, and workers moving in and out of the plant, creating a persistent presence of noise that disrupts daily life and affects, according to community members, their sense of overall well-being.

Increase in noise pollution



As many as 92 per cent of respondents believed that the overall environment had worsened. Another 90 per cent specifically mentioned the loss of wildlife and biodiversity. Villages like 56-5L, 62-4R, and Qadirabad reported consistent patterns of land degradation, improper waste disposal, and vanishing local fauna- each of these issues affecting roughly a third of the population.

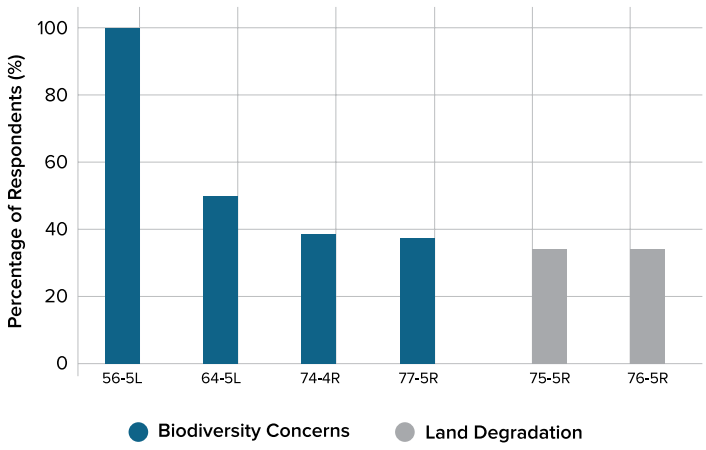
In some cases, the data revealed particularly alarming patterns. In Village 56-5L, every single respondent flagged damage to local biodiversity, marking the highest level of agreement on any single issue across the survey. Similar, though slightly less extreme, trends were reported elsewhere: In Village 64-5L, half the respondents cited biodiversity concerns,

Wastewater from the Sahiwal coal power plant being discharged into the Seem Nullah: the plant generates approximately 3,000 kilogrammes of coal ash daily, and this waste contaminates both land and water

while 74-4R and 77-5R reported 38.5 per cent and 37.2 per cent respectively. Alongside these ecological disruptions, land degradation emerged as another serious concern. In villages like 75-5R and 76-5R, 34 per cent of respondents observed declining soil quality, highlighting a widespread decline in land health across the region.

Waste disposal was also a major source of distress. As many as 78 per cent of survey participants said they were directly affected by the harmful waste produced by the plant. The facility releases approximately 3,000 kilogrammes of coal ash daily, contaminating both land and water. While in Village 56-5L, every single respondent flagged damage to local biodiversity, similar, though slightly less extreme, trends were reported elsewhere: In Village 64-5L, half the respondents cited biodiversity concerns, while 74-4R and 77-5R reported 38.5 per cent and 37.2 per cent respectively. Alongside these ecological disruptions, land degradation emerged as another serious concern. In villages like 75-5R and 76-5R, 34 per cent of respondents observed declining soil quality, highlighting a widespread decline in land health across the region.

Biodiversity and Land Degradation Impacts Village Wise



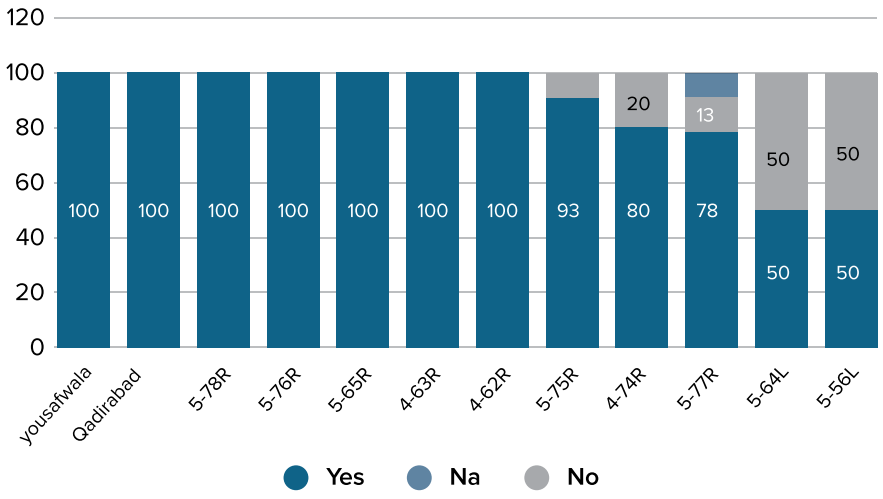
Compounding the problem, wastewater generated by the plant is funneled through pipelines into the Ravi River via the Seem Nala drainage channel. This practice has raised serious environmental and public health concerns. Muhammad Siddique, a local resident, said this polluted water was being reused for agriculture with the help of solar-powered pumps, and its poor quality was damaging soil fertility and reducing crop productivity.

For the farmers tilling their lands around the power-plant, the ash not just covered the land but also stifled their prospects. Choking crops and diminishing fertility, the once common and easy to cultivate vegetables like bitter gourd, pumpkin, and onions are now hard to grow. Wheat, a locally grown staple, is now among the crops adversely affected by the air and water pollution. Even though hard to substantiate in the absence of empirical research, in some cases, residents even blamed the plant's floodlights as an additional hazard disrupting natural growth cycles and undermining yields.

Given the circumstances, the focus group discussions shed light on the increasingly unviable option of multi-crop irrigated farming becoming infeasible as the sharecroppers and tenant farmers experience significant income loss. Consequently, families are forced to turn to alternative strategies as their traditional livelihoods are threatened. Instead of farming crops, they have taken up dairy farming, leasing land to agro-industrial firms, and worse, working as daily-wage labourers through seasonal migration. While these shifts demonstrate a degree of economic resilience and diversity, they also underpin a loss of autonomy and the gradual erosion of the traditional agricultural knowledge rooted in generations of lived experience.

The graph here demonstrates the manifest, undeniable toll that the power plant has taken on agriculture, the only livelihood that the local communities have known for generations. As many as 92 per cent of the survey respondents said productivity had significantly declined. In over half the surveyed villages, every single participant agreed that farming had become harder and less rewarding. The only exception being the villages 74-4R and 77-5R, where about one in five respondents did not agree with the experience of the majority or marked the question as not applicable. Village 77-5R had the highest percentage of "NA" responses at 8.7 per cent. Meanwhile, villages like 64-5L and 56-5L reflected a more divided view, with only 50 per cent acknowledging a drop-in yield -- suggesting that some pockets may be coping better than others.

Decline in local agricultural production



4. Public Health

Since the Sahiwal coal-fired power plant became operational, communities in the surrounding villages have reported a sharp decline in health. The combined impacts of contaminated water sources and degraded land and soil has created a chain of health risks spanning households, livestock, and agriculture, undermining the very foundations of what the community once regarded as sources of its well-being.



Farmers use this wastewater through a Peter engine to irrigate the fodder that their animals consume. The contaminated water causes skin diseases in their livestock, but they have no other option for irrigation.

Qadirabad medical clinic, the only accessible health facility and doctor for residents.

Among the health-related risks, respiratory illnesses have emerged as the most rampant and pressing concern, with local clinics registering a surge in patients suffering from chronic coughing, shortness of breath, asthma, and other lung infections. Health workers in Village 76-5R, located close to the plant, confirm that respiratory ailments now outweigh other health conditions in their workload, with patients complaining of eye infections, recurring fevers, and skin allergies frequently turning up at clinics and hospitals.

Medical data manifestly reinforce these accounts. Nearly 47 per cent of all health-related cases reported in the area are of respiratory illness. This overwhelming concentration of cases has placed immense strain on the already limited healthcare facilities. Less common but no less serious are cases of hepatitis, liver dysfunction, eye infections, cancer, and sudden unexplained deaths. Altogether, these trends point to disturbing healthcare reversals for the locals, raising serious concerns about the medium and long-term consequences of continued coal operations on community health and wellbeing.

The widespread health conditions in Village 76-5R speak volumes of this calamity, in all its severity. "We are seeing more patients with lung issues than ever before," remarked one local doctor from the same village, underscoring how respiratory ailments have become a defining feature among the community health hazards. The impact, however, is not confined to people. A veterinarian in the area reported a rise in unexplained livestock illnesses, marked by a general malaise and weakness, particularly among the buffaloes that are a major source of dairy and therefore dietary nutrition for the locals. A resident of 76-5R added, "These days, foot-and-mouth disease has increased in our village. Earlier, it was not that frequent. Ever since the Sahiwal coal-fired power plant was built, we have noticed our animals falling sick more often. Cows and buffaloes start drooling, stop eating fodder, and their milk production decreases. We do not know whether it is because of the air or the water, but such a situation did not exist before."

Hospitals in Sahiwal can be seen located far from the power plant area (Source: Google Maps)

Community discussions consistently highlight these health concerns, with the residents attributing the rise in respiratory, skin, and eye conditions directly to emissions from the plant. Their testimony goes beyond medical records, eventually arriving at disruptions in daily life resulting due to declining quality of health. Intense floodlights at night and the constant industrial noise disrupt sleep cycles, heighten stress, and even, claims the veterinarian, altered animal behavior. Beyond conventional health indicators, these accounts suggest, the plant's influence extends and erodes both physical and mental well-being.

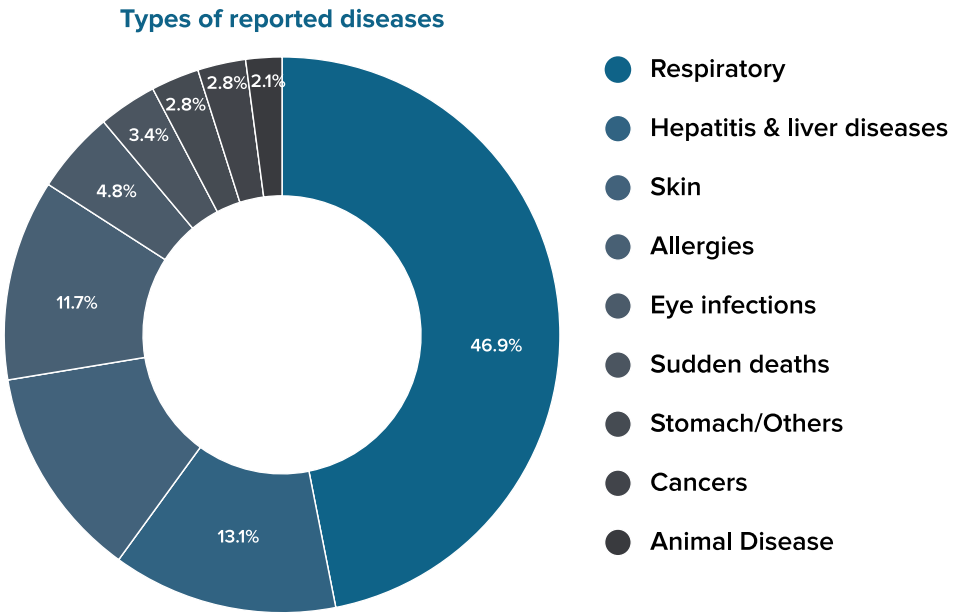


Figure 3: Hospitals in Sahiwal can be seen located far from the power plant area (Source: Google Maps)

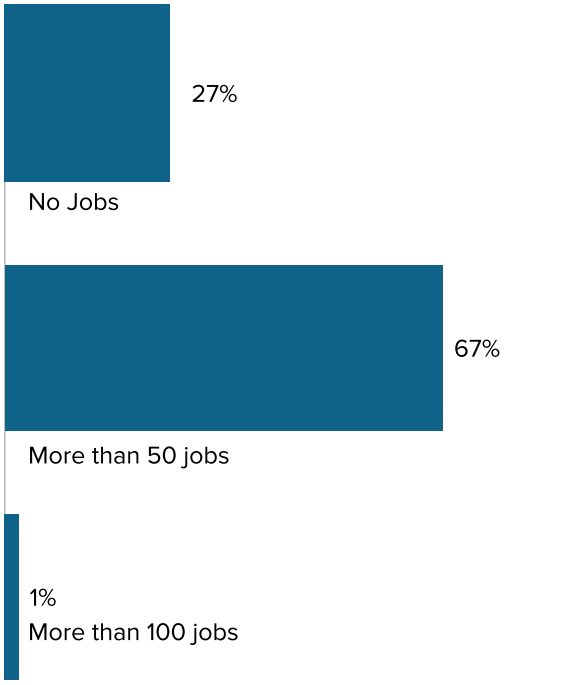
Medical staff and veterinarians note a broad range of illnesses, widely believed to stem from polluted air, contaminated water, and the deposition of coal ash. Although these claims remain under-documented due to the absence of official surveys, their consistency across multiple villages lends credibility and demands urgent investigation.

Ali, a resident and practicing lawyer from Village 76-5R, has emerged as one of the most vocal critics of the plant's environmental impact. Deeply connected to his land and community, Ali has used social media platforms as a tool of resistance, sharing videos and photographs to highlight the visible degradation of his orchards. In particular, he pointed out the severe deterioration of guava trees, which, according to him, have suffered "irreparable damage." Despite repeated efforts to replant and regenerate the orchards, many of the trees fail to survive, a phenomenon he and many others attribute to the pollutants released by the power plant.

Ali's social media activism, primarily through TikTok and Facebook, has drawn considerable attention to how coal ash has settled onto farmlands, contaminated the soil, and disrupted the delicate balance of local agriculture. However, several of his videos were later removed from both platforms without explanation, which he believes is due to the authorities' push to suppress dissenting voices. Undeterred, Ali continues to document and share evidence of environmental damage, using every available outlet to raise awareness about the long-term costs his village is bearing in the name of energy production.

The problem of health hazards is magnified manifold in absence of local or accessible health facilities. The above figure depicts this dilemma where numerous hospitals can be seen in the Sahiwal city but none in the vicinity of the power plant. To access care and treatment for major health conditions, villagers have to travel to the Sahiwal city which takes two to three hours on average, depending on where a village is located. This not only delays treatment but also worsens conditions that could be best managed through quick and early detection and attention. Amidst the plethora of trails that the power plant has thrown up in its wake, the widening gap between escalating health needs and inadequate medical services is another challenge that has the communities feeling exposed, neglected, and unheard. Without systematic monitoring and adequate healthcare infrastructure, communities living in the shadow of the Sahiwal coal-fired power plant remain at serious and growing risk.

5. The employment illusion

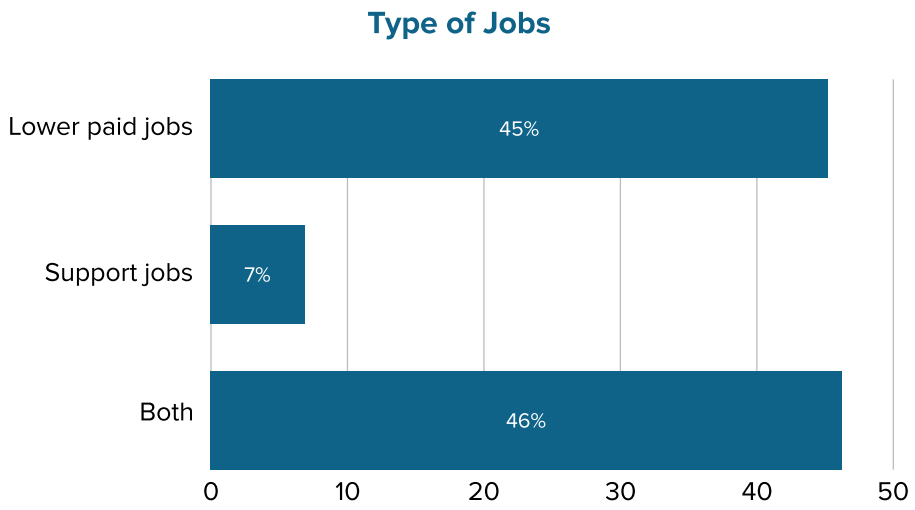


Job Opportunities

When the project was first announced, one of the promises that had the local communities hoping for a better future was that of employment. They were told the power-plant would open up job opportunities, stability, and progress. Instead, what unfolded was a deeply disappointing gap between promise and reality.

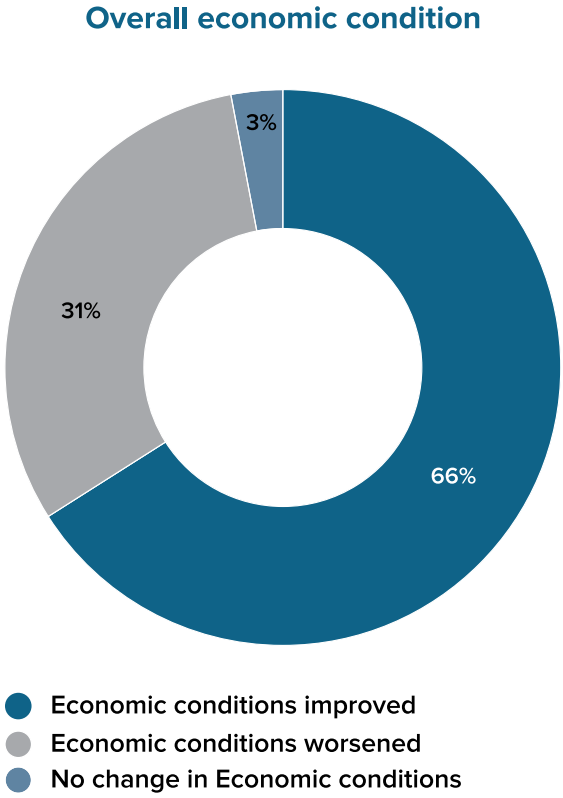
Employment data and testimonies from affected villages reveal that while some jobs were, indeed, created, they were neither sufficient in number nor meaningful in impact. The plant may have created jobs, but it didn't build careers.

The survey findings reveal that only 67 per cent of respondents said the plant generated more than 50 jobs. A striking 27 per cent believed no jobs were created at all, and just one per cent reported that over 100 positions had been made available. These figures reflect a widespread perception that the plant failed to deliver on the most basic economic promise made to the communities.



The nature of jobs offered was equally underwhelming. Nearly half (45 per cent) were categorized as low-paid positions, such as labourers, cooks, or electricians. Just seven per cent were support roles, and 46 per cent were a mix of the two. There were virtually no opportunities for skilled, stable, or upwardly mobile employment.

For residents like Sunny Shah from Chak 76, the disappointment is deeply personal. He shared that the Southern Electric Power Company (SEPCO), one of the plant's key contractors, pays local workers just 25,000 rupees per month, and no one from his village earns more than that. This wage is barely enough to survive on given the rising cost of living and basic necessities. Sunny added that, in his observation, most locals were hired only during the construction phase for physical labour, while very few secured stable jobs in the operational phase.



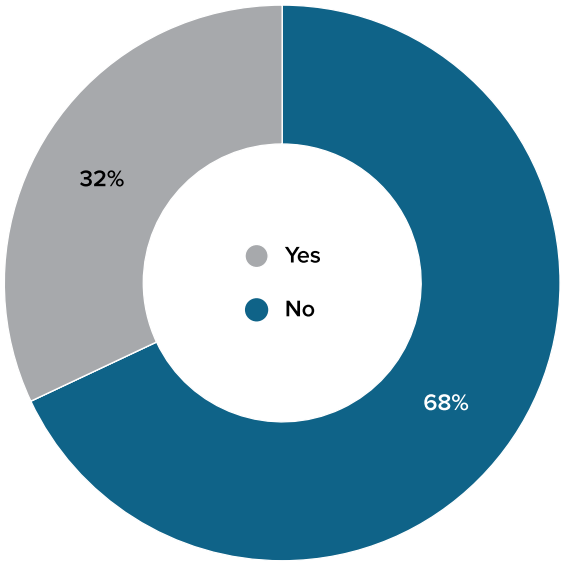
Despite the involvement of multiple firms - SEPCO, Panda, and HSR -- in the plant's operations, only around 50 people from the surrounding villages have found employment. Most others remain in low-skill roles. High-paying technical and managerial jobs are held by Chinese staff or workers brought in from other cities, bypassing the local labour pool entirely. On the one hand, this exclusion has created resentment and on the other, a strong sense of injustice among locals.

This sense of unfairness is intensified by inconsistent and arbitrary salary rates. For example, some cooks are reportedly paid up to 100,000 Pak rupees per month, nearly four times more than those engaged in plant-related labour or construction. These disparities are experienced not

only economically but, more deeply, on a personal and socio-cultural level within the community. According to local accounts, Christian cooks received higher wages mainly because they prepared food for Chinese staff that included pork, donkey meat, and dishes prepared with alcohol – items that a Muslim worker would stay away from for reasons of faith.

Beyond employment, the plant's impact on local businesses has been uneven, and, in many cases, negligible. Overall, only 32 per cent of respondents across all surveyed villages said they observed any new economic or business opportunities following the project's development, while 68 per cent reported no benefits at all. But a closer look reveals that this impression and impact varies sharply across locations. Several villages- Yousafwala, Qadirabad, 78-5R, 65-5R, 64-5L, 63-4R, and 62-4R- reported a 100 per cent impact on local businesses, suggesting widespread disruption. Small shops, food vendors, and service providers in villages reported fewer customers. Many of them run small businesses tied to their farmland- such as dairy, poultry, and fodder sales. With land gone, these enterprises have collapsed. One resident of Yousafwala adds that the "construction of the railway bridge has created a physical barrier that disrupted local connectivity." Villagers reported that the bridge blocked traditional routes used for moving agricultural produce, livestock,

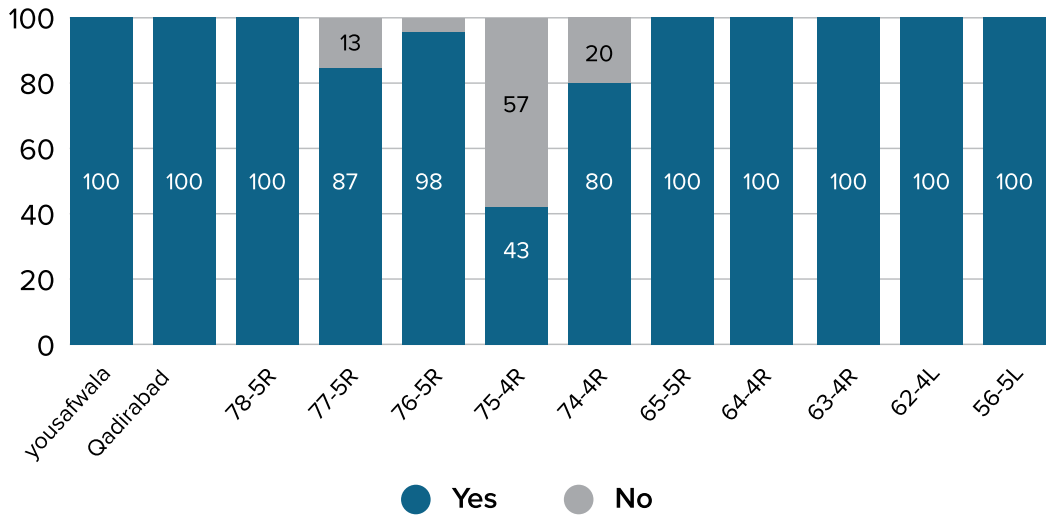
Overview of business opportunities created



and goods to local markets. "Small traders, shopkeepers, and transporters in nearby villages like Yousafwala and Qadirabad faced longer travel times and higher fuel costs, which reduced their profit margins," he added. "Farmers found it difficult to access mandi (wholesale markets) on time, leading to lower prices for perishable crops such as vegetables, milk, and fodder. This blockage also diverted customer traffic away from roadside vendors and service providers who relied on local mobility. Over time, these disruptions weakened small-scale commerce and aggravated the sense of exclusion among local communities who felt that the power plant prioritized coal logistics over their business livelihoods.

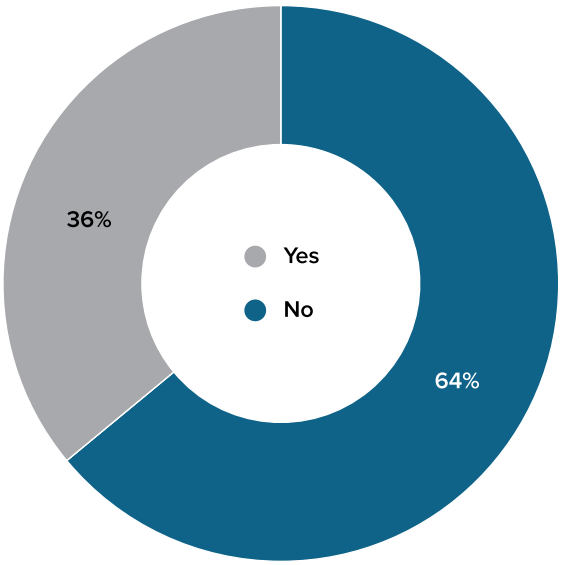
In contrast, village 75-5R stood out with 57 per cent of respondents reporting no impact, indicating stronger resilience or less direct exposure to project activities. Other villages showed smaller degrees of insulation: 77-5R (13 per cent no impact), 74-4R (20 per cent), and 76-5R (only two per cent). These variations reveal the plant's highly localized effects, where some communities bear the brunt while others remain relatively untouched.

Village-Wise impact on local business



When asked about their economic wellbeing in the wake of the plant's construction, 66 per cent of the residents shared that their financial situation had changed for the worse. Another 31 per cent saw no change. Only about three per cent agreed that there had been an improvement in their economic fortunes.

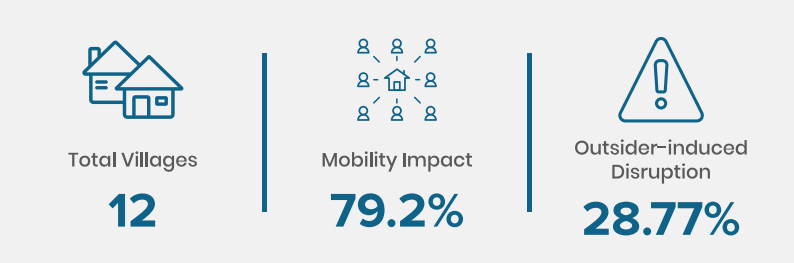
Fair wages and working conditions



Labor conditions, too, remain a major concern. As many as 64 per cent of respondents described the wages and working environment as unfair or inadequate. Only 36 per cent considered them acceptable. The frustration, however, is not about money alone -- it is about dignity, recognition, and being left out of a project built in their own backyard. In short, while the Sahiwal coal-fired power plant has technically created jobs, the quality, fairness, and distribution of those jobs is far from satisfactory, or life changing, in view of the local communities. "If future energy or infrastructure projects are to be truly developmental, they must go beyond job counts. They must invest in local skills, ensure fair compensation, and make community inclusion a non-negotiable priority. Without that, "development" will remain an empty word," said a resident of Yousafwala.

6. Disrupted mobility and social fabric

a. Cut off and left behind: How a power plant disrupted daily movement



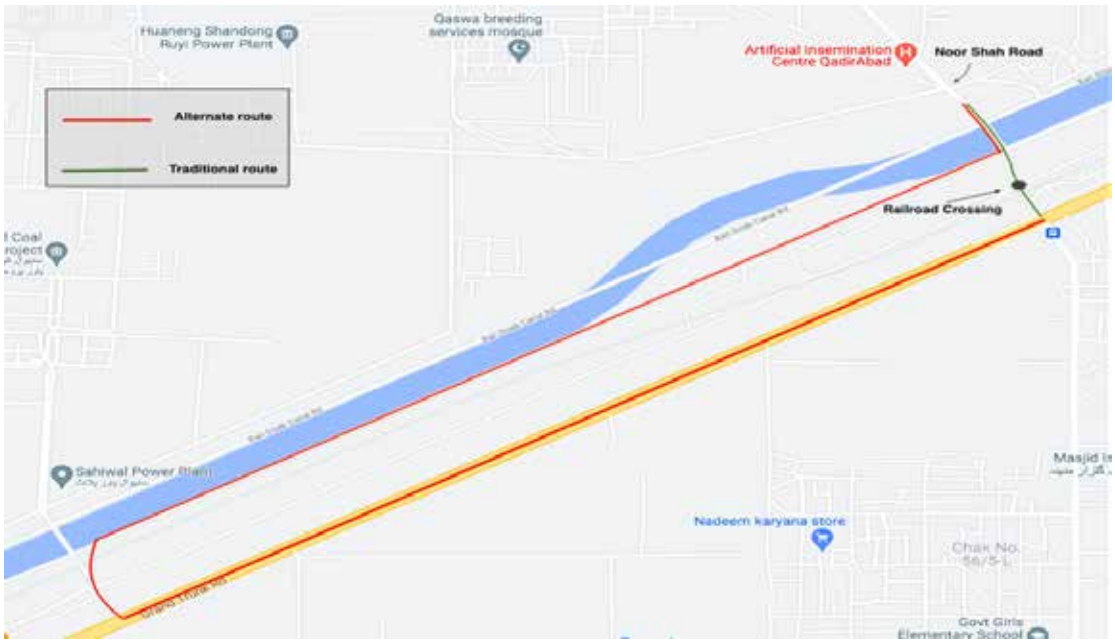
View of Chak 76-5R showing poor road and sanitation infrastructure.

Amidst the most pressing and deeply felt consequences of the plant's presence around the villages has been the drastic disruption to local mobility and infrastructure- a transformation that communities say has not just changed how they move, but also how they live.

Prior to the plant's construction, residents of villages 75-4R, 76-5R, and 77-5R enjoyed convenient access to the Yousafwala market- a lifeline for trade, supplies, and social interaction- with a short 10 -15 minute journey via the now-defunct railway crossing. Today, that same trip has stretched into an arduous 12 - 15 kilometre detour, adding four to five extra miles to their daily commute through a route still plagued by incomplete roadwork, nearly a decade after construction began. What was once a routine journey has become a daily grind that chips away at productivity, increases transport costs, and weighs heavily on families both financially and emotionally.

The rerouting is perhaps more cumbersome for residents living on the right side of the LBDC, who face persistent challenges to their social mobility- such as reaching essential services like markets, educational institutions, healthcare facilities, and bus terminals in Sahiwal. The longer routes mean not just additional time and expense but also lost opportunities in trade for many, and education, and employment, compounding the sense of isolation felt by the affected communities.

The Figure 3 below illustrates both the traditional route and the alternate route. The railway crossing shown on the map is closed and whoever wants to visit the localities on the other side of the road has to take the alternate route, which is about 16 km in distance.



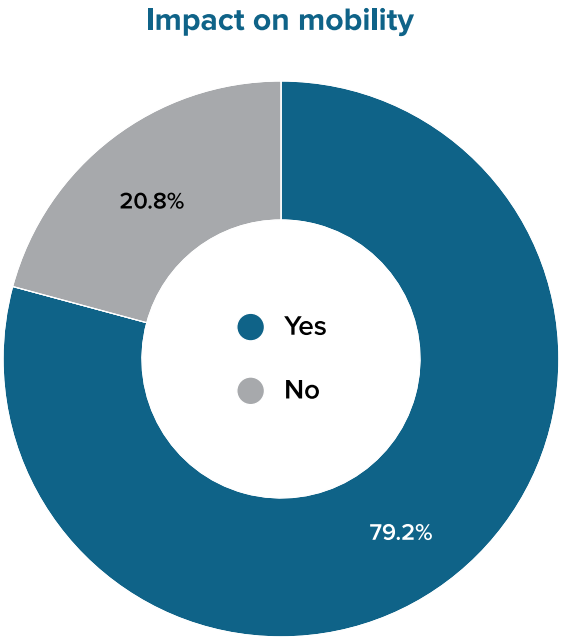
Alternate route connecting Grand Trunk Road and Noor Shah Road

b. Trapped between tracks and canals

Beyond inconvenience, the new route raises grave safety concerns. Nestled between the railway line and the LBDC, this alternate path has become a corridor of fear. Residents report frequent incidents of snatching and looting- a situation so severe that even farmers and traders transporting vital goods have become routine targets. With poor lighting, insufficient security, and no nearby assistance, travelling on the road has become something of a hazard, especially at dusk and dawn when most agricultural commuting happens.

c. Farming on the edge

This disruption of mobility hits hardest where it hurts most - the pocketbooks of small and medium-scale farmers. These producers, already operating on tight margins, now have to pay inflated transportation costs for essential supplies such as fertilizer, seed, and pesticides. The blocked access to traditional farm routes further complicates seasonal cycles, reduces efficiency, and heightens post-harvest losses.



When 79.2 per cent of villagers report a significant impact on mobility, it isn't just a statistic– it's a signal of distress in an already precarious rural economy.

d. Railroads and reroutes: when infrastructure serves coal, not communities

While the coal plant has invested in railway upgrades to streamline its operations- with dedicated shunting lines, coal transport infrastructure, and a 26-hour supply chain from Karachi- it has come at a human cost. Rail crossings essential for local commuting have been sacrificed in favor of industrial efficiency. Promises to restrict shunting operations within the plant grounds remain unfulfilled, and alternate routes have failed to compensate for the damage caused.

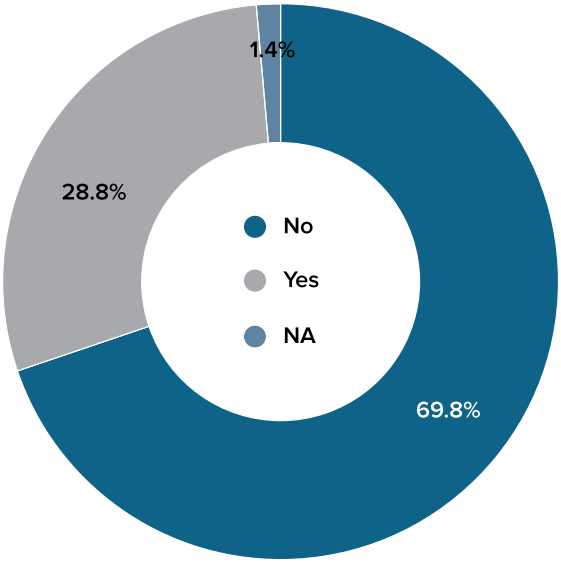
Moreover, the Yousafwala railway station, though close by, remains effectively inaccessible to local residents for their transport needs. It has been configured almost exclusively for technical and logistical requirements of the plant, reinforcing the perception that development has prioritized coal over community.

The Yousafwala railway station remains inaccessible to locals as it has been configured exclusively for the plant's coal logistics, reinforcing the bitter reality that infrastructure now serves coal, not communities

e. A fraying social fabric and everyday struggles

Mobility is not just about roads and transport for the community to access people, places and points to which are hinged lives and livelihoods, it is also the preserving of the social fabric that holds a community together. Nearly 29 per cent of respondents reported disruptions to their privacy and social life due to the influx of outsiders, including plant workers and foreign personnel. In some villages, this figure rises to almost 70 per cent, as residents feel increasingly alienated in their own homes. What was once a tightly-knit rural community is now confronting rapid social change, a sense of loss, and weakened cultural cohesion.

Disruption due to influx of outsiders across 12 villages



In the words of a resident from the village 76/5R, "If policymakers and plant authorities hope to build trust and genuinely serve the region, these concerns must shift from the margins to the center of planning. Roads must be completed, safe and accessible routes restored, and local communities actively consulted, so that their input in development is prioritized. Anything less than that threatens not just the future of this power project, but the resilience of the very people who continue to bear its costs."

7. Unfulfilled promises: education, health, and infrastructure

Participants consulted for this study nearly uniformly recounted a series of promises that the authorities made regarding education, healthcare, employment, infrastructure, and basic utilities. More than a decade later, those assurances remain a distant dream, largely unfulfilled, leaving residents not only underserved but also deeply disillusioned.

The absence of promised higher secondary schools and healthcare facilities has left pressing social needs unmet. With no schools and operational health center established, communities continue to grapple with limited access to quality education and essential medical services. Infrastructure development, too, remains invisible. The promised improvements in transportation and road connectivity never materialized, and, consequently, the peripheral villages remain isolated, hard to access.

When it comes to the plethora of community disillusionment with the promises the authorities made, perhaps the most distressing letdown relates to electricity, irrigation and sewerage. Free electricity, promised by the plant owners to the three villages most affected by the facility, was never delivered. Still worse, improvements promised in the area of irrigation and sewerage management were completely ignored. Needless to say, these failures have compounded agricultural losses and contributed to a decline in both productivity and standard of living.

Just as disheartening a gap between promise and practice is the failure to deliver the pledged employment and youth development initiatives. While official reports claim the establishment of a state-of-the-art technical training center, community feedback reveals a different reality. Local youth, instead of being equipped with skills for long-term careers, are often relegated to basic manual labor under private contractors. Their roles are largely limited to cleaning, construction support, or cooking.

The table below contrasts commitments made by authorities with the actual outcomes experienced by communities:

Broken Promises vs. Community Realities

	Commitments	Community reality	Impact
	Separate higher secondary schools	No such schools constructed	Educational needs remain unmet
	Basic healthcare facility	No health center established	Lack of access to essential medical services
	Improved transportation infrastructure	No visible infrastructure development	Continued mobility issues and isolation
	Free electricity for affected villages	Never provided	Community feels deceived and economically burdened
	High-end technical training center	Either non-functional or ineffective	Limited job prospects; youth restricted to low-skilled manual labor
	Employment opportunities (skilled jobs)	Only basic labor roles offered by private contractors	Youth underemployed, aspirations unfulfilled
	Improved irrigation, tube wells, and sewerage system	Exists but located within plant premises and inaccessible to community	Seen as symbolic, not a true educational investment
	Compensation for land and environmental degradation	Inadequate or absent	Economic hardship; perceived exploitation
	Upliftment through development	Perceived as neglect and marginalization	Erosion of public trust and widespread community disillusionment

Even symbolic gestures, such as the establishment of a girls› school within plant premises, have done little to restore trust. As the facility remains inaccessible to the local community, it is widely seen not as an investment in local education, but as a box-ticking exercise in corporate social responsibility. During the plant's construction, officials had also assured the community that the existing high school would be upgraded to a higher secondary school once the project became operational. However, even after ten years, this commitment has not been honored.

The authorities promised separate higher secondary schools for boys and girls, a seven to 10-bed hospital, improved roads connecting villages to the Yousafwala market and the National Highway, and the provision of free electricity to the three most-affected villages.

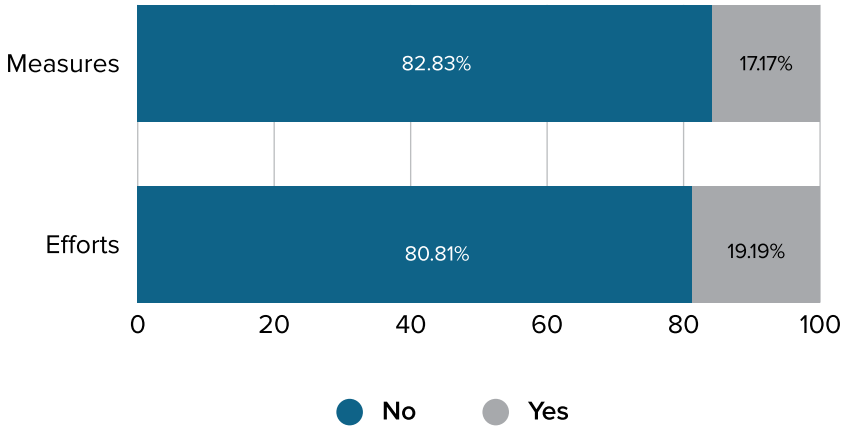
But on the ground, there is no school, no hospital, and no sign of improved road infrastructure. Irrigation systems remain outmoded, just as they were in the years before the plant, and the skill center was never established. In the words of one participant: "Not a single promise was fulfilled. Everything was said to win us over, but they vanished after construction started."

8. Exclusion and intimidation: a community silenced

On top of it all, as the villagers reported, there is a complete absence of engagement from government bodies or plant management with the community since it became operational. No public consultations, town hall meetings, or grievance-redress mechanisms have been introduced. Residents living just kilometres away feel invisible to those responsible for the plant's impact.

Although teams from the Environmental Protection Agency and water testing authorities have occasionally visited, residents said they were never informed about the outcomes. One participant remarked: "We have never seen the results or been told what the findings were." This lack of transparency has fueled mistrust, with many suspecting that critical environmental and health data is being withheld.

Mitigation measures vs environmental management efforts



Participants also expressed doubt over the credibility of the official environmental data. Many questioned the Continuous Emission Monitoring System (CEMS) readings shared by the plant, believing the data was selectively disclosed or manipulated. Calls for independent audits and transparent reporting reflect deeper concerns about environmental governance and accountability.

"There has been no community involvement in the environmental assessment exercise," a respondent stated, adding "the lack of any participatory process, even with visible impacts, has only deepened our sense of abandonment." Survey data validates these concerns. Over 80 per cent of respondents said they saw no mitigation measures implemented (82.83 per cent) and no environmental management efforts (80.81 per cent). While 19.19 per cent reported some environmental management activity, suggesting these were only minimal procedural steps, not meaningful or effective.

9. An environment of fear: surveillance, policing, and intimidation

Beyond neglect, residents now face an increasingly hostile and intimidating security presence. Villagers of 75-5R, 76-5R, and 77-5R reported frequent visits from police and elite force personnel, who check CNICs- including those of guests- and enter homes without prior notice or the presence of female officers. In more severe violations, residents recounted security operations in which male personnel entered homes without the presence of female officers, heightening women's sense of insecurity and indignity. The absence of female constables during these searches violates cultural norms, undermines privacy, and leaves families feeling vulnerable and humiliated.

Residents of 76-5R said they repeatedly requested the Yousafwala police station to provide female officers for house inspections, but their appeals were consistently ignored. The situation is further aggravated by the power plant's private security teams, which enter villages in convoys at least once a month, heightening the climate of fear. Surveillance cameras around the plant reportedly trigger alerts whenever villagers approach its boundary wall, prompting rapid deployment of elite police - even when there is no threat. As one villager put it, "It's as if our voices don't matter in the corridors of power."

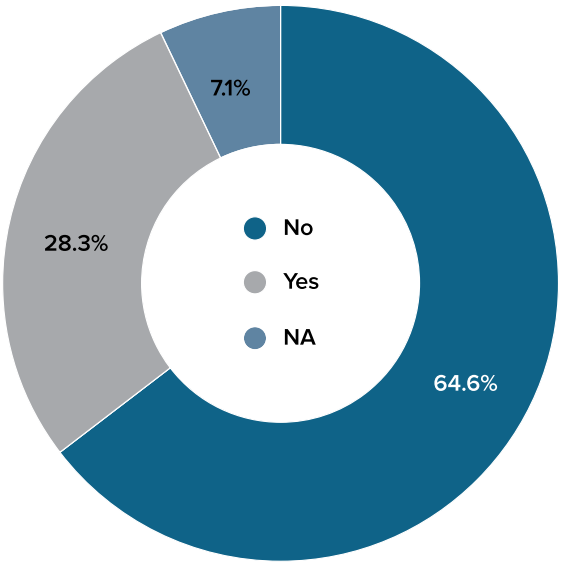
On 10 September 2025, a protest outside the Sahiwal coal-fired power plant on the 'Asia Day of Action Against Coal' highlighted the impacts of coal, including increased flooding, erratic rainfall, heatwaves, and economic losses. Protesters rejected government and corporate narratives of 'clean coal' and 'transition fuels,' stressing that "there is no such thing as clean coal" and calling for a just, fully funded phase-out plan that safeguards workers, communities, and the planet.

Even today, villages like 76-5R, 77-5R, and 75-4R remain under close surveillance. Police continue to question guests, conduct random CNIC checks, and monitor daily life. Yet despite coercion and intimidation, the protests embodied a profound sense of injustice- an insistence on accountability for broken promises of development, and a demand for recognition of the heavy social and environmental costs imposed on their communities without consent.

10. Community sentiment and support for the plant's operation

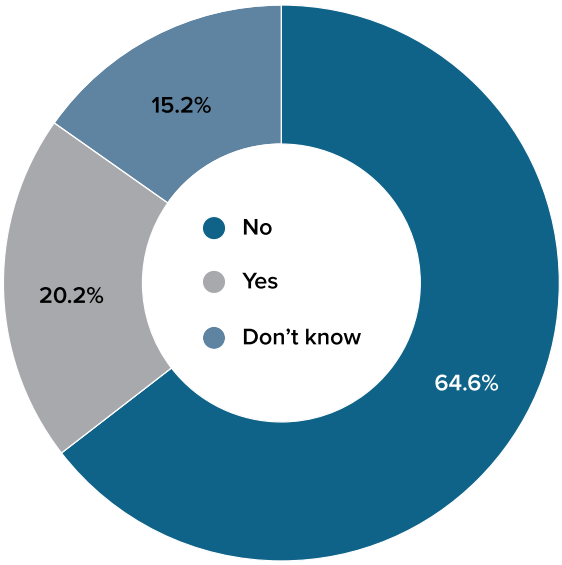
According to survey data, 64.6 per cent of respondents believe the negative impacts of the plant far outweigh its benefits. Only 28.3 per cent believe the benefits are greater, while 7.1 per cent remain undecided.

Advantages outweigh disadvantages: Community perceptions



When asked whether the plant should continue to operate, 64.6 per cent opposed its continuation. Just 20.2 per cent supported that it should stay operational, with 15.2 per cent uncertain. Among the respondents, some decided to keep quite due to security concerns. Several participants shared accounts of being threatened when they tried to raise a voice against plant-related hazards. Participants also referred to increased security following the Diamer-Bhasha dam incident, with Punjab's special police unit and personnel that the locals believe were from the military deployed in the area. Though the threat was unrelated, it became a justification for tightening controls and restricting civil liberties of the local population.

Support for plant's continued operation



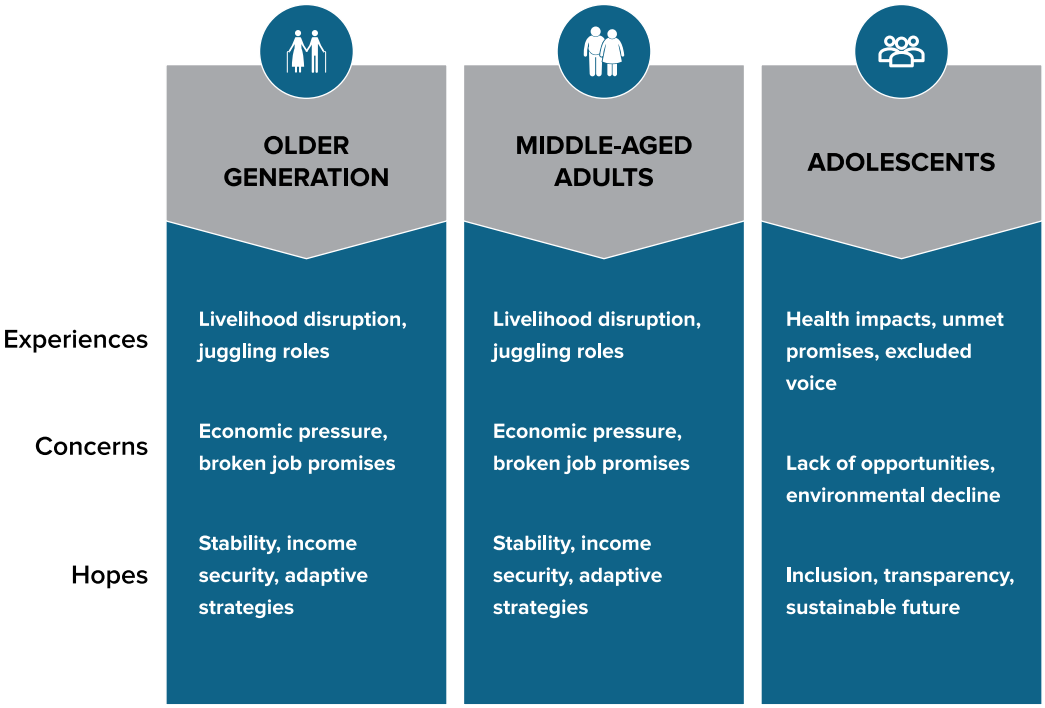
11. From fields to fractures: social, cultural, and emotional consequences

Displacement
Loss of agrarian identity
Fragmentation of social bonds
Psychological stress and emotional trauma
Gendered impacts
Cultural alienation
Mistrust in institutions

Participants in the discussion unanimously described profound social and cultural upheaval across several villages surrounding the Sahiwal coal-fired power plant, particularly 75-5R, 76-5R, and 77-5R. At the heart of these disruptions lies the forced acquisition of fertile farmland, once the backbone of the region's agrarian identity. This loss has not only severed livelihoods, it has also fractured generational ties to land cultivated since colonial-era canal settlements. "Now we have only housed

in the village but no agricultural land," one participant remarked, capturing a sense of dispossession that many echoed. While some villagers bought land elsewhere, they lamented: "We cannot take our houses from here."

Women in the community experienced additional layers of vulnerability and coercion. Female heirs were reportedly pressured to receive their inheritance shares without the knowledge or consent of male relatives, with cheques issued directly to them. This practice, seemingly bypassing patriarchal structures, did not empower women but put them in a precarious position.



The shift from green, agricultural terrain to grey, industrial sprawl has changed how people see and relate to their own environment. Cultural practices rooted in seasonal farming cycles, communal gatherings, and unrestrained mobility have been disrupted, leaving many feelings estranged within their own villages.

The loss of land and culture has been compounded by a systemic lack of transparency and accountability. Legal petitions challenging the plant were repeatedly dismissed, and promises of local development left unfulfilled.

Part III

This part draws on the evidence and analysis presented in the earlier sections. It outlines an actionable way forward for civil society, community groups and other stakeholders and provides specific recommendations for relevant policy and governance reforms.

1 Conclusion

The story of the Sahiwal coal-fired power plant is less about the megawatts added to the national grid than the myriad socio-economic and environmental costs borne by people, land, and institutions. Constructed on the fertile plains of Punjab's "fruit basket"- a region shaped by the canal colonies that once turned semi-arid land into South Asia's agrarian heart- the plant displaced farmers, disrupted water systems, and covered orchards and homes in soot. What was promoted as a flagship CPEC initiative and a cornerstone of energy security has, instead, revealed the fault lines of Pakistan's development model: Hurried financial arrangements that burdened the treasury, regulatory compromises by NEPRA that ignored both distance from coal sources and proximity to farmlands, and an absence of meaningful community consultation. Procurement scandals and mounting arrears have not only strained national finances but also complicated Pakistan's energy partnership with China.

The dividends promised- jobs, prosperity, modern facilities- proved shallow; instead, villagers report declining harvests, falling wages, respiratory illnesses, and a climate of surveillance that frays kinship and trust. The very land that once fed the nation is now locked in a cycle of ecological degradation and social dislocation. Thus, the plant embodies the wider consequences of pursuing energy expansion through opaque contracts, extractive infrastructure, and short-term crisis management. What was framed as a solution to energy insecurity has become a symbol of governance failure and uneven development- where electricity flows to the grid while losses are borne by the people who lost their livelihoods.

Sahiwal's lesson is therefore not just about a single project but about the direction of national progress itself. It shows that financial expediency without prudence, regulation without enforcement, and growth without equity create deeper vulnerabilities.

Moving forward, Pakistan's energy transition must confront these truths by retiring harmful assets early and embedding energy planning in principles of justice, accountability, and sustainability. Only by redefining development through the lenses of dignity, equity, and ecological responsibility can Pakistan restore trust, recover its fields, and secure a just energy future for its people.

2 Way Forward

For Local Communities

- Local communities can strengthen their bargaining power by forming village-level committees or coalitions that represent farmers, women, and youth collectively. This avoids fragmentation and ensures their voices are heard in negotiations.
- Communities should insist on formalized dialogue mechanisms with the project operators and government departments. Rather than sporadic protests, structured engagement (public hearings, grievance committees, and participatory monitoring) can yield more sustained benefits.
- Where collective action is necessary, mobilization should be strategic, lawful, and safety-conscious, avoiding confrontations that could invite violence and repression. Legal aid groups and CSOs can help communities file cases on compensation disputes, land rights, and environmental non-compliance.
- They should prioritize achievable demands that can bring immediate relief to local communities. These include improved access to healthcare, provision of clean drinking water, restoration of canal water, reopening of the blocked bridge at Qadirabad, and employment guarantees for local youth. Focusing on such tangible needs is more practical in the short term, rather than solely pressing for the closure of the coal plant, which remains unlikely in the immediate future.
- Young people should use social media, local networks, and people assembly gatherings to raise their voices and mobilize the community around shared concerns, while also drawing on the folk wisdom and lived experiences of village elders.
- Communities should convene *awaami akath* or other collective forums to develop a unified stance, ensuring that village-wise demands are clearly documented and communicated to the authorities.
- Legal recourse should also be considered, even though approaching courts is time-consuming and exhausting. Communities can seek help from civil society organizations, legal aid groups, or sympathetic lawyers to navigate these processes and strengthen their chances of achieving justice.
- People should reach out to courts to hold on to the remaining land and must not compromise on the impacts that are causing harm, for example water depletion, increased agricultural costs, health concerns, mobility challenges, and business losses. They can use environmental laws and connect with the right people who will help them speak up and defend their rights.

For Civil Society Organizations (CSOs)

- CSOs should push for greater transparency in energy sector decision-making, not only around the Sahiwal coal-fired power plant but also on broader energy mix choices. They can advocate for the disclosure of Power Purchase Agreements (PPAs) and environmental monitoring reports, while pressing NEPRA and the EPAs to enforce compliance with NEQS.
- Instead of demanding urgent coal phase-out- which may appear unrealistic in Pakistan's case- CSOs can emphasize gradual phase out of coal, pushing policymakers to adopt time-bound renewable energy targets and ensure a balanced energy transition plan.
- To make accountability efforts practical, CSOs should explore litigation and media advocacy channels, highlighting concrete issues such as water use, air pollution, and unfulfilled social development commitments.
- CSOs should document and publish evidence-based research on health and agricultural impacts, and local displacement. These findings can be tied to global debates on climate finance and just transition, strengthening Pakistan's case for international support.
- Collaboration with technical experts to review EIAs, PPAs, and tariff structures is crucial to a better understanding of the plant's impact.
- Prepare reports in simple and accessible formats, including translations into local languages, to ensure communities fully understand the project and its potential impacts.
- Engage with communities during the pre-construction phase to share information about possible repercussions and create space and platforms for their concerns to be heard and included in planning and designing.
- Build alliances with like-minded CSOs and potential allies to amplify community voices and support collective resistance where it exists.
- Assist communities in using creative expressions such as visual art, theater, documentaries, and storytelling across media platforms to highlight their struggles and experiences.
- Support communities in pursuing legal remedies wherever applicable, helping them safeguard their rights and interests.

3 Recommendations

For Chinese Investors

- Reframe their role from coal financiers to long-term clean energy partners.
- Sahiwal coal-fired plant has been operational since mid-2017, but as global sentiment shifts, Chinese investors should reposition themselves as supporters of Pakistan's renewable and clean-transition efforts.
- Lead new investments in solar, wind, and hybrid ventures.
- Prioritize safe handling and repurposing of fly ash by investing in modern disposal and recycling systems.
- Conduct annual impact assessments to evaluate social, environmental, and economic challenges faced by surrounding communities, and establish a robust grievance redress mechanism (GRM).
- Reinforce quality of employment by ensuring fair wages, improved working conditions, and workforce development through training centers located at or near the plant.
- Implement independent third-party monitoring/audits of environmental performance, labor practices, Corporate Social Responsibility (CSR), and community engagement.
- In the longer term, develop a Pakistan - China Just Energy Transition Framework, under which China helps finance early retirement of imported coal projects (post-debt servicing) and reinvests in renewables, repositioning itself as a climate transition partner.
- Implement biodiversity offset schemes along with soil and water rehabilitation projects to counter the environmental damage caused by the plant.
- Treat wastewater and adopt closed-loop water systems as a way to ease local water depletion and mitigate further decline of the water table.

For Government

- Establish a timeline for gradually reducing operations at the Sahiwal coal-fired power plant, with a full decommissioning target that aligns with Pakistan's climate commitments and energy transition goals.
- Accelerate investments in solar, wind, and hybrid projects to ensure replacement of coal-based generation capacity.
- Engage the Chinese government and private investors in discussions to steer upcoming CPEC energy investments toward low-carbon technologies and collaborative research and development.

- Undertake an independent audit of all CPEC energy projects, with particular focus on the Sahiwal coal-fired power plant, to evaluate their environmental, social, and economic impacts, and disclose the findings publicly to promote transparency and accountability.
- Design policies that safeguard workers' jobs and support local communities whose livelihoods are linked to the plant, ensuring that the transition is socially equitable and just.
- Until the plant is fully decommissioned, enforce strict monitoring of air emissions, wastewater discharge, and solid waste disposal to reduce ongoing damage to local health, agriculture, and ecosystems.
- Redirect financial support currently given to coal generation toward renewable energy deployment, energy efficiency programs, and grid modernization to encourage cleaner and more sustainable options.
- Undertake independent studies comparing the long-term economic costs of coal power- including health, environmental, and imported fuel expenses- with the benefits of scaling up renewables.
- Involve residents, farmers, and civil society organizations in consultation processes to build trust, minimize social resistance, and ensure that community concerns are addressed in the transition plan.
- Mobilize concessional loans, grants, and technical assistance from global climate funds and development partners to cover the costs of phasing out coal and replacing it with clean energy projects.
- Pakistan Railways should work with Chinese investors to allow partial or time-specific opening of the Yousafwala railway crossing, enabling residents of Sahiwal to regain convenient access for their daily mobility needs. In addition, ensuring the safety of the service road should be a priority, or alternatively, a new route should be developed to connect both the left and right sides of the LBDC, providing shorter and more practical connections for local communities.

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