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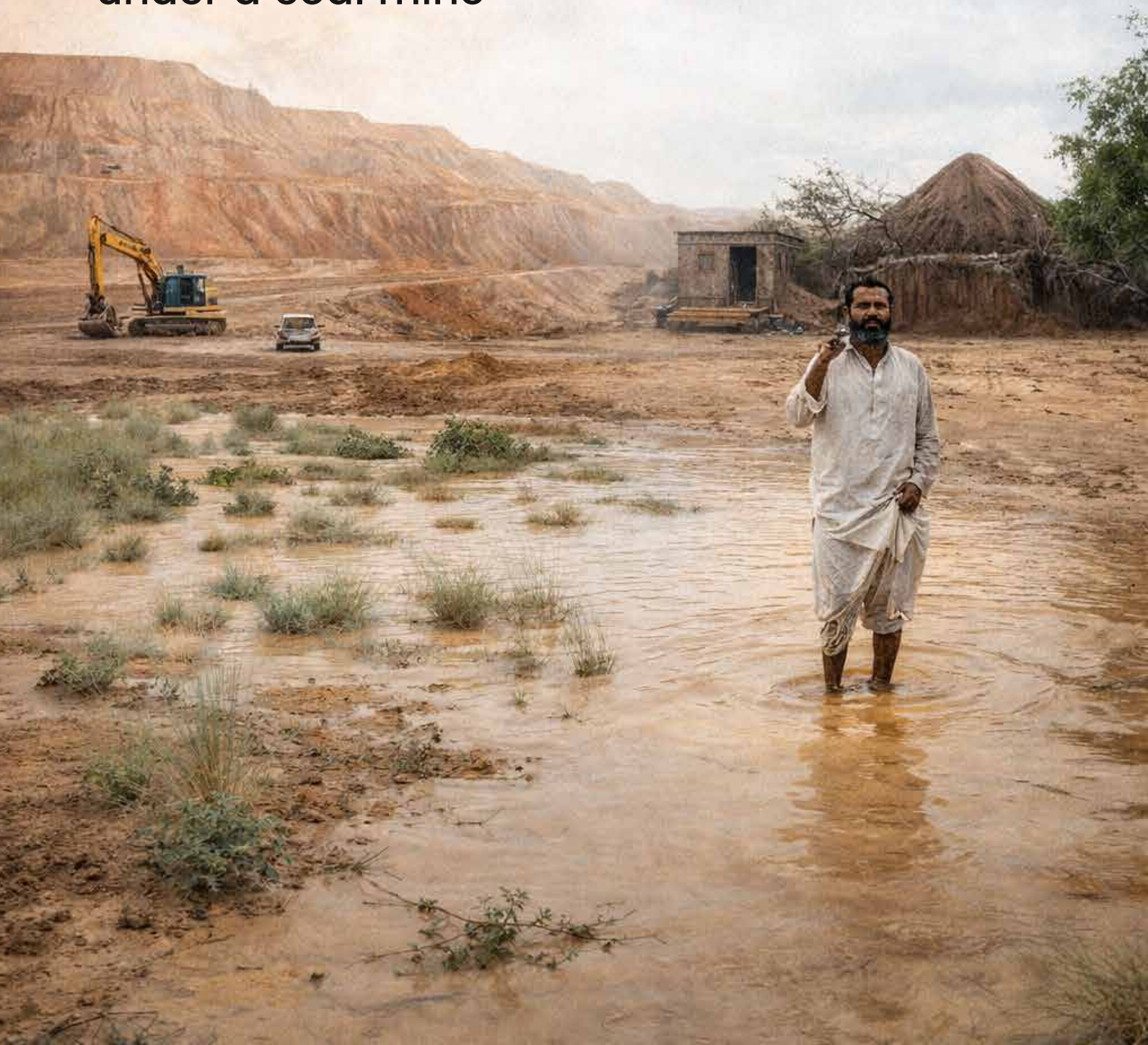
Bearing the (over)burden

The heavy cost of living under a coal mine



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Acknowledgement

We are thankful to the members of local communities in Thar and did not hesitate to share any information they had.

Content

Glossary

Term	Definition	Context
Alluvium	Sediment, including sand, silt, and clay deposited by water	Part of OB composition, contributes to unstable dump slopes
Aquifer	Underground layer of water-bearing rock or sand	Mining disrupts Thar's fragile aquifers, affecting drinking water
Bara Formation	Geological layer containing coal and associated rocks	Lies beneath the overburden and is mined for lignite
Bench (Mining)	A horizontal step or platform in an open-pit mine used to move equipment	Affects slope stability and safe movement of trucks and machinery
Bench Width	The horizontal distance across the flat step (bench) in an open-pit mine	Bench width affects slope stability of OB dumps
Bitu	Local term for chemically laden silt or clay deposited by floodwaters from OB dumps	Causes soil infertility, livestock illness, and crop failure
CSR (Corporate Social Responsibility)	Voluntary company actions taken to benefit communities and the environment	Promised but largely unmet by coal companies in Thar; there is no CSR in Block I
Dump Truck / Excavator	Heavy machinery used to remove and transport overburden	Operates round-the-clock, contributing to noise and dust
Dune Sand	Loose sand forming desert dunes, part of Thar's natural landscape	Removed during mining, affecting water absorption and ecology
ESIA (Environmental and Social Impact Assessment)	A formal study evaluating the effects of a project on the environment and society	Often inaccessible or incomplete for Thar coal projects
FPIC (Free, Prior, and Informed Consent)	A principle requiring community approval before project implementation	Not practiced in Thar, leading to exclusion and displacement
Gangue	Waste material separated from valuable minerals during mining	Contributes to dust and chemical pollution in Thar
Gowcher	Common grazing land used by communities	Often fenced off or degraded due to mining and OB dumps
Gurano Dam	A natural reservoir used to dump wastewater of Block II	Communities report contamination, seeping and groundwater degradation and malaria
Lignite	A low-grade, high-moisture coal with high emissions when burned	Found in Thar; extraction and combustion worsens pollution
Lithology	The physical characteristics of rock layers, including texture, and composition	Used to describe the composition of overburden layers of Thar coalfields
Mine-mouth Power Plant	A power plant located adjacent to a coal mine to reduce transport costs	Intensifies local pollution and health risks
Mudsliding	Movement of wet soil and debris down slopes, often triggered by rain	Caused by OB dump slopes, damaging homes and farmland

Overburden (OB)	Layers of soil, sand, and rock that lie above coal seams and must be removed to access the coal	OB dumps are the central focus of the brief as they cause flooding, dust, and land and water degradation
OB Dump	A pile or embankment formed from the removal of overburden material in mining	These dumps are poorly regulated and pose risks to nearby villages.
Open-pit Mining	A surface mining technique in which minerals are extracted by removing layers of earth in a large pit	Open-pit mining is used in Thar coalfields, leading to massive land disruption
Participatory Rural Appraisal (PRA)	A community-based method to assess local conditions and impacts	Used to map *Bitu* damage and gather testimonies
PM10 / PM2.5 / TSP	Particulate matter sizes used to measure air pollution	Exceed safe limits in Thar, causing respiratory illness
Reverse Osmosis (RO)	A water-purification system used to treat contaminated groundwater	Installed as mitigation but often unreliable or unsafe
Survey Land	Privately owned land with formal entitlement	Subject to acquisition for mining and infrastructure
Tarai	Natural depressions in desert terrain that collect rainwater	Blocked and acquired by mining or destroyed by OB dumps, reducing water access
Tobhu	Natural depressions in desert terrain that collect rainwater	Only used for livestock
Yaksala Land	Land leased to farmers	Frequently acquired or damaged by mining operations without any compensation

Summary

Sindh is heading into a deepening conflict over land use in district Tharparkar where the desert is being reshaped by coal mining at Pakistan's largest project. An estimated 175 billion tonnes of lignite sit under Thar coalfield's 13 blocks, making it the sixteenth largest one in the world. This deposit is thus framed as a cornerstone of national energy security despite the social and environmental price Tharis pay for its extraction. The resulting groundwater depletion, water contamination and air pollution have been long and well-documented. This policy brief is, however, about a much less publicised aspect of mining: overburden dumping.

In order for mining companies to get to the coal seams, they first have to dig through massive amounts of soil and rock which have to be discarded later on. This waste is called 'overburden' and it is left in massive piles called overburden or OB dumps. These abandoned dumps are prone to landsliding, give off toxic dust, and make flooding worse in the monsoon because they interfere with rainwater drainage pathways. Additionally, people living near these dumps, in villages such as Kharo Ghulam Shah and Jeando Dars, say when there is flooding, chemically laden silt flows from the OB dumps, uncontrollably spreads out and coats the surface of the fields and their homes. This reduces agricultural productivity and degrades grazing lands.

In fact, so much overburden is produced that villagers are displaced to make space for it, which compounds the damage already being caused by mining itself that strips away vegetation and topsoil and disrupts aquifers. This phenomenon thus affects Thar's ecology, social life, public health, people's mobility, livelihoods, and cultural continuity.

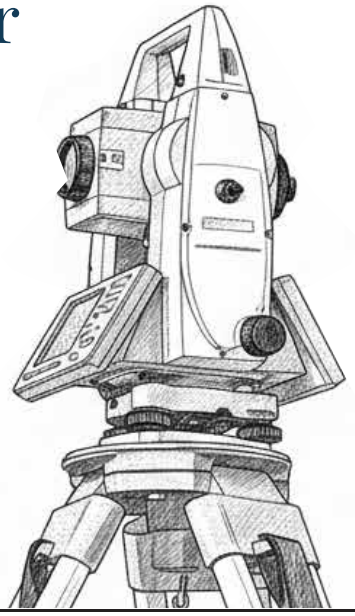
This brief presents an investigation into OB dumping in Thar Coal Blocks I and II (of the 13). It draws on field data, community testimonies, and participatory mapping to uncover the mine-environment-community chain of cause and effect. The goal is to highlight overburden dumping as an invisible crisis—overlooked in public discourse and policy—despite the profound damage it does to livelihoods, ecological integrity, and human rights.

This brief hopes to generate informed discussion on the immediate problems Tharis face from the long-term social and environmental hazards of the ever-expanding overburden dumps. It also serves the purpose of recording and documenting testimonies and has made an effort to quantify external costs to these communities.

Timeline

History of discovering coal in Thar

Early Exploration and Discovery

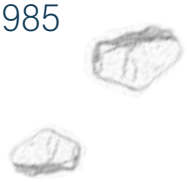


1988

Indications of coal found beneath the sands of Thar Desert during well drilling by the British Overseas Development Agency and Sindh Arid Zone Development Authority

ODA discovers carbonaceous shale at a depth of 126 metres near Khario Ghulam Shah Village[1]

1985 — 1990



1989

The Geological Survey of Pakistan (GSP) and United States Geological Survey (USGS) confirm the presence of coal in nearby wells

Drilling & mapping

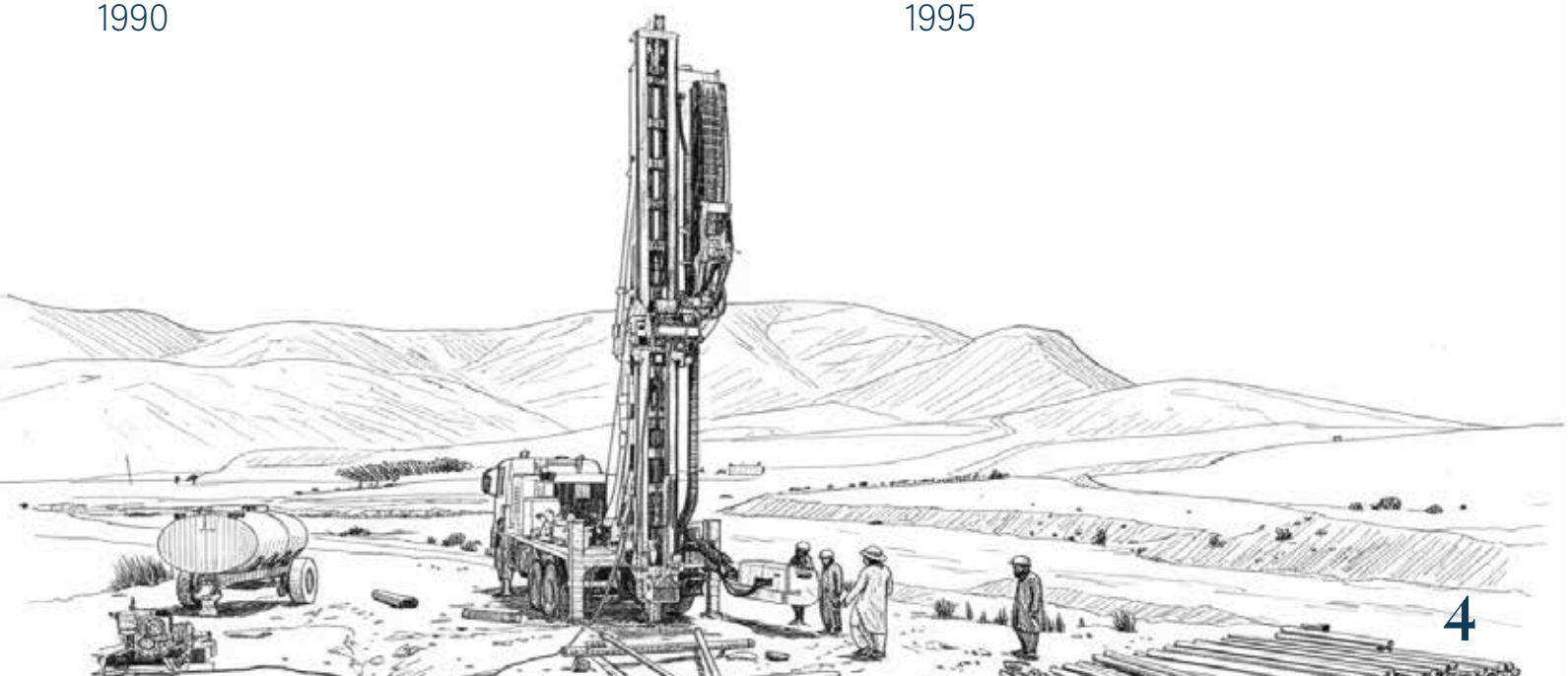
1992

GSP and USGS drill 21 boreholes to map the Thar Coalfield

1993

John T. Boyd Company (USAID) drills 10 boreholes, GSP drills 3 more. Thar coalfield is confirmed to span 9,100 sq km, containing 175 billion tonnes of lignite[2]

1990 — 1995



Development of coal blocks

1994 – 2000
GSP develops Blocks I, II, III, and IV[3]

2005 – 2006
Sindh Coal Authority and Northeast Coalfield Geological Survey Bureau (China) develop Blocks V and VI

2008 – 2009
Sindh Coal and M/s Deep Rock Drilling Pvt develop Blocks VII and VIII, and extend Block III to Block III-B

2011
SSRL is awarded a 30-year mining lease for Block I

2017
Licence granted to set up a 1,320 MW coal-fired power plant

2019
Commercial operations begin. The first shovel of coal reported from Block I by Sino-Sindh Resource Limited/Shanghai Electric

June 2018
Sindh Engro Coal Mining Company unearths the first layer of lignite at Block II

1990 1995 2000 2005 2010 2015 2020

1 Thar Coal and Energy Board, "FAQs," Thar Coal and Energy Board, Government of Sindh, accessed December 21, 2025, https://www.tceb.gos.pk/faqs/?utm_source=chatgpt.com

2 Thar coalfield," Wikipedia, The Free Encyclopedia, last modified October 6, 2025, https://en.wikipedia.org/wiki/Thar_coalfield

3 Thar Coal and Energy Board, "Technical Details of Thar Coalfield Blocks," Thar Coal and Energy Board, Government of Sindh, accessed December 21, 2025, https://www.tceb.gos.pk/technical-details-of-thar-coalfield-blocks/

Background

After two decades of exploration, mining began in Tharparkar in the 2010s. The first layer of lignite was unearthed by the Sindh Engro Coal Mining Company (SECMC) at Thar Coalfield Block II in 2018[4] and commercial operations were rolled out a year later. The first shovel of coal was reported a year later from Block I by Sino-Sindh Resource Limited/Shanghai Electric (SSRL) as it prepared to feed the mine-to-mouth thermal power plant.[5]

Since then, mining has steadily grown. Block I boasts a yearly output of 7.8 million tonnes from a 3,000,000,000 tonne total deposit.[6] In Block II, capacity doubled in three years from 3.8 million tonnes per annum (Mtpa) in 2019 to 7.6 Mtpa by 2022.[7] By 2025, SECMC proposed scaling up extraction by embarking on a third phase of work in Block II[8]. And now that the railway is being built, output will likely be ramped up in the years to come.

Over two decades of mining has caused extensive environmental damage. The villagers say that the companies SECMC and Sino Sindh are not following proper methods which is why the water and soil is being contaminated at every step.[9] The damage is compounded by the decision to build power plants right near the mouths of the mines, they add.

Groundwater supplies in Thar were already dwindling in cycles of drought, but dewatering for mining has further lowered the aquifers, especially in villages close to the mines. The contaminated extracted groundwater is then dumped at Gurano and Dukar Chou where it has seeped into the soil and poisoned wells.[10]

As more and more land is acquired for the mines, reservoirs and power plants, the Tharis have been consistently uprooted. The conversion of the land for mining even threatens the area's biodiversity as it eats into drought-resistant vegetation and plants used for fodder.[11] But the government and companies have not delivered on their promises to properly resettle the Tharis, give them jobs, fair compensation, undisrupted access to *gowcher* or shared grazing land, ancestral fields.[12] Even the movement of people and animals has been limited as fences and checkpoints around mining and reservoir sites has blocked traditional paths and roads.[13]

In response, the communities have protested, held press conferences, sent out letter campaigns, tried to engage with the mi oal mining which the media has covered along with the peaceful means of resistance.

One mining-induced problem that has received no coverage, however, is overburden dumps, or the large piles of soil and rock that the companies remove in order to get to the coal seams.

4 Azhar Lashari, "Coal Power and Livelihood Disruptions in Thar," project brief (Karachi: Policy Research Institute for Equitable Development, October 2022), https://www.priedpk.org/wp-content/uploads/2023/01/Coal-Power-and-Livelihood-Disruptions-in-Thar.pdf.
5 Rural Development Policy Institute, "Thar Coal Block-I Mine and Power Plant," The People's Map of Global China, updated December 7, 2021, https://thepeoplesmap.net/project/thar-coal-block-i-mine-and-power-plant/.
6 Thar Coal and Energy Board, "Sino-Sindh Resources Block-I," accessed December 21, 2024, https://www.tceb.gos.pk/sino-sindh-resources-block-i/.
7 Japan International Cooperation Agency (JICA), Data Collection Survey on Thar Coal Field In Pakistan: Final Report (Islamabad: JICA, October 2010), https://openjicareport.jica.go.jp/pdf/12113221_01.pdf.
8 Thar Coal and Energy Board, "Sindh Engro Coal Mining Project," video, June 2018, http://tceb.gos.pk/wp-content/uploads/2018/06/SindhEngro.mp4.
9 Zarka Khan, "The Thar Coal Power Project: Balancing Environmental Sustainability and National Security," Pakistan House, accessed December 21, 2024, https://pakistanhouse.net/the-thar-coal-power-project-balancing-environmental-sustainability-and-national-security/.
10 Hina Aslam, Ahad Nazir, and Ubaid ur Rehman Zia, "Thar Coalfield: Prospects and Challenges," in Prospects of Coal Investments and Potential of Renewable Energy Transition in Thar Region of Pakistan (Islamabad: Sustainable Development Policy Institute, June 2021), https://www.jstor.org/stable/resrep34174.5.
11 "Thar Block II: First Layer of Indigenous Coal Unearthed," Business Recorder (Karachi), June 11, 2018, https://www.brecorder.com/news/4609503

Methodology

This policy brief focuses on overburden dumps in villages near Blocks I and II. Primary, secondary, and participatory data has been collected to assess its social and environmental consequences. The team mobilized a random sample of respondents from 200 out of 1,500 households in Kharo Ghulam Shah and 50 out of 600 households in Jeando Dars. One-on-one interviews and focused group discussions (FGDs) were held with community members, including women, young people, and elders, to ensure inclusive representation of lived experience. Most of these interviews were semi-structured around a questionnaire, asking about the interviewee's social and environmental weather and how their circumstances had changed since mining began in their areas.

The team undertook participatory rural appraisal exercises to map the extent of damage caused by *bitu*, runoff from overburden dumps during the monsoon. Community members identified *bitu* as a hazard, explaining how it degraded the soil, reduced the land's capacity to absorb water and harmed farming and livestock health. Field work was carried out between July and September to gather data of losses from OB dumping during the rains.

Table 1 Breakdown of interview types, participants and age groups

Method	Location	Number of participants	Age group in years	Gender		Occupation
FGD	Kharo Ghulam Shah	20	6 (40-55) 5 (18-20) 9 (30-40)	Male		Farmers, labourers, teachers and students
FGD	Kharo Ghulam Shah	6	6 (30-45)		Female	Housewives
Rajunri A village consultation	Jeando Dars	31	20 (20-40 5 (40-55) 6 (12-20)	Male		Farmers, labourers, teachers and students
FGD	Jeando Dars	18	8 (50-60) 3 (30-50) 7 (18-25)	Male		Farmers, labourers, teachers and students
PRA	Jeando Dars	21	11 (40-60) 5 (35-50) 5 (15-25)	Male		Farmers, labourers, teachers and students
PRA	Kharo Ghulam Shah	15	5 (40-60) 5 (40-60) 7 (12-20)	Male		Farmers, labourers, teachers and students
4 one-on-one meetings	Kharo Ghulam Shah (2), Jeando Dars (2)	4	4 (30-50)	3 Male	1 Female from Jeando Dars	Teachers, growers and a housewife

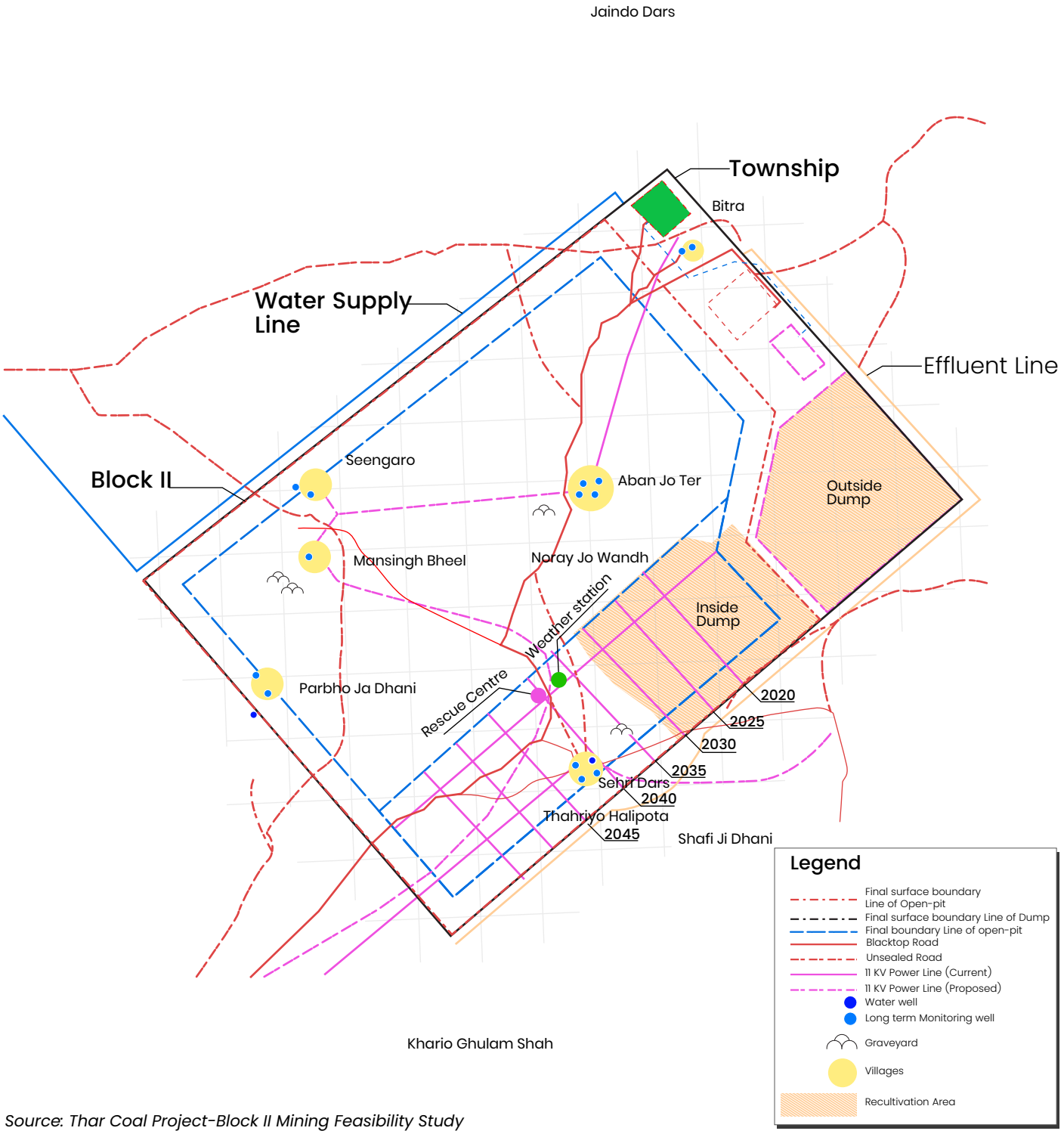
The men interviewed were farmers, labours, teachers and students and the women were housewives

12 JICA, Data Collection Survey on Thar Coal Field.
13 SECMC Thar, "Glimpses into SECMC's Work," YouTube video, October 26, 2022, https://youtu.be/iYosMf-9vsw.

Challenges and limitations

- It was difficult to hold interviews during the monsoon because most people were busy farming, so we had to delay or reschedule many sessions.
- Mining data and figures vary across sources. So most of the statistics referred to here have been taken from the official Thar Coal Board website to ensure consistency and credibility.

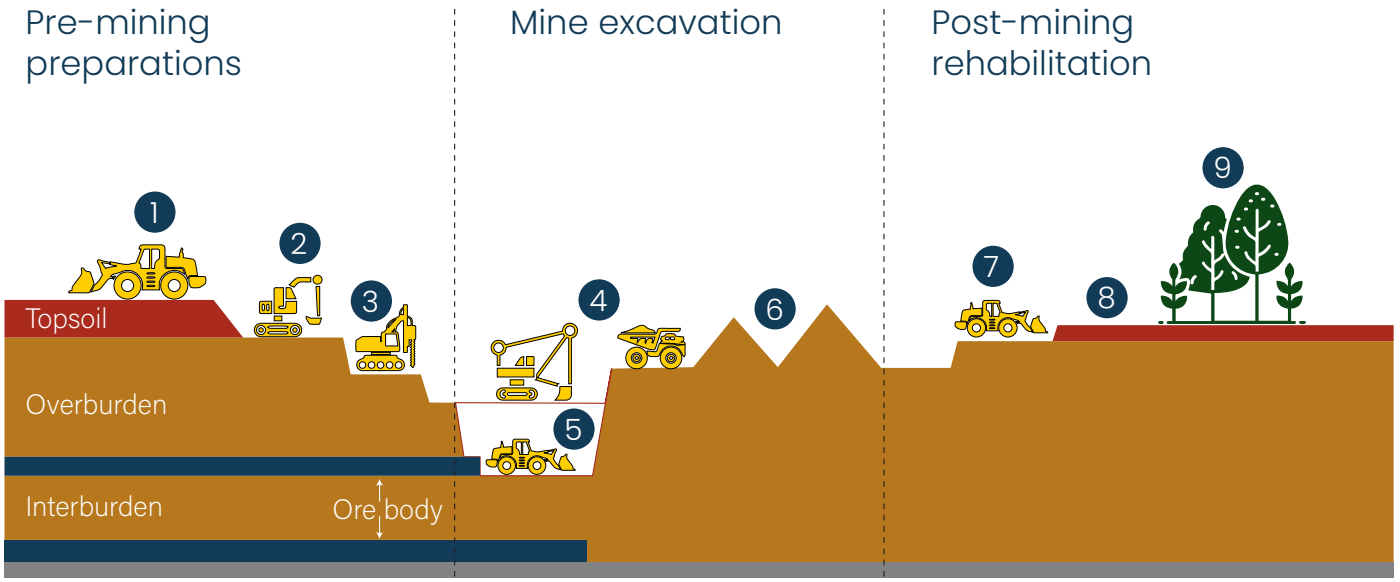
Study Area



Source: Thar Coal Project-Block II Mining Feasibility Study

Mining & overburden dumps

> *Our chowras and children are buried in the soil thrown by dumpers. The dump has swallowed our lives.*
> - A woman standing near the towering overburden dump and her home



1 Vegetation removal 2 Topsoil removal 3 Drilling & blasting of overburden

4 Overburden removal using drag lines or truck & shovel (not shown) 5 Ore excavation

6 Stock-piled topsoil & overburden in separate dumps (several decades)

7 Re-contouring of stock-piled overburden 8 Application of topsoil (depends on availability)

9 Re-establishment of vegetation

Ghazi Bajeer, "ٿرڪول بلاڪ ون جي ڪوٽائي سان تيز ٿيندڙ زراعتين جا اثرن قتل داستان: ڪوٽ لالو من غازي بجيئر جي زباني," YouTube video, posted 2024, https://www.youtube.com/watch?v=GFvtGvELqUE

Translation: The deadly impacts of intensified excavation at Thar Coal Block I on agriculture: an account from Kot Lalo, in the words of Ghazi Bajeer

In Block I, the coal seam is 22.81 metres thick and located at a depth of 167.61 metres. The minimum and maximum depth at which the first coal bed was hit is 137.04 and 178.72 metres. The thickness of the overburden as found in the drill holes varies from 137 metres to 189 metres in the area. The sand dunes above the average ground level in the area will also add another 30 metres of thickness to the overburden.

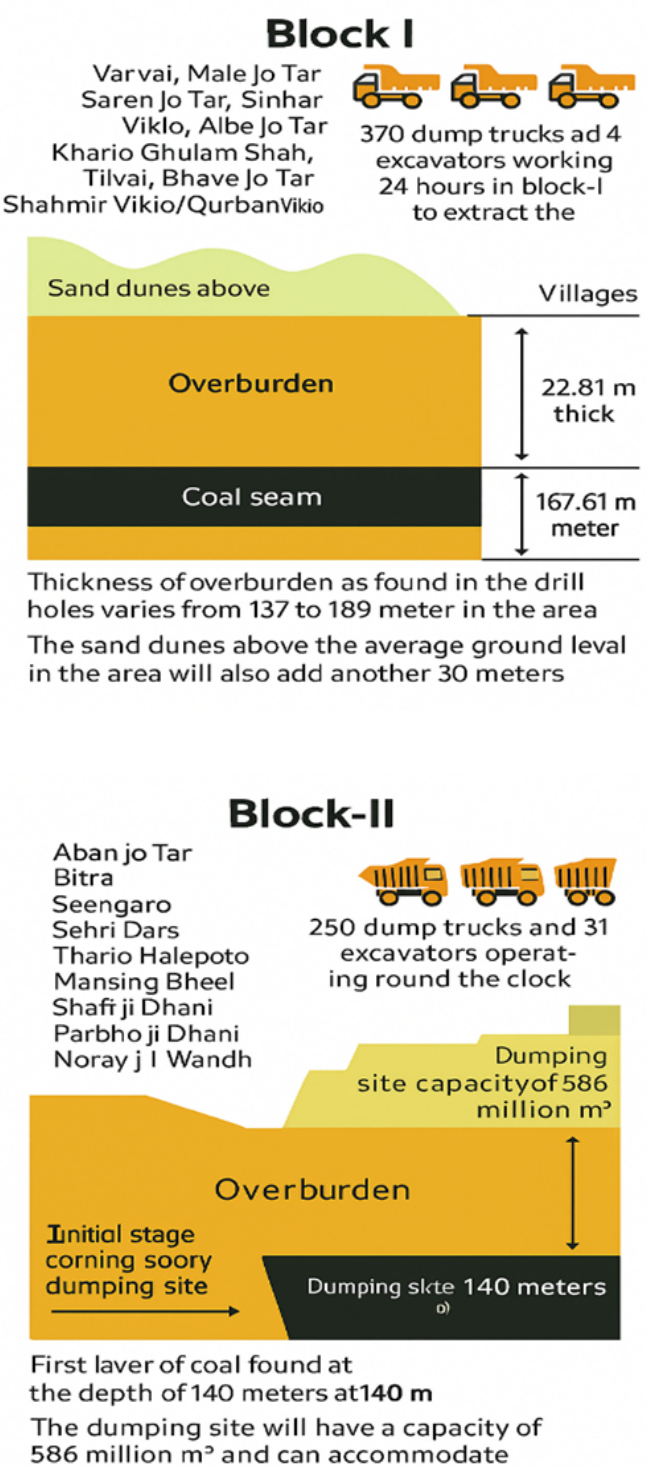
As mining progresses, the height of the OB dump increases, which can lead to sliding failures especially if its height crosses safe limits and rainwater is not properly managed. According to villagers, mining companies frequently ignore standard pit-mining procedures of overburden removal and dumping; for example the mining's drainage channels have been diverted toward village areas. Landsliding from them damaged homes in Tilwayo's *chowras* (thatched huts).

Scale of overburden generation

A sense of the magnitude of overburden produced can be gauged from the fact that in Block I, 370 dump trucks and 42 excavators work 24 hours a day.[20] In Block II, overburden will be dumped by 250 trucks and 31 excavators also operating round the clock.[21]

18 Thar Coal and Energy Board, "Thar Coalfield," accessed December 21, 2024, https://www.tceb.gos.pk/thar-coalfield-3/.

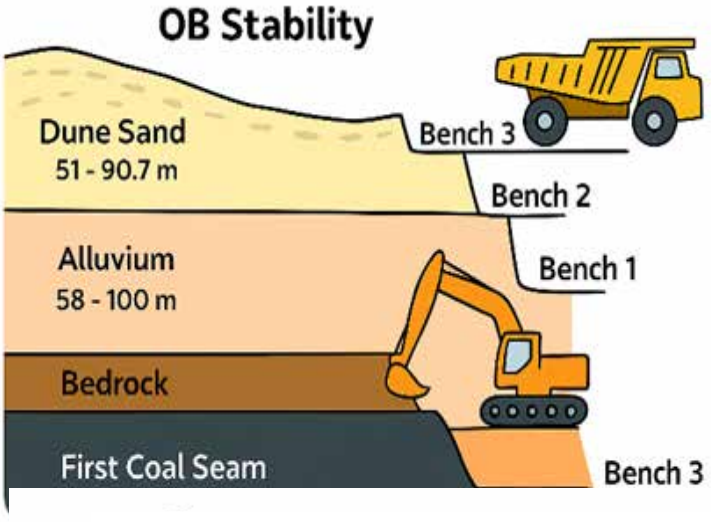
The companies have to dig down 140 metres in order to hit the first layer of coal.[22] The dump will take 586 million cubic metres of overburden and can be a maximum height of 88 metres. However, Engro's website indicates that they are over 88 metres thick, raising questions about whether the dump's designed height is sufficient.[23]



Open-pit mining & overburden

Lignite is a low grade fossil fuel with high moisture and sulphur content.[16] To extract it, open pit mining has to be undertaken over thousands of hectares, deposit levels and land price permitting. Trucks and bucket-and-wheel technology are used to remove the upper layers of soil. The layers of sand, soil and rock that lie above the coal are extracted and sent to overburden dumps. The stability of overburden slopes depends on the design, bench height, bench width, and number.[17]

16 Lashari, "Coal Power and Livelihood Disruptions in Thar."
17 Bench width in mining is the horizontal distance across a flat step (called a bench) in an open-pit mine. It's wide enough for trucks and machines to move safely and work efficiently.



What is overburden?

Miners begin coal extraction by removing the overburden. A well-designed system prevents accidents and manages environmental safety and conversely poor construction and design often result in dump failures.

Table 2 Composition of overburden

Formation	Lithology	Thickness
Dune sand	Sand, silt & clay	54.86m to 91.45m
Alluvial deposits	Sandstone, siltstone, claystone molted	55 to 127 metres (variable)
Bara Formation	Claystone, shale, siltstone, sandstone, coal & carboniferous claystone	54.86m to 91.45m

The overburden is made up of dune sand, clay, silt, alluvium and sedimentary rocks of the Bara Formation above the first coal bed. The thickness of dune sand throughout the area (at inter-dune drill sites) ranges between 51 and 90.70 metres and averages around 68 metres; alluvium thickness ranges between 58 and 100 metres and averages around 76 metres. The thickness of the bedrock above the first coal seam is normally quite thin and is generally less than 15 metres beneath the alluvium bedrock contact. In a few drill holes alluvium is found directly on the first coal seam. The bulk of the coal i.e. more than 90 percent is present between 50 and 120 metres below sea level and can be mined by removing an overburden of 200 metres.

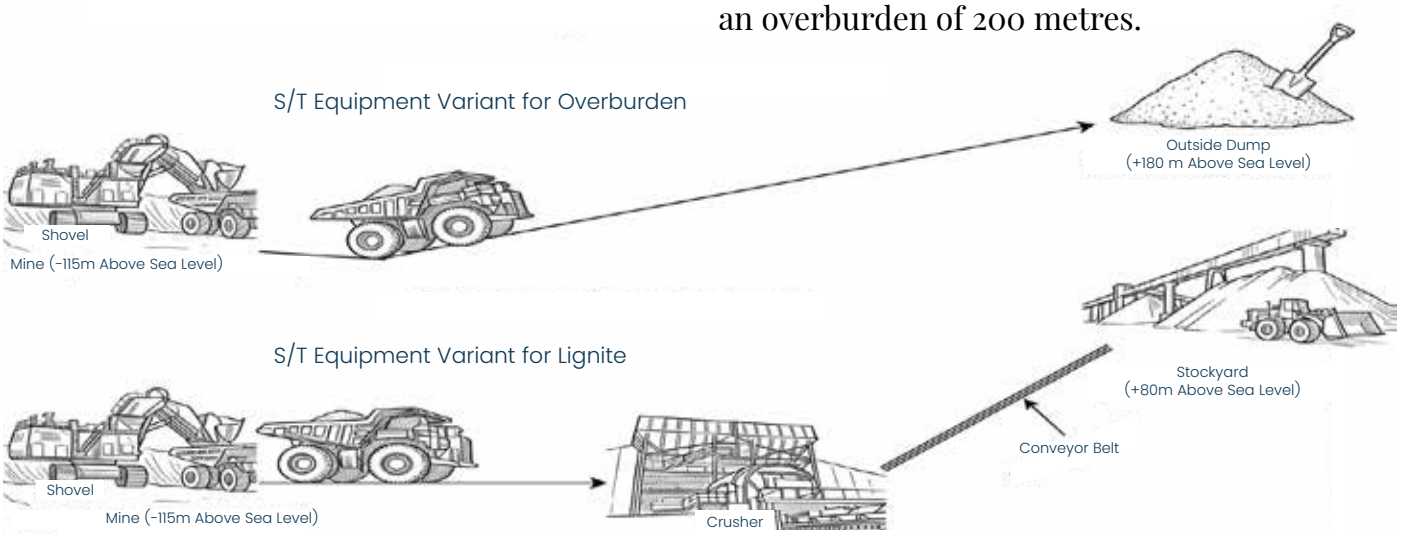


Table 3 Overburden at mining sites in Thar Coalfield Blocks I and II

Block	Company	Mining area	Villages affected	Mine depth	OB Thickness	OB
I	SSRL	122 sq km - Latitude: 24°35'N & 24°44'N - Longitude: 70°12'E & 70°18'E	1. Warvai 2. Male jo Tar 3. Saren jo Tar 4. Sinhar Vikio 5. Ajbe jo Tar 6. Khario Ghulam Shah 7. Tilwayo 8. Bhave jo Tar 9. Shahmir Vikio / Qurban Vikio	167.61 metres	137 to 189 metres	200 metres
II	SECMC	9600 sq km	1. Aban jo Tar 2. Bitra 3. Seengaro 4. Sehri Dars 5. Thario Halepoto 6. Mansing Bheel 7. Shafi ji Dhani 8. Parbho ji Dhani 9. Noray ji Wandh	140m below the surface 192 metres		246 million cubic metres of overburden removed in phases 1 and 2

Community profiles

Khario Ghulam Shah

Khario Ghulam Shah sits 23km south of Islamkot and is the largest village of the Islamkot union council with a population of 8,000. Its terrain is known for its flat, sandy plains and vast grazing land. It was famous for the Ghulam Shah mela that drew crowds from Neighbouring villages for its thrilling horse and camel races.

This village is home to the Syed, Mehranpoto, Meghwar, Bheel, Singrasi and Bhatti castes, who have been living together for centuries. It has one graveyard for Muslims and two for Hindus, according to their caste. (Bodies from Warvai and Tilwayo are sent for burial to Khario Ghulam Shah and Tilwayo only has one graveyard for infants).
Khario Ghulam Shah is already affected by mining in Block I but it has been added to Block VIII#. Ironically, despite this, it has been unjustly excluded from the project's scope due to its proximity to the mine and power plant.

A dumping site was chosen for Block I's overburden approximately half a kilometre from the houses on the eastern periphery. The mining began in 2018 but has since expanded Tilwayo, running through Jam ji waandh (wandh is small village) and passing the eastern side of Khario Ghulam Shah. The overburden is dumped in a circle around the power plant, where the company provided the village an alternative route. Soil is compacted with the help of water sent in tankers.

The slope of the overburden dump has been deliberately angled towards the residences of Khario Ghulam Shah, to channel the rainwater away from the mining pit and

towards the eastern side. But this just means that the village floods. In fact, a wastewater pipeline passes straight through the village and discharges into Gurano Dam.

Shanghai Electric has constructed two 600MW unit power plants here for which land to the east of the village was acquired. Some communities in Warvai, Tilwayo and Khanal were forced to leave to make way for this infrastructure, although they were given compensation. This was not the luck of the Bheels of Tilwayo whose homes were destroyed in landsliding and were promised compensation and resettlement by the Deputy Commissioner of Tharparkar.

Jeando Dars

Jeando Dars is known for the largest dunes in Thar, especially the Jarakli Dune in the east. It is home to the Meghwars, Dars, Sehtas, Kumbhars and Kolhis and forms the largest village in the union council, with an estimated population of around 3,000. Most people here depend on rearing livestock, farming and seasonal migration and a small number labours at the mines. This village has long held historical and cultural significance, but its proximity to the mining and dumping sites has made it even more important today.

The contractor, Bilal Company, initially set up camps on the northern side of the village for mining in Thar Coal Block II owned by SECMC and being carried out by China Machinery Engineering Cooperation and Prime Human Resource Service.

Coal from Block II mining is dumped in 1.5 square kilometres. These dumps are expanding from Jeando Dars towards the old Sehri Dars village and have reached Thario Halepoto village and Pabohar. As a result, the direct path between Thario Halepoto and Jeando Dars has been disconnected. Block II dumping continues through the north of Jeando Dars and the height of the dump is 400 feet with three layers of overburden. Since 2013, the villagers have lost their fields, grazing lands and shelters, trees, roads, and ancestral graveyards. In return, they've received little more than a handful of jobs, one or two dumper drivers, a reverse osmosis plant operator, and meager compensation for their land.

Runoff rainwater from the overburden slope spreads over thousands of acres. This hazardous water often arrives during the monsoon when people are working in the fields and livestock is grazing.

People still remember a major land collapse due to runoff in 2024. Due to OB dump, Jeando's tobhu and Mobib's Dharr a vast, flat, sandy forest have been destroyed, Jeando Dars comes under the forest department#. Communities advice to acquire land from the forest department that could be used as a relocation site.

Roads have been closed off, such as routes to towns and cities such as Islamkot and Mithi. The distance from Jeando Dars to Thario Halepota, for example, used to be just a few kilometres, but is now 30km. For emergencies and routine visits to the city, villagers must now endure hours of additional travel.

14 Thar Coal and Energy Board, "Block VIII," accessed December 21, 2024, https://www.tceb.gos.pk/blockviii/.

15 Government of Sindh, Energy Department, Resettlement Policy Framework for Thar Coalfields: Appendices (Karachi: Sindh Energy Department, February 2015), https://www.sindhenergy.gov.pk/wp-content/uploads/2023/04/Final-Resettlement-Policy-Framework-Appendices-Feb-2015.pdf.

Social & environmental consequences of overburden

The villagers who live around Blocks I and ll, specially Khario Ghulam Shah and Jeando Dars, divide the impact of mining into seven broad categories.

Noise pollution

Thar is a quiet place but over the past six years or so, the villagers have been disturbed by the constant high-intensity noise and vibrations made by the continuous movement of dumper trucks, the digging, and sound of thousands of tons of sand and rocks being moved around. The persistent noise causes sleep deprivation which raises stress levels and fatigue. “Noise and vibration no longer let us sleep,” said Chacha Ladho of Khario Ghulam Shah. “We are restless. All our lives, we slept under the open sky gazing at stars and constellations. Now the stars have been taken away from us.” Worst of all, he said, they have to sleep inside with the windows shut tight, cut off from the stars, the breeze, and the world they once knew.

19 JICA, Data Collection Survey on Thar Coal Field.
20 Thar Coal and Energy Board, "Sino Sindh Resources (Pvt.) Ltd. – Block I," accessed December 21, 2024, https://www.tceb.gos.pk/sino-sindh-resources-block-i/.
21 SECMC Thar, "Glimpses into SECMC's Work," YouTube video, 2021, https://www.youtube.com/watch?v=iYosMf-9vsw].
22 Thar Coal and Energy Board, "SindhEngro.mp4," video file, June 2018, http://tceb.gos.pk/wp-content/uploads/2018/06/SindhEngro.mp4.
23 Apan International Cooperation Agency (JICA), The Preparatory Survey on Thar Coal Field Development Project in the Islamic Republic of Pakistan: Final Report (Tokyo: JICA, March 2013), https://openjicareport.jica.go.jp/pdf/12113221_01.pdf.

A dreaded music

I am 70 years old, and at this age, the noise of the dumpers at the mining area keeps me awake at night. In our tradition, people of Thar, especially elders, sleep under the open sky at night and rest in *chowras* (huts) during the day. That's how we lived for generations. For the last six years, the thunder of the dumping trucks has become a dreadful music. We cannot sleep outside due to the noise and dust. It was never like before, but mining has created restlessness in our lives

70-year-old Satram Meghwar of Khario Ghulam Shah

Air pollution

In the immediate environs, there are three ways coal mining pollutes the air. During the first step, wind erosion of uncovered coal stockpiles and gangue (a waste product of mining) generates polluted dust. Add to that the pollutants created when coal and gangue oxidises and the handling of coal, moving it from the mine-mouth to stockpiles, crushing it, and loading it onto trucks, trains, or barges for delivery. Uncovered coal transportation, a lack of water spraying, and open ground coal piles add to hazards.

The very nature of Tharparkar's coal is known to be of the dirtier kind. The lignite found here has a lower heating value compared to bituminous coal. This means nearly twice as much lignite has to be burned to produce the same amount of electricity. Lignite is the cheapest form of coal and releases a large quantity of greenhouse gases and ash and so carbon emission from mining and power plants jeopardise Pakistan's commitment under the Paris Agreement.

24 Hina Aslam, Ahad Nazir, and Ubaid ur Rehman Zia, "Thar Coalfield: Prospects and Challenges," in Prospects of Coal Investments and Potential of Renewable Energy Transition in Thar Region of Pakistan (Islamabad: Sustainable Development Policy Institute, June 2021), 9–25, https://www.jstor.org/stable/resrep34174.5.
25 Thar Block II: First Layer of Indigenous Coal Unearthed.
26 Global Energy Monitor, "Thar Block II Coal Mine," Global Coal Mine Tracker, accessed December 21, 2024, https://www.gem.wiki/Thar_Block_II_Coal_Mine.

Table 4 Health impacts from coal mine and power plant emissions over a 30-year operating period [32]

Cause	Estimated effect over 30 years
Air pollution	29,000 lives lost
Asthma	40,000 cases
New childhood asthma	19,906 children affected
Pre-term births	32,000 premature births
Work absences	20 million days lost due to illness
Years lived with disabilities	57,000 years of disabilities from chronic pulmonary disease, diabetes, and stroke

Alliance for Climate Justice and Clean Energy, "Air Pollution from Thar's Coal Mines, Power Plants to Cause Serious Toxic Deposition, Health Risks: Study," May 29, 2020, https://acjce.com/?event=air-pollution-from-thars-coal-mines-power-plants-to-cause-serious-toxic-deposition-health-risks-study.

Table 5 Air quality at mines

Block	Lat	Lon	Output, Mt/a	TSP	PM10	PM2.5
I	24.67	70.33	6.57	538.9	256.3	39.4
II	24.77	70.40	8.06	660.8	314.3	48.4

**Latitude and longitude refer to the centre of the mine pit; emissions given in tonnes.*

Lauri Myllyvirta and Sunil Dahiya, Air Quality, Health and Toxic Impacts of the Proposed Coal Mining and Power Cluster in Thar, Pakistan (Centre for Research on Energy and Clean Air, May 29, 2020), https://energyandcleanair.org/publication/air-quality-health-and-toxics-impacts-of-the-proposed-coal-mining-and-power-cluster-in-thar-pakistan/.

27 Gangue is the portion of mined material that has no commercial value and must be separated from the valuable ore.
28 Y. Y. Li et al., "Mechanism and In Situ Prevention of Oxidation in Coal Gangue Piles: A Review Aiming to Reduce Acid Pollution," Sustainability 16, no. 16 (2024): 7208, https://doi.org/10.3390/su16167208
29 U.S. Environmental Protection Agency, "Lignite Combustion," in AP-42: Compilation of Air Pollutant Emission Factors, 5th ed., vol. 1, Stationary Point and Area Sources, sec. 1.7 (Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, September 1998), https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors-stationary-sources.
30 Zarka Khan, "The Thar Coal Power Project: Balancing Environmental Sustainability and National Security," Pakistan House, 2023, https://pakistanhouse.net/the-thar-coal-power-project-balancing-environmental-sustainability-and-national-security/.
31 Rural Development Policy Institute, "Thar Coal Block-I Mine and Power Plant," The People's Map of Global China, updated December 7,2021, https://thepeoplesmap.net/project/thar-coal-block-i-mine-and-power-plant/
32 News Desk, "'Thar Coal Pollution Will Cause Serious Health Risks,'" The Express Tribune, May 30, 2020, https://tribune.com.pk/story/2231358/thar-coal-pollution-will-cause-serious-health-risks.

The air quality in the area is in violation of the Sindh Ambient Air Quality Standard, the International Finance Corporation guideline and the WHO guideline for annual average PM10 concentrations.[33]

The thunder of a thousand dumper trucks

"Whenever the government decides to do what it calls 'development' it is always the locals who have to pay the price," said Surkaj. It is they who are evicted from their ancestral villages, and have to abandon the place which provided them livelihoods, culture and social fabric for centuries.

Surkaj challenges 'developers' to try to spend a single day in his village for only then would they realise what it is like to live with dust pollution, contaminated water and the thunder of a thousand dumper trucks.

"We can't even sleep peacefully nor can we go about our work. We cannot let children sleep outside at night anymore because of the dust," he added. Freshly washed dishes are instantly coated with coal dust. When the west wind blows, the dust blankets entire villages. "We live beside the mound of the mining dump where every rain brings misery and flooding in which not only our houses but the graveyard and dargah drown too," Surkaj said. "We have lived in this village for generations but we have never witnessed such cruelty, such a feeling of being lost as if we were strangers in our own homeland."

34 Rural Development Policy Institute, "Thar Coal Block-I Mine and Power Plant," The People's Map of Global China, updated December 7,2021, https://thepeoplesmap.net/project/thar-coal-block-i-mine-and-power-plant/.

Land conflict & hazards

Residents of nine villages within the project area —Warvai, Male jo Tar, Saren jo Tar, Sinhar Vikio, Ajbe jo Tar, Khario Ghulam Shah, Tilwayo, Bhave jo Tar, and Shahmir Vikio/Qurban Vikio—are being displaced by mining and power generation in Block I.[34]

Warvai, Tilwayo, Bhave jo Tar, and Khario Ghulam Shah are within the proposed mining area while part of Ajbe jo Tar is at the margin. Tilwayo, from where the project's mining activity will be initiated, is 16km from Islamkot. Warvai is in the 'initial' mining area, while Ajbe jo Tar is in the 'second' mining area.

SECMC acquired 6,000 acres for Phase I, and was working on acquiring another 8,000 acres for Phase II.[35] SSRL needed 8,216 acres, which included 6,322 acres of government land and 1,894 acres of private land, for mining, dumping, a camp, coal yard and captive power plant.[36]

In Block I, mudsliding has been reported from Warvai, Tilwayo, Khanal, Khario Ghulam Shah and in Block II in Jeando Dars. Tilwayo had to be completely resettled due to the mining expansion and land-sliding from OB dumping, Khairo Ghulam Shah is facing the same pressure.

Table 6 Wind erosion

Season	Wind direction	Khario Ghulam Shah exposure	Jeando Dars Exposure
Summer	Southwest → Northeast (high speed)	High exposure: wind carries emissions from Block I mining and power plant directly toward the residential area of the village	Moderate exposure: wind may disperse pollutants from Block II's dump away from the village
Summer Monsoon	Southwest → Northeast (Moderate speed)	Moderate to high exposure: humid air may trap pollutants, slower winds reduce dispersion	Moderate exposure: rainfall may suppress dust, but emissions still reach village, pasture and crop land
Post-monsoon summer	Southwest → Northeast (Low speed)	High exposure: low wind speed limits dispersion, pollutants linger near residential area and farmland	Moderate exposure: reduced wind may allow localized build-up of emissions
Winter	Northwest → Southeast (Reduced speed)	Lower exposure: wind direction shifts away from village, aiding pollutant dispersal	High exposure: wind may carry emissions from the Block II dump directly toward the village and crops

Compensation without justice

After a year of appeals and protests, Engro finally paid compensation of Rs15,000 per acre in June 2025 for the damage caused in 2024, according to Chacha Ladho. In total, 25 agricultural plots in the village were ruined by toxic clay-laden water from the OB dumping site. Of these, 15 plots belonged to the Meghwars, six to the Dars, and four to the Sehtas. Poor and marginalised families received only Rs15,000 per acre, while those with influence were paid significantly more. The land has been rendered useless because of *bitu*. Thar's precious and expensive Rohiro tree, found in several of these fields, was also destroyed by the contamination from the OB dumping water.

Table 7: Land taken away for mining[37]

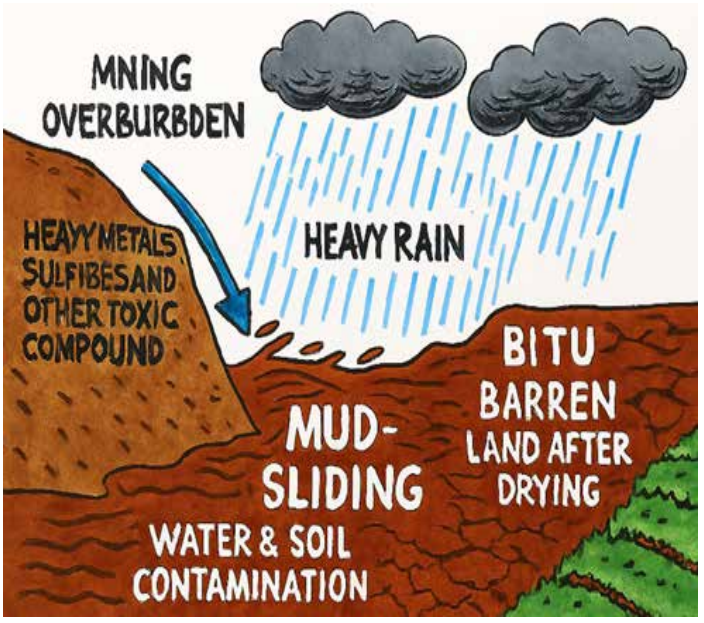
Village	Category of land acquired in acre		
	Survey (private entitlement)	*Yaksala* (leased to farmers)	*Gowcher*
Warvai	1,800 (728)	2,000 (809)	1,200 (486)
Tilwayo	1,300 (526)	1,500 (607)	1,050 (425)
Khario Ghulam Shah	1,600 (647)	2,000 (809)	1,200 (486)

Bitu, the dead land

When it rains, a slurry of mining overburden slides down from the top of the OB dump and turns into compacted clay on the way down. This clay then spreads out over the land below to coat it and after it dries it is impossible to grow anything there. Locally, this dead land has come to be referred to as *bitu*. Mud takes a long time to dry, remains on the surface for a prolonged period and resists water.

35 Global Energy Monitor, "Thar Block II Power Station," Global Energy Monitor Wiki, last modified December 11, 2025, https://www.gem.wiki/Thar_Block_II_power_station
36 Our Correspondent, "Shah Directs Chinese Company to Revolutionise Desert Agriculture," The Express Tribune, October 22, 2019,https://tribune.com.pk/story/2084530/1-shah-directs-chinese-company-revolutionise-desert-agriculture.
37 Rural Development Policy Institute (RDPI) and Alliance for Climate Justice and Clean Energy (ACJCE), Coal Rush: The Impacts of Coal Power Generation on Tharis' Land Rights (Islamabad: RDPI, 2021), table 3, page 37. https://www.priedpk.org/wp-content/uploads/2022/02/Research-Study-Coal-rush-The-impacts-of-coal-power-generation-on-Tharis-land-right-1.pdf?utm_source=chatgpt.com

The overburden also contains heavy metals, sulfides, and other toxic compounds and when it rains heavily, this contaminated runoff from the dump's slope enters cultivated land, *gowcher* and houses causing waterlogging. Women and children living near coal mining and power plants are at the highest health risk from contaminated water and soil pollution.[38]



38 Hina Aslam, Ahad Nazir, and Ubaid ur Rehman Zia, "Thar Coalfield: Prospects and Challenges," in Prospects of Coal Investments and Potential of Renewable Energy Transition in Thar Region of Pakistan (Islamabad: Sustainable Development Policy Institute, June 2021) https://www.jstor.org/stable/resrep34174.5.

Table 8: Mudsliding & losses

	Khario Ghulam Shah	Jeando Dars
Month of mudslide	July, August, September and October	July, August, September and October
Direction of the flow	East (towards residential area)	North towards the fields, grazing land
Layers of mud stored above ground level	70 metres	63 metres
Land degraded	900 acres	400 acres
Types of land	*Gowcher*, homes	Survey land
Crops affected	Mushroom, trees, grass for livestock	Cluster beans (*Gwar*), millet (*bajra*), mung beans, drought-resistant moth beans, *choora*, sesame (*till*)
Estimated loss	Not assessed	Rs20,000,000
Compensation granted	None	Rs3,000,000 (Rs15,000 per acre paid to marginalised families, below market rate)

Playgrounds needed

Deedar Mehranpoto described how he used to play games with his friends in their village grounds. "The grounds are now filled with the contaminated rainwater that came from the embankment of mining overburden," he said. "We are sick of this so-called energy development of the country. It brought only destruction to our world. Are we not citizens of Pakistan?" He wanted their homes and schools to be saved because the path they used to reach school is submerged during the rainfall.

Livestock disturbances

Coal dust from the power plants and mining deposits on vegetation which in turn affects the health of livestock that eats it. The inundation of *gowcher* with rainwater coming

from the embankment has aggravated the problem. The locals complain that the incidence of stomach diseases among the animals grazing in the *gowcher* has gone up in recent years. Despite knowing that the fodder available in the *gowcher* is toxic, shepherds do not have any choice but to take them there because nothing else is available.

"For generations, our western *gowcher* was serving us as a great resource both for animal and fuelwood collection," says Rasool Bux Mehranpoto, who lives just half a kilometre from the dump. "The seasonal flooding induced by the OB has not only limited our access to the *gowcher* but also reduced its richness to produce quality fodder and firewood."

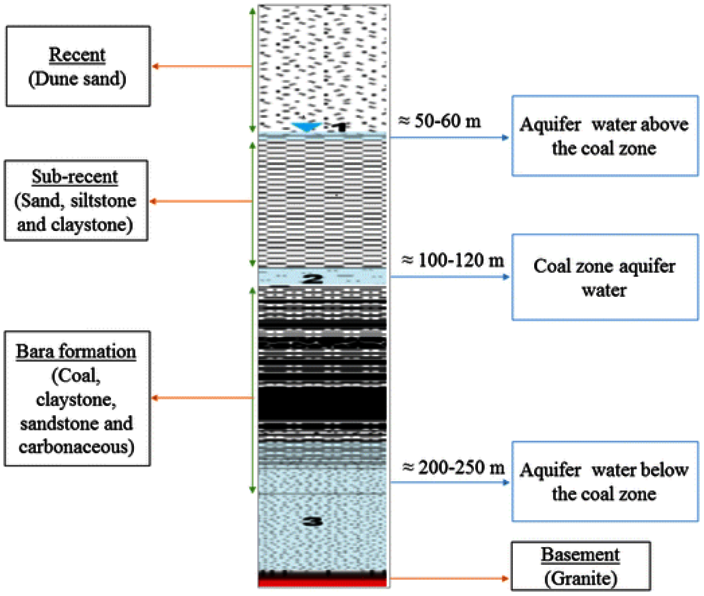
Table 9 Livestock losses

Description	Estimated loss (as per interviews)
Gastrointestinal illness	300-400 livestock heads
Milk productivity goes down because of fodder contamination and water scarcity	Thick and less ~40% reduction average milk productivity
Poor nutrition leading to birth rate decline	40% to 50%
Dust-covered vegetation, *bitu* deposits, reduced *gowcher*, blocked indigenous pathways	Dusty and polluted grass and fodder make livestock sick. Over 60% eat the worst quality food
Human health impacted by shrinking dairy production, lower livestock sales	60% to 70% economic loss while social impacts are unquantifiable Herders cannot manage social gatherings, social isolation Losing dairy products means production disconnects them from social activities

Water contamination & overburden

Thar is the most fertile desert in the world, but rain is rare and averages 200mm to 300mm per year,[39] only in the monsoon months of June to September. The top aquifer directly recharges from rain. The upper seam layer of the coal reserve also reportedly contains *in-situ* (latin for in position) water (that naturally present and stored in soil, rock layers or coal seams - without being pumped

or moved, stays in its original place). Mining destroys underground layers of water stored between sand and rock.



Most villages use groundwater from the sand dune aquifer for themselves and the livestock. Although this aquifer is recharged by rainfall, the regional groundwater generally flows along the surface slope from northeast to southwest. To extract coal safely, water from the aquifer above, within and below the coal zone is pumped out and disposed of in Gurano village, Dhukar Choo, Warvai village and reinjected under village Meghe jo Thar.

When it does rain, the water collects in natural depressions called *tarai* and *tobha*, which can sustain animals and humans for up to five months. As these natural depressions have been destroyed, natural channels for water were disrupted. Rainwater is diverted to villages and *gowcher* which flood. When it rains, torrents rush down from the badly designed OB dumps, triggering mudslides.

The removal of topsoil and vegetation reduces the land's ability to absorb water, leading to more surface runoff. Mudsliding degrades land around the dumps. The two water lifelines in Thar of rain and groundwater are accessed through wells, rainwater accumulating in natural depressions and RO plants.

39 Thar Coal and Energy Board, "Thar Coalfield," accessed December 21, 2024, https://www.tceb.gos.pk/thar-coalfield-3/.

The removal of overburden has had these effects:

a. Continuous dewatering of aquifers to keep mines dry has disrupted the natural recharge cycle causing wells to dry up

b. Studies and water tasting results[40] (by communities) have found elevated levels of heavy metals near mining sites.[41] The reports declare the water unfit for drinking due to the leaching from exposed strata and improper disposal of wastewater.

c. Natural depressions that stored rainwater have been acquired and mined or enclosed by mining infrastructure, blocking villager access to seasonal water reserves.

d. While RO plants were introduced as mitigation, they are often unreliable due to maintenance issues, power outages, and limited coverage. The community also found that RO plant water is also not safe for health. Women complaining about weakness and pain in their knees.

40 The Newspaper's Staff Reporter, "Concerns raised over 'poisoning' of potable water in Thar," Dawn, April 5, 2023 https://www.dawn.com/news/1745937
41 Business Recorder, "Coal mines, power plants polluting Thar's groundwater: study," Business Recorder, October 27, 2022 https://www.brecorder.com/news/40205396

By the numbers

Over ***60%*** of households now rely on RO plants, which are often non-functional and rain catchments are blocked by mining

200 chowras, two schools, graveyard and shrine affected by flooding in Kharlo Ghulam Shah

25 agriculture plots affected in Jeando Dars, 15 belong to Meghwars

Table 10 Water losses

Villages	Water source	Human population dependent	Livestock
Khario Ghulam Shah	1 *tarai* fully destroyed, 1 partially destroyed (most people depend on a summer pump). This large *tarai* catchment, once a vital shared water resource used by Warvai, Tilwayo and Khario Ghulam Shah, has been blocked by OB dumps, no longer collects rainwater and is thus destroyed	2,000-3,000	4,000
	1 *tobhu* silted with *bitu*, water unfit for use		Used only for livestock
	12-15 wells have turned saline, and mining is making it increasingly unfit for use. As salinity levels rise, the water can no longer support domestic needs and livestock consumption. Women have to venture farther to bring water from the RO plant	5,000 (1,000 households)	5,000-6,000
	RO plants 4 (closed for 10 years)		
Jeando Dars	1 *tarai* acquired for mining and 1 buried under OB dumps 1 *tobhu* acquired for mining and buried under OB dumps	1,000-1,200	9,000-10,000 livestock from 5 villages
	8-10 wells are short on water as dewatering has depleted the aquifer		

Chacha Karim Ali & the giant mud wall

Chacha Karim Ali's house is one out of the two hundred houses that have been affected by the seasonal flooding induced by the overburden dump. Over the last two years, rainfall has caused mudslides into the village, damaging homes, cultivated land, a shrine, mosque and graveyard.

"I have spent my entire life in this village and can sense the pain of the dunes, forest and land," he says. "You can see the giant mud wall, a vast area covered with dumped mining overburden was the place where I grazed my goats for twenty years. During these years I saw the stages of growing trees, grasses and bushes growing. Today, it has all been buried under the heaps of overburdened and the entire ecosystem has been altered." Dust, *bitu*, wastewater and coal smoke have wiped away the village's natural beauty.

According to Karim, when humans go against nature and interfere, it devastates the land, trees, crops and biodiversity.

This suffering was never part of our life. We grew up cultivating this soil and herding livestock across these lands. But in the last five years, coal companies and the government have brought nothing and just devastated everything once we relied on. We can not sleep and walk freely. There are police check posts everywhere. If we go they ask who are you? They stop our women and children and ask, who are you and show your identity. This is our land. Who will decide this injustice now? We have been the custodians of this land for thousands of years, we are the Thari and this land is our identity so this land belongs to us and we belong to this land.

Where does all the pumped out mine water go?

Wastewater from Block II is pumped out and drained into Gurano village. It reaches Gurano via a pipeline. That pipeline was constructed through Khario Ghulam Shah and Jeando Dars.


روزانہ
عوامي آواز
Daily AWAMI AWAZ

A dam was constructed above the Gurano drainage pipeline in April 2018 at approximately 400 metres north of Jeando Dars. The dam is 200 metres long and around 10 feet deep. This structure serves as an alternative reservoir when Gurano Dam is not operational.

With the suspension of water supply from Gurano, this dam is now actively being filled. In addition, several smaller dams have been constructed in the surrounding area to dump mining wastewater.

Previously, effluent from the nearby OB dumping site flowed unchecked into agricultural fields, damaging crops and soil. To mitigate this, the company has redirected the wastewater into the Jeando Dars dam via a large constructed channel, resembling a stream, that runs from the dumping slope to the reservoir.

However, the villagers fear that if the dam were to burst, it could flood the entire village. Moreover, there is deep concern that—as with Gurano—the contaminated water stored in this dam will gradually degrade groundwater quality and soil fertility, posing long-term environmental and health risks. It is well documented that Gurano's wells are now filled with silted water.

Movement & access reduction

By installing barbed wire fencing around the mining areas and setting up checkpoints, the companies have begun enclosing village land, severely restricting mobility. Khario Ghulam Shah and Warvai have staged protests and 15 Warvai villagers were arrested under two FIRs filed against 38 residents.[42]

"The companies have fenced off our access routes, blocked our grazing lands, and broken the promises they have made to us," said Mohammad Amin, who was named in the FIRs. The community has not received full compensation for their land and now faces eviction without resettlement. "These FIRs are not about justice," he added. "They are a pressure tactic to force us out of our homes and land." After the construction of the check post, he feared, "they will stop and ask about our identity and identity card and from our women."

Paying to mourn

Venjho Mal reports that even the paths leading to the graveyard are on the verge of closure. They used to be able to walk to graveyards but now they have to spend as much as Rs8000 to Rs10,000 taking a vehicle because the direct routes are off limits. “This heap of soil has become an enemy of our footsteps.” he said

Table 11 Freedom to movement losses

Affected Groups	Mobility disrupted	Estimated impact	Khario Ghulam Shah	Jeando Dars
Students	Longer routes due to blocked paths and flooded roads raising transport fare and time to travel	30-50%	Half the day spent in travel	School paths submerged during rain; students walk extra Kilometres to reach schools
Workers, teachers, miners	Detours around mining zone, check posts and restricted access, Fuel (most families have motorcycles), fare, time	40-70%	Workers face delays due to fencing, check posts and alternate roadways forming longer routes	Workers need to travel long distances to reach office due to blocked paths which were at a shorter distance than the route of alternate roads
Villagers and livestock	Flooded roads during monsoon, nighttime travel risks due to track traffic Infrastructure damage and safety risk	50-60%	- OB dumps redirect rainwater into villages, grazing land and farming land - Causes flooding on roads, farmland, *gowcher* and residential areas	- Renewal roadway diverts villagers to travel a long way to reach nearby cities and towns - During the rains, OB dumps redirect the water towards human and livestock paths
Farmers, herders	Loss of access to grazing land, livelihood health, fodder	50-70%	Livestock must venture further afield to graze	Farmers must reroute to reach fields, which cost extra fuel and time
All villagers	Flooded roads, fencing and restricted areas, Emotional, psychological, fuel, and fare	60-80%	Graveyard and shrine access disrupted, fair grounds acquired for mining and flooded Neighbouring villages (Tilwayo, Warvai) travel far to reach graveyards	Paths to graveyard closed so funeral parties pay huge sums to be able to take longer circuitous routes to reach

39 Dawn, “15 arrested after mining companies lodge two FIRs against Thar villagers,” Dawn, June 12, 2025, https://www.dawn.com/news/1916607

Cultural losses

Every year in January, Khario Ghulam Shah hosts a mela (fair) that attracts visitors from far and wide for its camel and horse racing and Malakhro (wrestling). Unfortunately, the land once used for the fair has been turned into a channel for rainwater that directly runs to the settlement, affecting both the houses and the structure of the shrine of Ghulam Shah.

"To protect the graveyard and the shrine from mud flooding, community members built a dam with limited resources," explains Mir Hassan Shah, the custodian of Ghulam Shah's shrine. "Apart from the increasingly restricted mobility of the locals due to mining, mudsliding has been causing unwelcoming conditions for the devotees, forcing them to take a long route to participate in the fair."

The mosque in the Mehranopto neighbourhood of the village was also submerged by contaminated water last year, and 200 of its houses near the boundary of the mining dump and mosques two schools Aman Mehranpoto and Arab Mehranpoto were badly impacted in 2024 by mudsliding.

Mohib's Dhaar forest

Ten years ago, just north of Jeando Dars, there was a vital *tobhu*, where livestock from surrounding villages came to drink, rest, and breathe that Chacha Ghani remembers well. Beside it stretched Mohib's Dhaar, a vast flatland blanketed with dense Ber trees, known across Thar for its grazing richness and natural beauty.

Mohib's Dhaar wasn't just land, it was legacy. The thick Ber forest stood like a sentinel of Thar's heritage, offering shade, sustenance, and stories. Villagers would pass through with their camels draped in *jhul*, vibrant cloths embroidered with flowers and threadwork.

Mining companies have claimed the land. Where water once shimmered and trees whispered, a massive dumping mound now looms. The catchment is destroyed. *tobhu* is gone. "Dust has been thrown over our memories," said Chacha Ghani. "We thirst to see those water bodies again."

We are worn out by this thing they call development: Kaki Sighu

"Throughout my life in Thar, I've endured hunger, poverty, water scarcity, and many other hardships. But the nuisance that has burdened us for the past ten years has turned our lives into an even greater misery. These forests, these fields, these sand dunes, these boundaries, these grazing grounds—they were ours. And now, in the name of development, they tell us it's all ours. But this dumping and its filthy water have become a curse for both our farmland and our village.

"Our freedom has been taken from us. The paths to our fields where we once walked alone in peace are no longer ours. Now, they are crowded with outsiders, filled with noise and chaos. We no longer move freely.

"The villagers whose farmland lies to the west—near the dumping site—have seen their fields destroyed by the dirty, stagnant water that overflowed during the recent (2025) torrential rains. The land where we once cultivated cluster beans, guar, mung beans, and millet is now buried under sludge and heaps of soil.

"There is no peace left in our fields, nor in our homes. The constant noise of vehicles robs us and our children of sleep. We are worn out by this thing they call development. For the sake of God, give us back the Thar we once knew."

Systemic failures

Lack of transparency

It is mandatory for the Sindh Environmental Protection Agency or Sepa to publish all reports and Environmental and Social Impact Assessments on mega projects. This is especially important in the case of mining, since its overburden dump shrinks land (subsidence), and it causes geohazards that threaten the safety of humans, animals, agriculture, soil and land.

But efforts to obtain these reports were unsuccessful and the documents are not available on the websites of the Sepa, the Sindh Energy department, and the two companies, Engro and Sino Sindh. Financial documents such as loan agreements, tenders, audits are also difficult to access.

Governance & accountability gaps

Institutional safeguards have failed to protect Tharis, raising questions about governance and accountability. There is no conflict resolution mechanism between the residents and mining companies so the people have to seek support from NGOs or the media, protest or take legal action to have their concerns addressed.

There is no CSR in Block I. Coal companies working in Block II and the government have made numerous promises but as many of them are unmet, it has led to protests, environmental degradation and broken trust. The public has no access to regular reports on environmental impact or company CSR. The media highlights some CSR for publicity for the companies but they are always contradictory. The most comprehensive impact reports that are available come from the civil society organisation and the media.

Civic management system

Local governance is managed by a single district government, led by an elected District Council chairman. The district administration operates through sub-offices at the Union Council and town levels. These include municipal and town committees responsible for basic services and local coordination.

Exclusionary practices

The public hearings in Sindh rarely meet acceptable standards. They are just a box to be ticked for mining companies. Key documents (EISAs, agreements, policies) are produced in English and are thus not effectively conveyed to the affected communities. None of the mining approvals are made public and are difficult to obtain from government departments. Without access to these documents, communities and organisations are unable to meaningfully participate in the consultations and present assessments.

To benefit the communities, it is important to consult them to identify and prioritise their needs. Excluding villages affected and favouring corporate profit over community well-being constitutes a violation of human rights. Villagers report that mining companies consult only with MPAs, MNAs and traditional leaders or other intermediates, often striking private deals with them while sidelining the vulnerable and minority communities.

One public hearing

On August 7, 2025, the hearing to determine the tariff for phase 3 of mining in Block II was held[43] at the Mövenpick Hotel in Karachi. The affected communities voiced strong opposition and rejected the way in which it was held. Villagers from Thario Halepoto, Gorano, Dhukar Choo, Khario Ghulam Shah, Bitra and Vejhihar participated independently, travellingf six hours from Thar to reach Karachi. They raised serious concerns about the environmental and social impacts. The Alliance for Climate Justice and Clean Energy expressed its concerns over expanded coal mining and rejected a petition sent by SECMC to the Thar Coal Board.[44]

Key Findings & Recommendations

These are the immediate problems Khario Ghulam Shah and Jeando Dars villages have been facing due to overburden dumps created by SSRL/Shanghai Electric and SECMC.

Noise pollution

The round-the-clock movement of hundreds of excavators, loaders, trucks and dumpers hauling overburden to the dumps makes relentless noise and vibration, which 80% of surveyed households in Khario Ghulam Shah and Jeando Dars said caused sleeplessness and anxiety. Mining is already noisy because of heavy machines, drilling, transportation, turbines and materials being moved around the site. The power plant machinery, engines, boilers, turbine vibration, conveyors and crushers add to the levels.

Air pollution

People, animals and plants are suffering from the fine sand, soil, and chemical particles released into the air by overburden dumping. In the windy summers, these hazards trigger respiratory illnesses and as they settle on native plants and bushes, they weaken them, driving biodiversity loss.

Land degradation

The steeply engineered overburden dumps act as artificial highlands, so that during the monsoon, rain torrents rush down their slopes with destructive force, inundating villages, farmland, grazing grounds, houses, and wells.

The torrents from OB dumps carry a silt known as *bitu* which is laden with harmful chemicals. This silt blankets farmland and *gowcher*, degrading the soil, reducing crop yields, and making livestock sick

Recommendations
Global context

Historically, coal has been a major driver of climate change and coal-based power projects do not offer sustainable development. From land acquisition to grid transmission, every step causes serious harm to communities, culture, and the environment. Many coal-producing countries are now phasing it out after experiencing the destruction of their natural resources.

43 Dawn, "Civil Society Coalition Slams Thar Coal Expansion Petition," August 7, 2025 https://www.dawn.com/news/1929266

Table 12 Global best practices to phase out coal mining

Country	Approach	Commitments it made	What it did
Canada	Plans before mining starts	Closed all coal-fired power plants by 2023 and retired mines ahead of schedule	1. Established a just transition task force 2. Enforced strict mine reclamation laws 3. Integrated federal and provincial policies with worker protections
Germany	Strong community involvement Long-term planning Uses land for good	Phased out hard coal mining by 2018 and are now transitioning lignite coal regions	Created a national coal commission with unions industry and civil society Provided 40 billion euros in transition funding for affected regions Repurposed mine lands for solar farms, lakes and tourism
Spain	Set aside money early	Closed most coal mines by 2021 through negotiated agreements	Signed deals with unions for early retirement and retaining Invested in clean energy and infrastructure in mining towns Transparent negotiations and economic diversification Used EU funds for regional development

Pakistan's promises

There is a contradiction between Pakistan's climate pledges and its coal expansion strategy. In 2016, it signed the Paris Agreement and submitted Nationally Determined Contributions pledging by 2030 to reduce the greenhouse gas emissions by 20%, expand its renewable energy share to 30% and adapt climate resilience strategies. Pakistan also participates at the UN Framework Convention on Climate Change COP summit, and emphasises climate justice and transitioning away from fossil fuels due to the devastation caused by flooding each year. Pakistan is also the first South Asian country to sign the Fossil Fuel Non-Proliferation Treaty in 2024 which aims to end the expansion of oil, gas and coal production.[45]

Despite these commitments, however, Pakistan is expanding the production and use of coal. A phase-down is not feasible without halting domestic coal mining, but since 2019 coal's contribution to Pakistan's energy matrix has increased. Soon land will be acquired to start the third phase of mining in Block ll and the Thar coal railway will transport lignite to power plants and cement factories across the country.

At a more immediate level, Sindh's commitments are to be enforced by the Sindh Environmental Protection Agency (Sepa) which is part of the Government of Sindh's Forest, Environment and Wildlife Department. Sepa is responsible for reviewing and approving the Environmental Impact Assessments (EIAs) of the proposed coal mining and overburden dumps

44 The News, "ACJCE Rejects Petition to Expand Thar Coal Mining," November 20, 2025. https://e.thenews.com.pk/detail?id=423285

Figure 3 Sepa's responsibilities at a glance

Develop and enforce Sindh Environmental Quality Standards	Licence hazardous substance handling	Certify environmental labs
Promote research and public awareness	Advise the government on environmental issues	Support waste management and accident response
Encourage NGOs and community groups	Enforce Sindh's 2014 environment laws	Review and approve Environmental Impact Assessments
Repair environmental polices	Publish annual environmental reports	

45 The Friday Times, "Pakistan Joins Global Fossil Fuel Treaty Push—But Faces Scrutiny Over Domestic Contradictions," July 2, 2025, https://www.thefridaytimes.com/02-Jul-2025/pakistan-joins-global-fossil-fuel-treaty-push-but-faces-scrutiny-over-domestic-contradictions

Recommendations

For the Government of Sindh

Launch a public ESIA portal for all Thar coal blocks

Publish and ensure accessible of all ESIA and CSR documents related to Blocks I and II

Provide all villages ESIAs and other important documents in local languages

Mandate community-inclusive public hearing with advance notice and translations

Enforce slope stability and dust control regulations under SEPA Act 2014

Set up a joint monitoring committee with villagers, SEPA and independent experts

Allocate budget for community-led environmental monitoring and health surveillance

Stop coal expansion until current conflicts resolved

Suspend new mining Licences and expansion plans and adopt renewables

For mining companies

Implement CSR programs transparently

Provide fair compensation or acquire land on lease

Improve GRM with the community consultation

Install real time air and water quality monitoring system accessible to local communities

For civil society, the media & academia

Amplify communities voices through communities tribunals, media campaign and public campaign

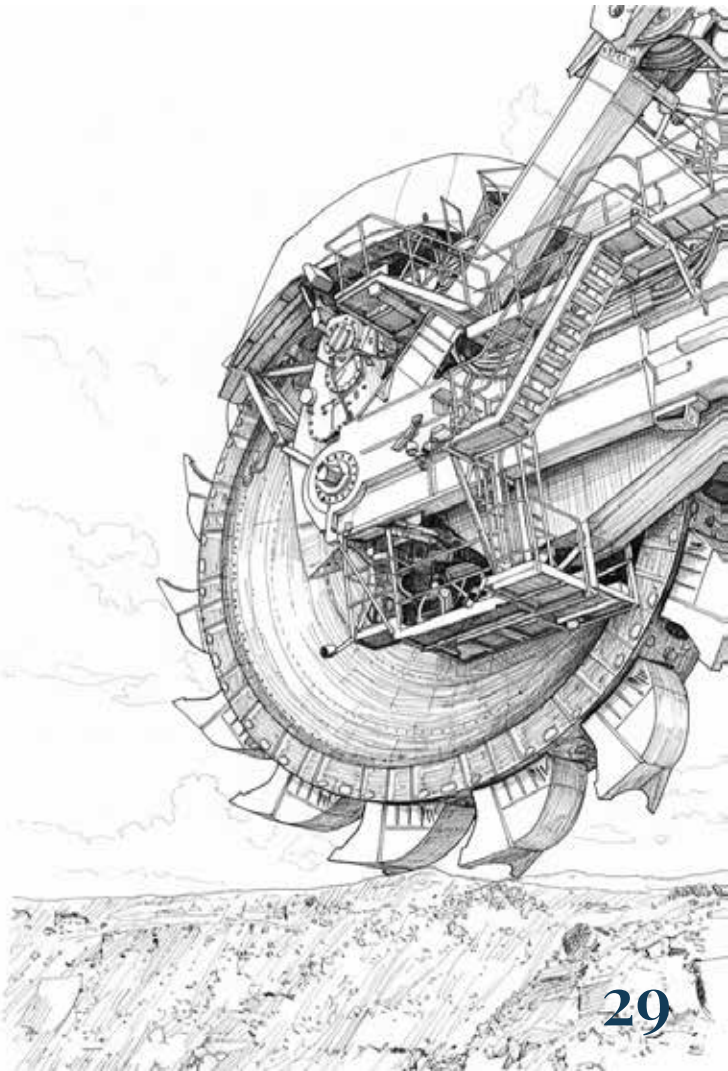
Conduct independent research on OB impacts, access post OB risks, soil testing, yearly water testing and health risk

Data collection in term of numbers to list the increase number of patient and kind of diseases spreading after coal

Train youth, media and women

File RTI request for EISA, CSR and land acquisition document

Build alliances with regional anti-coal networks to increase pressure and visibility



APPENDIX

Table 13 Laws that govern coal mining, environment and rights of people linked to projects

Air and Noise	Pakistan Environmental Protection Act, 1997 Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000	
Water	National Water Policy, 2003 Canal and Drainage Act, 1873 Sindh Irrigation Act, 1879 Sindh Water Management Ordinance 2002 Pakistan Environmental Protection Act 1997 Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations 2000. The Indus Water Treaty setting out the provisions for sharing between India and Pakistan	Convention on Wetlands of International Importance 1992 Declaration on Environment and Development or (Rio Declaration)
Culture and Heritage	Antiquities Act, 1975 Sindh Cultural Heritage Act, 1994	Convention concerning the Protection of the World Cultural and Natural Heritage World Bank Operational Policy 4.10 and 4.11 on Indigenous People and Physical Cultural Resources
Water	labour and Health and Safety Legislation: Mines Act 1923 Provincial Employees Social Security Ordinance 1965 Women's Compensation Act 1923 National Mineral Policy 2013 Sindh Coal Act, 2012 Sindh Mining Concession Rules International Council on Mining and Metals Mines Act 1923 Mines and Oil-fields and Mineral Development (Government Control) Act 1948 Sindh Mining Concession Rules 2002	International Council on Mining and Metals Sustainable Development Framework Good Practice: Sustainable Development in the Mining and the Metals Sector
Waste disposal	Explosives Act, 1884 Self-Monitoring and Reporting (SMART) by Industry Rules, 2001 Factories Act, 1934 Factories Rules Hazardous Occupations Rules 1963	International Convention on Oil Pollution Preparedness, Response and Co-operation. Stockholm Convention on Persistent Organic Pollutants. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Land	The Constitution of Islamic Republic of Pakistan 2010 Land Acquisition Act of 1894 Draft National Resettlement Policy, 2002 Sindh Land Grant Policies Policy for Grant of Enemy Land Illegal Disposition Act 2005 Sindh Land Revenue Act 1968 Evacuee Trust Properties (Management and Disposal) Act 1975 Sindh Tenancy Act 1950 Registration Act, 1908 Easement Act, 1882	World Bank Operational Policy 4.12 on Involuntary Resettlement. IFC'S performance standard on involuntary Resettlement. International Convention to Combat Desertification with an objective to combat desertification and mitigate the effects of drought.
Biodiversity	Sindh Wildlife Protection Ordinance, 1974 Forest Act, 1927 Pakistan Environmental Protection Act, 1997 Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000	Convention on Biological Diversity covering ecosystems, species, and genetic resources and also the field of biotechnology; Cartagena Protocol on Biosafety to the Convention on Biological Diversity; Bonn Convention on the Conservation of Migratory Species of Wild Animals; Memorandum of Understanding concerning 10 Conservation Measures for the Siberian Crane; Convention on International Trade in Endangered Species of Wild Fauna and Flora; International Plant Protection Convention (1997); Agreement for the Establishment of the Near East Plant Protection Organization Plant Protection Agreement for the Asia and Pacific Region and amendments