

Thar Coal Project and Local Community

Documenting Views and Experiences of Stakeholders

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About the Report:

The report is a production of a Civil Society Working Group. The Group was established to follow the developments in Tharparkar in the aftermath of the local civil society's efforts to draw attention to social challenges and the environmental risks generated by coal power initiatives in the region. The Group is composed of experts in development, human rights, economy and environment. The National Commission for Human Rights led by Justice (Retd) Ali Nawaz Chohan and Member Sindh Anis Haroon have played a critical role in leading the group, facilitating engagements and guiding the efforts of the Group to develop an informed discourse on the subject

The Group has engaged stakeholders including environmental experts, development professionals, developers of the Thar Coal project, local political leadership and most importantly the communities, especially the affectees of the coal project.

The objective of the Group is to assist and play a role in protection of human rights of the local communities that is facing a critical challenge to their future due to fast-paced developments in the region, particularly led by the coal development project. Moreover, it also seeks to serve as a forum for dialogue and exchange of information and community support.

The current report is an outcome of the Civil Society Working Group's engagement on the subject, with the purpose to present a multi-level assessment of the project covering broader context of coal development down to community's response and challenges faced in the process. It is hoped that the report would present community's concerns related to the development that is considered as a costly social, economic and environmental proposition.

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Acronyms

Coal REAP	Coal Resources Evaluation and Appraisal Programme
COD	Commercial Operation Date
CPEC	China-Pakistan Economic Corridor
CPIH	China Power International Holding Ltd
CSR	Corporate Social Responsibility
EDS	Effluent Disposal Scheme
EIA	Environmental Impact Assessment
FGD	Focused Group Discussion
GOP	Government of Pakistan
GOS	Government of Sindh
GSP	Geological Survey of Pakistan
HRCP	Human Rights Commission of Pakistan
IEE	Initial Environmental Examination
IUCN	International Union of Conservation of Nature
LBOD	Left Bank Outfall Drain
MW	Mega Watt
MIPPs	Mining & Independent Power Producers
MNA	Member of National Assembly
NCHR	National Commission for Human Rights
NEQs	National Environmental Quality Standards
NSDWQ	National Standards for Drinking Water Quality
PPHI	People's Primary Healthcare Initiative facilities
RO	Reverse Osmosis
SAZDA	Sindh Arid Zone Development Authority
SECMC	Sindh Engro Coal Mining Company
SEPA	Sindh Environment Protection Agency
SHC	Sindh High Court
SSR	Sino Sindh Resources (Pvt) Ltd
TRDP	Tharparkar Rural Development Programme
USAID	United States Agency for International Development

Introduction and Rationale

Tharparkar is considered to be one of the underdeveloped districts of Pakistan. The desert district with sand dunes all around and scattered vegetation tends to get media attention due to recurring droughts. Since 2015, the district has been in the spotlight because of a large number of deaths of newly-born children owing to malnutrition and absence of healthcare facilities. Frequent droughts, acute poverty and poor social infrastructure are said to be the major reasons for large-scale infant mortality.

Another reason for Tharparkar's prominence in the media has been the presence of the 7th largest lignite coal reserves in the world.¹ Development of coal mines and coal-fired power plants has brought the district in the economic limelight, along with affected people's protests over the construction of effluent disposal reservoir near Gorano village in Islamkot Taluka.

The National Commission for Human Rights (NCHR), an independent state body, keeping in view its mandate to investigate cases of human rights violations and propose recommendations for prevention of such violations has been closely following issues arising in Tharparkar, including deaths of children and loss or compromise of rights of local people. In March 2016, a delegation of the NCHR, along with other human rights activists, visited the Tharparkar district and reviewed the situation of children's deaths. A detailed report of that visit was released by the NCHR, which is available on its website.

When the affected people of Thar Coal project started protests against forcible acquisition of their lands for development of mines and construction of a water reservoir to dispose off mining effluent, which the locals consider a threat to the local environment and ecology, the NCHR organised a number of consultations and meetings in Karachi and Mithi, the district headquarter of Tharparkar, to understand the issue. Later members of the local community also approached the Commission to look into the rapid development that has sought to override their voices, rejected their disapproval, and gone ahead imposing a variety of social and economic cost on them.

To complement its earlier efforts, the Commission organised a visit in mid-December 2018 led by the NCHR Chairperson Justice (Retd.) Ali Nawaz Chowhan, a member of NCHR Ms. Anis Haroon, human rights expert I. A. Rahman and other human rights activists, was organised. They held a meeting with the affectees of the Gorano reservoirs, followed by one with the officials of the Sindh Engro Coal Mining Company, the company carrying out coal mining.

¹ Malkani, Muhammad Sadiq, et al. "Coal Resources of Pakistan: New Coalfields", 2016. Lasbela, U. J.Sci. Technl.,.



A comprehensive visit to the field while helped avail first-hand information on community's concerns over the Thar Coal project, also highlighted the importance of having a better understanding of the socio, economic and environmental impacts of the ongoing projects on the local community. The Commission decided to address this need through a formal documentation of the community's experience with the Thar Coal project that could guide the Commission as well as other stakeholders on the issues important to the community, the approach and practice adopted by the parties leading the project and the state's role. This report is an attempt to document the opinions, concerns, observations and experiences of the local communities, civil society, and experts, with regard to the Thar Coal project.

As a human rights body, NCHR has an obligation to respond to the communities' concerns with regard to the project. The Commission has been working within its powers and mandate to respond to the community's concerns over the project.

World over, coal is considered to be a dirty source of energy and the biggest contributor to greenhouse gases. Coal projects have led to deep socio-economic and environmental transformation in the local communities. In addition, the history of extractive projects is riddled with conflicts, political polarisation and community marginalisation. There is evidence that the cost of these projects do not factor in the cost to the local community and environment. Finally, as climate change expands, coal's impact to the local environment, greenhouse emissions and resultant damage to public health cannot be overlooked. This is especially important as countries become signatories to Paris Accord that lays emphasis on the commitment to reduce greenhouse emissions.

Outline of the Report

This report traces the development of the coal projects in Tharparkar and brings together the opinions, concerns, observations and experiences of the local communities, civil society, and experts, with regard to the Thar Coal project. The information gathering and documentation process has been guided by a human rights approach. This consolidation of information and opinions may provide a basis for a better understanding of the project from the perspective of the socio, economic and environmental landscape of the local communities.

The report starts with a brief background of Tharparkar and the major events at play behind the operationalising of the Thar Coal blocks. It presents the Thar Coal project in detail, and also covers major debates related to socio-economic and environmental aspects of the project.

A detailed account of the community's experience with Thar Coal Block II – the only block completed so far - has been presented, along with communities' struggles against certain actions connected with the project.



Community's views and experience with overall coal development have also been presented. Alongside, experts' views on these issues have been brought into the narrative.

The authors have made an effort to bring into discourse broader issues such as environmental impact, water resource challenge, Pakistan's international commitments to address climate change, and the alternative energy resource landscape have also been covered.

A brief set of recommendations has also been presented. The recommendations incorporate diverse viewpoints. However, these have been drawn from interviews with the community. The authors have made an effort to let this document act a voice of the communities and social stakeholders that have otherwise not been able find space to have their views expressed in a consolidated form.

Methodology

This report draws from consultations, interviews of local stakeholders and the available secondary data and researches on the subject of the Thar Coal project. The researchers interviewed the local communities and civil society in Tharparkar in two focus group discussions. In-depth interviews were also conducted with experts on the subjects including senior development practitioner from Tharparkar Dr. Sono Khangharani, senior urban planner Arif Hasan, environment expert Nasir Panhwar, Member of NCHR from Sindh Anis Haroon and senior journalist and former Secretary General of Human Rights Commission of Pakistan (HRCP) I. A. Rahman. Petition filed by the affectees of the Gorano reservoirs and the response of the respondents nominated by the petitioners was also reviewed and documented.

Literature Review

A number of previously published research reports on Thar, coal, technology and environmental issues, online material, newspaper articles and stories are used as secondary material for this report. Reference of each report/material is given in footnotes.

Background:

Pakistan has a consumption led economy. Consumption drives more than 60% of the country's economic activity.²

In terms of the contribution to the GDP, the service sector takes the lead, providing for 53% of the GDP. Despite employing close to 40% of the labour force, agriculture and industry are characterised by slow growth and expansion rates.

The state of depravity in the society can be gauged from broader statistics of poverty and income equality. Rural poverty stands at 39%³; income inequality is demonstrated by a 6.8% share of the lowest quantile in the national income, compared to 48% of the highest 20% of the population.

Successive governments have focused on the private sector as “the engine of growth” in line with a neoliberal order while abdicating state's responsibility towards protection of social and economic rights of the people. This is evident in a very poor state of social security (federal social protection expenditure of less than Rs 10 per capita⁴), access to fundamental services such as education and healthcare (government's health expenditure as a percentage of total health expenditure is Rs 26, lowest among all middle income countries⁵), and poor implementation of labour rights undermining access to better working conditions and minimum wages. The labour economy is dominated by informality.

Infrastructure development has been a high priority economic and political agenda of both political and military governments in Pakistan. Emphasis has been on big ticket items such as road networks, construction of dams and private investment in electricity generation. According to the Economic Survey of Pakistan, the country ranked No. 1 in South Asia in private infrastructure investment, thus becoming one of the world's top five destinations for private participation in infrastructure investment.⁶

² Khan, K. (2014). Real Private Consumption Modeling Of Pakistan. [online]. Available from: VFAST Transactions on Education and Social Sciences.

³ SPDC, *Social Development in Pakistan: Annual Review, 2012-13* at <http://www.spdc.org.pk/Data/Publication/PDF/AR%2012.pdf>

⁴ Recommendations by the Pakistan Institute of Labour Education & Research (PILER) for The 101st session of the International Labour Conference Social Protection Floor (Available with the author)

⁵ Bustamante, A.V. and Shimoga, S.V. (2018). Comparing the Income Elasticity of Health Spending in Middle-Income and High-Income Countries: The Role of Financial Protection. [online]. Available from: International Journal of Health Policy and Management at http://www.ijhpm.com/article_3392_439b85635d5583d4afa7aa4each26005.pdf

⁶ “Overview of the Economy”, *Pakistan Economic Survey 2017-18*. Ministry of Finance, at http://www.finance.gov.pk/survey/chapters_18/overview_2017-18.pdf

Thar Coal Background

Before formally beginning the details of the Thar Coal project, it would be important to understand a few factors that powered the discourse and action on events that paved the way for exploration of the Thar Coal reserves. This may help set the context and give a perspective to the development of the project and response of the locals.

Electricity Crisis

The electricity crisis in Pakistan has been a major political agenda during the time period of 2005-2014 when the electricity shortfall reached its peak. A combination of factors including the declining state investment in power generation, failure to pay circular debt and rising electricity consumption on the back of a consumer-led economy promoted by General Musharraf's military government landed the country in a crisis where electricity shortfall exceeded one-third of the peak demand, at 7,000 MWs in 2013.⁷

Electricity crisis was a major distress for the Peoples Party Government that took power in 2008. It subsequently became the election manifesto of the Nawaz Sharif Government that was elected in 2013. Apart from prioritising energy in the CPEC package, the Sharif government – through coal, hydropower and renewable sources - managed to add 30% to the installed electricity capacity taking it to 29,573 MW in 2018 (from 22,812 in FY 2012-13). The government also increased the share of the government in Gross Fixed Capital Formation (GFCF) in electricity generation and distribution.⁸

Need for Coal-Based Energy

According to the Pakistan Energy Yearbook 2015, coal contributed 7% of energy supplies of the country, by source. Pakistan is seeking to expand the share of coal power generation in total energy pie. The purpose is to save foreign exchange on oil-based electricity generation that stands at 35%, and reduce reliance on the declining resource of natural gas-based electricity that comprises 42% of the energy source.⁹ The government has developed policies and frameworks to enhance coal's share to 19% by 2030 and to 50% by 2050. The Energy Security Action Plan has set a target of generating 20,000 MW power from coal by 2030.

⁷ Aziz, R. and Ahmad, M.B. (2015). *Pakistan's Power Crisis*. United States Institute of Peace at <https://www.usip.org/sites/default/files/SR375-Pakistans-Power-Crisis-The-Way-Forward.pdf>

⁸ "Overview of the Economy", *Pakistan Economic Survey 2017-18*. Ministry of Finance. At http://www.finance.gov.pk/survey/chapters_18/overview_2017-18.pdf

⁹ Pakistan Energy Yearbook cited in a GIZ presentation "Pakistan Energy Sector and Prospects for Business", December 2015

The major consumers of coal as the primary fossil fuel in Pakistan are railways, cement, fertilizer and power plants. There are 17 coalfields in Pakistan located in Punjab, Sindh and Balochistan.¹⁰ While Balochistan produces the highest output of coal, Tharparkar has the largest coal reserves in Pakistan. Coal is extracted manually in Pakistan.

In Sindh, coalfields are present in Lakhra in Jamshoro district, Sonda-Jherreck, Indus-East and Jhimpir in Thatta district, Badin, and Thar. Currently only one power plant in the country uses coal as fuel, i.e. the 150 MW Lakhra Power Plant in Lower Sindh. The coal thermal plant can only generate 35 MW power using coal from Lakhra.¹¹

CPEC

China Pakistan Economic Corridor (CPEC) is a part of China's "One Belt One Road", seeking to promote Silk Route as a trade and financial initiative. Globally, it is seen as China's effort to position itself as world leader and expand its political and diplomatic role in the world order.

Pakistan and China have been tied in strong strategic bond, characterising cooperation in military, defence, nuclear and economic sectors. Pakistan has drawn from China's support in times of sanctions imposed by the US. Chinese friendship is regarded as a diplomatic strength for Pakistan against the superpower US.

CPEC comprises loans, investment and grants amounting to US\$60 billion covering a 2,700 km route from Gwadar port to Kashgar in China's Xinjiang region. Within Pakistan, CPEC covers transport infrastructure, industrial development, energy and Balochistan's strategically located Gwadar port. Agricultural modernisation and production form another critical component.¹²

CPEC is a special project for Pakistan's political and security establishment. While it serves the political manifesto of employment generation, industrialisation, infrastructure development and addressing of a perpetual energy crisis, it also responds to Pakistan's military's need for strategic relationships with powerhouses outside the West, reducing its dependence on the latter.

CPEC's significance for Pakistan's military establishment can be gauged from the Former Army Chief General (Retd.) Raheel Sharif's repeated public assertions of strong position of the military in protecting CPEC and addressing any "aggressive designs" against the project, including a sabotage by India. Over 15,000 military personnel have been deployed, as part of the Special

¹⁰ Japan International Cooperation Agency (2013). *Data Collection Survey On Thar Coal Field In Pakistan*.

¹¹ Ibid

¹² International Crisis Group (2018). *China-Pakistan Economic Corridor: Opportunities and Risks*. International Crisis Group at <https://www.crisisgroup.org/asia/south-asia/pakistan/297-china-pakistan-economic-corridor-opportunities-and-risks>

Security Division (SSD) and Maritime Security Force (MSF), for security of CPEC projects.¹³ In Balochistan, military engineers have been participating in construction of CPEC projects.

Security is a peculiar element of CPEC. The National Electric Power Regulatory Authority (NEPRA) requires power generation projects under CEPC to pay 1% of their capital cost as security cost as built-in consumers' end tariff.¹⁴

It is due to its political and strategic weight that CPEC has been linked to national interest, national security and national defence narrative. This branding promotes security connotations and invite strict censorship by the Pakistani establishment around ideologies that it seeks to guard.

The Tharparkar Context

Tharparkar is located around 400 km southeast to Karachi, with a total area of 19,389 sq km. Ninety seven percent of the region comprises desert. Administratively, the district is divided into seven Talukas namely: Mithi, Islamkot, Nagarparkar, Chachro, Diplo, Kaloi and Dahli. Total population of the district is 1,649,661, according to the 2017 Census.¹⁵

The population is settled in over 3,500 settlements across 2,380 villages. It is one of the most dense desert regions of the world. Over 40% of the region's population is comprised of the Hindu community.

Tharparkar's economy is mostly driven by rain-fed agriculture, livestock, wage labour and remittances (mostly from internal migration). The livestock population in Tharparkar is estimated at 6 million – far higher than human population - accounting for 65% cattle heads in the province; and standing out as a major source of supply of meat and milk to the entire province. A large majority of the farmers are small farmers owning an average of 2.5 acres of cultivable land (as indicated by the Agriculture Census 2010).

Tharparkar is located in what is known as “tail-end areas” of the River Indus, with limited access to water in the desert region. Groundwater is the only source of drinking water. That too is brackish and not suitable for drinking. Ecologically, the water sources can be divided into different zones. These ecological zones are locally known as:

- i. **Kha'ur**, located in north of Chachro with deep-water aquifers below 120 feet;

¹³ Syed Irfan Raza, (2017). 15,000 military personnel protecting CPEC. [online]. Available from, <https://www.dawn.com/news/1316040>

¹⁴ Ghumman, M. (2018). Payment of 1pc of capital cost as security cost. [online]. Available from: Business Recorder at <https://epaper.brecorder.com/2018/07/18/6-page/728458-news.html>

¹⁵ Pakistan Bureau of Statistics . [online]. Available from:

http://www.pbscensus.gov.pk/sites/default/files/bwpsr/sindh/THARPARKAR_SUMMARY.pdf.

- ii. **Kantho** located in south of Chhachhro to the north of Nagarparkar taluka with availability of water and fertile lands;
- iii. **Parkar** in and around Karoojher hills and rocky plains, where low depth (30-50 ft) dug wells recharge through rain streams;
- iv. **Samroti**, a small zone with fertile soil and shallow wells extending from south-west of Mithi taluka to northern Diplo, where ample water is available for rearing livestock;
- v. **Vango** is the northern portion of Samroti which is characterized by less precipitation and recharge resulting in seasonal dearth of fodder;
- vi. **Muhrano** is a belt between the sandy dunes of Thar and the irrigated plains of Indus valley;
- vii. **Dhat** forms the central part of Thar covering a portion of Chhachhro and northern areas of Mithi taluka, where surface runoff is limited. However, Tarais and Tobhas in low lying strips provide drinking water after the rainfall;
- viii. **Vat** is a short belt extending from southern parts of Diplo and Mithi to the marshes of Kutch.¹⁶

Status of Services

The district itself lies at the bottom pit when it comes to access to basic services including food, health and population planning.

A report by the Sustainable Development Policy Institute (circa 2014) describes Tharparkar as the district with the highest incidence of poverty (47% households fall below the poverty line). The Multidimensional Poverty Index of Tharparkar stands at 0.481 with incidence of poverty at 87%. Tharparkar and Umerkot at 84%, have the worst incidence of poverty in Sindh, standing next to districts of Balochistan that tops the poverty ratio.¹⁷

According to the report on the Status of Millennium Development Goals 2012, Tharparkar has the highest caloric poverty at 72% in a province that is otherwise marked by a high rate of food insecurity. This means that over two thirds of the population is unable to consume the required calories intake essential for human survival and healthy living. The district also crosses the Sindh Province's overall average of 40% of children being underweight as over 47% the children below the age of five, in Tharparkar are underweight.¹⁸

¹⁶ Thardeep Rural Development Programme, (2009). *Socio-Economic & Environmental Aspects of Coal Mining in Tharparkar District*. Thardeep Rural Development Programme

¹⁷ The Multidimensional Poverty Index (MPI), developed by OPHI and UNDP's Human Development Report Office is a new measure to compute acute poverty. The MPI complements consumption based poverty measures by reflecting deprivations that individuals face in other dimensions such as education, health and standard of living. The MPI captures the severe deprivations that each person experiences with respect to education, health and standard of living.

¹⁸ "Report on The Status Of Millennium Development Goals Sindh." UNDP, 2012.
<https://www.undp.org/content/dam/pakistan/docs/MDGs/MDG2013Report/UNDP-Report13.pdf>.

The literacy ratio (10+ year of schooling) of Tharparkar is 46%.¹⁹ The lucky few who attend school have to contend with a compromising student-teacher ratio as well as absence of basic services such as drinking water and toilets in schools. Local NGOs point out that dysfunctional schools are the biggest problem in the region. In terms of curriculum, no extra attention is given to the fact that 40% of the region's population is Hindu and the curriculum needs to be adopted accordingly to address their religious sensitivities.

Development of the Thar Desert

The development journey of Tharparkar district can be traced way back in late 1980s when the government set up the Sindh Arid Zone Development Authority (SAZDA). The Authority was set up in 1985 to develop the arid areas of the province. This included the Thar desert and hilly area of Katcho and Kohistan in Dadu district.

Tharparkar district was opened up to development when SAZDA initiated infrastructure building in the district. Major roads such as Naokot-Mithi, Umerkot-Chhachhro and Mithi-Diplo were constructed. When drought hit the desert in 1987, the government launched a massive relief package and distributed food ration to the drought-hit population in the desert. The new roads helped the government machinery to reach the drought-hit people.

Another major period of development in Tharparkar district was initiated during the early period of the military ruler General Pervez Musharraf who announced a Thar relief package worth Rs. 1 billion in year 2000. SAZDA carried out a range of development projects under that package, mainly supervised by the military authorities. This package included development of roads networks, supply of water through 46-km pipeline from Naokot to Mithi, construction of water reservoirs to store rainwater and making the land use easy for people.²⁰

This phase of development was followed by an introduction of the local government system by the military regime of General Pervez Musharraf in 2002. The first tenure of the district government system carried out development projects through the funding provided by the federal government. This was supplemented by another major development package worth Rs. 1 billion announced by the former Prime Minister Shaukat Aziz during his election campaign as he contested a by-election from Tharparkar in August 2004.

At Sindh provincial government level, there was also a political change at the top and Dr. Arbab Ghulam Rahim became the Chief Minister in 2004. He belongs to the Tharparkar district.

¹⁹ "Pakistan Millennium Development Goals Report 2013." Ministry of Planning, Development and Reform, 2013. <https://www.undp.org/content/dam/pakistan/docs/MDGs/MDG2013Report/UNDP-Report13.pdf>.

²⁰ Dr. Sono Khangharani, former CEO of Thardeep Rural Development Programme (TRDP), in an interview with researchers



This era gave a new development outlook to Tharparkar district. Roads network spread over to far flung areas and villages received electricity from the national grid. Mobile phone networks reached in the desert, where earlier even landline telephones were not available. All such financial support from both federal and provincial governments changed the development scenario in Tharparkar till 2008.

Social Change in Thar

In order for a better understanding of the nature and character of the local community of Tharparkar and their root of resistance to the Thar coal project, it is important to review their developmental aspirations, political direction and their attachment to the local land. Experts argue that social change in the region, underway since the 1970s, provides a background to these areas. This social change rode on the back of a combination of factors, particularly infrastructure development, rise of capitalism and breakdown of traditional structures due to migration. The macro and micro impact of these changes are evident in the transformation in local community's lifestyle, engagement with natural resources, livelihoods and community cohesion.

Excerpts of studies conducted on social change in Tharparkar and a detailed interview with Development Expert Arif Hasan (see box) has been referred to for the purpose of this section.

Social and economic changes in Tharparkar took place at different points in the last 40-50 years. Change brought about by successive droughts, breakdown of traditional social order, rural-urban migration, increased government expenditure, especially on infrastructure, and involvement through district offices.

The years following 1987 saw major infrastructure development drive, especially in General Musharraf's regime. The government's Rs 1bn development package for Thar following the 1999 drought ushered in major road development, grid electricity to main towns, water pipelines to large settlements, and preparatory infrastructure for exploitation of coal reserves. While earlier, the only effective metalled road ran between Naukot and Mithi, the development plan post 1999 added roads from Chhachhro to Islamkot, Alio Bunder to Diplo, Mithi to Islamkot, Meghar to Akwado, Meghar to Manghore and others.²¹

Around the same decade, Tharparkar was given the status of a district, which led to greater per capita government investment in the region directed towards infrastructure and social

²¹ Articles: Jabbar, J. (2014). Tharparkar: A Famine of Facts . [online]. Available from: Dawn <https://www.dawn.com/news/1091961/tharparkar-a-famine-of-facts> and Dawn, May 17, 2002; and Anon. (2002). Mithi water project inaugurated . [online]. Available from: <https://www.dawn.com/news/34782>.

development. In addition, it also empowered the local community as administrative offices were set up in the district. Earlier, Tharparkar was part of the Mirpurkhas district.

Though migration is a traditional activity in the district, most common during dry and drought season, post 1987, there has been rise in urban migration. Families and especially male members mostly have been increasingly moving to Hyderabad and Karachi to work as masons, tailors, factory workers and government employees. Their remittances have contributed to changing the economic dynamics in Tharparkar, leading to a more market-based economy. A research studying post 1987 drought impact notes rise in the number of shops, katcha structures replaced by pakka (solid/concrete) structures, expansion in housing, especially on encroached land, protected by the government, and wider availability of city products such as tea, biscuits, powdered milk, readymade garments and even newspapers.²²

Noted researcher on social change, Arif Hasan also tracks the rise of capitalism to the degeneration of traditional system led by the feudal and Tharparkar Hindu population that played a critical role in the community's social and economic order. The system broke down after the 1965 war that resulted in migration of the Hindu elite. However, the 1971 war – when Thar was briefly occupied by India and was returned with a shattered economy – further brought in social change. The Hindu landlords lost their influence a) because of community's migration to India and b) those staying back in Pakistan stopped engaging the system to exercise their influence.

The disintegration of the older order led to a breakdown in resistance against encroachment, deforestation, and lack of maintenance of tarais, wells and embankments that also eroded community's ability to withstand drought. It also gave way to a cash economy. Cash-intensive but nutritious food source started being sold to the market rather than used for local consumption. Road development further facilitated market access.

The rise in livestock population, especially for commercial purposes, has made Tharparkar a major supplier of meat in the province. Studies note over 200% increase in livestock from the '70s to late '80s. It was 2.73mn head in 1991.

All these developments have had a profound impact on domestic food consumption habits. The exchange of nutrition for cash compromised households physical capacities, and also reinforced the local population's vulnerability to dry weather, while dependence on middleman gave rise to exploitation, further promoting poverty.²³

²² Hasan, A. and Hardy, F. (2003). *Evaluation Of The Thar Rural Development Project (TRDP)*. Save the Children's Fund (UK), UNICEF (Sindh) at http://arifhasan.org/wp-content/uploads/2012/10/AH31_Evaluation-TRDP.pdf

²³ ibid and Hasan, A. Tharparkar – A Man Made Disaster. [online]. Available from: <http://arifhasan.org/articles/tharparkar-a-man-made-disaster>.

Communities' Views and Experiences of Thar's Development

As a part of the report, local civil society and communities were consulted for a Focused Group Discussion to share their views and experiences with the recent coal project in Tharparkar. In the course of the discussion, it emerged that the community also desired to highlight their experience with the overall development in Tharparkar. For the purpose of context and documentation, this report covers the communities' assertions:²⁴

Nature of development projects and community's experience:

- Huge funding has been pouring in Tharparkar from time to time, especially after the start of the coal related projects. However, communities that are the main stakeholders have not been consulted on development planning and implementation;
- There are different sources of development funds reaching to Tharparkar. A part of these funds have come through NGOs and INGOs under different projects; whereas the legislators, elected from the Tharparkar district also receive funds from annual budget for development of their constituencies. Moreover, small-scale development schemes have also been launched by the local municipal institutions at the municipal or town committee levels, mainly directed at infrastructure. This, at times, leads to duplication of the development schemes. The decisions about development are mainly politically influenced;
- Projects for human development or welfare of communities, such as education, health care or provision of employment are mostly absent from the development plans for the district;
- Majority of population is hardly able to benefit from facilities established by the state in Tharparkar. For instance, Mithi's District Headquarter Hospital, with better equipment and facilities is not accessible to a majority of population, who live in remote areas. They have to spend substantially on transport to reach this facility. In case the patients are admitted, the family has to spend much more on food, logistics and medicines. There is a need for such facilities to be more accessible for the local population. Same is the case with schools established in the region, which are not entirely accessible.
- About development paradigm, civil society feels that ten years back the quality of education in Tharparkar was better, but now it seems declining. The public sector educational institutes are not functioning properly because of lack of monitoring.
- There are allegations of corruption in development projects. Civil society activists allege that all concerned, including district administration, legislators and other stakeholders are involved in the embezzlement of development funds. In the absence of participatory and monitoring mechanisms, local community feels excluded and unable to trace how any development could benefit them;

²⁴ The Focused Group Discussion was organised in Mithi on January 7, 2019 (details in annexure 1)

- Beside huge deposits of the coal, many other mineral reserves such as good quality granite, china clay and salt are also found in Tharparkar district. There is need to ensure the benefits of these minerals to the local population. Locals point out nepotism in mineral exploitation in the region, further excluding the local population from benefitting from the schemes.²⁵

Perception on economic impacts

- Earlier, the community had a traditional seasonal loan system available on interest. The system ran on a trust-based model. However, it has now been replaced by microfinance being offered by the host of microfinance banks functioning in the region, in addition to a few NGOs. Some organisations working on microfinance have even hired police or armed guards to force people to return loans when they are unable to repay on time. This has caused increase in frustration and rise in suicide attempts by the locals.²⁶

Perception on social impacts

- Conversion of Hindus has started at a large scale, although most of the time it is not forcible. Organisations of Christian and Ahamdi religious communities have also been converting the scheduled-caste Hindus. Moreover, mass conversion of Hindu communities by Muslim madressahs is also underway. Members from Bheel and Kolhi castes have now become Muslims in an attempt to get rid of the caste system.
- Due to increase in economic activities, water business has also been initiated in Tharparkar district, where hundreds of tankers are selling water to the people. Earlier, the local government was providing water through tankers free of cost to the people.

²⁵ ibid

²⁶ Observations by civil society participants of FGD at Mithi

Thar Coal Project: A Brief Overview

The presence of coal in Tharparkar desert of Sindh was a common knowledge with the local population much before the actual test drilling for the coal was carried out in 1988. The Sindh Arid Zone Development Authority (SAZDA), in collaboration with the British Overseas Development Administration (ODA), had drilled wells for water near village Khario Ghulam Shah. They found large-scale coal deposits underneath.

These findings prompted the Geological Survey of Pakistan (GSP) and the United States Geological Service (USGS), to carry out coal exploration in Thar Desert under the Coal Resources Evaluation and Appraisal Programme (Coal REAP) of the USAID between January 1992 and May 1994. This resulted in the establishment of a large-scale coal deposits across vast areas of Tharparkar district.

The second government of the former Prime Minister Benazir Bhutto, under the Energy Policy 1994, awarded a Hong Kong-based power company Hongpak United Power Generation to develop mines and install a coal-fired power plant of 1,320MW near Islamkot, Tharparkar. The company had committed a total investment of US Dollar 2 billion in the project.

However, after Benazir's removal from the PM office, her successor, former Prime Minister Nawaz Sharif scrapped all her energy projects including the one in Tharpakar district.

Successive governments have made several attempts to attract foreign as well as local investment in Thar coal. They remained unsuccessful due to many reasons including unfavourable policies.

The data released by the Sindh Coal Authority suggests around 175 billion tons of coal reserves available in Tharparkar districts, spread over in an area of 9,100 square km in three talukas: Islamkot, Chhachro and Nagarparkar.

As suggested by experts, coal in the surveyed blocks is sufficient for the establishment of as many as six coal fired power plants of 1,000 MW each, with continuous production for 30-50 years duration.

The Tharparkar coal field is divided into 13 blocks. In the first phase, mining and power generation work started in Block II, in which 1.57 billion ton coal is estimated to be available for power generation. (Details of all blocks are given in Annexure 2)

Technical details of Thar Coal

Thar coalfield is located at a distance of 395 km from Karachi. It covers an identified area of 9,100sqkm. Total reserves stand at 175 billion tons (highest in Pakistan) at a depth of 155-200 meter. Cumulative coal seam thickness is 24 meters. So far, 12 blocks have been planned after detailed drilling, covering an area of 1,192 sq km. Each block is estimated to carry reserves of over 2 billion tonnes.

Thar's lignite coal has a moisture content of 46.8%, fixed carbon at 16.7%, volatile matter at 23.4%, ash at 6.2% and Sulphur at 0.9 to 1.2%. The calorific value btu/ib is 5,744. It is ranked at Lignite B to Lignite A.

Other lignite coal producing countries are: Germany (168 million tonnes), Greece (64 mt), Turkey (64 mt), Poland (60 mt) and Czech Republic (51 mt).²⁷

Coal mining methodology in Thar

Coal mining is carried out through two methods of operations: underground and surface mining. Most of the blocks in Thar Coal are opting for surface mining/opencast mining methodology for coal mining. Block II has opted for Bucket Wheel Excavators, Block I and VI are stated to be using for T&S and Block V will be using UGC (Underground Coal Gasification), which was taken up as an experiment.

Opencast mining is a surface mining technique that consists of three different methods: strip mining, open-pit mining, and mountain top blasting. These are briefly described below for readers' understanding:

Strip mining involves removing the overburden (earth, sand, rock, and other material) in strips to enable excavation of the coal seams. This is done through using large machines, removing strips of overlying soil and rock and then excavating coal deposits;

Open-pit mining which is another form of surface mining, involves blasting and mineral removing, "digging deeper into the earth causing a crater-like result";

Mountaintop removal involves blasting of mountain tops through explosives in order to reach coal seams deep inside the earth.²⁸

²⁷ Harnessing Of Coal Resources Of Sindh Province, a Presentation by Thar Coal Energy Board
<http://web.worldbank.org/archive/website00811/WEB/PDF/SINDHCOA.PDF>

²⁸ Admin. (2014). Underground v.s. Surface Coal Mines: Is Deep Drilling Worth the Cost?. [online]. Available from:
<https://www.miningglobal.com/machinery/underground-vs-surface-coal-mines-deep-drilling-worth-cost>.

All mining activity generates waste. For the ongoing Thar Coal project in Block II, the only block that is operational, the ESIA mentions waste management through dumping of mine overburden in the eastern corner of Block II.

Block V and Underground Coal Gasification

For Block V, **Underground Coal Gasification** methodology has been taken up. UCG is conducted in non-mined coal seams using injection of oxidants and bringing the product gas to surface. The ground ash, salts and other substances are left behind. Water vapour and residual heat are recycled.²⁹

Block V was allotted to Dr Samar Mubarakmand and his team under an arrangement between the Federal Government and Sindh Government with a budget of Rs. 4.9 billion, to generate syngas to produce electricity.

The project that took almost a decade was not successful. It failed to generate any electricity for the national grid.³⁰

Environmental impact of coal extraction

The environmental impact of surface/strip mining is the destruction of ecosystem through stripping away of trees, plants and topsoil. Surface mining is known to destroy mountain tops, landscapes, forests and wildlife habitats. It promotes soil erosion and barren land. The landscape changes can disrupt river channels, resulting in floods.³¹

The underground coal gasification method is considered to be more environmental friendly, as it chemically transforms fossil fuel rather than burning it and also cuts down the need for coal transportation. However, it is extremely water intensive and is considered to emit twice as much carbon as a coal plant.³² According to news reports, villages in the vicinity of the UCG project in Block V, Thar had to shut down their water wells and RO Plants because these were emitting gases.³³

²⁹ Mao, Fei. "Underground Coal Gasification (UCG): A New Trend of Supply-Side Economics of Fossil Fuels." *Natural Gas Industry B* 3, no. 4 (October 2016): 312–22.

<https://www.sciencedirect.com/science/article/pii/S2352854016300833>

³⁰ "Thar Coal Project: Dr Samar Says He Only Did Research." *The News*, December 9, 2018.

<https://www.thenews.com.pk/print/403759-thar-coal-project-dr-samar-says-he-only-did-research>.

³¹ "Strip Mining: A Destructive Way of Coal Extraction." GREENTUMBLE, March 12, 2017.

<https://greentumble.com/strip-mining-a-destructive-way-of-coal-extraction/>.

³² Anderson, Richard. "Coal Gasification: The Clean Energy of the Future." BBC, April 14, 2019.

<https://www.bbc.com/news/business-26921145>.

³³ "Thar Coal Project: Dr Samar Says He Only Did Research." *The News*, December 9, 2018.

<https://www.thenews.com.pk/print/403759-thar-coal-project-dr-samar-says-he-only-did-research>.

Thar Coal and Environmental Concerns

There is a consensus among key environmentalists and experts in Pakistan that coal mining and power generation through coal fired power plants can have adverse impacts on the local environment and ecology. Thar coal is lignite, which is soft, brown, combustible and sedimentary in nature. It is considered a low rank of coal due to its relatively low heat content.³⁴

According to environmentalist Nasir Panhwar, although the mining and transporting lignite produce fewer emissions, using it to generate electricity may harm the climate more than the hard coal. This is because lignite is less compact. It contains less energy, so more has to be burned to produce the same amount of power.

In the open pit mining, the entire burden has to be removed to reach the coal seams underneath. Excavators dig enormous craters, hundreds of metres deep. The landscape is completely destroyed. Communities are displaced, plants and animals are eliminated and the living soil is shovelled away.

Environmental experts³⁵ fear the mining activities may have an impact on nearby ecosystem. Ground water, silting of land, blocking of water because of ash dump, imbalance in ecosystem and air pollution are few of the effects of mining activity.

Environment Impact Assessment (EIA) report of any project, prepared by independent consultants and approved by the provincial environmental protection agency is one of the pre-requisites for any development project. Moreover, a proper resettlement plan for the people as well as rehabilitation of environment and infrastructure through a consultative process is required before the start of any major project.

At the same time, EIA is not an adequate account of possible environmental impacts of a project. Newspaper reports suggest communities have often expressed dissatisfaction with the way EIA is conducted and presents its assessment. Moreover, development projects not only impact the environment and ecology of the area, they cause displacement of the population, livestock, destruction of local infrastructure.

In the case of Thar Coal project, the EIA report has been prepared and the Sindh Environmental Protection Agency has also accorded its approval. However, the local population contacted for the preparation of the NCHR report, complain that they were never consulted during, before or after the finalisation of the EIA.

³⁴ Environmentalists and experts include those who were interviewed for this report and those who regularly write columns in the newspapers and quoted here.

³⁵ Rao, S., Sahito, AR., Panhwar, I (2016) 'Environmental Impacts of Thar Coal Mining', *4th International Conference on Energy, Environment and Sustainable Development 2016*, Institute of Environmental and Engineering Management, MUET, Jamshoro

Policy and institutional setup of Thar Coal

According to the National Minerals Policy 1995, except oil, gas and nuclear, minerals are a provincial subject. Coal development works is, therefore, under the discretion of the provincial governments. Laws and regulations related to coal development are established by each province.

Thar Coal and Energy Board was created under the Thar Coal and Energy Board Act, 2011 with the authority to act as a prime regulator for coal pricing and regulations on behalf of all the ministries, departments and agencies of the Government of Pakistan (GOP) and those of the Government of Sindh (GOS). This covers the matters relating to development and leasing/subleasing at Thar (on behalf of the GOS), mining, development of clean coal technologies, research and development activities and other allied matters including, but not limited to, gasification and briquetting on Thar Coal.

Chief Minister Sindh is Chairperson of the Thar Coal and Energy Board. Federal Minister for Water and Power is Vice Chairperson. Other members include: Federal Minister for Finance, Federal Minister for Law and Justice, Deputy Chairman, Planning Commission, Federal Secretary, Water and Power, Chief Secretary, Govt. of Sindh, one female MNA from Thar Region, three provincial ministers and Secretary Energy Department.

Financial cost of the Project

According to the CPEC website, the total cost of surface mine in Block II stands at US\$1.4 billion.³⁶ Thar Coal Block I costs US\$1.3 billion. The rate of return offered by the Sindh Government on private sector investment in Thar Coal stands at 20% (for companies managing financial closure by 31 December 2019).³⁷

In order to attract investment, the government has given a range of incentives to investors in Thar coalfields. These include:

- Full repatriation of capital, capital gains, dividends and profits.
- Application of the agreement on the Avoidance of Double Taxation with 52 countries including China. Proportionate tax relief is allowed to a person resident in Pakistan, on

³⁶ "Surface Mine In Block II Of Thar Coal Field, 3.8 Million Tons/Year." CPEC, n.d. <http://cpec.gov.pk/project-details/4>.

³⁷ "Sindh Extends Financial Incentive to Thar Mining Companies." *The Nation*, April 21, 2019. <https://nation.com.pk/21-Apr-2019/sindh-extends-financial-incentive-to-thar-mining-companies>.

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- any income earned abroad (if such income has already been subjected to tax outside Pakistan), at the average rate of tax in Pakistan or abroad, whichever is lower.
- Zero percent customs duties on import of coal mining equipment and machinery including vehicles for site use.
 - Exemption on withholding tax to shareholders on dividend for initial 30 years.
 - Exemption on withholding tax on procurement of goods and services during project construction and operations.
 - Exemption for 30 years on other levies including special excise duty, federal excise duty, Workers' Welfare Fund (WWF) and Workers' Profit Participation Fund (WPPF).
 - The Mining & Independent Power Producers (MIPPs) are protected from the impact of exchange rate variation between US dollars, Euros, Pounds Sterling and Japanese Yen up to Commercial Operation Date (COD).
 - The benefits and incentives for investment provided by the Government shall continue enforce and will not be reduced or altered to the disadvantage of investor.

Investment into development of Thar Coal

The Government of Sindh has invested massively into the Thar Coal project. Schemes related to Thar Coal infrastructure development are estimated to be over Rs 72bn, according to Annual Development Plan of Sindh 2016-17.

Key projects include upgrading of the road network from Karachi to Thar Block II, Left Bank Outfall Drain (LBOD) Fresh Water Supply scheme, costing approximately Rs 33 billion, to treat and supply 37 cusecs of fresh water from the canal to the power plants based in Thar, and construction of Islamkot Airport. Approximately US\$160 million will be spent on widening and rehabilitating the road network from Thatta to Block II.

According to a petition filed by the SECMC for tariff determination of contract stage tariff in December 2014, the total Project Cost for a 3.8 Mt/a mine is estimated at USD 789.1 mn with a levelized 30 years tariff rate of US\$69.2/ton. This project cost includes 33% foreign debt and 67% local debt.³⁸

In 2015, a syndicate of local banks agreed to provide Rs 52bn for the mining project and Rs 22bn for associated power plant of 660 MW being established by Engro Powergen Thar Limited. A syndicate of foreign banks agreed to provide loans amounting to US\$820mn.³⁹ This was accompanied by US\$ 700mn worth of sovereign guarantee to underwrite the loan by the Economic

³⁸ Petition for Reference Coal Tariff Determination for Contract Stage Tariff by SECMC submitted to Thar Coal Energy Board in December 2014 (available with authors)

³⁹ “\$1.5bn Loan Pacts Signed for First Thar Coal Mining, Power Project.” *Dawn*, December 22, 2015. <https://www.dawn.com/news/1227907>.

Coordination Committee (ECC) of the Cabinet. In 2018, the TCEB approved a tariff rate of US\$ 40.6/ton for Block II, for a 30 years period.⁴⁰

NEPRA has set a revised tariff rate of 7.2281 cents (Rs 7.5895) per unit for Thar coal projects.⁴¹

Thar Coal Block II and SECMC

Engro Powergen Thar Limited was granted a mining lease by the Government of Pakistan in February 22, 2012 to carry out coal mining activities in Thar Block II. The project was later included in the China-Pakistan Economic Corridor (CPEC), the mega infrastructure investment package from People's Republic of China, which includes power-generation as well.

The Block II is currently under development of a public-private partnership arrangement titled Sindh Engro Coal Mining Company (SECMC). The SECMC is a joint venture company of the Government of Sindh and the private sector. The Government of Sindh holds 51% of SECMC while the remaining 49% are owned by Engro Powergen (a subsidiary of Engro Corporation Limited), Hubco, Thal Ltd, Habib Bank, CMEC, and SPI Mendong of China).⁴²

As per the Joint Venture agreement, Engro is responsible for project management and financing, while the GoS is responsible for infrastructural development and obtaining requisite consents and approvals for the Thar Coal project.

SECMC started when the development of the Block II started in 2009. SECMC also holds a mining lease for Thar Block II which contains two billion tons of coal. The Company is executing the project in three phases: two 330MW sub critical plants. In the second phase the mine will be further expanded to 7.6 MTPA and additional 2 x 330 MW power plants will be added. In Phase III, the mine will be taken to its potential of 33 MTPA, capable of generating 3,960 MW.

Former Prime Minister Nawaz Sharif and former President Asif Ali Zardari jointly performed the ground-breaking ceremony of the Thar Coal power project at Islamkot on January 31, 2014.

According to SECMC, the financial close of the Thar Coal project was achieved in April 2016. Around 400 Chinese nationals and 600 locals were mobilized at site.

⁴⁰ Mirza, Javed. "Govt Approves \$40.66/Ton Tariff for Coal Mining Project." *The News*, October 9, 2018. <https://www.thenews.com.pk/print/378438-govt-approves-40-66-ton-tariff-for-coal-mining-project>.

⁴¹ Ghumman, Mushtaq. "Nepa Approves New Tariff for Thar Coal Projects." *Business Recorder*. Published July 29, 2017. <https://fp.brecorder.com/2017/07/20170729202793/>.

⁴² As briefed in the petition response filed by SECMC.



In March 2019, the first of two 330 MW units of the 660 MW project by SECMC in Thar Block II were connected with the national grid. The media was informed that the second plant will be functional in few weeks. Together, the two plants need 12,500 tons of coal each day to produce 660 MW of electricity.

As a part of CSR, SECMC maintains that 42% of the total employment at the Company comes from the local population. The Company claims to have supported training of unskilled workforce for dump truck driving license, set up schools, medical facilities, and set up RO plants with the Government of Sindh.

Project branding

The Thar Coal Block II project is framed in the narrative of national security, national interest and CPEC vocabulary. Project documents frequently assert its importance using terms such as “national interest”. In one of the key documents, it is emphasised:

“The government has declared Thar Coal as projects of strategic importance and considers development of Thar Coal as a matter of national security”. These terms are well known in Pakistan for signifying security connotations.

Another important aspect of the project is a heavyweight PR machinery that has been frequently deployed to reinforce the so-called “positive impacts” of the project in Tharparkar. The project has been aggressively promoted in the media and the CSR work of SECMC has received abundant coverage.

A range of CSR initiatives by the SECMC such as green parks, women dumper drivers, social services and model villages have received one-sided coverage in the media, projected as a symbol of the empowerment and development of the local population.

SECMC has frequently organised trips – including those in chartered planes - for media persons, intellectuals, experts and thought leaders. Delegates from major institutions such as IBA, Meezan Bank, Habib University, MPAs, senior journalists, CPNE, and Arts Council leadership, Institute of Engineers Pakistan (IEP) have been hosted by the SECMC to visit the coal mining facility and view the Company’s work. SECMC also hosted a New Year evening on 31st December 2017, and distributed “Excellence Awards” to local experts in the fields of education, health and culture.

ESIA Report of Block II

The Environmental and Social Impact Assessment (ESIA) Report of the project has been prepared by Hagler Bailly in 2012. Among key social and environmental issues, the comprehensive report



identifies groundwater drawdown, created by mine dewatering, to become nationally or internationally significant if it extends to Rann of Kutch. It also states that the community's health and safety risks may increase manifold as more blocks become operational. The ESIA report also suggests ecological degradation as a result of more land sliding under the use of the project and new towns forming as the project expands.

As a part of the stakeholders' consultation, the ESIA covers concerns of the communities from over a dozen villages. These are important to understand the communities' apprehensions before the start of the project. The Gorano reservoir issue – described in detail in the following sections - is self-explanatory in terms of the community's experience of the project after the development. The community's struggle with the Gorano reservoir also validates apprehensions expressed during ESIA process.

Following are select key points from the communities' consultations that were listed in the ESIA report.

- Villagers are not in favour of physical displacement as the area is peaceful and holds cultural significance for the villagers. Their ancestors have been living in the area for centuries. Displacement would deprive the villagers of their agriculture land and livelihoods. It may result in losing their sense of identity. The population in the host areas, where the displaced persons will be resettled, will not be willing to accommodate the displaced people, and call them *muhajir*.
- The villagers are disturbed that they will be forced to relocate within a month's timeframe.
- The villagers fear that they will be evacuated forcefully by the project management. No government representative informed them about the project. Politicians only contact them when votes are needed.
- Villagers cannot survive in cities or urbanised areas, as they are uneducated and will not get jobs in these areas, which will affect their livelihoods.
- The villagers can only resettle in other areas if suitable vast grazing lands for their livestock and land, as vast as the current, is allotted to them.
- The villagers expect adequate compensation for their dug wells and agricultural land in case of relocation and rightful share in employment opportunities.
- People are ready to relocate if their outstanding loans are paid by government.
- The people fear that the government cannot compensate the villagers against their lands as every person holds thousands of acres and the cost is very high.
- The Government has the power to evacuate the villages but the villagers do not want to leave their settlements.
- The villagers think that the government is only interested in mining coal in the area without any regard for their lands and animals.
- The social disintegration caused by resettlement might disturb the traditional community support system.

Environmental impact of the project

- Overburden will affect the grazing lands, dug wells, flora and fauna, and agricultural lands. The fertility of soil will be affected. Furthermore, the pathways will be closed.
- Once excavation starts, these areas will become inhabitable for humans and wildlife due to noise, pollution, influx of outsiders, and increase of vehicles in the area.
- The power plant will be operated on coal, which will have a negative impact on the air, making it difficult to live in the area.
- The water in the dug wells will dry up and/or become salty and brackish because of the mining operations. It may adversely affect the people, livestock, crops and natural vegetation of the area.
- Due to mining activities, vehicle movement will increase and disturb the livestock and other animals.

Socioeconomic issues

- People do not have any objection on the extraction of coal. Coal mining will help in development of the country but the mining activities should not harm the Thari people.
- The inhabitants are very poor and do not have access to electricity, gas or drinking water. The villagers fear that despite the benefits, mining activities will add to their problems.
- Mining activities and the presence of outsiders will adversely affect the movement of women who fetch water from wells, chop wood for cooking food, and take care of the crops and livestock. Women of Thar observe veil (*pardah*) very strictly. The privacy of women and children and social set up of the area will be disturbed.
- The goats, camels, cows and sheep roam freely in large grazing areas. An influx of outsiders will hamper the movement of these animals affecting their productivity.
- The villagers will not get jobs, as more than 80% of the people are unskilled and dependent on agricultural land and livestock.
- The villagers fear they will not benefit from electricity generated by the Project. The generated electricity will be provided to cities.
- All decisions related to coal extraction and displacement should be made in consultation with the village leaders and local people.

The Gorano Reservoir Issue

Thar Coal's controversy started when the affected villagers of Gorano dam/reservoir started a hunger strike outside the Islamkot Press Club in October 2016 to protest against their displacement and environmental degradation of the region. The villagers complained that they were being forced to leave their abodes without any compensation or resettlement plan. Similarly, they raised their fear that the affluent generated from the coal mine would be harmful to their lives and the environment of the area.

The community filed a petition pertaining to the Effluent Disposal Scheme that is a part of the coal mining operations in Block II. The process and community's response is being presented in this section. The information has been drawn from the papers of the petition filed by the villagers and interview of the locals.

Effluent Disposal Scheme (EDS) for Block II

Gorano and Dukkar Cho reservoirs are a part of the Rs 6.7bn Effluent Disposal Scheme sponsored by the Sindh Coal Authority with SECMC assigned to construct the reservoir. It was constructed (consulted out to) by the Balochistan Construction Company.

Gorano reservoir occupy 100km and Dukkar Cho cover 692 acres. They are located 25kms and 37 kms respectively from Block II.

There are three aquifers in the Thar coalfield area. In order to extract coal from open pit mine, all three aquifers need to be simultaneously dewatered by installing 26 deep wells around the mine pit. The mining could not have started without a functional effluent system in place.

The EDS entails 50 cusecs reservoirs and a 37km pipeline serving the mining dewatering operations. The subsoil water is to be transferred through the pipeline to the two selected reservoirs.

The EDS at Gorano and Dukkar Cho was not a part of the original plan for effluent disposal. According to the project proponents - responding to a petition filed by the local community from Gorano and Dukkar Cho areas - a natural salt lake Trisingri Dhand, which was close to the Indian border was initially selected. However, it was dropped as an option as a 2014 ESIA pointed out that the site was a part of the Ramsar Treaty and connected to the Rann of Kutch wetlands close to the Indian border. The use of such site could have led to the violation of the Ramsar Convention on Wetlands.

Following this, a reservoir at Dukkar Cho was earmarked for construction. However, a study commissioned to NED University found the capacity of the selected reservoirs to be inadequate to hold the expected quantity of the effluent. Gorano was therefore selected at a later point.

Protest against construction of reservoirs

In late 2016, local villagers, mostly from Gorano and Dukkar Cho areas, initiated one of the longest mobilisation and protest campaigns against the arbitrary construction of the reservoirs. Starting from Islamkot Press Club in October 2016, the villagers marched to Karachi and continued protest well into late 2017. They stated that they were being forcefully evacuated from their land.

A petition was also filed in 2016 challenging the construction of the dam and demanding the Sindh High Court to suspend the process. Details of the petition have been shared in the following pages.

Petition against construction of reservoirs

In September 2016, a group of small growers from Islamkot filed a petition in the Sindh High Court. They nominated the Planning and Development Department, GoS, Chief Secretary, Thar Coal Energy Board, Sindh Coal Authority, local commissioners and assistant commissioners, SECMC, Balochistan Construction Company, DG EPA, and Forest and Wildlife Department as respondents. The petition was initially filed in Circuit Court, Hyderabad. It was then moved to Karachi.

Key points of the petition are as follows:

- The petition stated that the petitioners own small agriculture lands, being cultivated on rain water. Fifty per cent of the agricultural land is a *qabuli* land. There are many temples and five old graveyards that hold sentimental value for the local community;
- The petitioners listed 15 villages with a population of 15,000 inhabitants who are going to be badly affected by the construction of the dam. They stated that land measuring 2,700 acres has been taken over to build the reservoir for storage of hazardous water;
- They stated that they have been illegally restrained from cultivating on their own land by the respondents. They also accused them of issuing threats to vacate the said land;
- The petition stated that no NOC was sought from the villagers before the start of the construction. The SECMC landed without any notice;
- The petition also argued that the construction of the reservoir would have a serious impact on the land in the vicinity. The water to be stored is saline water and it will badly damage the cultivating land. The reservoir may also aggravate the drought situation in Thar;

Response of SECMC

SECMC in their response to the SHC refuted all the allegations of the petitioners, and raised that the petition has been filed with delay. The counter affidavit repeatedly emphasised that the Thar Coal project is of national interest and work on more than 18kms, out of 37kms has been completed.

Key points presented by SECMC included:

- The sites at Gorano and Dukkar Cho were selected after studying 14 sites for storage, infiltration and evaporation of mine water and other environmental concerns. Some sites were of inadequate capacity;
- Only 1,400 acres, and not 2,700 acres, have been taken over for the reservoirs. Only three villages (Hajam, Shiv Jo Tar and Gorano) will be affected;
- Gorano and Dukkar Cho were selected as they provided adequate storage capacity and indicated lowest environmental impact;
- The subsoil water to be stored at the reservoir at Gorano and Dukkar Cho would be natural underground water which will be neither polluted nor hazardous;
- A detailed water analysis and heavy metal transport from the groundwater source to the disposal points at Gorano and Dukkar Cho has been submitted to DG SEPA;
- The study thus carried out highlighted that the water did not contain most of the heavy metals, and the concentration of the few metals present is well below NEQs and NSDWQs;
- The underground water will be saline. However, it will not be chemically altered or mixed with any pollutant;
- Once the power plant becomes operational, only a very small quantity of the extracted water will be pumped for storage. A major bulk will evaporate with no impact on the surrounding areas. Furthermore, after that, the reservoir at Dukkar Cho would be sufficient for storage of subsoil water and the reservoir at Gorano would be no longer needed;
- Cultivation quality of land will be affected in 20-25 years and not now;
- For the purpose of any project affected person (PAPs), there already exists a Resettlement Action Plan (released on) 23 April 2015, approved by the Government of Sindh;
- Pursuant to the Plan, a Resettlement Policy Framework for the entire Thar Coal block exists under which all PAPs are being compensated.
- The SECMC has deposited a total of Rs. 920 million with the Deputy Commissioner out of which Rs. 433 million have been disbursed by the Land Acquisition Officers to PAP.
- SECMC is providing due compensation to all PAPs as per law and applicable regulations which include payment to land owners, compensation for crop and other assets, provision of alternate source of livelihood such as jobs in Thar Coal mining and power projects and provision of healthcare and education facilities. Any affected person in Gorano will be compensated in like manner.

- The petitioners did not share their views in the public hearing held in April 2015;
- There is no graveyard or temple in 1.2kms of the reservoir site.

Key points from Sindh Coal Authority's response:

- Out of 1,400 acres, 70% is owned by the Government of Sindh, while 30% is used by local villagers for cultivation. The petitioners have failed to show ownership rights in respect of such land;
- The government has the power under the Land Acquisition Act 1894 to declare any particular land that is required for public purpose or that of a company, as defined therein, provided that the stipulated conditions are met.

Counter Affidavit to SECMC's and other respondents' statements:

In their counter affidavit that followed response by all respondents, the petitioners stated that SECMC has carried out an EIA in respect of 50 cusecs drainage pipeline and a reservoir at Dukkar Cho. They further stated the following:

- The EIA report did not study environmental impacts of the project at Gorano. Therefore, any work at Gorano is a violation of the SEPA (laws);
- Furthermore, the EIA at Dukkar Cho was also obtained only after the commencement of construction and upon strong resistance by the villagers. They accused SECMC for not fulfilling the conditions of the EIA, which was meant to be conditional;
- The EIA report has identified a number of adverse effects of the project on micro and macro environment. The respondents have failed to mitigate adverse environmental effects of the project;
- The EIA was carried out for Dukkar Cho only. The land acquired was 692 acres (as according to the EIA report) but now other villages are being taken over;
- Major portion of the pipeline travels in wildlife sanctuary and effluent will be discharged in the sanctuary too (citing map on EIA page 39)⁴³;
- As per the EIA report, only half of the effluent estimated will evaporate. The other half will remain and cause environmental and health hazards in the area;
- SECMC provided the details of the compensation amount deposited for people affected due to mining in Thar Coal Block-II (and not Gorano). Respondents from the government have not acknowledged receiving any such amount in their respective affidavits;
- Water sample analysis report (on page 94 of EIA) show results indicating hazardous water which will be stored at the reservoirs;

⁴³ The EIA report referred in the petition is present in the petition file shared by the community.

- They (the community) are not concerned about the CSR of the SECMC. They want the court to safeguard their fundamental rights. Coal is a major source of pollution. (Because of this project) Pakistan will contribute to greenhouse emissions;

The petitioners pleaded the court to suspend the construction of the dam and declare the reservoir construction as illegal and against natural justice, hazardous for the ecosystem, and the environment and an infringement of the fundamental rights of petitioners.

Dispute in detail

Two major contentions in the petition refer to the conducting of ESIA of the EDS and the land acquired for the reservoir. These, and other broader issues raised by the petitioners need to be looked at closely:

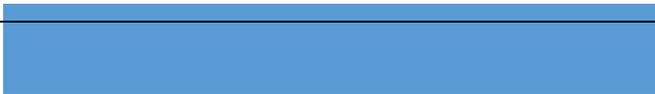
Date of the start of the construction work:

It is disputed as to when the construction work on the reservoir started. According to the documents, a feasibility study was prepared and commissioned by SCA to EA Consulting, based on which a PC1 was prepared and work on the pipeline started in May 2015.

However, in its petition documents, SECMC maintains that the Sindh Coal Authority submitted its Environmental Impact report to SEPA in January 2015 on the basis of which a public hearing was held on April 17, 2015. A water quality analysis report was demanded by the DG SEPA which was furnished in November 2015. On the basis of this report, SEPA accorded its approval on Feb 10, 2016.

However, the protestors neither agree on the date, nor do they agree on the EIA on the EDS, which is suggested to be conducted only after the work on Dukkar Cho was started and led to protests in 2015.

Interviews with the community and petition documents suggest that since Gorano was an after-thought, and not a part of the original mining project, it was not included in the project EIA carried out by Hagler Bailly Pakistan that conducted the EIA of the entire project. Moreover, no resettlement plan was developed for the villagers whose land was taken over for the construction work.



Villagers launched a protest campaign when the construction company arrived at their lands to start the work, dealing with the villagers in a highhanded manner. This was admitted by the former CEO of SECMC Shams Sheikh himself.⁴⁴

Land for reservoirs

According to SCA, 1,400 acres of land has been taken over for the construction of the reservoirs. The Authority also maintains that 70% of this land is owned by the Sindh Government. The remaining 30% is used by local villagers for cultivation. SCA states that the reservoir land has been acquired under the Land Acquisition Act 1894 that gives the government the power to acquire any particular land that is required for public purpose. Moreover, the Authority maintains that the process of land acquisition, within the entire Thar Coal Block II, is being done in accordance with the provision of the Land Acquisition Act 1894.

The Act is problematic in the context of Tharparkar where a limited number of people possess titles of land ownership. Undocumented inherited land ownership is common in the region. A large number of people have been cultivating on vast tracts of land for generations that does not legally belong to them. Moreover, communal land is used for grazing livestock and collecting water from dug wells that are located in the surroundings of the pond area.

One of the key contentions of the project and resistance against it pertains to taking over of the communal land. Local community protesting the reservoirs highlight that they have been displaced from access to communal land and their own land, that they have been ploughing for generations, has come under the disposal scheme land.

In a newspaper interview, SECMC admitted that out of 1,500 acres, 532 acres are private property and the rest is communal grazing land.⁴⁵

The size of the land taken over for the project is also disputed. While SECMC maintains it has taken only 1,400 acres, villagers state that land area is 2,700 acres.

Harassment of the community

One of the peculiar features of the resistance against Gorano and Dukkar Cho reservoirs – represented by a year-long protest, mobilisation and a court petition - is the response of the state that chose to deal with the community's opposition in a highhanded manner.

⁴⁴ Kunbhar, Zulfiqar. "The Water This Desert Doesn't Want." *The Friday Times*, December 30, 2016. <https://www.thefridaytimes.com/the-water-this-desert-doesnt-want/>.

⁴⁵ Ibid



The protests gave way to two mobilisation forums: Thar Sujag Sath and Thar Voice Forum. These were started by activists and professionals hailing from Tharparkar. Activists in both these movements, while wishing to remain anonymous, share details of harassment and threats received during their active campaigning on the issue. “The Engro Management even threatened to call the army to control the protests against the Gorrano Dam,” says one of the activists involved in the campaign. Three vocal activists linked to the resistance movement were picked in early August 2017. It is common knowledge that the disappearances are carried out by Pakistan’s intelligence agencies. Though they returned within days, and refused to share details of their abduction, it is widely believed that their disappearance was a result of their involvement with the movement.

Another activist linked to the movement, Dileep Doshi of Thar Sujag Sath, also faced the threat of a false blasphemy case when an application was filed against him by a local religious group.

The coal reservoir was eventually built, bypassing local population’s resistance over the damaging impact of the project on their livelihood and environment.

Summary of interviews and discussion with affectees of Gorano Reservoir:

For the purpose of the study, NCHR undertook a visit to Tharparkar in December 2018, to meet the stakeholders and assess the positions of the community and the project proponents. A detailed meeting was held with both, the Gorano protesting community and the SECMC. Development expert Dr Sono Khangharani, who has supported the community all through the struggle over Gorano Reservoir was also interviewed. The SECMC was asked to share their viewpoint in writing. The viewpoint of the community is being presented below. Maximum effort has been made to present these using community’s own words.

Reservoir development

“The reservoir was installed completely non-consultatively. No public hearing was organised, which is against the procedures of public infrastructure projects.”

Land issue

“The total land lost is 5,000 acres. This is the size of the overall land under the use of the community. The government records already document four thousand. One thousand acres is ours. This land has been in our possession since the time of the partition. This land includes all categories of land combined in *Hameshigi* (recorded one year after use by the community), *Shamilat* (no detail in terms of history), *Gauchar* land (common property) and leased land. *Gouchar* land, is technically community land. Land ceiling laws specify that this common land cannot be sold or re-allotted.

“Three villages come under the area where effluent water now rests. One more village on the periphery has been affected. Because of water, the *Gouchar* land is also inaccessible.

“The Government passed a compensation award only after our petition. They calculated 935 acres as “lost land” and are paying compensation accordingly. They are offering different rates for different people. Minimum rate is Rs. 215,000 and maximum is Rs. 235,000. Three hundred and fifty houses have received the award. Others have refused to accept this award.

“The 935 acres documented in the government records needs to be counted as the villagers’ own *khaiti*. However, leased land is outside this range. There has been no update in lease since 1985. This size of such land is at least 1,600 acres. We have been told by the government that they will not be adding *teelas* (mounds) in the lost land.

“Moreover, people living on the periphery of the land that has been taken over for the project are not counted as affectees. They have water (reservoir) touching the boundaries of their houses. They have lost access to wells;

“The community used to cultivate *bajra*, *gwar*, pulses... They could graze their livestock in the area. The livestock would feed on plants from rainwater. The common land also included area that covered our graveyards. Our forefathers are buried there. It has all been taken over.

“The community does not want their land to be taken away. If the government must, they can lease it from the community. But the locals do not want to give away their land for the project.”

CSR activities

“It does not affect the community. As it is, Gorano is out of the planned area marked for the coal blocks. SECMC’s CSR work is limited to coal blocks area only. When they were building schools here, the Community told them that they needed middle schools and not primary schools. There are already three government primary schools functional in the area. But SECMC went ahead and built yet another primary school.”

Process of evacuation

“A group of Sindhi speaking men came to our villages one day and asked us to evacuate. Later, the Assistant Commissioner also came and threatened us, asking us to leave. The community protested.

“The notification given to us at the time of the evacuation stated: “You have been evacuated. If you want, come, collect your compensation.”

Interview with Dr Sono Khangharani over the issue of Gorano Reservoir

“The reason the company was in so much hurry was because they need a financial closure of the project. They are liable to penalty otherwise.



“There are 52 villages and the population amounts to 37,000. It is beyond comprehension why the Government of Sindh is bending over backwards for SECMC.

“The project has had a positive impact in terms of raising property prices. Employment generation has increased. New hotels and petrol stations have opened. However, on the negative side, alienation has increased and it will only get worse. There is a breakdown of the social fabric of the local society. In future years, livestock will shrink. People’s attitudes (towards community) and systems will change;

“Poverty is an issue of participation. People in Thar region are either beneficiaries or affectees of the coal project. However, they are not party. The area is losing its biodiversity. Shareholders in the project are politicians and bureaucrats.”

Thar Coal Projects and Community's Concerns

Communities and civil society were interviewed in Islamkot on December 14-15, 2018 and later in a Focus Group Discussion in Mithi on January 7, 2019 to share their perceptions and experiences with the coal projects. These are being listed in community's own words.

Water contamination

- “Contaminated water (from EDS) will affect the drinking water sources of the community, i.e. wells, hand pumps and overall underground water.
- “Visibly Gorano dam is receiving water from Block II, but the machines do suck underground water from the nearby water sources. This water will cause seepages and salinity that may impact soil fertility. This may compromise livelihoods of the desert communities that depend on rain-fed agriculture and livestock rearing.
- A recent report by the International Union of Conservation of Nature (IUCN) indicated that salinity level of the water (in Gorano) is very high and that it will gradually increase more with a high rate of evaporation, particularly in dry and hot seasons of the year.”⁴⁶

Dust pollution and health risks

- “There is an open pit mining being done at Block II. The dust gathered from the operation is being dumped around the area. This dust itself will create problems for people in case of dust storms. In addition, the coal field boilers generate a large quantity of ash and further expose the locals to health risks.
- “Although mining and construction of a power plant have been initiated in one block only, when work on other blocks will start, more threats to the local economy and environment would unfold.”

Violation of land acquisition and development laws

- “The land area outlined for the compensation is far below the actual area. In essence, this order of public land acquisition deviates from the stated and practiced procedures, which demand a sequential order starting from information-sharing with the community, followed by public hearing, a consensus on development and compensation for displacement and livelihood loss.”

Pledges not followed

- “The provincial government had announced to constitute Thar Development Authority. However, it is not formed yet. Similarly, the NED University of Engineering and

⁴⁶ Community cited the report titled “Saline Water from Thar Coalfield Benefiting Gorano Reservoir.” *The Express Tribune*, February 5, 2019. <https://tribune.com.pk/story/1903800/1-saline-water-thar-coalfield-benefiting-gorano-reservoir/>.



Technology, Karachi had announced to open a campus in Tharparkar to train the local youth. However, it still remains an announcement (it has now been opened). Vocational training of youth on coal mining and power plants is still unavailable, despite the fact that a government-run polytechnic institute Mithi is offering three-year diploma course in mining.

- “The provincial government had earlier announced the formation of 'Fodder Committees' to support livestock owners in Tharparkar. However, it is yet to develop fodder banks to distribute feed packs for animals in the region.”

Impacts on trees and vegetation

- According to a survey by the IUCN, the authorities had counted 4,199 local desert trees growing on 834 acres of land. The trees on the remaining part of over 600 acres were not counted. These trees are still alive. However, all the 4,199 trees have been submerged in the reservoir and may not live longer, as stated by the IUCN report.⁴⁷

Food security

“Due to coal development, the local vegetation and trees would be destroyed under standing water. These trees and vegetation provided wild vegetables and fruits which are widely used for food consumption.

“Mostly wild tree Kandi (*Prosopis Cineraria*) bears delicious fruit like sangri pods, which grow naturally in the desert during the summer season. This is one of the most important sources of sustenance in the dry desert for both farmers and herdsman. Kandi is scattered in the desert plains and is available in the entire district. Same is the case with Sangri. When drought and dryness hit the communities residing along the sand dunes, this local produce is used for food and nutritional needs.

“Decline of these plants would compromise access to food and nutrition for the community.”

Loss of wildlife habitat

“Many wildlife reportedly have lost their habitats in major areas of the Sindh province and were now taking shelter only in the desert zone of Tharparkar. Moreover, some species hop across Pakistan- India border.

“Wildlife advocates believe that after the loss of the riverine forests, factors such as shrinking tree cover in the province, depleting fertile land, changed crops cultivation pattern and mechanised agriculture have already destroyed natural habitats in many areas.

⁴⁷ Ibid. Cited by community.



“Now when around 50% area (9,100 kilometers out of total 2,000 kilometers) has been marked as coal reserves, threat to biodiversity is real. The area where vultures and chameleons traditionally inhabit are also covered by coal reserve. The digging process may disturb these precious species.”

Impact on livestock grazing fields: *Gauchar*

“Traditionally ‘*Gauchar*’ is a land allotted for grazing animals in Thar desert. This is a collective land, not owned by any individual. Each village has access to 100 to 300 acres of land for local livestock rearing. This land is taken care of by the members of the community. As per the local law, all these places - sand dunes and *gauchers* (grazing fields) are common properties.

“However, after the initiation of coal development projects, locals are struggling with encroachments of these grazing fields carried out by influential people. The locals are unable to force those elements to stop such their rapid march on the commons.

“The government has shared no policy of action against encroachments as well as disappearance of the grazing lands. The community is severely distressed over land encroachment that is compromising the wellbeing and future of their livestock, their major and for some, only source of income.”

Employment opportunities for the locals

“A non-consultative and non-participatory development project is likely to lead to a sense of insecurity and isolation among the local population. A major concern for the community in Tharparkar is the employment/influx of people from other provinces in the coal mines and power projects, and the subsequent purchase of land by the non-locals. As the locals are mainly unskilled, the coal companies prefer to hire skilled workforce coming from other parts of the country.

“Most of the skilled and unskilled labour force has been brought from different parts of Punjab to work in the coalfields. Each group of workforce comprises 150-200 workers working for the coalfields in different capacities. They function under the supervision of a private contractor. Moreover, contractors have a negative perception about the local workforce. They are referred as “non-punctual, demanding, short-tempered and uninterested” in work. “The contractors cite this as the reason why the outsiders are preferred in the field.

Additional note: During a visit to the Thar coal project in December 2018, the Sindh Chief Minister Syed Murad Ali Shah was informed that 3,584 workers have been employed for the mining

work. Of them, 3,329 were Tharis. Similarly, the number of human resource engaged at the power project is 3,286 with 1,070 Tharis, 1,479 Chinese and 744 other Pakistanis.⁴⁸

“SECMC has reportedly hired female drivers for driving heavy-duty dumpers, transporting earth excavated from the mining site. However, due to unfavourable working conditions from females, some female drivers have left the work.”

***Additional note:** NCHR has reported that the Commission has received a yet-to-be-investigated complaint about a woman driver leaving her job due to alleged harassment. The complaint also states that her husband, who was earlier working for SECMC has also left the job.*

Impact of the influx of outsiders

“There has been a major uptake in the purchase of properties in urban centres by non-locals. These are being purchased at higher rates. Similarly, mushroom growth of religious madressahs in the desert has also worried the locals, who have been living in harmony with other religious communities for centuries. A large number of Hindus are living in Tharparkar district. The unchecked spread of madressahs may upset the religious harmony of the area.”

⁴⁸ “Rs1.8 Billion Royalty of Coal Project to Be Spent on Thar.” *Pakistan Today*, December 6, 2018. <https://www.pakistantoday.com.pk/2018/12/06/rs1-8-billion-royalty-of-coal-project-to-be-spent-on-thar/>.

Broader concerns regarding the Project

Apart from communities' own concerns regarding the direct impact of the project, a broad range of views on a variety of issues related to coal development in Tharparkar as well as environmental, social, political and structural aspects of coal policy matter have been abundantly expressed by stakeholders. These have been covered in the media and related discussion forums. These also emerged during the course of consultations with experts and the community. Key concerns are being presented in a consolidated form in this section. These concerns have been categorised in thematic form, attributing reference for opinion piece and research:

Land ownership, land acquisition laws and community's rights

The Thar Land Grants Policy 1930 had declared water ponds, wells, sand dunes, pathways and grazing fields as communal properties. Local communities have been using these resources through generations.

The sand dunes in Thar Desert are very fertile and turn green even after light showers. Many dunes covered with vegetation serve as shelter for various wildlife species.

There is no accurate data in the government archives with regard to land ownership. Desert land is yet to be computerised. Hence any unannounced development on land may give rise to land ownership disputes in the desert area. Activists observe a marked change in the land utilisation trend since the start of the coal exploration activities. "People are grabbing land, claiming ownership on it."⁴⁹

The law under which the land for the coal project has been acquired is the Sindh Land Acquisition Act 1894 (the law was later amended. It is now called "The Land Acquisition (Sindh Amendment) Act, 2009").

The land acquired for mining as well as for the Gorano Reservoir and power plant is now owned by the company forever. It can now dig up the land, which also includes *Gauchar* (common land for community). There are concerns that the land will lose all utility after the process of coal extraction is over. Experts have also repeatedly demanded information on the use of land plan for Tharparkar after the excavation of coal. There is no publicly available planning document.

The Sindh Coal Authority, in its written reply submitted in the Sindh High Court, claimed that a notification under Sections 4 and 6 of the Land Acquisition Act, 1894 was published in the official gazette. It maintained that the people complaining their land has been taken over by the project

⁴⁹ FGD with civil society in Mithi on January 7, 2019



could have filed objections before the Collector within the prescribed limitation period, as provided under the law and the notification.

In their interviews, the villagers denied having information about such a notification and said that such type of information has never been conveyed to the affected population.

The SECMC claims it has developed a Resettlement Action Plan whereby displaced locals of Block II will be moved to state-of-the-art model villages with modern-day facilities. However, locals state that this is yet to be done.

The Sindh Chief Minister Syed Murad Ali Shah on December 8, 2018 announced to provide a one-time Rs. 950 million grant to pay a monthly stipend of Rs. 10,000 to the affected families that have been displaced due to the Thar Coal Block II project.⁵⁰

According to Mr. I. A. Rahman, former Secretary General of HRCP, laws cannot cancel people's rights. For Thar Coal project, the government has acquired the land under the Sindh Land Acquisition Act, which is exploitative in nature.

Arif Hassan, urban planner and senior development practitioner, in an interview for the report, pointed to the absence of an effective rehabilitation plan to resettle all the affected people from the coal mining and other projects. Mr Hasan has been closely working with the communities in Thar.⁵¹ He shares that he has asked the government about the documents regarding the resettlement plan for the affected community. However, the government and the company (SECMC) were unable to provide a satisfactory answer.

Environment Impact Assessment and Challenges

Though the Thar Coal project, like many other local development projects, has fulfilled requirements of environmental assessment required by the law, flaws in the environmental regulations limit the possibility of any relief for the community that has been negatively impacted by the project. A brief look at the environmental impact assessment process may help understand the issue.

Environmental Assessment is a legal requirement in Pakistan for all projects that have a possible environmental impact. Though environment is a provincial subject now, the provincial law have their basis in the Pakistan Environmental Protection Act 1997. The provincial laws also carry forward the review of IEE and EIA, which is rooted in the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations 2000. In Sindh, the Sindh Environment Protection

⁵⁰ Ali, Imtiaz. "Sindh CM Approves Rs950m Grant to Pay Rs10,000 Stipend to Affectees of Thar Coal Block-II Project." *Dawn*, December 8, 2018. <https://www.dawn.com/news/1450239>.

⁵¹ Interview with Arif Hasan for this study was conducted at NCHR office on January 27, 2019

Act 2014 is functional.

The Regulations 2000 list categories of projects that require Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA). (The Sindh Act requires environmental and social impact assessment (ESIA) of projects.)

Projects related to mining and mineral processing, coal and water management, dams, irrigation and flood protection projects are required to conduct EIA. Surprisingly, coal fired plants are not included in the list of projects needing IEE or EIA. Experts, therefore, argue that the present categorization of projects listed in the Regulations 2000 needs a thorough technical review.

Other serious problem identified with the law relates to the timing of the carrying out of an IEE/EIA. The environmental assessment reports are submitted very late, mostly just prior to the start of the construction or operation of a project and not at the planning stage. History suggests most projects continue even if a petition is filed against their environmental impacts.

The law does not outline any standard regarding the competence or qualification of the body preparing the EIA. Though guidelines have been provided on the contents of the EIA, the proponents of the project have the leverage to bypass the guidelines.

As a matter of practice, the EIAs are reviewed by provincial EPAs. The power rests with the Director General/Deputy Director General of the EPA, who may delegate this power to other personnel within the EPA. No qualification is specified for the DG/Deputy Director empowered to review the technical report. Absence of tenure in addition to overload of projects impact the quality of review of the IEE/EIA.

EIA and Public Participation

Public participation as a form of stakeholders engagement starts only after the EIA is submitted to the provincial agency. By this time, the project has already gone through the preparation and what is called the scoping stages (scoping stage covers issues, impacts and preliminary alternatives that should be addressed at subsequent stages).

Guidelines for public participation are provided by the Pakistan Environmental Protection Agency. However, these are not legally binding. Experts suggest this gives project proponents and the government an opportunity to shut out or override public's concerns with regard to a project. Internationally, debates related to human rights aspects in projects point to the absence of options for the public in case the community opposes a project or demands a project to shut down in case of grievance or rights violation.

Monitoring is a strong component of Pakistan's environmental laws. Post EIA approval, regulations require the project proponents to submit an Environmental Management Plan (EMP), covering mitigating measures including compliance documents. However, there is no institutional structure and mechanism for post-approval monitoring. Project proponents are merely required to submit an annual report on operational performance of the project with reference to the conditions of approval and maintenance and mitigating measures adopted by the project. No timelines are required with respect to the adherence of the mitigation measures. In practice, the government hardly turns to the option of the Environmental Protection Order (EPO) in case of any violation.

Finally, there is no provision for communities' participation in the monitoring of the project and follow up of the commitments made in EIA/public hearing or project planning. If wronged, communities have to turn to the expensive judicial recourse, which is hardly an option.

The Thar Coal projects may have been affected by these loopholes in the environment protection regulation system.

Changes in Air Quality Standards

Particulate Matter is a leading pollutant and a common proxy indicator for air pollution. It carries sulfate, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water. The WHO standard for Fine Particulate Matter (PM_{2.5}) in the environment is 10 µg/m³ as annual mean, and 25 µg/m³ as 24-hour mean.

In a strange development, the Sindh Government increased the threshold of the Fine Particulate Matter PM_{2.5} to 75µg/m³ in 2016. This is much higher than the WHO Air Quality Guidelines Standards of 25 µg/m³ 24-hour mean. (Screenshot of the notification attached).

A look at the Air Quality Monitoring Reports of the Sindh Government at the Sindh Environmental Protection Agency's website (<http://epasindh.gov.pk/aqm.htm>) points to an average air quality level higher than 75µg/m³. At different points in October 2018, the reported level went up above 150µg/m³. (It is pertinent to note that the website carries reports of year 2018 only). Experts agree that changing of the air quality standards thrice above the WHO Guidelines level was a dubious and non-consultative exercise. It is a well-recognised fact that a higher Fine Particulate Matter leads to pulmonary illnesses, many of which are fatal in nature. Moreover, coal fired plants are a leading source of the Fine Particulate Matter.⁵²

⁵² For info, see "Ambient (outdoor) Air Pollution." WHO | World Health Organization. Last modified May 2, 2018. [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health). And "Particle Pollution." American Lung Association. Accessed January 31, 2020. <https://www.lung.org/our-initiatives/healthy-air/outdoor/air-pollution/particle-pollution.html>.

SINDH ENVIRONMENTAL QUALITY STANDARDS FOR AMBIENT AIR

Pollutants	Time-weight average	Concentration in Ambient Air	Method of measurement
Sulphur Dioxide(SO2)	Annual Average* 24 hours**	80 µg/m ³ 120 µg/m ³	Ultraviolet Fluorescence method
Oxides of Nitrogen as (NO)	Annual Average* 24 hours**	40 µg/m ³ 40 µg/m ³	Gas Phase Chemiluminescence
Oxides of Nitrogen as (NO2)	Annual Average* 24 hours**	40 µg/m ³ 80 µg/m ³	Gas Phase Chemiluminescence
O ₃	1 hour	130 µg/m ³	Non dispersive U/V absorption method
Suspended Particulate Matters(SPM)	Annual Average* 24 hours**	360 µg/m ³ 500 µg/m ³	High Volume Sampling (Average flow rate not less than 1 l in 3 minutes)
Respirable Particulate Matter PM10	Annual Average* 24 hours**	120 µg/m ³ 150 µg/m ³	B Ray absorption method
Respirable Particulate Matter PM2.5	Annual Average* 24 hours**	40 µg/m ³ *** 75 µg/m ³	B Ray absorption method
Lead Pb	Annual Average* 24 hours**	1 µg/m ³ 1.5 µg/m ³	ASS Method after sampling using EPM 2000 or equivalent filter paper
Carbon Monoxide(CO)	8 hours** 1 hours**	5 mg/m ³ 10 mg/m ³	Non Dispersive Infra Red(NDIR) method

Water Aquifers

Another major issue is the destruction of the underground aquifers, which is used by the locals in Thar, through wells and hand pumps for drinking and other household purposes. There are two to three layers of underground aquifer at the coalfield area. The initial layer is rain-fed. People and animals use it for drinking purposes. This aquifer is already under stress due to increase in human and livestock population in the area. The aquifer is charged naturally after the rains.

Underneath the first layer of the water there is a layer of sand, followed by the second aquifer, which is mostly saline and not fit for human consumption. Underneath that aquifer lies the first layer of coal deposits. A third aquifer also sits below the first layer of the coal, which may be drained out to reach another layer of the coal beneath.

Experts are mostly concerned about the first layer of water, which would also be disposed off into reservoirs to reach the coal. The reservoir may charge the wells in the nearby villages, but it would turn the rain-charged water into saline water due to seepage. There has been no clarity on measures considered to maintain the aquifer's quality.

RO Plants



Responding to recurring droughts, the Sindh Government set up over 700 Reverse Osmosis plants in Tharparkar, for provision of clean drinking water to the local population. Rs 5 billion were spent on the installation of these plants that are being managed by Pak Oasis. The company is getting 12 paisa per gallon as fee.

Recently, the Sindh Water Commission, formed by the Supreme Court to record findings in regard to providing/supply of clean water to the residents of Sindh, submitted its report. The report observes that the quality of water being produced and supplied through the RO Plants was not being maintained as there was no system or equipment in the only laboratory in Mithi R.O. Plant, that can examine the physical, chemical and microbiological parameters of water as per WHO standers.

The Water Commission collected 17 water samples from 16 RO plants as product water for testing. The overall analytical data showed that out of these, 11 (65%) samples were found unsafe while 6 (35%) were found safe for human consumption under the prescribed standards.

Laboratory tests conducted by the Commission indicated inconsistencies in the entries highlighting its unreliability and pointing to malfunctioning in the system. The report also notes that in Mithi, 24 schemes were initiated in the past five years (of RO plants installation drive) for supply of drinking water and sanitation. The money spent on these schemes collectively stands at Rs.683.76 million. Out of 24 schemes, 16 are non-functional and only 08 are functional.

Experts are of the view that RO Plants are not exactly an answer to Tharparkar's water woes. These are expensive to maintain, with a single plant costing as much as Rs4mn a year for maintenance. Given that the maintenance depends on government subsidies (which is disbursed at irregular intervals), RO Plants are not a sustainable option. The Sindh Water Commission's reports also indicates that these plants do not entirely fulfil the criteria of providing drinkable water to the local population. In an earlier report, it was found that out of 800 RO plants in Tharparkar, only 140 were functional.

Coal Project and Pakistan's Climate Change Obligations

The 2015 Paris Agreement on climate change requires signatory countries to reduce greenhouse gas emissions and limit the rise in global average temperatures to as close as possible to 1.5 degrees above pre-industrial levels. The Paris Agreement goals, therefore, place a strong emphasis on renewable energy sources, as well as on decline in fossil fuel production and consumption.

Globally, Pakistan ranks at eight out of the top ten countries most vulnerable to climate change. Globally, the energy sector is at the forefront of the climate change debate due to its highest

share in GHG (Greenhouse Gas) emissions. The sector contributes more than 50% of emissions in Pakistan.⁵³

Neither the National Power Policy 2013 (that promotes expanding reliance on coal-based energy by 2030), nor the National Climate Change Policy is compatible with the Paris Agreement. Pakistan's nationally determined contributions – called Intended Nationally Determined Contributions, outlining countries' public commitment to post-2020 climate - stipulate 898 MT CO₂-equivalent from energy sector by 2030. With regard to coal, the mitigation options in energy supply sector mentions the plan to “improving the efficiency of planned coal-based power generation (that) could lead to GHG mitigation.”⁵⁴

At the same time, under the Paris Agreement, the global phasing out of unabated coal-fired power plants needs to take place around mid-century. Under phase out periods set around the least-cost strategy, the EU and the OECD would need to phase out coal by 2030, China by 2040 followed by the rest of the world, including the majority of emerging economies, that are required to stop engaging coal by 2050.⁵⁵

It is incomprehensible how Pakistan will adhere to its climate change commitments if the country is seeking to expand the reliance of its energy source on coal by 50% by 2050.

Financial (Over) Commitments

The Thar Coal project is tied to massive financial obligations being undertaken under CPEC. There is consensus that the project may prove financially and socially expensive.

Experts opine that a LIBOR rate of the project at 0.5% which has steadily gone up over the years, a shorter repayment plan and a promised rate of return at 20% make the project an expensive proposition thereby nullifying any prospects for generating low cost energy (because of higher production cost).⁵⁶

Moreover, the Thar Coal project has been included as a CPEC project. As a matter of policy, China is phasing out coal from the country's energy mix, cancelling all power plant licenses. At the same time, they are exporting their related industrial expertise abroad. For them, the loan is largely a

⁵³ Chaudhry, Qamar Uz Zaman. “Climate Change Profile of Pakistan.” *Climate Change Profile of Pakistan*. Asian Development Bank, n.d. <https://www.adb.org/sites/default/files/publication/357876/climate-change-profile-pakistan.pdf>.

⁵⁴ “Pakistan's Intended Nationally Determined Contribution (PAK-INDC).” n.d. [https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Pakistan First/Pak-INDC.pdf](https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Pakistan%20First/Pak-INDC.pdf).

⁵⁵ Climate Analytics (2016). Implications of the Paris Agreement for Coal Use in the Power Sector at https://climateanalytics.org/media/climateanalytics-coalreport_nov2016_1.pdf

⁵⁶ Ali, Syed Akhtar. “Thar Coal May Become Uncompetitive If High Cost Trends Continue.” *The Express Tribune*, July 9, 2018. <https://tribune.com.pk/story/1753023/2-thar-coal-may-become-uncompetitive-high-cost-trends-continue/>.

stimulus to their own coal companies that do not have much work domestically in China anymore.⁵⁷

The Thar Coal project also risks creating a "stranded asset" with a large foreign debt liability. This in itself may undermine national security.

Renewable Energy options

Pakistan has traditionally been dependant on hydro resources or fossil fuel for power generation, as these two options are considered cost-effective. However, river water shortage, especially in winters and increasing cost of furnace oil and natural gas have now made these two options difficult and costly.

According to NEPRA's State of Industry Report 2017, the total energy through solar resources has been recorded at 635 GWh whereas 785 MW were being generated through wind power in 2017. Power generation through bagasse, coal and nuclear energy is very limited.⁵⁸

Coal, being dirty fuel is mostly rejected by environmentalists and energy experts. Experts believe the renewable energy is no more costly as being perceived commonly in Pakistan. Its cost has come down significantly with technological advancements. If calculated, the renewable energy is more cost-effective than the equivalent kWh generated from fossil fuels.⁵⁹

According to renewable energy expert Omar S. Cheema, Pakistan has a vast potential to generate power from renewables as Pakistan has vast unused land and diverse geographical conditions for power generation from various types of renewables.⁶⁰

The uninterrupted natural solar resource in Tharparkar, if utilized, can produce more energy than could be generated from coal. According to senior development expert Arif Hasan, many countries in the world are now switching to renewable energy options. Even Engro company's project documents indicate that solar power generation technology is cheaper and environment friendly than coal power generation technology.⁶¹

Besides solar and wind, Pakistan's geographical terrain also offers potential to generate power through Renewable Natural Gas (RNG), which in its purified form is similar to other forms of natural gas. RNG can be produced from the mixture of anaerobic digestion of the waste, mixed

⁵⁷ Email correspondence with Alternative Energy expert Omar Cheema on the subject of Thar Coal, provided by Mr. Arif Hasan to the researchers

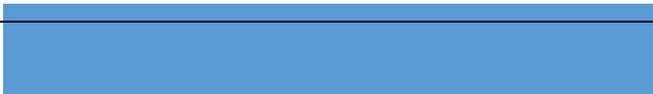
⁵⁸ "State of Industry Report 2017." *State of Industry Report 2017*. NEPRA, 2018.

[https://nepra.org.pk/publications/State of Industry Reports/State of industry report 2017.pdf](https://nepra.org.pk/publications/State%20of%20Industry%20Reports/State%20of%20industry%20report%202017.pdf).

⁵⁹ Cheema, Omar S. "How to Make Electricity Cheaper." *Dawn*, November 4, 2018.

<https://www.dawn.com/news/1443513/how-to-make-electricity-cheaper>.

⁶⁰ *ibid*



with wastewater. According to Omar Cheema, Pakistan can save much foreign exchange by promoting RNG. The European Union has expanded its reliance on RNG over the years. Power generation through RNG in Europe increased from 12.5 billion kWh in 2005 to 46 billion kWh in 2012. It can reach to 64 billion kWh in 2020.⁶²

Internationally, there are credible researches that suggest that renewable energy demonstrates a greater job creation effect. Energy created through solar photovoltaic cells, landfill gas, or biomass plants are recorded to have a higher number of jobs created per unit of energy produced than that produced through conventional sources.

Renewable energy incorporates diverse supply chains, higher labour intensity, and increased net profit margins. Jobs in the renewable energy expands to manufacturing and distribution of equipment, inputs production, and even in services such as project management, installation, operation, and maintenance.⁶³

Renewables can promote employment in the agriculture sector too, benefitting farm workers in the harvesting of feedstock and other biomass. It can contribute to existing economic activities in other sectors.

Due to low carbon footprint, jobs in the renewable energy production carry less hazardous working conditions.

The cost of coal and other fossil fuel based energy generation should also be measured in terms of the social impact of such projects on the community, leading to displacement, livelihoods loss, poverty and marginalisation. If use of force is employed (as accused by the community in the Gorano Reservoir case), it creates social discord that further negatively affects the socio-economic fabric of the society trading off so-called benefits of the low-cost electricity it is generating.

⁶² “Cheema, Omar S. “How to Make Electricity Cheaper.” *Dawn*, November 4, 2018.
<https://www.dawn.com/news/1443513/how-to-make-electricity-cheaper>.

⁶³ ILO, Green Jobs and Renewable Energy: Low Carbon and High Employment.

Conclusion

Thar Coal's development has led to raising of many questions for local population, civil society and development community. The government, the concerned authorities and mine development companies, involved in coal production and power generation, have been unable to answer these concerns.

Tharparkar ranks low on access to social services, especially education and healthcare. The district has repeatedly suffered from malnutrition issues owing to a combination of factors including recurring episodes of drought.

Thar Coal reserves have been touted as a solution to Pakistan's electricity deficit challenges. The government, including the military establishment, is deeply invested in electricity generation through coal mining and coal power plants in Thar. This attachment draws from the importance of power plants as a development measure as well as CPEC that has strategic value.

Out of the 13 blocks in Thar coalfield, work on two blocks has already started, while mining and power generation operation in Block II is complete. Locals have had a difficult experience in dealing with project operations. The development of Effluent Disposal Scheme has led to conflict in the area and apart from persistent protests by the local community, a petition in the Sindh High Court has been filed to challenge the Scheme. The petition also reflects discontent with the entire project.

Pakistan's environmental laws and procedures do not adequately assess the environmental and social impact of a project. The procedures do not prioritise an adequate response to public's concerns. Moreover, these have limited follow up structures to counter the negative impacts of any project.

The current project in Tharparkar is not only capital intensive, it is being constructed in a non-consultative manner, threatening negative social changes that are fuelling anxiety and restlessness among the local population. Such development models, as executed in other parts of the country, have led to inequality and political polarisation.

Communities fear displacement, loss of livelihoods, loss of assets, especially personal/family and communal land, highhandedness by authorities, and change in social fabric due to in-migration. Locals fear the development activity may result in barren land depriving them of access to agriculture and livestock grazing, two major occupations of the locals. Coal development has also resulted in agriculture lands being sold out to private entities.



Locals also fear that as a result of the development, demographic changes may occur rapidly in Thar, which would make local population vulnerable. There seems to be no plan from the government to address the concerns of the local population.

Experts also feel that the project comes with a high social, economic and environmental cost. Land acquisition in Thar Coal Block II is being done in accordance with the provision of the Land Acquisition Act 1894, which is problematic in the context of Tharparkar where a limited number of people possess titles of land ownership. Undocumented inherited land ownership is common in the region. Moreover, communal land is used for grazing livestock and collecting water from dug wells located in surrounding areas.

Experts opine that expensive loans, a heavy-duty sovereign guarantee, and a high rate of return committed by the project may result in nullifying any prospects of low-cost power generation offered by the Thar Coal project. The project risks creating a "stranded asset" with a large foreign debt liability.

The Block II ESIA report itself identifies drawdown in water resources as an important issue with the project. All three aquifers of Thar Coal will be utilised for the purpose of the project.

The Paris Agreement goals place a strong focus on renewable energy sources, as well as on the need to commit to reducing fossil fuel production and consumption to limit the rise in global average temperatures to as close as possible to 1.5 degrees above pre-industrial levels. Pakistan will not be able to meet this commitment if it intends to expand coal's contribution in the total electricity generation to 50%.

Coal has been widely replaced by alternative energy sources around the world. These promise better prospects for jobs, better standards for social development and low long-term financial cost. In the face of reluctance and strong resistance by the community, there is little justification for continuing a socially, financially and environmentally expensive project that not only discards local population's aspirations for their homeland, it also threatens their lives and well-being.

Recommendations

Though the Thar Coal project has already taken off and there is no compensation for communities' distress over the rights violations as a result of the project, communities and experts interviewed have shared a broad range of recommendations. These come from the understanding that these may, to some extent, address the negative impacts of this project and also lead to a more responsible handling of development projects by the government as well as private actors. Moreover, these also address micro and macro context of the community in general. The recommendations are shared below:

Ongoing projects

- Owing to the acute discontent of the local communities, the environmental damage, the compromise on local livelihoods, and the gigantic financial cost, the Thar Coal project should be stopped. Block II that has already been developed should be phased out, while work on other blocks should be stopped. The state should instead tap into Pakistan's potential for energy generation from renewable sources.

Development in Thar

- Community is the natural stakeholder of Thar resources including coal. They should be taken on board on all development activities.
- An institutionalised system of guarantees should be developed to protect local people's rights for any development and infrastructure project in Thar.
- Trainings and capacity building programmes need to be initiated to train the Thari youth so they can take part in development projects. Thari youth should get special quota for access to higher education and technical and vocational education.
- EIA, as a process, has been a failure in assessing the negative impacts and providing for effective environmental protection. There is need for a comprehensive scientific research around environmental impacts of development projects, in addition to a survey of social and right impact. Projects that do not have communities' consensus should not be executed.

Livelihoods for the locals:

- Thari people do not want to be dependent on rain forever. A system of channelling river water through construction of new canals and laying of pipelines for drinking, as well as agriculture purposes needs to be developed. This would provide better opportunities for livelihood stability and expansion.
- Business opportunities should be provided to the local people on a priority basis by providing them incentives and financial support.

- The provincial government has released food packs for the humans but there is no support for livestock and local animals. There is a need of permanent mechanism for fodder banks, and protection of grazing grounds for livestock.

Demographic change due to development

- A comprehensive plan should be chalked out in consultation with local communities to address the concerns of the local population regarding migration from other parts of country, which local population fears would convert them into minorities and bring a widespread demographic change in the area. These apprehensions need to be taken seriously by the government and addressed.

Recommendations from Experts

- The aquifers of the region need to be protected and enhanced. The process of coal extraction requires dewatering of the aquifers which may also destroy the rain-fed layer that is a major source of water for the local community. It is not entirely plausible how the reservoirs built through effluent disposal system can replace source of water for the community coming from the natural aquifers.
- The failed project of Underground Coal Gasification that has now been abandoned has led to socio-economic cost for the community, including water shortage and health hazards. There has been no compensation announced by the project leaders as well as the government. The project has led to destruction of community's water source, adding to the daily cost of water supply management, which may have also led to other social and environmental challenges. A study needs to be conducted on the social cost of the failed project and compensation from project managers as well as the government needs to be offered.
- The Government has allocated 72bn for infrastructure development of Thar coal. This development has come with its own social cost including damaging of the environment and communities' displacement among others. The government must allocate 2% of this cost to communities' development. The plan for this development needs to be prepared in consultation with local stakeholders.
- There is urgent need for land settlement in Thar. The absence of a land settlement policy has gravely compromised the protection and interests of the local community. There has been no land settlement in the region despite Thar experiencing major migration



following the 1965 and 1971 wars. The two episodes that have followed no subsequent land settlement have also led to divergence in people's understanding of land ownership. Moreover, there are still parts of land that are considered enemy property. With the recent development in Tharparkar exposing land disputes, and the fact that the current policies only provide for compensation to those with documented ownership of land, it is extremely important to devise a land settlement plan that could enable fair claim and ownership of the local community to their land. The plan should also enable claim to the commons/goachar land.

- It is well established that migration in Tharparkar is a regular phenomenon. Seasonal migration and internal migration for livelihoods also contributes to the local economy through remittances. However, there is no local support system to address the need for orientation and skill building for those aspiring to migrate for economic reasons. It is proposed that an orientation institute be established in Tharparkar to impart basic knowledge and understanding of migration process and destinations for the Tharis. Moreover, basic skill building of trades that the locals most commonly take up – such as driving, cooking, security, and retail etc - in the migration destination of urban areas is also important for a swift transition of the migrants in the new settlements.
- There is needed a plan to assist the infrastructure of development and promotion of local crafts. Apart from market knowledge and skills of the crafts-persons, a support structure for middlepersons enabling them with financial facilitation is also important.
- A Thar research and extension unit exclusively focused on socio-economic and cultural factors of the region is critical to guide the process of change currently taking place in the region. Studying the process of change may enable the unit to identify the challenges generated by it. Recommendations flowing from such a study may contribute effectively towards initiatives and plans for socio-economic support infrastructure to assist the local communities with transition in the broader environment.
- In order to establish an accurate assessment of the environmental damage in the region due to coal development, urban expansion, and population increase, a scientific research center is extremely important. Data generated by such a center may enable the public and private stakeholders to develop a plan to mitigate the environmental damage in the region and also guide development plans prioritizing environment consideration.

- Any commitment for development in Thar must be reflected in efforts for diversification of the local economy. Linking this with current range of local economic activities is a suggestion for development of an industrial base and supply chain in Tharparkar serving the local livestock trade. Key sectors covered by this industrialization is milk production and processing of livestock hide. Thar Foundation has the resources to lead this process.
- Similarly, linking of local agriculture with urban areas, especially Karachi with a large market base, also needs to be taken up to pursue diversification of the local economy based on local resources and expertise.
- The state has displayed an extreme level of highhandedness in dealing with any resistance against the development of the coal project. Activists resisting the project have faced severe consequences for their role in highlighting the community's concerns with regard to the project. This includes detentions and even reported cases of booking under terrorism charges. Such acts are a message from the state for an expression of intolerance towards dissent, which is unacceptable in a democracy and also negates the constitution and international treaties on human rights ratified by Pakistan. The state must revisit its approach towards dealing with citizens' expression of dissatisfaction over the way their land, assets, environment and livelihoods is treated.
- Coal development is leading to a host of social changes reflected in rising land prices, rise of capitalism and consumerism, expanding rich poor divide, marginalization of assetless, non-literate and poorly skilled communities. There are still villages in the region where not a single person is literate. The state has no answer as to how the future of the local communities that may require initiatives to absorb these changes, will be dealt with. A development model that seeks to find solution of a region's progress only in development of an overpriced and environmentally damaging coal power project is completely unfeasible. The government must develop a comprehensive programme to facilitate various social development through access to education, community infrastructure, mobility and nutrition and health to enable the local community to respond productively to these changes.
- While Thar coal may be merely employing a section local community in the coal development projects, the infrastructure supporting the coal development including transport and supply chain businesses have no representation from the local communities. There is a need for a study on means to facilitate local businesses to attach with the project needs to be carried out to enhance local participation in a project that is being touted as promoting the wellbeing and secure future of the region.

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- There is limited information and knowledge on the status of implementation of labour laws in Thar coal projects. Workers from the local community are predominantly involved in manual labour which requires payment of minimum wages, overtime provision, health and safety provisions, anti-sexual harassment laws, secure terms of employment and right to unionization, among others. There is no information on what labour laws govern the project that is built on a public-private partnership model. A few months ago, a reported case of sexual harassment of Thari women engaged in tractor driving went un-investigated and unaddressed. It is also reported that all employment is carried out through contract system that leaves the local communities vulnerable to exploitation.
Greater transparency and debate on the subject is critical to advance the wellbeing of the local population engaged in the project.

Box

Interview with Arif Hasan

As a senior development expert Arif Hasan has been working in the capacity of technical advisor and consultant for a range of development projects in Tharparkar. He has also been a vocal proponent of the community since the initiation of the Thar Coal Project and the community's resistance against it. He has been writing in the media, raising pertinent issues with regard to the Project's contradictory direction and approach vis a vis the local community.

For the purpose of this report, he provided his valuable inputs and guidance. Thematic excerpts from a detailed interview conducted with him are presented:

Broader context and Thar's transformation:

The crisis in Thar is not just of drought, but also of the (wide-scale and deep rooted) change that has transformed the fabric of the local society. From a barter-based society, it has gone on to become a consumer society.

Tharparkar was initially a barter-based society. The village sustained on local skills that ranged from *kumhar*, barbar, carpenter... The system would run on barter. Landlords had an important enabling role. They would arrange maintenance of systems, such as cleaning of the *tarais* through *begaar*.

Agriculture used to feed the villagers. There was no need for cash. As there was no cash economy, nothing would sell.

When India occupied Thar land (in a brief conflict in 1965), most upper caste Hindus from the region moved to India. The land that was in their possession was left unattended. This also encouraged peasants living on the lands held by the Rajputs to become independent. With the weakening of the hold of the feudal, there was an opportunity for upward economic mobility for those who were more aware. Their children started studying in universities, (one of them being Jamshoro). Mainly doctors were produced in this process.

Another major change was ushered in by road and infrastructure development. While education and mobility helped the locales with breaking the intellectual isolation, infrastructure development facilitated end of economic isolation.

As Mithi became the district headquarter, it led to the establishment of a base for the bureaucracy, unfolding in the form of guest houses, public activity, visits of state officials, and special allocation of budget. All these went on to have an even deeper impact on the traditional local systems. Tankers replaced camel backs for water supply and the system of maintaining village wells came to a halt. People moved in large numbers from rural areas to urban areas, as they did not want to do *begaar* (unpaid labour). Village carpenters opened workshops in towns, catering to the rising demand from the community that had started building *pakka* houses.

Moreover, handicrafts shops opened, as export to other districts became possible by improved connectivity.

People who are out of the system are the ones that moved to the urban areas of Sindh. They sent remittance and their families bought consumer items with this money.

One of the major transformations was brought about by connectivity enabled through public transport. People were now able to commute more conveniently to Hyderabad, Karachi and other parts of Sindh. As buses replaced the local *Kekra* (slow paced jeep), it became possible for Tharparkar's produce to move to other districts of Sindh. As trade and commerce increased, public transport in the form of chingchi, taxis and bikes expanded. People started selling their livestock to purchase transport assets.

In this process, the wealth of Thar disappeared. It was now converted into motorbikes and taxis.

There has been change in values, aspirations, demands of the local population

The turning of caste and barter economy turned into a cash economy. This also had negative repercussions for rural agriculture that in turn suffered a decline. While agriculture shrunk, livestock increased, leading to further capitalization of the economy.

The new trend with the elite is education, and they prefer private education. Since 1990, there has been increasing demand for facilities for girls education and girls hostel.

Those who studied outside Tharparkar went on to stay in Karachi and Hyderabad. Neither they, nor their children would return.

Coal Project:

On top of this, there is now the coal project. The question is: can the coal project provide the people of Thar an effective transition from a nascent capitalist society to a full-fledged consumer society. And how can that be done?

Future of the Community

In order to deal with Tharparkar, they (the policy-makers) need a vision. And all aspects of such a vision need to be rationally analysed. How are they going to manage the process of change in Tharparkar? Especially since one of the major impacts on this changing environment is that of the coal project.

Moreover, in the formulation of the vision, in the creation of the institutions that sees through this vision, what is the role of the Thar's public? And which actors going to draft up this role? What is going to be the process of negotiation and dialogue and who will act as an intermediary?

Moreover, is the generation of electricity going to be invested in Tharparkar? Who will invest in Thar? Who will be maintaining it and operating it? Even if they want to consolidate this remittance economy, what investment options are there for the community. Right now, all cash flow is going into house building and consumer items.



Another question is what is the economics of the water that is being brought to Tharparkar through a canal system? How will this water be distributed in Tharparkar?

The land where coal development is taking place is now facing water shortage. *Gouchar* has disappeared. RO Plants are an unsustainable option as they require continuous maintenance and hence resources. As suggested by the recent experience, nobody is willing to pay for that.

Development funding

There are two aspects to the current range of development resources being earmarked by the Sindh Government for Tharparkar: Firstly, this investment cannot be a one-time effort. It has to be made continuously over time.

Secondly, the investment is going to the Thar Development Foundation, that belongs to the Thar Coal project. When all funds are being channelled to just one organization, what will happen to the numerous Thari organizations? Even TRDP's funds are declining.

Land documentation

There is needed for land documentation and land settlement policy in Thar. A vast array of land has been declared enemy property in the region. Another set is *gouchar* land, that is protected under the law. There needs to be land categorization and land transfer to the communities. The state needs to have a strategy for taking back the land that has already been encroached upon.

SECMC's Response to NCHR's Engagement on Thar Coal issue and a set of questions directed at SECMC regarding the project.

5th Nov 2019

**Ms. Anis Haroon
Member
National Commission on Human Rights
Government of Pakistan,
State Life Building No.3
Dr. Ziauddin Ahmed Road
Karachi-Sindh**

Subject: Report on Initiatives for Affectees of Gorano and Thar Coal Block II

This is with reference to your letter No. *NCHR(Admin-3)*, dated 16th January 2019 and our response submitted to you dated 28th January 2019 on the above subject, we would like to reiterate our commitment to uphold the rights of the indigenous population and pledge to improve the human development index of our project area. We believe that the real stake-holders of the Thar Coal Project are the local Thar people and we are doing our best to ensure that the the population living within our project area should become “Project Beneficiaries” as opposed to “Project Affectees”.

Sindh Engro Coal Mining Company (SECMC) is a Joint-Venture Company of Govt of Sindh and six Private sector entities including Engro, House of Habib, Hubco, Habib Bank Ltd & two Chinese companies; CMEC and CPIH. SECMC has undertaken execution of mining operations for coal extraction in the Thar coalfield Block II, as a mean of tackling energy deficiency across Pakistan. In doing so, SECMC has carried out significant activities which include, but not limited to, acquisition of land, resettlement of communities, community development projects, mining facilities & services, and power plants.

In line with international and local policies and guidelines, SECMC as part of its Corporate Social Responsibility is under obligation to provide local community basic essential services e.g. education, health and drinking water for their sustainable development. For the purpose, it has established **Thar Foundation**, a not-for-profit entity, under Section 42 of SECP, which works in partnership with local communities to build a model of participatory development. It also liaises with Govt of Sindh, national and International organizations, NGOs, UN agencies, private sector and government authorities to mobilize resources to facilitate community development activities in its beneficiary area. Thar Foundation's community development program is aimed at achieving UN's most relevant Sustainable Development Goals (SDGs) primarily for in Block-II and eventually making the entire Islamkot Taluka the first SDG compliant Taluka of Pakistan with the support of GoS by 2024.

SECMC proudly claims a model of inclusive development which has not been very common in the history of corporate sector in Pakistan. I am pleased to share the development initiatives taken by SECMC under the umbrella of Thar Foundation. Initiatives in Gorano Area are also attached

as Annexure A, while the community development model embedded as a policy matter for the population of Thar Coal Block II is given as Annexure B.

Similarly, your query regarding the quality of water being stored at Gorano Pond, I would like to share that the water is not neither toxic nor poisonous, because it is purely groundwater drawn from third aquifer (not used by local communities). It does not contain any industrial effluents and just tastes brackish in its natural state. According to accredited laboratory tests, TDS level of waters is around 5000 ppm. Even other chemical ingredients are well below the National Environment Quality Standards (NEQS). Although the water is not suitable for drinking due to high TDS, it is not poisonous, as evident from the fact that thousands of fish and other wildlife are thriving in Gorano and it has become a great natural habitat. A report of Judicial Inquiry Committee of the Sindh High Court has also endorsed the same. Besides, SECMC is also working on a project, in collaboration with well reputed institutions to reuse this ground water for saline agriculture and saline aquaculture. The water quality report is attached as Annexure C of this letter.

I would also like to share that the matter on Gorano is subjudice and is being heard by a Division Bench of the Sindh High Court. The Honorable Court had constituted a committee to establish the factual position at the request of the local villagers. The commission comprised of Mr. Asif Haider Shah, a senior bureaucrat, Mr. Fazlullah Qureshi, Former Federal Secretary, Mr. Shamsul Haq Memon, Former Provincial Secretary and renowned water technologists Dr. Ahsan Siddiqui whose name was proposed by the petitioners. Accomplishing the task in a professional manner, the SHC Committee formally submitted its report during the court hearing held on 17th May 2017. The Committee formed by the Hyderabad Circuit Bench of the Sindh High Court had termed projects of saline water reservoirs in Thar's Gorano and DukaCho villages 'environmentally, technically and administratively sound' and declared the facts and figures filed by petitioners against the reservoirs as 'highly exaggerated'.

The Committee had also suggested that the Gorano water is suitable for different species of fish, which tolerates high level of salt concentrations. Fish farming will be good source of income for the inhabitants of the area and can also be used for bio-saline agriculture, said the Committee.

Committee also sought report from DC about population inside Gorano reservoir, which had confirmed that there was no village located within the Gorano reservoir, so no displacement of village is required. Quoting DC report the Committee said, "*The report of the Deputy Commissioner is quite explicit in terms of determining the fact that there is no Gaucher land or settled population in Gorano or Dukkarcho reservoir area. Moreover, the number of villages and resident population is also much less than the number given in the petition.*"

SECMC is a responsible company and it ensures compliance to all applicable environmental laws and rules. No harm shall be caused to social, cultural, agricultural, environmental, and drinking water facilities in the project area. In fact, the company is making utmost efforts for further improvement of the area, and if any minor loss or harm is caused in any case, it will be duly compensated and addressed in line with the Resettlement Action Plan (RAP), copy of which attached as Annexure D.

Please feel free to contact us if you need any further explanation.

With profound regards,

Abul Fazal Rizvi
CEO, SECMC

Annexure A

Initiatives in Gorano Area

Compensation Package

The Government of Sindh has recently announced a compensation package for the eligible households falling in the immediate vicinity of the Gorano area. Under the package, every household will earn an annual income of Rs.100,000 for lifetime through a mechanism to be devised by Government of Sindh. Thar Foundation will assist GoS in implementing this scheme for the project beneficiaries once GoS formalises SOPs of the compensation.

Land Compensation

Total area of acquired land for Gorano pond is 1500 acres under the Land Acquisition Act 1894. Out of which 834 acres was declared as private land. The same was acquired in compliance to Land Acquisition Act 1894 of Government of Sindh. Compensation to the legally entitled owners of 380 acres have been paid up to @Rs.229,000/= per acre through Revenue Department. Foti Khatas of 300 acres are under process, while rest of the 50 acres are under litigation on heirship disputes. Owners of 50 acres have not shown up so far to the revenue authorities to claim their compensation. A full time Land Officer has been deputed to facilitate land payments through local revenue authorities. Currently approx. 400 acres of land is under water whereas the remaining approx 1100 acres of land is in its natural state and available for locals with unrestricted access for grazing and seasonal cultivation. Local communities are enjoying full access to dry part of the pond area to graze their animals.

Gorano Bio Saline Agriculture: In Gorano area, locals have been offered to utilize stored water for Biosaline agriculture. Company has been supplying ground water and seeds to nearby farmers to grow suitable crops.

Gorano Bio Saline Fish Farming: Benefitting from maximum utilization of the stored water at Gorano pond, SECMC had initiated a fish farming program. Local fish species like Morakhi, Talapiya, Dayo, Rahoo have recorded normal growth and an accredited laboratory has declared the Gorano reservoir fish fit for human consumption. SECMC has been distributing this fish to local communities free of cost to provide valuable nutrition to local communities. Appreciating the successful model of desert fisheries, Sindh Fisheries Dept also contributed seed fish for Gorano reservoir. The model can be replicated across Thar by extracting groundwater from 3rd aquifer. This would result in a source of sustainable livelihood opportunity in the area.

Education: SECMC has established two Primary Schools in the area with capacity of 180 children in each school. Along with imparting quality education, the schools have all the necessities such as clean drinking water, hygienic toilets, boundary wall, playground, solarized class rooms and qualified & trained teachers.

Health: SECMC has established a Mother and Child Clinic in Gorano area which is serving around 1,000 patients a month. A full-time lady doctor (first ever in this area) is appointed to serve the patients. The clinic provides medicines and basic lab services free of cost. In addition to providing basic healthcare facilities, critical patients are also supported to get treatment from Hyderabad and Karachi through our referral network. Thar Foundation covers the travel and



treatment cost of eligible patients.

Drinking Water: SECMC has installed five RO Plants in the Gorano area, serving around 7000 population in local villages namely Gorano, Gunesar Ji Wandh, Katan, Ihsan Shah jo Tarr and Mutto jo Tarr. These RO plants are functional since last three years and supplying clean drinking water as per WHO standards. Additionally, we regularly monitor water quality of wells where no adverse effect has been recorded.

Fish Nutrition Program: Thar Foundation has recently launched a Fish Nutrition Program in the area whereby fish is being provided to the local households free of cost at their villages. The Gorano fish has been tested through an accredited laboratory and the lab report declared the fish fit for human consumption.

Livelihood Opportunities

Sindh Engro Coal Mining Company has provided jobs opportunities to locals of the Gorano and adjacent area. At peak time of our operations more than 100 people were employed with different projects/schemes of Thar Coal Block II projects. The number however fluctuates as per demand of labor at site. Indirect jobs are not included. Locals have been encouraged to register with the company as vendor and earn a decent livelihood through different interventions. So far, six locals have been awarded contracts of worth millions of rupees.

The Gorano Eco-Tourism Park

The company has established a family park at the lake viewpoint to attract visitors for ecotourism. Siberian birds visit this lake for roosting and breeding in winter.

Gorrano; a new habitat for migratory birds: IUCN, a globally reputed conservation organization studied arrival of a large number of migratory birds in winter season. After a survey conducted by a group of renowned experts Dr. Z. B Mirza, IUCN has declared Gorrano as a new habitat for migratory birds. The site has also emerged as a new habitat for endangered species of vulture. This indicates that Gorrano is not a toxic pond but a healthy habitat of huge conservation potential. This paves the way for making Gorrano a site for eco-tourism in coming years.

Annexure B

Initiatives in Thar Coal Block II Area

A six-prong support model that has turned the local population from project affectees in to project beneficiaries.

- i) Ownership Over Resources:** First time in the history of Pakistan, direct beneficiaries have been paid an annual compensation of Rs.100,000/- for the lifetime.
- ii) Record Land Compensation:** The land owners whose land have been acquired has received a compensation amount four times high of the local market rates. More than 95 percent payments have been paid through the local Revenue Department, while rest of the 5 percent payments are under process due to Foti Khata and other litigation issues.
- iii) Relocation of a fewer population:** This huge project of worth \$2bn is designed in a way so that the local population should be relocated in a fewer number. For the whole project life, only 500 households of two villages of Senhri Dars and Tharyo Halpoto shall be relocated. As a Phase-1, every married couple have been allotted a 1100 yards bungalow at New Senhri Dars Resettlement Village. A total of 172 families have been resettled. The New Senhri Dars Resettlement Village has been provided with all the basic amenities which any urban center can have. School, Health Clinic, two RO Plants with 20,000 gpd capacity each, solarized homes, sewerage system, solar streetlights, a Mosque and a Mandir, community centers for men and women, market, bus stops etc. The second village Thahryo Halepoto is scheduled to be resettled by 2023.
- iv) Across the Board Employment Opportunities:** Almost an individual from every household in the vicinity is employed or associated with the project directly or indirectly. Out of 4500 employees in different capacities from unskilled labour to management positions, 71 percent belongs to district of Tharparkar. Thari youth are working on a senior level management and engineering positions in our operations. No other mineral sector company in Sindh has provided such share of jobs to local people.
- v) Local Business Development:** Instead of awarding contracts to influential of urban centers, SECMC has developed and trained dozens of local vendors to get contracts of various nature. A worth of Rs. 2.5 billion contracts have been awarded to local contractors, which has not only bettered the income level of locals but has created hundreds of employment opportunities.
- vi) Making Block-2 SDGs compliant area:** Thar Foundation has a vision to make Bolck-2 compliant to SDGs targets under priority goals of GoS. At later stage, whole Islamkot taluka will be made SDGs compliant if GoS provides coal royalty to Thar Foundation. Mainstreaming of human development through global development framework is being strived with the technical support of United Nations offices in Pakistan. These goals are focused on basic areas of human development e.g. health, education, drinking water, livelihood and women empowerment. This objective is being achieved by creating an inclusive development model. Provision of necessities has been ensured across the operational area to around 25,000 population. 100 percent population do have access to quality education, basic health facilities and drinking



water supply through RO plants and in very few areas through water bowsers. Special focus has been assigned to women empowerment and supporting differently able people. We proudly claim that no other mining company in Pakistan has taken such kind of initiatives of women empowerment by providing them challenging job opportunities through affirmative actions, enabling work environment and entrepreneurship support.

Environmentally Responsible Initiatives to do Ethical Business

National: Beyond mandatory compliance, both Thar coal mining & power projects are aligned with national regulations and international protocols. Fully compliant of discharge with National Environmental Quality Standards (NEQS) and Guidelines under Environmental Protection Act/Sindh Environmental Act, independent Environment Monitoring Consultant (IEMC) has been designated at the project for monthly reporting to SEPA. Three Environmental Impact Assessment Studies on Coal Mining, Power Plant and Resettlement Villages have been submitted. Adhering to Sindh Coal Mine Rules 2016, provision of adequate safety and health facilities to mine workers have been ensured. The Comprehensive Health and Safety Plan based on Queensland Mining Systems, Dupont and ISO system.

A special initiative of Thar Million Trees project has been started under which more than 700,000 trees have been planted through an intensive care approach resulting a 60-70 percent survival rate in highly adverse climatic conditions. This model has been appreciated by UN, IUCN and GoS.

International: Beyond complying national regulations, the project is following highest international standards by adhering to International Finance Corporation (IFC) Guidelines for Monitoring Parameters, IFC-compliant technology to ensure compliance of Ambient Air Quality and Emissions. As a responsible Eco-Managers, the project is following protocols like Convention on Biological Diversity, Sustainable Solutions for Biological Diversity, Mass-plantation of indigenous (and endangered) plants, Vulture Conservation survey and No Hunting-No Trespassing-No Trapping Policy. Minamata Convention of Containment and Reduction of Mercury Emissions, Registered inventory with Ministry of Climate Change, Global Reporting Initiative Public Reporting of Performance, EHS performance KPIs reported publicly each year, Montreal Protocol Ban on Ozone Depleting Substances and Ban on CFC products have been put in place at Thar Engro Coal mining & Power sites.

Annexures

Annex. 1

Focus Group Discussion Participants (held at DDAT office, Mithi on Jan. 7, 2019)

1. Ali Akbar Rahimo, Association for Water, Applied Education & Renewable Energy (Aware)
2. Krishan Sharma, District Development Association, Tharparkar (DDAT)
3. Khatao Jani, journalist, Daily Kawish
4. Kirtar Gul, Sukaar Foundation
5. Sikiladho Rahimo, activist
6. Partab Shiwani, Marooara Coordination Council
7. Humair Soojani, Baanhn Baeli
8. Obhayo Jonejo, Marooara Coordination Council
9. Mama Vishan Thari, Tharparkar Social Organisation (TSO)
10. Sikiladho Rahimoon, social worker
11. Teerath Jhangi, DDAT
12. Nandlal, DDAT
13. Jan Khaskheli, journalist, The News

List of Stakeholders Interviewed and Incorporated

- Arif Hasan, Urban Development Expert
- I.A Rehman, Human Rights Expert
- Retd Justice Ali Nawaz Chowhan, Chairperson NCHR
- Ms Anis Haroon, Member Sindh, NCHR
- Nasir Panhwar, Environment Expert
- Omar Cheema, Alternative Energy Expert (Notes from Mr Cheema's views were incorporated in the report)
- Dr Sono Khanharani, CEO, Thardeep Microfinance Foundation

Annexure 3

Details of Thar Coal Blocks

Block I

Area: 122 SqKm
Reserves: 3.56bn tonnes
License: Sino Sindh Resources Ltd (Pak-China) SSRL

Block II

Area: 79.6Sq.Km
Reserves: 2.24bn tonnes
License: Sindh Engro Coal Mining Company (40% Sindh Government; 60% Engro)
More details: 24 million tons/year for 30 years; 2X600 MW; Strip mining and power generation potential 3900MW

Block IIIA

Area: 99.5sqkm
Investment Firm: Asia Power UK
Reserves: 2bn tonnes

Block 3A

Cougar Energy (UK) Under Ground Coal Gasification Project 400 MW
The firm is currently exploring possible financing partners. Pilot Burn planned in 36 months;
Technology planned is Ergo Exergy; 400MW planned

Block IIIB

Area: 76.8sqkm
Reserves: 1.45bn tonnes

Block IV

Area: 82sqkm
Reserves: 2.47sqkm
Investment Firm: Habrin Electric HE (China)

Block V

Area: 63.5sqkm
Reserves: 1.65sqkm
Investment Firm: UCG (write about license)
Under Ground Coal Gasification Project A Pilot Project of Government of Sindh 100MW
100 MW planned by end2011. Currently unit gasifier design prepared, technical team mobilized and desktop studies completed. Test burn planned in March 2010.

Block VI

Area: 66.1sqkm



Reserves: 1.65sqkm
License: Sindh Coal Energy Limited
600MW
Strip mining; 600MW planned. ESIA completed;

Block VII

Area: 100sqkm
Reserves: 2.17bn ton

Block VIII

Area: 100 sqkm
Reserves: 3.03bn tonnes

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