



FAST-TRACKING PAKISTAN'S GRID MODERNITY

*Exploring the politics of
infrastructure development in
asia's hinterlands*

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**KARACHI
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FAST-TRACKING PAKISTAN'S GRID MODERNITY

*Exploring the politics of infrastructure
development in asia's hinterlands*

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Keywords: *Asia, infrastructures, energy, land, politics, grid*

"The future is approaching with constraints (tangi), scarcity and desolation.... the biggest event in the past couple of years is the construction of a boundary wall for the solar park. It has affected the livestock and people to a great extent."

Channar pastoralist, District Bahawalpur, Cholistan Desert

"The grid captures and classifies phenomena into commensurate and exchangeable commodities."

Adey, 2010

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EXECUTIVE SUMMARY

In Pakistan today, infrastructure is a site of renewed political attention. A key reason is the planning and construction of numerous infrastructure projects under the USD \$62 billion China Pakistan Economic Corridor (CPEC), an appendage to China's Belt Road Initiative (BRI) and presaged as a 'game changer' due to the high expectations for national and regional economic development. The CPEC represents a powerful vision of a 'rising Pakistan' and emphasizes not only the importance of mobility, speed, and hyper-connectivity through a surge in infrastructural investments, but also the fundamental promise of progress entrenched in infrastructure's future orientation in which the narrative force of development is amplified. But as this new modality of 'connectivity' materializes on ground, frictions proliferate across certain spaces that constitute the siting of projects. The protests are infused with entrenched relations of caste, class, ethnicity, and gender, as well as aspirations and legal and political claims to modernity and regional identity. They articulate a range of on-going concerns and future predicaments; from land dispossession, livelihood displacement, ecological degradations to anxieties over securitization and surveillance, as well as anticipations for development.

The empirical foci of our research are two CPEC projects that aim to lead Pakistan in energy self-sufficiency: the Thar Engro Coal Power project is a 660MW coal fired power plant owned and operated by the public-private partnership Sindh Engro Coal Mining Company (SECMC) in District Tharparkar, Sindh, and the 1200 MW Quaid-e-Azam Solar Park – the first in Pakistan and at the time of its inception, the biggest in the world– spread across 10,000 acres in District Bahawalpur, Punjab. The solar project was financed by the Government of Punjab and built by Turkish and Chinese companies. Both projects have been constructed on a 'fast track' basis to draw investors and are situated in hinterland regions: the Thar Desert, which covers the eastern Sindh province and the southeastern portion of Punjab province, and the Cholistan Desert, which adjoins the Thar desert spreading into Punjab and India.

In this working paper, we propose that these large-scale infra-

structure projects constitute a vision of fast-tracking Pakistan's grid modernity where the 'grid' – as an infrastructural object and as a space of violence - indexes a relationship to land, ecology and a politics of (dis)connectivity with struggles for entitlements, rights and recognition. The grid assigns specific meanings to spaces – fences, lines, boundaries, parcels - to control the human/nonhuman social and physical worlds, and this instigates localized understandings of economic and social uncertainty. Through the twin analytics of land and energy, we see the grid as an object designed to facilitate flows as well as a powerful technology of statecraft or disciplinary rule that disentangles land and common-property resources from local social relations and reconfigures them as private property. Thus, the grid is a potent site for investigating a politics of power that incorporates the promise of socio-economic progress amid anxieties of social exclusion, ecological degradation and displacement.

KARACHI URBAN LAB

The Karachi Urban Lab (KUL) was set up in 2016 in a context where data production on the 'urban' in Pakistan remains top-down and largely technocratic. The KUL fills a 'gap' in data/knowledge production from the ground up and in a critically oriented way. Karachi - Pakistan's largest city - serves as a backdrop for not only generating a variety of data concerning urbanization in Pakistan, but also as a means for investigating and understanding the complex challenges of urban planning, affordable housing, infrastructural development, and climate change. The KUL's core expertise is in urban planning, architecture, anthropology, human geography, GIS, design, and media fields, and it is housed in the Department of Social Sciences & Liberal Arts (SSLA) at IBA.

Mission

The KUL's mission is to act as an interdisciplinary, collaborative platform of research, teaching, mentoring, and advocacy, and an environment that is safe for people from all backgrounds to join and thrive; KUL has mentored early career female researchers; worked with community activists and people from minority communities. KUL provides opportunities for networking across social sciences, physical sciences, and medical sciences, as well as across geographies locally and globally, holding events and generating diverse forms of data/knowledge around the urgent urban issues and associated politics of our times.

Research Scope

The KUL's research covers diverse issues: from the challenges of land displacement, urban violence, affordable housing, and public transport to the impact of global warming on cities and infrastructural challenges (water, housing, land, health). Some of KUL's methodological approaches are:

- Qualitative and quantitative.
- Historical and critical approaches for understanding the taken-for-granted power structures that shape urban planning/policy in Pakistan.



- Legal documents/case laws.
- Diverse visualization methods: GIS mapping, 3-D and thermal modelling, morphological modelling, photography, soundscapes.
- Established indicators: surface temperatures, ambient temperatures, heat index, built up density, land cover, and vegetation indices; demographic datasets; data from utilities/corporations; community-based data; informal economies.
- Experimental indicators: working with epidemiologists/medical community to understand the impact of heat on the human body.
- Partnerships with government and non-governmental organizations.

KUL's research output and advocacy are informed by a multi-disciplinary and critical approach. The KUL work and research output are supported by grants.

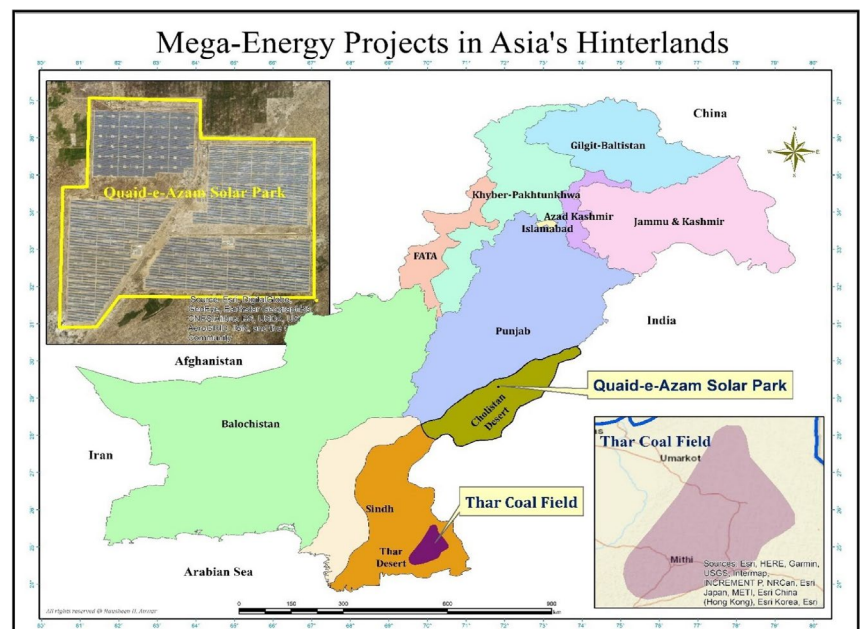
INTRODUCTION

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The empirical foci of our research are two CPEC projects that aim to lead Pakistan in energy self-sufficiency. First, the Thar Engro Coal Power project is a 660MW coal fired power plant owned and operated by the public-private partnership Sindh Engro Coal Mining Company (SECMC) in District Tharparkar, Sindh. This project has two components: open pit coal mining and electricity generation that have been developed for somewhere between USD \$994.5 million (NEPRA, 2022) and USD \$1.1 Billion (World Bank, 2022). TharCoal is the proverbial 'jewel in the crown' of

CPEC's energy projects. Second, the 1200 MW Quaid-e-Azam Solar Park – the first in Pakistan and at the time of its inception, the biggest in the world– spread across 10,000 acres in District Bahawalpur, Punjab, cost USD \$131 million to build in 2015. The solar project was financed by the Government of Punjab and built by Turkish and Chinese companies. Both projects have been constructed on a 'fast track' basis to draw investors and are situated in hinterland regions: the Thar Desert, which covers the eastern Sindh province and the southeastern portion of Punjab province, and the Cholistan Desert, which adjoins the Thar desert spreading into Punjab and India (Map 1).

Map 1



The ecosystems in these regions are under threat of climate change with rainfall patterns shifting and long spells of hot weather and droughts impacting pastoral livelihoods (Pakistan Today, 2017; Rasheed et al, 2022; Warriss et al, 2021; Memon et al, 2018). A significant number of agro-pastoral, and ethnic minority, communities inhabit these regions and land holds special meaning in their social worlds. The projects are built on public and private land that has been used for residential purposes as well as subsistence farming and livestock grazing by different communities: the Hindu scheduled castes of Meghwar, Bheel, and Kolhi as well as Muslim Chounra and Sangrasi in Thar, where pastoralists are popularly known as dhanaars; and the Muslim,

Seraiki speaking Channar and Shaikh castes in Cholistan, District Bahawalpur. The Channar pastoralists are often referred to as cheru. The single most important issue that has emerged from our research interviews was people's perceptions about the livelihood impacts from the acquisition of land for these projects. Respondents regularly articulated that their life is fundamentally 'linked to land', directly and indirectly.

Two seemingly contrasting energy sources – high-tech photovoltaic panels and coal fired energy – have become symbols of Pakistan's energy crisis. Photovoltaics are associated with clean-green or renewable energy, futuristic sustainability, ultra-modernity and international political energy consensus. Coal mining and fossil fuel-based energy conjures images of unsustainability and pollution. In Pakistan both are coping strategies for a nation negotiating the crisis of a degraded grid, energy shortfalls, rising electricity consumption, and a mounting current account deficit due to reliance on imported oil. Chinese companies are reportedly investing USD \$35 billion in various power projects (generation and transmission expansions) and it is expected these will generate 17,000 MW of power to energize the national grid. Part of these projects are also co-funded by loans from the Chinese to Pakistan governments - leading Pakistan into a debt of USD 40 billion to China, amounting to 14% of GDP as of 2021 (Springer et al, 2021; Ebrahim, 2021). The government's high hope for developing indigenous coal-based energy is captured in a statement by the Chief Minister of Sindh in 2018: "We have changed the game by excavating coal and now are going to transmit the first electron to the national grid in December 2018" (Pakistan Today, 2018). Similarly, solar energy is expected to "light up Pakistan's future" (Dawn 2015a). As cited in Akhter (2018), the government of Pakistan envisages CPEC energy investments as 'strategic propellers for hinterland development'.

The future of Pakistan and the regions where the CPEC mega-energy projects are located, is married with the development plans of private capital in a tidy moral tale that is often described as 'win-win'. Development opportunity is articulated across all dimensions of social life - from national economic metrics, to local capabilities enhancement, to global climate change mitigation. While the dominant

discourse follows a celebratory rhetoric of Pakistan's rapid transition to a self-sufficient future (Nation 2018; Business Recorder 2016; Associated Press of Pakistan 2016), there is a need for a critical analysis of the spatial and social impacts beyond financial and technological matters. The new sources – coal and solar – of energy for grid expansion are aligned to metrics of national progress: GDP growth, higher living standards, sustainable employment. But the specificity of these projects as development solutions align imprecisely with the wider ecological and socio-spatial context and effects and expectations on ground. Typically, the non-alignment between top-down, centralized, engineered solutions and social expectations manifests in local perceptions of environmental peril, social exclusion and land and livelihood displacements (Kellert and Lynch, 2002; Neef and Synger 2015; Holden et al, 2011). In Thar, activists have opposed the coal mining because they are convinced it will endanger an already fragile aquifer that many residents depend upon for subsistence. They are worried about the environmental degradation, already caused by the coal development including how it may intensify in future.

In this working paper, we propose that these large-scale infrastructure projects constitute a vision of fast-tracking Pakistan's grid modernity where the 'grid' – as an infrastructural object and as a space of violence – indexes a relationship to land, ecology and a politics of (dis)connectivity with struggles for entitlements, rights and recognition (Appel 2012; Blomley 2003; Boyer 2017, 2014; Cross 2016, 2013; Harvey et al 2016; Murray Li, 2018). The grid assigns specific meanings to spaces – fences, lines, boundaries, parcels – to control the human/nonhuman social and physical worlds, and this instigates localized understandings of economic and social uncertainty. Through the twin analytics of land and energy, we see the grid as an object designed to facilitate flows as well as a powerful technology of statecraft or disciplinary rule that disentangles land and common-property resources from local social relations and reconfigures them as private property. Thus, the grid is a potent site for a politics of power that incorporates the promise of socio-economic progress amid anxieties of social exclusion, ecological degradation and displacement.

In Thar, politics is also legal with activists being well-versed in the law to leverage possibilities for maneuver to

maximize their life-sustaining assets. While such capacities threaten the coherence of these centralized infrastructure projects, the state – army, paramilitary forces, Board of Revenue - attempts to exert control through coercion/violence, securitization measures and even state-backed corporate ‘public service’ or CSR sensibilities (as in the Thar case) that is meant to be consciously inclusive of communities impacted by the projects. These different measures of controlling the grid result in highly uneven outcomes for vulnerable communities. In Bahawalpur, a seemingly benign renewable energy project has dispossessed the life-sustaining assets of the Shaikh and Channar pastoralists. We explore these issues by filtering the empirical findings into a discussion of how in Thar and Bahawalpur, local people discuss the projects as they reflect on the past and possible futures. We focus on certain key aspects: land and livelihood displacement/dispossession, enclosure of common property resources, and environmental litigation and activism. We first delineate the fieldwork sites and methodologies involved and in the second section, proceed to a discussion of theory that buttresses the analysis. In the third section, we delve into a deeper discussion of the findings and finally offer a brief conclusion by noting that even though the grid promises national self-sufficiency and future economic prosperity, it also endeavors to empty certain spaces of their histories and contingencies. This leads to indefinite and evolving impacts, not only on livelihoods, but on culture, belonging, gender dynamics and security.

Methodology, Locations, Social Profiles

The discussion draws on 15-months (March 2017 to May 2018) fieldwork carried out in Thar, District Tharparkar, Sindh and in Cholistan, District Bahawalpur, Punjab. Our research relied on various published government documents and consultant reports as well as in-depth interviews, informal discussions, questionnaire surveys with a stratified sample of 626 respondents according to identity markers such as gender and caste; focus groups with various stakeholders and villagers involved in or affected by the projects. We also conducted media monitoring of the projects in major newspapers (English, Urdu, Punjabi and Sindhi). Participant photography was included where villagers were encouraged to take pictures and share sto-

ries about anything they felt was important in their lives along the themes of ‘fears, anxieties, future’; some of which, related to land and livestock, is presented in this paper, and is also available [here](#) on the Karachi Urban Lab website. Interviews with communities represent Hindu and Muslim castes and ethnicities and occupations in the villages in both Thar and Cholistan and were selected based on initial discussions with key informants, such as a village head, who facilitated access to communities. Furthermore, 25 expert interviews were conducted with project developers, government officers and security guards involved in the coal- and solar - power projects, as well as with journalists, lawyers and activists involved in legal action against the coal project. While the community interviews were conducted in Sindhi and Dhatki in Thar and Seraiki and Punjabi in Cholistan, the expert interviews were conducted in a mixture of English and Urdu. Most of the interviews in the communities were written and a few were audio recorded with permission of the respondents. Recordings and notes were then transcribed into English by the main authors, with care being taken to preserve meaning and connotation. All research instruments and processes were approved by the Imperial College London research ethics committee as our research was part of a collaborative project between the IBA and Imperial College and funded by the United Kingdom’s Global Challenges Research Fund.

Thar

Opportunity is an important trope for the Sindh government as it envisions a path ever upward toward growth and development in Thar. A reason that ‘opportunity’ resounds so easily in state discourses is that Thar is the best location for the extraction of coal for ‘indigenous’ energy production in Pakistan. As coal reserves become uncovered in the region, political, corporate and media elites herald that “Thar will change the fortunes of Pakistan”, ironically with very little attention paid to the fortune of Tharis themselves (Tribune, 2022). Thar happens to be one of the poorest districts in the country where economic development is often prioritized in NGO and government programs and politicians’ ambitions. From the vantage of corporate and state officials, the authority and right to promote development (in this case, fossil fuel energy projects) is, in part, an

ethical calling that will, putatively, bring prosperity to the region and more broadly, to Pakistan. For instance, in 2017, in a key public speech, the CEO of SECMC underscored: “This is also the only project under CPEC which is owned by Pakistan. The only project in which Pakistan has a majority. Pakistan’s future is tied to this project and written with the coal on which we are sitting.” When the region is referred to, neo-colonial undertones of it being ‘under-developed’ and its residents being ‘backwards’ - hence in need of this so-called development - seep through elite stakeholders’ narratives.

The size of lignite coal reserves in the Thar Desert is estimated at 175 billion tons spread across 9,000 km², with approximately 25% of Thar’s population residing within the thirteen concession blocks. The Energy Department, Government of Sindh and the Sindh Coal Authority that oversee allocation of blocks to investors, envision each block will have its own mining area, power house, and transmission line connected to the national grid. The SECMC has been allocated 100 sq. km in Block II (area Map 1) of Thar coalfields to extract 1.57 billion tons (1% of the entire reserve) to produce 5,000 MW of indigenous energy for fifty years. At the time of our research, two villages – Sehnri Dars and Thariyo Halepoto – with nearly 10,000 people were being displaced and relocated. The SECMC has acquired 6000 acres of private and public land from the villagers, a process that has been managed by the Deputy Commissioner’s office and the Sindh Land Revenue department, who are responsible for surveying, measuring, valuing, assessing proof of ownership and transfer of rights for various categories of lands: nakubli (government), kabuli (private), yaksala (leased), gaocher (common grazing fields), enemy property. Even though these different categories of land constitute a complex history of access to common property resources and ownership rights that stretch back to the pre-colonial era, the land acquisition and compensation process has taken place largely under the principles of the Sindh Land Grant Policy 1930 with the Land Acquisition Act 1894 being the main legal instrument.

According to the Pakistan 2017 Census, District Tharparkar has the largest Hindu population in the country and is the only region where Hindus make up 46% of the population compared to just 1.6% at the national level. The Thar

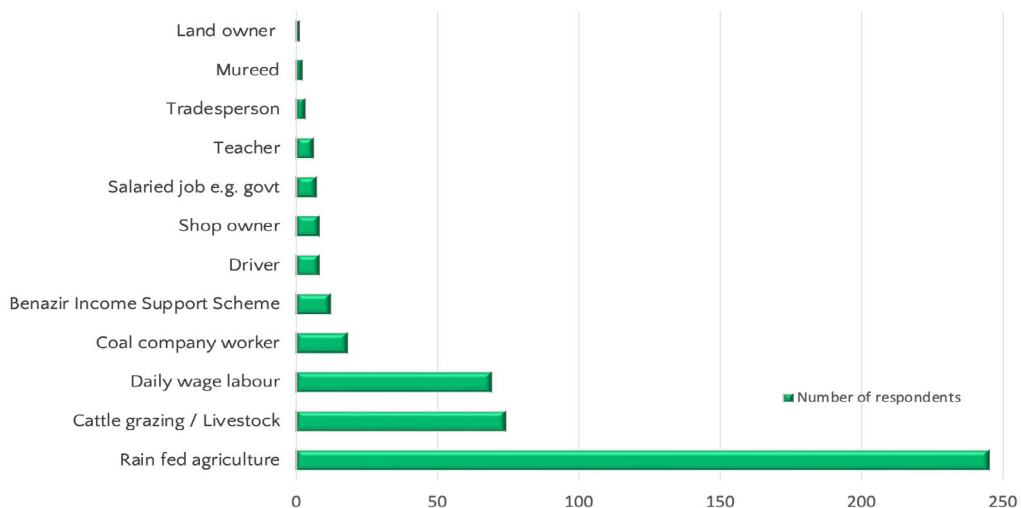
desert has been home to both Hindu and Muslim communities, with both religious groups further differentiated by tribal and caste systems (Ihsan 2001). Some Muslim tribes include the Syed, Sama, Sangrasi, Dars, Halipota, Hingora, Rajar, Bajeer, Juneja, Langha, Rahimoon, Janjhi, Hajam, and Sameja. Hindu castes include Bheel, Kolhi, Meghwar, Thakur, Lanjo, Suthar, Rajput, Chouhan, and Maharaj and more. Partition in 1947 was a watershed moment as a significant Hindu population migrated to India. However, in Thar, the border remains socially fluid as on both sides people share the same language, religion (Hindu) and culture, with deep family ties across the Rann of Kutch. Hence, the Hindu community has had a significant social, economic and political influence over the Thar region. Certain authors (Khan 2007) note that Tharparkar can be understood as an 'autonomous space' where the concentration of the Hindu population has enabled it to sustain social and political being. This is pertinent in the context of the continued marginalization of the Hindu community in Pakistan, and the ongoing religious and sectarian-based violence that has intensified insecurity.

Our fieldwork covered 8 villages within and in proximity to the Block II coalfield in the Islamkot taluka. Out of the 8 villages, four – Senhri Dars, Abanjo Tar, Bitra and Thahriyo Halipota – are inside Block II. The remaining villages - Gorano, Khario Ghulam Shah, Kharo Jani, Mahavo Bheel - are within 2km to 20 km from Block II. Kharo Jani is in Block VI where the Oracle Power PLC in partnership with the Chinese construction company SEPCO, is setting up a 1200 MW power plant. During our research, the environmental impact assessment process was underway in Kharo Jani, and this provided an opportunity to observe public meetings. In terms of population, village sizes ranged from 40 to 1500 for the smallest and largest settlement, respectively. A total 390 male and female villagers, ranging between the ages 18 and 85 (median age 40), participated in the study (205 Female; 185 Male); 65% of participants were Hindu and 35% were Muslim. Out of this, a total 43 interviews with men and women lasted about 1 hour each and a further 11 in-depth interviews lasted 3 - 4 hours each and are of substantial use.

The villages are in the most remote areas of Tharparkar and have limited access to infrastructure. The people

– mostly Hindu scheduled castes - are poor and highly vulnerable to extreme weather events. Our survey results suggest indebtedness is high due to droughts and poverty with limited borrowing options. The main sources of income (Figure 1) were rain-fed agriculture, livestock grazing/pastoralism and daily wage labor. Interestingly, jobs such as ‘coal company worker’ are on the rise. In Abanjo Tar and Kharo Jani nearly 200 men from the Meghwar, Kolhi, Kunbhar, Lanjo and Bheel castes are employed as laborers and masons in Tharcoal. Our informants told us that young men from the Bheel community have selected not to migrate to the barrage areas of Sindh during harvesting season. Instead, they have submitted job applications to TharCoal for full-time waged work.

Figure 1 Livelihood Sources in Thar



The average land holding per landowner was 28 acres, with 32% of the landowners reported to be using tenants or sharecroppers (Hindu) to cultivate the land. Nearly all pastoral communities belong to the Hindu scheduled castes. Although some members of these castes, for instance, Meghwar, have also managed to find work in nearby cities, as primary school teachers, NGO workers, and some – from the Gorrano village - are lawyers and activists involved in the litigation against the coal mining project. The Muslims (mostly Syed and Langha) are slightly lower in population but are economically better off with larger agricultural lands and livestock. The drought-prone, harsh desert living conditions have fostered a relatively peaceful coexistence

between the Hindus and Muslims, although we came across some narrative evidence of emergent conflict concerning land rights due to the coal project. In Khario Ghulam Shah where the Syed own nearly 70% of the land, the Bheel, Kolhi and Meghwar underscored that the grazing (gaocher) land had shrunk due to the Syed's extensive cultivation, and no one dared to confront them because they are a powerful community. In Khario Jani where the Muslim Langha own 90% of the land and livestock, we were told the Oracle compliance officer had informed the Langha village head about the village's inclusion in Block VI but the Hindu Kolhi had not been consulted about the impending construction. These tensions have fueled anxieties about the coal project and triggered rumors about village heads colluding with company officials to secure better compensation packages for displacement and resettlement.

However, in Thar, social relations cannot be understood in terms of Hindu versus Muslim identity. Notably, the sub-caste stratification system has played a key role in shaping relations within the Hindu community itself. For instance, the social distance between Bheel, Kolhi, Meghwar (scheduled castes) and Rajput, Sukaar, Maharaj and Thakur (high castes) is important whereby scheduled castes are considered 'untouchables' and are marginalized in terms of social, economic, political, and physical exclusion. These community dynamics have a bearing on how villagers discern the coal project: scheduled caste Hindus generally see the coal project as threatening their livelihoods, whereas upper castes consider it a positive development. Moreover, members of the upper caste community, such as the influential politician Mahesh Kumar Malani, are also aligned with the broader vision of fast-tracking the coal project. Malani is an influential PPP (Pakistan People's Party) MPA and an avid proponent of the coal project. He serves as a member of the Board of Directors of the SECMC and Engro Powergen Thar (Private) Limited. In media statements, Malani has often remarked that the coal project is a "blessing for the people of Thar" (Pakistan Observer 2017).

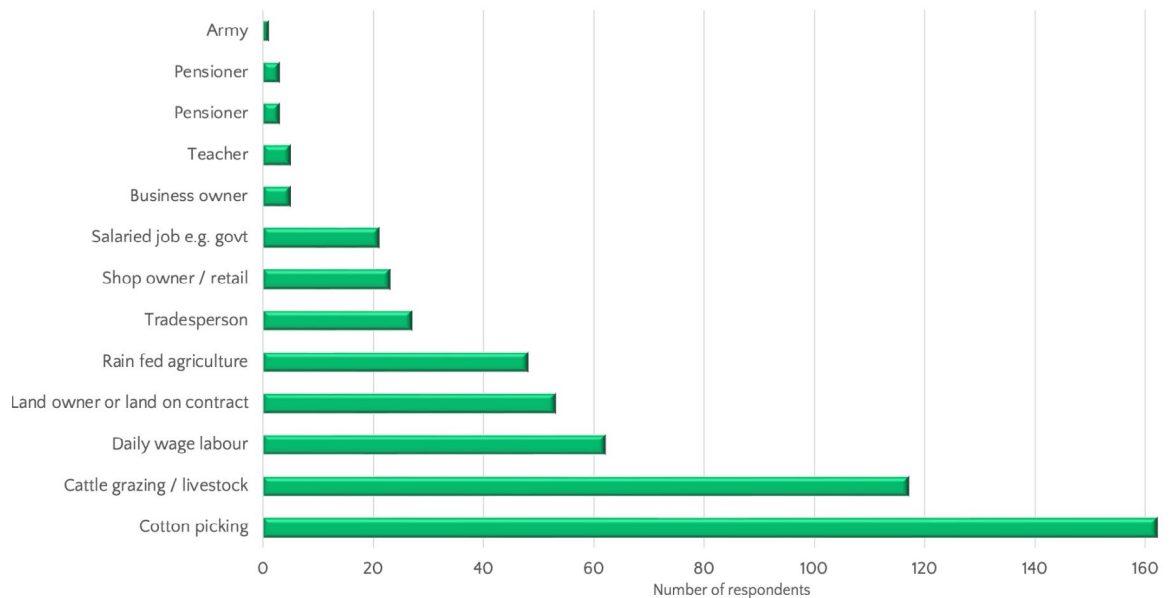
Cholistan

The 1000 MW Quaid-e-Azam Solar Park (QASP) is routinely touted as an exemplar of a CPEC renewable project that will bring prosperity to Pakistan, 'lighting up its future'

(Dawn, 2015a). The solar project lies in the Lal Suhanra Park in the Cholistan Desert, District Bahawalpur in Southern Punjab. Integral to Bahawalpur's history of a princely state under British Rule, Lal Suhanra was part of the Greater Cholistan Desert and classified as shikargah or hunting ground. In 1980, in a key plan to bolster tourism and generate revenue, the Cholistan Development Authority declared Lal Suhanra a national park. In media discourse, the park and the Cholistan Desert are often portrayed as tourism sites or as hunting grounds for exotic wildlife or as spaces for leisure sports. In the QASP Master Plan (2013), the area is designated as 'barren' or 'wilderness'. Such representations elide the history of agro-pastoral settlements that have historically lived and labored on these lands. The discourse also downplays the extensive and routine distribution of land in Cholistan to military and civil bureaucrats. This speaks to the historically entrenched role of the military in Pakistan's political-economy; a process that has enabled the state to establish de facto control over land – largely under the Land Acquisition Act 1894 – especially in rural Punjab where the relationship between landlords, tenants, sharecroppers and state administration has been violent (Akhtar 2006). Since Bahawalpur does not fall in the Punjab (rural) civil services or military quota, fewer people from the region are represented in the state bureaucracy.

Fieldwork was conducted across 140 households in 4 villages (Chak 6 BC, Chak 33 BC, Chak 30 BC, Basti Sheikhan) located approximately 1.5 km to 15 km from the QASP. The villages range in size from 220 to 280 households. Basti Sheikhan was partially demolished during the project's construction, with nearly half the villagers displaced and scattered across the Cholistan Desert. The community profile of the villages is based on Muslim castes and ethnicities. The leading ethnic communities are the Punjabi and the Seraiki with the Arian, Rajput (Punjabi) and Channar, Shaikh (Seraiki) castes dominant in numerical terms. Both the Punjabi and Seraiki ethnicities are associated with agriculture and livestock grazing, with the latter as the most common source of livelihood (Figure 2).

Figure 2 Livelihood Sources in Bahawalpur



The Rajput are an agricultural caste that was allotted extensive land during the colonial era and even after Partition in 1947, during the process of settlement or *abadkari*. However, Jatts including several sub-castes like Bajwa, Hunjra, Rath, Bhatti, are also agricultural castes. The Channar (Seraiki) caste, popularly referred to as *chehru* (pastoralist), has roots in indigenous pastoral tribes. They own land and large herds of livestock but are less reliant on formal employment and businesses compared to the Arains (Punjabi caste), who maintain a relatively higher status after the Rajputs and Jatts. The Arains have smaller landholdings and livestock with different expectations and aspirations, for instance preference for small businesses in the rapidly expanding commercial dairy industry and finding jobs in the private sector. Finally, the Seraiki-speaking Shaikh caste, also known as *kami*, are mostly landless peasants or own small land holdings, for instance in *marlas* (small plots). They often find work in the fields as agricultural tenants or laborers looking after livestock. These caste hierarchies and socio-economic differences resonate with the complex history of a region where Saraiki-speaking populations have been marginalized (Butt & Ahmed 2016; Tribune (a) 2014). Since the QASP's construction, villagers' access to grazing fields has been cordoned off with a heavily securitized boundary wall demarcating the 10,000 acres. This has impacted most the Shaikh and Channar castes who

have not only lost access to grazing land but have also been forced to sell livestock. Moreover, inside the solar park, livestock habitats such as water ponds or tobas and numerous Shaikh and Channar settlements such as Bhadwaniwala, Daakwali, Sheikhanwali Basti, Punwarwala, Patisar, were demolished and villagers scattered across far-flung areas of the Cholistan Desert. We managed to locate and interview a Channar pastoralist who was forced to relocate 100 km from his Bhadwaniwala village.

In Cholistan, 236 villagers (37% female; 63% male) ranging from 18 to 80 years old (median age 36) participated in the study. Out of these, 10 in-depth interviews mostly with men lasting 2 - 3 hours each were of substantial use. The gender imbalance in interviews was due to the patriarchal system in the villages, where matters related to land and livelihoods are dealt with by men. There is higher female representation in the Thar sample because Hindu scheduled-caste women have greater mobility, in cultural terms, and since our research was undertaken whilst the development of the coal-power project was still underway, they were more willing to talk to us. A key obstacle we encountered in the research was the unavailability of official data on land that was in pastoral use before the construction of the QASP in 2015, and how it was acquired from the Cholistan Development Authority. Moreover, it was impossible to obtain official records regarding environmental impact assessment reports and the compensation offered to the pastoralists and relocation plans. This is a good indicator of the level or lack of transparency of the decision-making process in this so-called public interest mega-project. Due to this, our discussion is based on the narrative evidence provided by the villagers and some expert interviewees in Bahawalpur.

Theorizing the Grid

The shifting infrastructural situation across Pakistan and much of Asia parallels the 'Infrastructural Turn' in the social sciences more generally, which has drawn attention to the importance of infrastructures, understood as "the vast network that makes possible the movement of goods, people, and information over time and space" (Warf 2006:258). Infrastructure's chief referents lie in the immense, durable works of material artifice: bridges, dams, ports, roads,

electrical grids, railways, to name a few. Even when infrastructures are invisible, they conjure images of material systems that are near ubiquitous in their distributed networks (Harvey & Knox 2015; Star 1999). Specific infrastructures have provided conduits for a diversity of forces affecting embodied life: colonialism and imperialism (Larkin 2008); capitalist modernity (Misa et al 2003; Murray Li, 2018); development schemes (Rankin 2009; Elyachar 2012; Anwar 2015); neoliberal policies (Graham & Marvin 2001); national security (Neuman 2006); and material for affective attachment and symbolic meanings (Kockelman 2013; Mrazek 2002; Barker 2005; Khan 2006; Larkin 2008, 2013; Dalakoglou & Harvey 2012).

Following this line of thinking, it is almost intuitive to comprehend infrastructure as a source of impasse or frictions in the process of social transformation. Indeed, infrastructural systems are potent sites for considering an emerging space of politics (Anand 2017; Von Schnitzler 2016; Elinoff 2017). Frictions threaten to stymie a world of interconnectedness and stem from different sources: contestations over land and laws or local resistance and the violence that inheres on ground in efforts to maintain control over the circulation of resources, people and profits. This idea runs contrary to images of smooth, efficiently managed circulations of commodities and people flowing as infrastructure networks across Asia, and a frictionless speedy flow of capital and labor (Cresswell 2016). Emergent infrastructure networks in Asia such as the CPEC, are hardly tabula rasa beginnings and involve and reactivate pre-existing histories, complex political-economies, and contested landscapes (Anwar 2018a). Even though the manipulation and extension of infrastructural systems continues to be a potent means to exert power via “extra-statecraft” (Easterling 2014), these have also become critical modalities for citizens to make claims to the state, for instance through legal mechanisms, and to enact new political practices via claims of rights to livelihoods, through manipulations of infrastructural space, and through the materiality of socio-technical systems themselves. How are these modalities of connection then increasingly ‘disconnected’ in material and temporal terms as the imaginary of seamless, frictionless ‘transmission’ begins to materialize on ground in Pakistan?

James Ferguson (1999) has posited that to be ‘discon-

nected' is different from being 'unconnected'. It is an active process through which subjects are pushed down or cast out of social and political systems they could once access and claim; disconnected by procedures and practices that would entitle them, for instance, to claim land rights as legitimate citizens. We take this point seriously in our theoretical-conceptual exploration of the 'grid'; seeing it as an infrastructural object and a space of violence implicated in broader dynamics of rapid social, environmental and spatial transformations. We emphasize the grid's double meaning: first, an object designed to facilitate electricity flows and an index of modernity of the nation-state (von Schnitzler 2013; Harvey et al 2016; Gupta 2015); second, a powerful technology of statecraft or disciplinary rule that provides the means to govern and manage populations (Blomley 2003; Harvey 2005; Dunlap 2014; Gordon 2002; Scott 1998). In its latter meaning, the grid can be understood as 'lines of force' (Adey 2010) that inscribe modern conceptions of legal rights and land values into indigenous systems; vital to the conversion of various forms of property rights – customary, collective, public – into exclusive private property rights (Harris 1997).

We comprehend this double meaning of the grid as co-constitutive of a space of state-formation where 'fast-tracking' infrastructure projects represents a new moment for building the Pakistani state's legitimacy. We want to be clear that what is reimagined in this moment is a future that rests on seeing infrastructural development – CPEC – not only as a matter of 'self-sufficiency' but also 'state security'. Certain authors (Hameed 2018; Rana 2016) contend that since 2016, the Pakistan Army has pushed for a formal role in the CPEC National Action Plan (Hameed 2018; Rana 2016). Hence, 32,000 security personnel have been assigned to guard 15,000 Chinese workers engaged in various CPEC projects (Gishkori 2015). We vividly recall the statement of the Commissioner, District Bahawalpur, who, in an open-ended interview about the QASP, corroborated the impetus for security: "As Chinese are working here, there is a need to protect them. CPEC projects are placed in A plus category; a special protection unit has been created and is headed by a General. A buffer wall has been created to avoid risks." In fact, under the CPEC Authority Bill, passed by Pakistan's parliament in 2020 a formal role

was indeed secured, since senior Army figures were enabled to sit on the ‘CPEC Authority’, which has oversight of the “planning, facilitating and enforcing” of projects and decisions (Khan, 2021; Government of Pakistan, 2020). However, since Prime Minister Imran Khan was ousted in 2022, the new PM, Shahbaz Sharif has indicated he intends to disband the authority (Tribune, 2022c). Nevertheless, the role of the military is clearly central to the machinations of CPEC’s programme and projects.

Figure 3
China, Pakistan and corporate flags
hoisted at the Quaid-e-Azam Solar Park
(QASP) and TharCoal sites.
Source: Authors’ own



The logic of ‘protecting the Chinese’ has also been elaborated in leading national newspapers such as Dawn: “QASP is being guarded by 700 security officials of the

Special Protection Unit headed by an SP rank officer. The SPU is giving outer and internal cover to 675 Chinese workers and a few other foreigners.” (Dawn, November 2017 b). Interestingly, we managed to interview an SPU officer stationed at the QASP and this is what he said about the security: “The QASP is a national asset for the country. But we are not here to protect this national asset. We are here to protect foreigners. We are hired as foreigners’ security and there are Chinese engineers here. This is the first SPU batch deployed to protect the Chinese. We have special pay compared to other security forces. I am happy to serve my country.” When we queried another SPU guard about the Channar pastoralists who used the grazing lands that have been subsumed by the QASP, he noted: “You mean the livestock herders who used to be here before the solar park? They aren’t allowed here anymore. Besides, someone disguised as a herder could enter this area and this could be harmful for the state asset.” The deployment of paramilitary Rangers and special security forces to ‘protect’ the QASP and Tharcoal, have entailed extensive media reports ranging from missing persons, staged encounters and extrajudicial killings, to arrests of activists or protestors. During fieldwork, our respondents in Thar told us that activists and journalists involved in anti-coal protests have found themselves on the state’s blacklist through which their activities have been systematically filtered and denied. The impact on activism has been immediate, especially on social media, where we noted that from December 2016 to December 2017, there was a noticeable decline of prominent Hindu activists’ commentaries; the fear of being labelled ‘anti-state’ or a ‘terrorist’ by intelligence agencies and paramilitary forces, and the threat of conviction in anti-terrorism courts were some reasons key informants cited. In response to the threats of state violence, activists in Thar have tried to mitigate risk by moderating the language of activism. Rather than condemn the SECMC’s coal operation outright, they have strategically shifted their focus toward supporting the project for the ‘good of the country’.

In March 2018, in an interview with one of our interlocutors - an activist involved in the Gorrano reservoir litigation in Thar- he said: “I’ve been talking to the people in the village and like me, they too are unsettled by these events [arrest of activists]. I feel as if I might be picked up tomor-

row without any warning. Thank God none of our activities are confrontational, which is why we have been left alone for so long; otherwise we would have been picked up long ago. The only reason we are here right now is because we never uttered a negative slogan or talked against the country; we just asked for our rights.” Thus, securitization, repression, and violence remain essential in the making of the CPEC. Seeing the CPEC as a matter of ‘state security’ also touches upon the military’s historical involvement in Pakistan’s political-economic landscape (Siddiqua 2007; Jalal 1990). However, there is also the lingering question of how ‘matters of state security’ are converging for the Chinese and Pakistani states: for China one of the challenges has been ‘containing’ so-called Muslim Uyghur ‘terrorists’ along the Gilgit-Baltistan and Xinjiang borders.

Grid as statecraft

In his seminal book *Seeing Like a State*, James C. Scott demonstrates in detail the power and disaster inherent with the grid that came from an obsession with geometric perfection and order. When the state sees trees, it views them ‘primarily through the fiscal lens’ of utilitarianism, making ‘nature’ synonymous with ‘natural resources’ (Scott, 1998:11-3). Forest science, geometry, and state power combined to become a force of reduction, discipline, and control that transformed diverse landscapes into agricultural plantations and forest colonies for the utilitarian management of resources for profit. The grid backed by utilitarian discourse and a ‘high-modernist ideology’ transcended political spectrums of left and right (Scott, 1998:4), acting largely as a tool to maintain an order of progress managed by the state and advanced by its political economy. For Thorstein Veblen (1996), this relationship of linear vision, the grid, and perfection of things represented by a notion of progress – as a machine process – established the foundation for modern society and the logic behind continual improvement (Dunlap 2013). The trend of control through state utilitarianism as representative of a high modernist ideology, only becomes more explicit in regions deemed ‘chaotic’, such as inner cities and the hinterlands of indigenous territories.

Peter Adey (2010:55) summarizes the usefulness and power of grid layouts: “the grid captures and classifies phenom-

ena into commensurate and exchangeable commodities. The “lines of force” it implies, inscribed European conceptions of legal rights and land values onto indigenous systems, turning over irregular outlines and shapes... “. Moreover, law and property are particularly important here. Law constructs the boundaries between legal/illegal and its social and political effects are often commensurate with violence. This was brought home to us with force during our research in Thar. In October 2017, in an extended conversation with the SECMC’s land resettlement officer, who had intimate knowledge about the land acquisition process, we were told that Tharis only have rights to the surface of the land and not to the ‘resources’ underneath. This interpretation is based on the state’s legal capacities for acquisition of land through two key legal instruments: (1) the Sindh Land Grant Policy 1930 and (2) the Land Acquisition (LA) Act of 1894, that allow government to appropriate land by paying a compensatory amount (compulsory purchase). These colonial-era acts are based on the principle of the state’s pre-eminent domain to facilitate public projects in Pakistan. Even though the 1894 Act with subsequent amendments makes provisions for fixing the compensatory amount based on ‘market value’ and on consent, the resettlement officer explained thus about matters of consent:

“Please refer to Article 5 A of Section 51 in the constitution, we don’t need any consent from anyone. This is about the country’s urgency of power production. You can also refer to article 6 A2 of the constitution. There was a 200 – point checklist that China required when it comes to land acquisition.”

Thus, law presents itself as the right of the sovereign state to discipline space (Legg 2007) and legitimate violence (Hussain 2006). However, it is also a right that activists and lawyers in Thar have invoked to assert their authority over space. Since June 2016, public interest litigation has been

1 Loyalty to State and obedience to Constitution and law. (1) Loyalty to the State is the basic duty of every citizen. (2) Obedience to the Constitution and law is the [inviolable] obligation of every citizen wherever he may be and of every other person for the time being within Pakistan.

2 High treason 1[(1) Any person who abrogates or subverts or suspends or holds in abeyance or attempts or conspires to abrogate or subvert or suspend or hold in abeyance, the Constitution by use of force or show of force or by any other unconstitutional means shall be guilty of high treason.

pending in the Sindh High Court regarding the Gorrano reservoir in village Gorrano, which was one of our field-work sites in Thar. The reservoir collects the effluent waste from the mining activities and the petitioners – a group of Hindu Meghwar and Bheel lawyers and activists – assert that Engro’s construction of the reservoir on 2700 acres of public and private land has proceeded without an Environmental Impact Assessment (EIA) or villagers’ consent and epitomizes an outright ecological disaster. Villagers often voiced suspicions about the SECMC’s ability and willingness to provide credible reports of environmental risks and ecological damage. A villager underscored: “First they privatized our land, now they’re privatizing our water too.” But the villagers’ environmental concerns are also directly related to their livelihoods and their ability- and that of future generations- to work around the waters surrounding their communities.

From the SECMC’s perspective, the ‘effluent waste’ is the natural, underground saline water that is being pumped from the water aquifers in the mine area to reach the coal bed. In a private email³ to Nausheen, the SECMC Chief Operating Office wrote:

“This water is being drained at a natural depression at Gorrano over an estimated land area of not more than 400 acres and the ecological efforts of the Company [are to turn] this reservoir into a recreation spot in Thar for the community; successful aqua-culture experiments whereby fish-farming is happening successfully; and lastly pilot projects on bio-saline agriculture with an intrinsic focus on fodder crops – all efforts which according to agricultural experts have the potential to cause ‘reverse migration’ in Thar.”

These efforts to restore and conserve the local ecology is an exemplar of a form of an “ambient” (Hall et al 2011) environmentalism where projects that are well-intentioned get caught up in the double edge of exclusions; a form of exclusion that takes place not only through the reconfiguration of property rights, but also regulation, force, and the market, all resulting from exclusions from land. In the case of ecological sustainability, Hall et al (2011) point out that exclusion is increasingly ambient and has a double edge, that is, it does not take place through force, yet it produc-

es exclusions. This double edge “creates both security and insecurity” for different members; it shapes the charged politics of land.

Land in Thar has been categorized in three ways: private housing lands, private agricultural lands, and common grazing lands or open fields called gaocher. A fourth category, yaksala land, refers to public land that is leased to villagers on an annual basis for cultivation. In the case of TharCoal – and even the QASP where all land acquired was public – the land acquisition process has drawn controversy over the privatization of different categories that villagers claim belonged to them for generations. In our conversations with the villagers in Thar – and in Bahawalpur – their relationships to the lands and especially to the grazing fields were expressed in emotive terms. The lands were associated not only with livelihood systems, dug wells or water ponds (aalis, tobas) for livestock, but also with burial sites and as sacred spaces.

Figure 4
A toba for livestock in Cholistan.
Source: Authors' own



Often these associations were performed through poetic storytelling, which can be understood as part of the struggles over identity and history that afflict Pakistan today (Ali 2016). An elderly Muslim male in Senhri Dars lamented:

“There is nothing in Mohab Dahar (a plain and fertile area of village Senhri Dars used for cultivation and gaocher). There are no remains; there is no name of Mohab...people of your (Meghwar) community used to visit that grave of a Thar saint. Mostly Hindu people used to visit that grave. Now it’s

in the mining area.... it's a no-go area."

In Bahawalpur, a male respondent in 33-BC said: "When this Solar Park was constructed, the Bhadwaniwala toba was demolished. Government forced people to leave this place. Nearly 50 households were residing there. Government relocated them somewhere in the Cholistan desert. But people got scattered." The respondents in both Thar and Bahawalpur also emphasized that many marginalized communities, such as the sharecroppers, had a strong attachment to their land and associated their identity with it, and could not think of dissociating from that which has come to them from their ancestors. Notably, for the SEC-MC land resettlement officer, a 'proper' land acquisition process could only be guaranteed through a 'systematic', orderly way of categorizing the lands to avoid ambiguity and to compensate villagers in Thar based on 'market value' of land. He explained thus:

"We numerized the land when we started ensuring people's ownership to the surveyed land. People used to refer to their lands as dokrijeezameen (grandmother's land), uttarwarizameen (the land in the North), dakhnwarizameen (the land in the South). We categorized the land and made it more systematic."

But the process of reconfiguring different categories of land into a single-tenure category, has also meant that in the ongoing transition in Thar, villagers' relationship with land is being depersonalized. While the standard compensation given to the 175 households in Block II was PKR 180,000 per acre, we were told that this amount will increase as more villages are displaced by the coal mining operation; and that Tharis should consider themselves 'lucky' for the generous compensation scheme. The SEC-MC land resettlement officer further explained:

"This kind of money is government's loss because I have done the math and the actual worth of the land is much less than what we determined. In the last 3 years, there have been 10,000 transactions, in Jeendo Dars and Senhri Dars, maximum rate was PKR 80, 000 rupees per acre. If we went according to this award, then people won't benefit. I personally facilitated the proceedings. We don't have a single litiga-

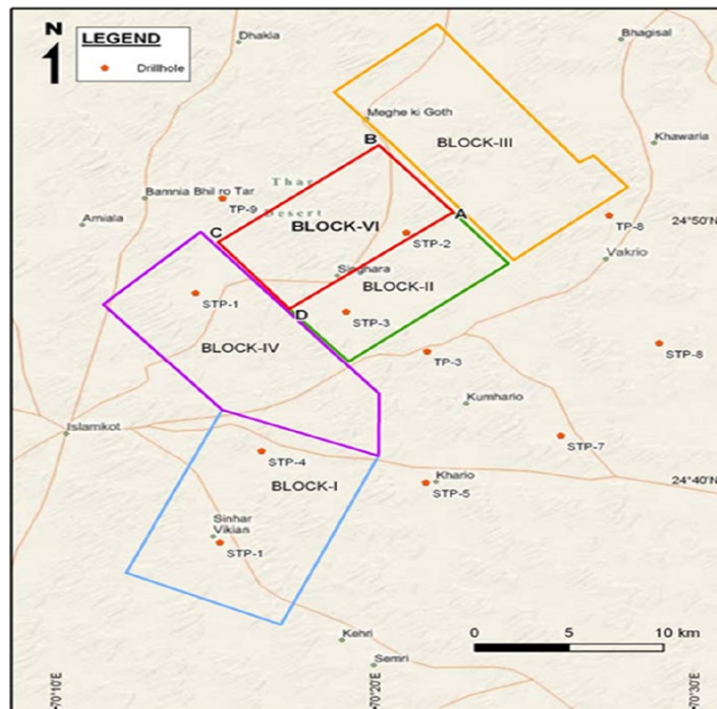
tion against land revenue department and we have acquired 20,000 acres. The base price cost is PKR 125,680 according to our calculation, and damages around PKR 30, 000; for example, if there are crops growing in the land and they are damaged, the loss of seeds. In other cases, people would have received nothing and government would have taken the land. But we facilitated the people in every way.”

The anxiety and ill-ease the villagers felt were in part related to how easily SECMC has changed categories of land that were considered fair-use, for instance for purposes of family expansion (yaksala) and now classify such practices as ‘illegal’. One of the key metrics of progress that the SECMC regularly highlights are the ‘model villages’ or the 1,130 sq yard, 3-bedroom, fully solarized homes under construction for the 172 households that will be displaced and resettled from Block II to a site near village Bitra. A young, unmarried Meghwar woman in the village Khari Jani pointed out: “Whoever they have displaced or will displace from Senhri Dars and Tharyo Halepoto will be compensated with 2 to 3 pucca rooms. How is that enough for our big families?”. Our respondents explained that they will not be able to continue reproducing family units their way. In the villages, traditional houses or chaunras are built incrementally with new rooms added after a marriage or children being born to a family. But with the model houses, their way of continuing kinship structures will become difficult if not impossible. When we talked about this with the SECMC resettlement officer, we were unequivocally told that this would not be allowed in the model villages, as such practices were akin to ‘encroachment’.

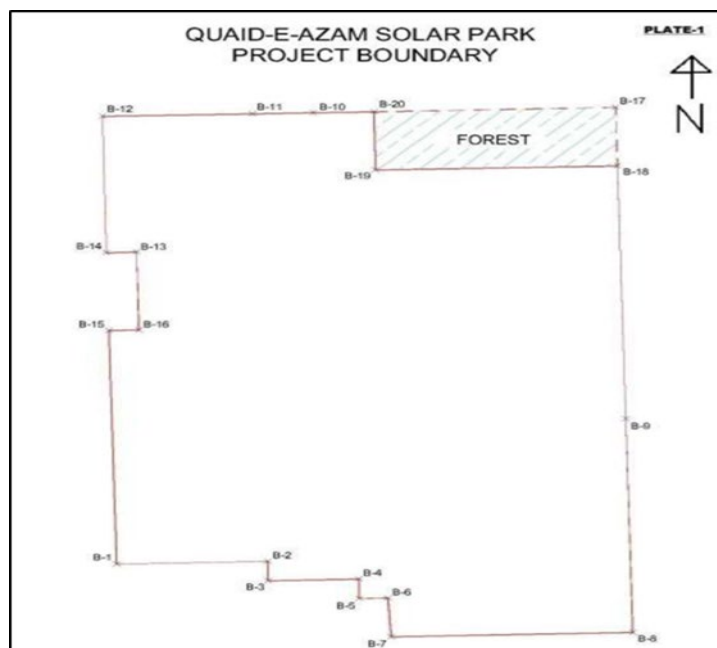
The application of the grid as a disciplinary force is made clear as a powerful form of disciplinary power that disentangles land and common property resources from local social relations and reconfigures them as private property (Blomley 2003; Harvey 2005). Once established, the land system itself becomes the most important form of disciplinary power (Harris 1993: 67): “It defined where people could and could not go as well as their rights to land use, and it backed these rights, as need be, with sovereign power . . . the land system itself became powerfully regulative. Survey lines and fences were pervasive forms of disciplinary power backed by a property owner, backed by the law, and requiring little official supervision.” The grid as a

technology of rule not only dissects space and enclaves off local territories, it also inadvertently redefines land and indexes a critical shift in which the political ecology of common property and agro-pastoral lives are overwritten by the certitude of environmental sustainability, moral clarity, individual property, and corporate gains.

Figures 2-3
Source: Various reports



Source: Mott MacDonald



In Figures 2 and 3, consultant-engineers and state planners have used spatial grids to represent the TharCoal and solar sites. The imposition of gridded lines on paper enforce a reality of order; the lines acting as a form of disciplinary power backed by a property owner: the state and the corporation. The grid has an instrumental importance to property, making possible a capitalist market in parcels of land and facilitating the creation of the boundaries that are vital to a liberal legal regime (Blomley 2003), and for facilitating a distinct zone of flow and formation of capital; a space different in value (Lefebvre 1990). Rather than seeing it as politicized, property is imagined as relations between the individual and a passive space. As Richard Sennett (1990: 48) suggests, the cadastral grid neutralizes space, emptying it of its contingencies, histories, and violence. The defense of property relations is posed as a defense of the grid or as Blomley puts it: "It's the law of the land". The effects of the grid are complex, and the objects of control are social relationships and the actions and experiences of people (Delaney 1997:6).

Living inside/outside the grid: shareholders and outlaws

"Sometimes, when an animal strays, it's a troublesome situation. Cheru goes everywhere searching for it but in this area of solar park, it's very difficult to get into the perimeter because (pehra) surveillance level is very high. The security guards have guns." (Male respondent, Chak 33-BC, Bahawalpur)

"What we need is positive-thinking; we should not call these people of Thar 'project affectee' because it has a negative connotation. They are shareholders." (Head of CSR, SECMC)

In both Thar and in Bahawalpur, respondents expressed not only the uncertainty associated with the loss of land but also a hard-won social capital, established over decades they have spent forming relationships within their villages and with their livestock. For them, displacement means the reworking of land-human-nonhuman relations and the costs associated with development: for women the increasing fear of 'outsiders' who are brought in by new roads that destabilize longstanding notions of everyday security in the

villages in Thar; for men and women the fences, boundaries and new roads that cut off access to old routes that pastoralists and livestock have relied upon in Thar and in Bahawalpur. How is the grid negotiated? Blomley (2003:132) asserts that the negotiability of the grid is determined by social locations: "As an owner of land, I not only have a clear place within the grid, but also have a vested interest in its existence. Others, however, are less easy to position within the grid." Hence, there are those who become property's 'outlaws', such as the Channar pastoralists who once had access to the grazing lands in Lal Suhanra Park, are no longer tolerated, and can thus experience the actual violence of law in an unmediated form; and those who are turned into 'shareholders' - such as the villagers in Thar - as they are given a vested interest in property, jobs and CSR campaigns.

Given these different negotiations of the grid, what will the future look like? Certain scholars (Koselleck 2004) note that infrastructural time is more than merely chronological: it is progressive in the sense that it gathers past and future into meaningful narratives and turns the present into an unfolding anticipation. As Povinelli notes, the future is also an ethical mode, by which "the ethical nature of present action is interpreted from the point of view of a reflexive future horizon" (2011: 3). While in Thar the past is understood in terms of the predictability of lack [of water, electricity, education, money, upward mobility], the future horizon is increasingly about the uncertainty of having things. The uncertainty wrought on by the changes involve hope and aspiration. The arrival of Engro's representatives, land surveyors, Chinese engineers, Rangers, and others have brought not only new roads and surveying techniques through which land is being privatized and cordoned off, but also the circulation of 'strangers'. This narrative and experience of uncertainty, runs in contrast to the language of future 'certainty' or 'security' of energy supplies to the provinces major cities, by its generation in the hinterlands of Thar. In the case of Bahawalpur, the construction of the QASP has meant outright dispossession for pastoralists with no possibility of return, as they have been coded as outsiders of the grid modernity ascribed, without their consent, to the region.

The large amounts of activity and movements of

strangers – especially men - within and around Block II and the other villages in Thar, have triggered anxieties and rumors. Noteworthy are women's perceptions that range from fear to aspirations for mobility. Women's perceptions about 'change' appear to be conditioned by rumors circulating through their husbands' or male family members' conversations about local events. But their perceptions are also being shaped by corporate representatives' visits to discuss the impending displacement. In the village Kharo Jani that lies in the coal mining area Block VI, Nazia narrated the visit of a female representative from Oracle and the talk that ensued about displacement and the future:

“She first asked us if we would agree to be displaced and we told her we are not going to leave. Then she said that even if we don't consent to displacement, we will leave of our own accord because this area won't be habitable due to the (dhoon) smoke emanating from the chimney (powerplants). We told her (Nazia's tone was defiant) we are going to keep living here, no matter what happens.”

In the villages that are peripheral to the main sites of Block II, rumors circulate about the impending loss of land, the barbed, metallic wire around gaocher land to barricade the livestock, and the gradual encroachment of the koylo (coal). The rumors coalesce with the talk of fear, especially about strangers who arrive in jeeps and Prados and take photos of the local women. As 40-year old Radha from the village Abban Jo Tar stated: “We get scared when these cars from the coal company come in the village. The children don't go outside anymore as they are scared; we women used to go out unaccompanied, but we don't do that anymore.” There is also extensive talk about the theft of livestock due to the road construction. As Sobho explained: “In the past year, five of our goats were stolen; we don't even know who took them away. On katcha (soft) road we can see footprints. But footprints disappear the moment the robber gets on pucca (solid) road. How can we catch him?” The mobility of strangers by automobiles and roads has triggered anxieties but roads also generate a sense of connectivity, for instance to hospitals. As a young woman from the village Abban Jo Tar remarked: “In times of illness, the road is really beneficial. We used to walk to the main road,

now we don't have to." In the village Mahavo Bheel, 56-year-old TB who owns 5 sheep, 5 goats and a camel and relies on rain-fed agriculture and livestock grazing, literally shouted during a conversation:

"TharCoal highway crosses just half km away from our village. It has cut off our routes from the southern side and now our livestock can't go there in monsoon season. Our gaocher land has shrunk due to this development. Before this we along with our animals were free to roam in our gaocher land. In Vaskaro season, this is the only grazing land used for our livestock. Do you remember the Gurho Tarai? How beautiful it was. Mother, sister fuckers.....they have made holes everywhere in the pond and its surroundings. They have destroyed the natural pond and gaocher land. In this tarai, pastoralists from more than ten villages used to come for animal grazing in the monsoon season. When this tarai was filled with water, we didn't have to fetch water for animals for more than 4 months. But now our animals can't cross the highway due to the high-speed vehicles. Sometimes animals have been killed."

In a similar vein, the respondents in the villages in District Bahawalpur expressed their concerns about being permanently shut out by boundary walls and security guards stationed at the QASP:

"If our animals stray into the QASP area, they [security] impose a fine of PKR 8000 per buffalo. The ground in that area has become soft due to the water used to wash the solar plates. Our cattle were crossing near QASP, and due to soft soil, they got stuck in the ground. 18 of my cattle have died due to this." (Female, Chak 33 BC)

"This displacement is equally painful for cattle."
(Male, Chak 30 BC)

"They removed our aali. Our cattle grazed there freely but now we have to purchase grass and wandda."
(Female, 33-BC)

"We had aali in Cholistan; it has been demolished and now we have brought our cattle back home. We have also sold

some cattle because we don't have enough space to accommodate it". (Female, Chak 33 BC)

"Our cattle used to sit near the Badawi's toba (Badwani wala kunwa'n). The pond has been removed. It was located near the Park's entrance where they constructed a boundary wall. I spent years in that place with my livestock. There were so many other communities like Buhar, Paryar...who were living there. They removed the toba and displaced all the people. There were different settlements like Sheikh wali, Daak wali, Paatisar..." (Male, 62 years, Chak 33 BC)

However, whatever the future holds, it can be argued that the QASP project is an example of the dispossession of people from their livelihoods in the name of progressive development. Prior to the solar park, villagers – especially the Seraiki speaking Channar and Shaikh pastoralist castes – relied on the grazing fields but privatization of 'waste land' in favor of the solar park, the undermining of the lives whose labor contributed to the re-making of those spaces as 'valuable spaces' – what Gidwani (2013) terms 'wasteful lives' – are constitutive features of a process through which the state's coercive power is deployed to condition dispossession, and to amplify existing inequalities in such agrarian-pastoral, caste-based social structures.

In the unsettling of the past, of old ways and the reinvention of modes of connection through which villagers are constructing and inhabiting the emergent landscape, there are new potentialities, aspirations and challenges. In this unpredictable horizon of the grid's energies emerges the avatar of the 'modern Thari woman', notably the female dump truck driver who has become the veritable poster child for the SECMC's story of empowering women and turning them into shareholders. Her image plastered across print and electronic media and on Engro's website, the female dump truck driver is the penultimate anterior subject whose livelihood and aspirations for a materially secure future are pinned to Thar's coal fields and the 'win-win' narrative of leveraging opportunities. These 'pioneer women' have become celebrities due to the extensive local and international electronic and print media coverage. They belong mostly to the Bheel community from the Block II and adjoining villages; Muslim women practice purdah and

are less likely to take up these kinds of jobs. In a training session held in late 2017 at Engro's Kushal Thar program near Islamkot, women like Gulabaan, Lata and Hanifan expressed their enthusiasm: "If men can drive, then why can't we do the same!" "We can also do this job. We are happy and Engro has given us an opportunity for development!"⁴ Gulabaan is the most experienced dump truck driver in the pioneer group, and she has been facilitating Engro by visiting different villages and mobilizing women for the training program.

In April 2017, our researcher Nirmal Riaz visited the village Mahavo Bheel that consists of about 120 households of the Bheel community. It was a particularly windy afternoon and a hot wind or *lukh* was blowing across the desert. When the hot wind arrives, a haze spreads across the horizon and the sun and sand dunes appear hazy with decreasing visibility. On that day, she met 50-year old Seeta, the wife of a school teacher. She was dressed in a blue *ghagra choli* with black *kohl* in her eyes and arms full of white *chooras*, which symbolize the status of a married woman. Seeta also wore a *mangalsutra* and a huge gold nose-pin. As Seeta discussed the dump truck recruitment drive in her village, she threw back her head, laughed loudly and remarked: "When the time for women comes, then we will have money, then we will be able to beat up these sister-fuckers [glancing at the only man in the room]. Just you see, the age of women will come one day."⁵

While the TharCoal project is a performance of temporal disruption, this moment has become crucial in establishing the progress narrative in Thar. From compensation schemes, CSR campaigns to dump truck recruitment drivers, these practices enact the future in ways that include the indigenous Tharis – although inclusion here is hardly straightforward – it is, nevertheless a form of inclusion preferable to land dispossession that is understood as a precursor to an undesirable future for pastoralists in Bahawalpur.

Conclusion

This paper has charted the course of grid modernity being implemented in two of Pakistan's urban hinterlands - through coal energy generation in Thar, Sindh, and through

4 Interviews 12 October 2017.

5 Interviews, 4 April 2017.

solar energy generation in Cholistan, Punjab. As we learned from Ferguson (1996), Blomley (2003), Adey (2010) and others, the grid is a form of statecraft (or extra-statecraft for Adey) which codes, categorises and governs populations in oft-violent ways for those with the least agency in the process and outcomes. In the case of Pakistan, the grid - through mega energy projects in the hinterlands - is being implemented as a tool of visions of progress that are generated outside.

These visions are not consulted on by local, indigenous populations. They are imposed, often without due acknowledgement of the societies, cultures, networks, mobilities and economies that have existed and evolved over decades, sometimes even centuries. The grid neutralises those histories, coding the space and its commons as 'wasteful' (Gidwani, 2013) making it 'fair game' for governments and corporate developers to discipline it, code who are the insiders and outsiders - bolstered by formal legal systems and processes that were developed during colonial times, where extraction, appropriation and dispossession were the *modus operandi*. Visions of modernity simultaneously disrupt gendered norms by creating 'pioneer women' while also encouraging the unwelcomed and threatening presence of outsider males who invade women's safe spaces, leading to men in their lives practising more extreme forms of patriarchal control over their mobilities. In this research, the majority of local people - especially those whose livelihoods and identities depend on customary land tenure and local resources - did not consent to this vision of modernity and development. The experience of the grid was violent - local, indigenous peoples engage with the law to contest such forms of 'development' but face overwhelming challenges when these mega-projects, and the visions of modernity in which they are couched, are primary mechanisms of statecraft and state security.

Questions arise over how to read and study the 'grid' - one way being as a state space, and in its enactment a metonym for state formation. In global and national contexts where visions of progress are particularly coalescing around issues of energy security, development and climate change mitigation and adaptation - these transforming grid landscapes are only accelerating. This is underpinned by the significant capital they are attracting from internation-

al investors, with the blessing and salesmanship of the state. Can we read these as 'landscapes of speed' - as a socio-economic and temporal prelude to increasing trends of hinterland population coding, displacement, relocation and/or dispossession? When the lived experience of majorities of such populations are worsened - structurally and materially - by these grids and landscapes of speed, should we turn our attention to the violence of progress? How should we study this structural and infrastructural violence? How do we balance the need for rapid transformation to the changing climate, with the need to foster space and agency in the most at-risk populations - to ensure they are not 'neutralised' and further marginalised by the disciplining of space for the purpose of progress on climate change and development goals? This raises many questions about the practical realities of - often 'global north' or 'multi-lateral' generated - notions of bottom up resilience and adaptation. An important endeavour for researchers is to create space for dialogue and reflection about how these fit with the realities of what indigenous peoples envision, need and have to contend with in a state like Pakistan which is under immense pressure internationally to 'develop' and become climate resilient.

Additionally, the grid becomes an interesting site to observe how intense historical consciousness in local people, relating to land ownership and livestock are catalysed. Is the grid an increasing trigger for land based social movements? Is the fast-tracking of grid modernity going to catalyse more social movements? Different kinds of social movements? One pertinent question is: to what extent will legal struggles over land, but also in the context of the emergent litigation issues like climate mitigation and environmental degradation (in cases like TharCoal), proliferate as states like Pakistan grapple with international and national expectations and pressures around progress against climate, development and security visions? For researchers in the continent of Asia, where there has been immense rapid investment through ventures like the BRI, it will be important to interrogate who becomes connected and disconnected through the implementation of grid modernity, and how. And what forms of recourse and agency those who become disconnected have in the context of rapid change. Whether connected or disconnected,

in the cases of TharCoal and QASP, there were longer term consequences of the grid imposition for livelihood security and gender equality. Again, like so many cases, local Thari and Cholistani women were not engaged in developing the vision of progress on gender equality - they were expected to buy in to, or accept an external notion imposed not just from outside, but also by men and corporations. Considering the work of feminist actors and activists in Pakistan - this is the very antithesis of progress on gender equality and justice.

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