# Spatial justice and the land politics of renewables: dispossessing vulnerable communities through solar energy mega-projects

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**Spatial justice and the land politics of renewables: dispossessing vulnerable communities through solar energy mega-projects**

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**Abstract**

This paper considers aspects of spatial justice in the processes of land acquisition for large-scale solar energy projects in the developmentalist context of India. It explores the case of one of the world's largest solar park projects in Charanka, Gujarat. While the official rhetoric suggests an inclusive project for globally benign renewable energy production, the research reveals a more controversial land and power politics of renewable energy. It is argued, in particular, that the project increases the precariousness of vulnerable communities, who are exposed to the loss of livelihoods due to the enclosure of common land and extra-legal mechanisms through which land acquisitions for the project have reportedly taken place. This case exemplifies how solar mega-projects may manifest a regime of accumulation whereby low-carbon coalitions of interests can maximize their gains by dispossessing vulnerable social groups of their life-sustaining assets.

**Key words:** India, Charanka solar park; enclosure of commons; land acquisition; mega-solar-projects; energy transition; energy justice

## Introduction

Social justice concerns may be overlooked in the drive for renewable energy in the developing world. Renewable sources of energy, such as solar energy, are generally perceived to be a clean, environment-friendly technology. In India, solar energy is planned to be deployed on a large scale, often through installations in 'waste' lands, where it is considered immune from the production of environmental and social hazards. Despite their oft-massive scale, solar projects are even exempt from environmental or social impact assessment requirements in India. Justice concerns in land acquisitions for large development projects have been raised before in India - for example, with regard to large dam projects and special economic zones (Levien, 2013; Nilsen, 2010; Sampat, 2008). However, with the advent of mega-solar-projects, it is essential that justice issues are re-examined in this new arena that will increasingly affect the livelihood of thousands of people, especially in such a densely populated and socio-economically unequal country.

India's national solar policy, released in 2010 as the Jawaharlal Nehru National Solar Mission (JNNSM), set the ambitious target for the country of generating 20 GW of grid-connected solar photo-voltaic (PV) and 2 GW of off-grid solar PV energy by 2022 (MNRE, 2010; Yenneti, 2013). In 2014, the Government raised the JNNSM's target five times to 100 GW by 2022. Prior to the 2015 Paris climate summit, the Government also pledged to develop the country's renewable energy programme as the world's largest programme within five to seven years (Ghosh et al., 2015; NITI, 2015).

While the dominant academic literature on renewable energy in India tends to follow the celebratory rhetoric of the solar promise to address the country's needs with clean, affordable and reliable energy (Bambawale and Sovacool, 2011; Bhattacharyya, 2010), there is an acute need for a critical analysis of the potential social and spatial impacts beyond merely technological and financial aspects. In this contribution, we aim at a better understanding of the relationship between renewable energy development and its spatial context by interrogating in detail the land acquisition processes of the Charanka solar park in Gujarat.

Aiming to lead India in clean energy development, in 2009 India's western state of Gujarat adopted the Gujarat Solar Power Policy (GSPP 2009), the first of such state level policies in the country. The GSPP in fact pre-empted the national solar policy, JNNSM. By the end of 2013, Gujarat had already contributed more than 40% (850MW) of the total 2GW of grid-connected solar energy installed in India at that point (anonymised for review). Along with introducing feed-in-tariffs (FiT) for solar power projects, it had done this by enabling a series of large-scale solar parks built as public-private partnerships, whereby the state acquires and designates land and expedites planning procedures for solar developers to develop sections within the parks.

The first of Gujarat's solar parks was built in the remote village of Charanka, close to the saline desert of the Rann of Kutch and the border with Pakistan. The largest solar park in Asia at the

time it went on-grid in April 2012, the 216 MW solar park covered more than 2000 hectares of land and cost US$280 million to build (anonymised for review). It is widely acclaimed as a success story and was given awards by institutions such as the Confederation of Indian Industry (CII) and Wartsila India Ltd., for being the country's most innovative and environment-friendly project (Ganguly, 2012; GPCL, 2013).

However, as we are going to demonstrate in this article, this large-scale solar development has laid bare the negative social implications of such mega-projects. Most importantly, it has deprived local vulnerable communities of access to the land that they for years relied on for their livelihood. The project was built largely on government land, which was previously used for grazing by the Rabari pastoral community during their four-month-in-a-year stay in the Charanka Village, as well as on land previously cultivated by subsistence farmers. These communities, already disadvantaged both by their social and political status and by climate change impacts in arid areas, have effectively become the victims of low-carbon transitions, suffering the loss of their livelihoods and curtailment of practices key to their survival.

We use the conceptual lens of spatial justice to explore the place-based operations of power in the assemblage of this solar energy project. We particularly operationalize ideas around 'accumulation by dispossession' to critically interrogate struggles over land entitlement and place transformation. We organize our discussions as follows. In the next section, we provide a review of the notion of spatial justice to orient our theoretical position. This is then followed by a discussion of the geographical context of our case study, Charanka village, which epitomizes the maltreatment of the vulnerable under the aegis of low carbon energy transitions. The paper then discusses the empirical results of our research with regard to the following key aspects: the dispossession of people from livelihoods through the enclosure of government 'waste land'; the extra-legal land transactions; and the influences of legal and institutional powers. The conclusions summarize the contribution of this research and discuss its implications in the light of India's new Land Acquisition Act that came into force in 2014.

## Spatial justice and renewable energy projects

The concept of spatial justice provides a useful framework for understanding the experiences analysed in our case. The conceptualisations of the relationships between geographical distributions of resources and social justice implications have been influenced by the works of, among others, Davies (1968), Lefebvre (1991), Harvey (1973, 1992, 1996), Pirie (1983), Smith (1994), Bullard (1990, 1993) and Johnston et al. (1994). Harvey's (1973) theorizations on this topic – including territorial social justice – owe much to John Rawls' (1971) normative formulation of social justice. Harvey recasts the subject with respect to spatialities rather than to individuals, but reaffirms Rawls' principle that unequal distributions can only be tolerated if they generally work to the advantage of the least favoured, thus precluding the utilitarian acceptance of the possibility of oppressing minorities to the majority's benefit. Soja's (2000, 2009, 2010)

expositions on spatial justice embrace more explicitly both distributive and processual aspects. According to Soja (2009), spatial justice refers to:

> an intentional and focused emphasis on the spatial or geographical aspects of justice and injustice [and] involves the fair and equitable distribution in space of socially valued resources and the opportunities to use them… [It] can be seen as both outcome and process, as geographies or distributional patterns that are in themselves just/unjust and as the processes that produce these outcomes.

Critical scholars' concerns over both processes and outcomes, procedural and distributional aspects of justice and the spatial character of injustices as often manifested under capitalist *modus operandi* are captured vividly in Harvey's (2004) concept of 'accumulation by dispossession' (ABD). It encapsulates the coercive processes of asset accumulation – such as of land and property – in the hands of the powerful at the expense of the less favoured. Harvey (2005) provides a set of examples of how access to land can be implicated in ABD:

> commodification and privatization of land and the forceful expulsion of peasant populations…; conversion of various forms of property rights (common, collective, state, etc.) into exclusive private property rights…; suppression of rights to the commons…; colonial, neo-colonial, and imperial processes of accumulation of assets (including natural resources); monetization of exchange and taxation, particularly of land...

The spread of coercive practices of enclosure of, or restrictions of rights to, key life-sustaining assets has been explored in many different contexts globally, such as in studies of conservation (Whitehead, 2010), large dam construction (Nilsen, 2010), mining (Bury, 2005; Holden et al., 2011), and land commodification in the interests of industrial and urban growth (Grajales, 2013; Oliveira, 2013; Wolford et al., 2013). The adoption of an 'industrialise or perish' philosophy in India (Baviskar, 1995,p.22) and resultant political struggles generated by this 'rush for industrialisation' has prompted scholars to apply the concept of ABD to contemporary forms of enclosure and dispossession in India, including by interrogating the role of the state (Banerjee-Guha, 2009; Kothari, 1996; Vasudevan, 2008). The work of Gidwani (2002, 2013) and Levien (2011, 2013) illustrates how land commodification and land grab ultimately impacts land-based livelihoods and amplifies inequalities. Levien (2013), through his study of Special Economic Zones in India, emphasises the role of the state as a coercive power in carrying out land dispossession. He argues that in India it is the regional (subnational) state that is primarily responsible for the forcible transfer of productive agrarian land to land zoned for economic development – he calls this the 'land broker state'. Further, drawing on Locke's (1988 [1681]) moral-political theory, Gidwani and Reddy (2011) explore the appropriation of 'wastelands' – labelled by the state as unoccupied or unused, uncultivated or unproductive, idle land – for state-led development, and argue that the labour that individuals had exerted to cultivate and improve such 'wasteland' should be recognised in defining communities' entitlement.

This theoretically significant work can inform the analysis of energy-related developments too (McCarthy and Cramb, 2009; Thondhlana, 2015). Indeed, the constructs and principles of spatial justice have recently been widely applied with respect to energy policy, governance and practices in both theory-driven and policy-oriented discourses (Golubchikov and Deda, 2012; Hall et al., 2013; Sovacool and Dworkin, 2014; Walker and Day, 2012). Associated work in the Global South has addressed, for example, conventional energy (Grovogui and Leonard, 2007 ; Murrey, 2015) and biofuel projects (Baka, 2013, 2014; Exner et al., 2015). The work of McCarthy (2000, 2007) and Baka (2013, 2014, 2016) are particularly significant for the discussion of energy-related land dispossessions. For example, in examining the trajectories of land acquisition and enclosure associated with bio-energy production in Indonesia, McCarthy et al. (2012) argue that state-supported initiatives and subsidies for biofuel-related investments produce 'new patterns of ownership and control over nature… working to reconfigure or to entrench political power, and providing new opportunities for particular actors while marginalizing others' (p.523). In a similar vein, in investigating land acquisition for biofuel implementation in South India, Baka highlights how the networks of power (state, private sector and middlemen) are responsible for the appropriation of 'wastelands' on which farmers had traditionally been living, dispossessing them of livelihood resources. Baka (2016) calls such practices 'energy dispossessions' (p.1).

Drawing on these insights, in what follows we operationalize the conceptual framework of accumulation by dispossession in exploring the practices of land acquisition for a large-scale solar development in India. We particularly focus on the enclosure of commons and restriction of access to land, and the utilization of variegated instruments of power (by state and non-state actors) for the purpose of achieving strategic land acquisitions, leading to displacement, increased precariousness, and perceptions of injustices among indigenous communities. We will argue that the momentum of the current discourse hailing development and modernisation through large-scale renewable developments needs to be moderated and not given precedence over the concerns of social justice.

**The case study: Charanka Village**

The empirical focus of our research is the Charanka solar park built under the GSPP (Figure 1). Charanka solar park's construction started in 2010 after the release of the GSPP in 2009. In April 2012, the first phase of the solar park was connected to the grid, with an installed capacity of 216MW.

Charanka village, with an approximate population of 1,300-1,500 (estimates vary depending on criteria for the inclusion of nomad population), lies in the district of Patan and sub-district (*taluka*) of Santalpur (Figure 2). The village is close to the border with Pakistan, at a distance of 230 km from the Gujarat state capital Gandhinagar. For the implementation of the solar park, more than 2,000 ha of land in the environs of Charanka Village, previously used as grazing and agricultural land, was acquired by the state government both directly and via middlemen.

**Figure 1: a view of Charanka Solar Park, Gujarat** (source: first author)

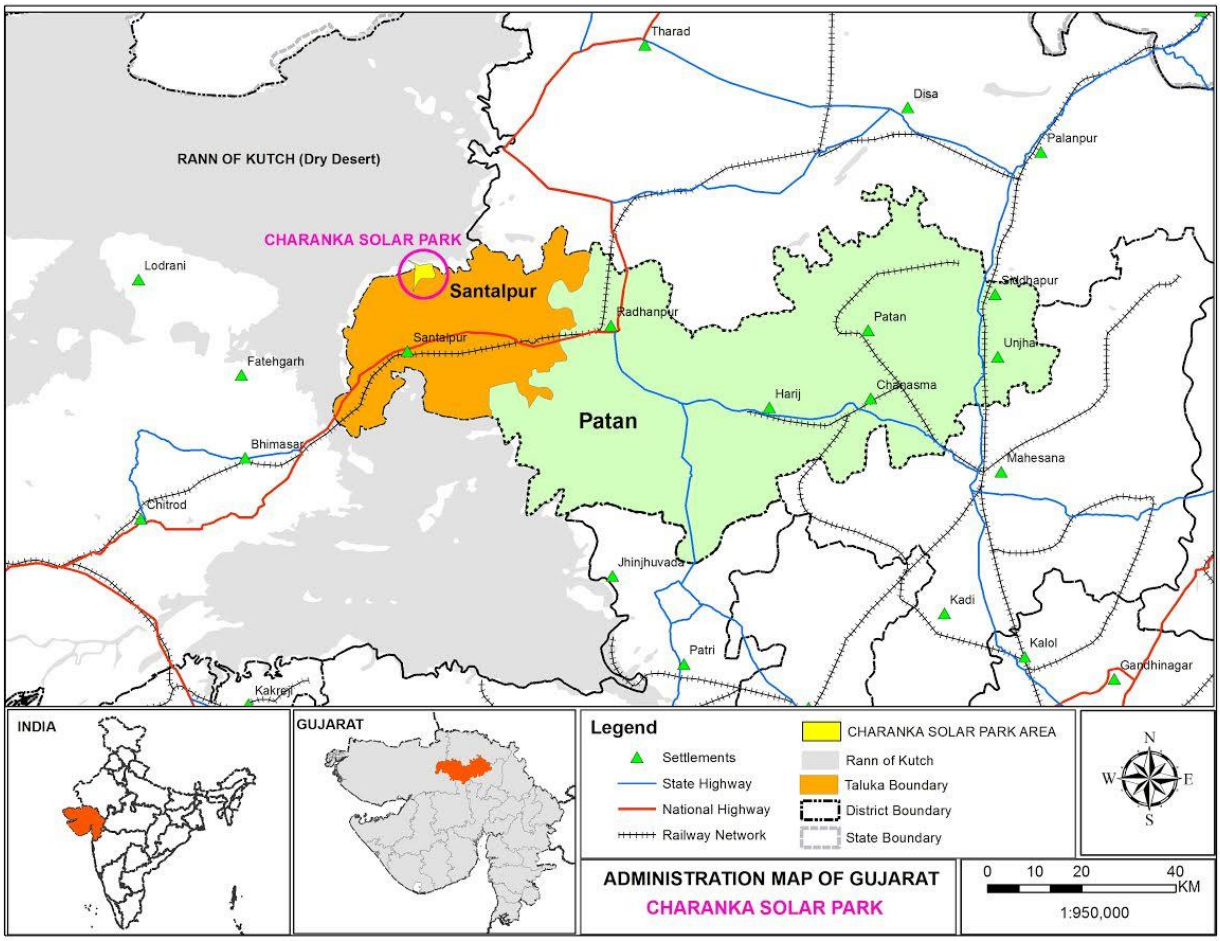

**Figure 2: Location of Charanka Solar Park, Gujarat** (source: first author)

The community profile of Charanka is largely based on the Hindu caste stratification system. Each of the seven sub-castes of Charanka falls into one of the five major castes of India (Table 1). One family, that of a temple priest, belongs to the *Brahmin* caste. *Rabaris* are a nomadic pastoral community belonging to *Kshatriya* caste and are dominant in Charanka in numbers. For about eight months in a year, during the dry season, most of the Rabaris of Charanka migrate to other parts of Gujarat in search of greener pastures and food for their livestock, crossing over 200 km (Figure 3). *Gadhvis*, also a part of *Kshatriya* caste, are the most powerful caste of the village in terms of position, land ownership, and education; while some are farmers, others of its community members work in nearby cities and are also members of political parties. *Thakore* and *Koli* communities, also part of the *Kshatriya* caste, are mostly farmers and agricultural labourers. *Ahirs* are largely a cow-herding community. *Harijans* (untouchables) are also agricultural labourers. Untouchability was constitutionally outlawed after Independence and Harijan communities reclassified as Dalits or Scheduled Caste members, but the category is still used in practice in villages in many parts of India, including Charanka. The minority Muslim population of Charanka are engaged in farming as well as service occupations such as driving and holding small shops. Rabaris occupy a better position socially than some other caste communities such as Harijans, but their life is more precarious given their lack of land ownership, high dependence on pastoral lands and low literacy (anonymised for review).

**Table 1: Household composition in Charanka** *(Source: compiled from the data of the Anganwadi office, Charanka)*

| **Major Caste** | **Village caste** | **Household details** | | | **Number of people** | |
|---|---|---|---|---|---|---|
| | | Total number | Above Poverty Line | Below Poverty Line* | Male | Female |
| Brahmin | Sadhu | 1 | 1 | Nil | 3 | 1 |
| Kshatriya | Gadhvi | 25 | 21 | 4 | 58 | 44 |
| | Rabari | 103 | 52 | 50 | 281 | 272 |
| | Ahir | 11 | 5 | 6 | 44 | 28 |
| | Darbar or Thakore | 18 | 2 | 16 | 66 | 55 |
| | Koli | 53 | 17 | 36 | 167 | 136 |
| Harijan** | Harijan | 9 | 4 | 5 | 37 | 22 |
| NA | Muslims | 11 | 2 | 9 | 46 | 32 |
| | Total | 231 | 104 | 126 | 702 | 590 |

* At the time of research, below poverty line defined by the Planning Commission was applicable to people with income less than US$1.25 per day per head of purchasing power parity. This has been raised to US$1.90 in 2014 (GoI, 2009, 2014).

** as termed by the local Anganwadi office

**Figure 3: A Rabari family during their migratory movement period** (source: first author)

Our research in Charanka relied on in-depth interviews with various actors and stakeholders involved in or affected by the process of land acquisition for the solar park project. Community interviewees representing all castes and occupations in the village were selected based on the household census information (Table 1). Initial discussion with a 'village elite' helped to locate key members of different castes who facilitated access to other interviewees of their respective castes. A total of 40 interviews with villagers were conducted between October 2011 and January 2012. Out of these, 30 interviews, mostly with men and each lasting 1-1.5 hours, were of substantial use; the other 10 interviews were either too short or too heavily influenced by surrounding people. Watts and Ebbutt (1987) describe that this is quite common in interviewing methods, especially when working in rural areas. Over this fieldwork period, the first author was resident in the village much of the time, taking part in community life and practices; this was essential in building trust and gaining the confidences of the community. Accepting food and water from households of all castes, dressing in a traditional manner and paying attention to language and gestures also helped to ameliorate the perceived distance between her and the villagers. The gender imbalance in interviews was due to the patriarchal system in the village, where matters related to land and livelihood are dealt with by men. Further, 20 expert interviews were conducted with project developers and government officers, including with 14 out of the total 19 project developers involved in the solar park, as well as six interviews with representatives of government departments involved in the land acquisition and solar park implementation. Whilst the community interviews were conducted in Gujarati, the expert interviews were mainly conducted in English as a shared professional language, other than those with district level officials which were conducted in Hindi, the major pan-Indian language. Most of the interviews were audio recorded and in the minority where interviewees were not

comfortable with this, notes were made during the interview. Recordings and notes were transcribed into English by the first author, with care being taken to preserve meaning and connotation, and subject to a process of thematic coding and analysis aided by NVivo software. All research instruments and processes were approved by the University of Birmingham (UK) research ethics committee.

An obstacle encountered in the research was the unavailability of official data on land that was in agricultural or pastoral use before the solar project and which was acquired or sold for the project implementation. Further, it was impossible to obtain official records regarding the compensation offered to landowners and any resettlement plans. As land acquisition is a sensitive issue, the government generally do not make any such information public. Even at the District Land Records office (*Tehsildar* office), which is located at the district headquarters, no relevant information relating to land transfer or compensation was available. Due to this, our analysis is necessarily based on the narrative evidence provided by the Charanka community and expert interviewees.

In the following section, we discuss the results of our analysis with regard to the following key themes: loss of common lands and rights of land use; the extra-legal execution of power; and land transaction mechanisms.

**Common lands and rights of land use**

The single most important issue that emerged from our research interviews was the livelihood impact from the acquisition of land for the solar park development. Respondents commonly articulated that their life is 'linked to land'. A major portion of Phase I solar park was built on government-owned 'waste' land. According to the community interviewees, albeit that the government considered this land as wasteland because of the remoteness and hard climatic conditions of the location, it was used as common land by the villagers – especially Rabaris – for grazing and farming. This land had been a source of community subsistence for years, so that enclosing the land (and the consequent change of land use) had a grave impact on livelihoods, particularly of the Rabaris, an already economically marginal group:

> *That is government land only but Rabaris have been using it for grazing for years and years.* (Respondent #2, Male, Gadhvi).
>
> *It is all government land…but all cattle were grazing on that land* (Respondent #26, Male, Muslim).
>
> *We don't have land. We were living on that government land…* (Respondent #27, Male, Rabari)

The land had also been an indirect source of livelihood in other ways, including through collecting *baval* (*prosopis juliflora*: a woody shrub) as a source of fuel and for other enterprises (see also Baka, 2013, 2014):

> *The land was useful because there was 'gando baval'. We were using it for making fuel for cooking… The wood from the baval was used in charcoal factories and people made business out of that. Each person used to earn about Rs 200 in the factories...* (Respondent #28, Male, Rabari).

> *Here there was business of 'Gunder' (natural gum) from baval, through which people used to get Rs 40 per kg. Approximately one person can extract around 5 kg in the morning and another 5 kg in the evening, so a person can earn a total of at least Rs 400 per day.* (Respondent #35, Male, Gadhvi).

Some respondents argued that the enclosure of the land by the state government was done unlawfully because they held the rights to this land that they had been living on for decades:

> *Government made rules that land belongs to those who harvest it. We were doing agriculture for more than 25 years in that wasteland. Now they did not give us anything for that.* (Respondent #9, Male, Rabari).

Indeed, the institutional mechanisms here are convoluted with layers of statutory and customary practices. Historically Rabaris had unrestricted access to grazing land. However, since the turn of the 20th century and especially during colonial rule, forests and grazing lands were demarcated, and access to traditional pastoralists controlled. For example, in 1920, the *Khengarji*, the pre-Independence Indian ruler of Kutch, regulated the Rabaris' right to access to grazing lands. Though movement through the land was free, this legal arrangement mandated that all pastoralists, including Rabaris living in the Kutch region, pay an annual tax (*panchsari*) for grazing animals (Choksi and Dyer, 1996). The following rulers, including the *Kutchi Maharao* and *Rajwada*, also imposed a tax on grazing activities (e.g. *gantar* by the *Rajwada*) to protect forests and land from degradation. At the same time, against a payment of annual rent to the landlord, the right to farm agricultural land rested with the *ganot* (agricultural worker) who historically cultivated it.

After India's Independence in 1947, the *Gujarat Ganot Dharo* Act of the Government of Gujarat maintained those rights of land use for agricultural workers for cultivation or pastoralists for grazing. However, as years passed by, the state government realised that the system resulted in surplus lands accumulating in the hands of *ganots*. To curb this, *The Gujarat Agricultural Land Ceilings Act of 1961* was issued, which provided power for the state government to acquire any surplus farmland holdings from those using it but not owning it, and to use it in the name of the state or other 'common good'. And yet, *The 2006 Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forests Rights) Act of the Government of India* maintains rights for local communities over disputed lands or on common property resources such as grazing lands. The above-mentioned respondent, who was an elderly Rabari, indirectly referred to the *Ganot Dharo* Act in claiming the right to usage. As he indicated, though most of the Rabaris had been

using the government land, a lack of legal land records or tenure documents facilitated the enclosure of the land for the solar project.

The ambiguity around rights to access was made more complicated by conflicting claims about how the land was in fact being used. While all of the community interviewees emphasised that the government land had been used both as grazing land and for growing crops, some of the government and business developer respondents denied this:

> *This is not a grazing land. As per the directive of Supreme Court and High Court, no grazing land is allotted in any part of Gujarat. It is a government wasteland not used for any purpose. (*Respondent #3, government organisation #1).

The interpretation of the government 'waste land' usage is important because had the land been officially categorised as pastoral or grazing land, it would be defined as a common property resource by law, and hence the villagers would have had permanent right to usage. The denial of the grazing use contradicts the de facto records in the Land Use Statistics Information System (LUSIS) of the Government of India which identified government-owned grazing land availability in Gujarat in the year 2007-2008. Furthermore, decadal data from the LUSIS reveal that due to industrialisation and urbanisation, the percentage of grazing land in Gujarat decreased from 5.7% in 1960, when Gujarat became a new state of India, to 4.5% by 2008.

Indeed, a business developer respondent who initially stated that '*the land is not fertile, nothing is possible in that area and on that land*' later contradicted this: '*we still have 10 acres of land which the farmers have not vacated, there is a standing crop, so after harvesting [X] would be able to handover the land to us'* (company #5). Our own visual observation of the area where the crop was standing confirmed this (Figure 4).

**Figure 4: Standing millet crop at the time of solar park implementation** (source: first author)

Yet even those developers who admitted that parts of the enclosed land were previously used for grazing and farming, downplayed its significance vis-à-vis the larger perceived benefits from the realisation of the project. For them, any negative impacts to the local communities in Charanka are outweighed by the positives promised by the development:

> *One issue I think is the issue of pastoral lands… But apart from that I cannot really see any negative impacts. (*Company #3).
>
> *Yes, of course, give and takes are there, you know every coin has two sides. But then for a greater good, solar projects should be considered the first step of many other steps to follow. (*Company #11).

Business interviewees stated that the solar park should be seen as unleashing greater productive possibilities for both local communities and the national economy through providing a large number of employment opportunities to Charanka and its neighbouring villages, and the wider clean energy benefits. However, others admitted that most of the job opportunities provided for the local people were low wage and temporary construction work:

> *This doesn't require any great infrastructure once the construction is over… To man a 5MW you would require 2 people (operators) who are trained. It's not a high man power-intensive industry.* (Company #12)
>
> *I think hardly two skilled people and five to six unskilled for cleaning and security are required during operation.* (Company #15)

The community respondents, although acknowledging the emergence of the new employment, asserted that those temporary unskilled construction jobs were short-term and could not compensate for the perpetual loss of land, thus contributing to the precariousness of their livelihood:

> *This construction will go on for two years. After two years there will be no work, everything will be over.* (Respondent #14, Male, Vadiya[1]).

> *There are no fixed jobs. If the work of a company is completed, they will remove and we need to find work somewhere else. Everyone is employed for labour work only because we don't have education. Do you think the companies will employ us in making maps?* (Respondent #29, Male, Rabari)

Overall there are asymmetric discourses between the solar-based interests of corporate developers and the state, on the one hand, and the concerns of the local community, on the other (Levien, 2011). The former emphasise benefits and downplay the narratives of dispossession, treating people and their livelihood resources as worthy of sacrifice for the sake of societally beneficial green energy transitions. This certainly contradicts Rawlsian principles of social justice and articulations of spatial justice building on these, which maintain that unequal distribution of primary goods and advantages, or of corresponding costs, could only be tolerated if working to the benefit of the generally least advantaged (rather than to the abstract majority).

However, the lack of recognition of the interests of those whose labour enabled the re-making of wasted spaces as socially valuable, and of their entitlement to land use (Gidwani and Reddy, 2011), which quickly became apparent from our initial encounters, was only a prelude to uncovering even more troubling dispossession practices through which this lack of recognition was actually operationalized. We will now turn to inspecting the various procedural techniques in the execution of displacement during the process of land acquisition for the solar park development.

**Accumulation by extra-legal processes**

The previous section on the enclosure of government land highlights how the ambiguity around the definition of government land was partly responsible for the justification of the loss of access to land. However, some respondents indicated that the procedures of actual enclosure were also extra-legal; they accused the government of tricking the illiterate communities, by telling them that their signature or thumb impression was needed in order for them to be given land titles, when actually they were signing something quite different:

> *Mamlatdar and collector came during a village public meeting and took signature of all people on paper... People were illiterate; they didn't get to*

[1] The respondent is an immigrant working in the village.

> *know what was written inside the paper. Most of the people signed that 'this is a waste land and we don't have right on it'. (*Respondent #13, Male, Muslim).

> *I don't know what is going on but some people came from the government and told that you will get land in your name… so I and my brother-in-law have signed. Then they went to [X official] and told him that people gave land with their consent and willingness... (*Respondent #9, Male, Rabari)

Local government officials and business developers also suggested, even if indirectly, the involvement of extra-legal mechanisms:

> *Yes, I think some grazing land was taken. The acquisition was handled from Gandhinagar office. I am just saying what I heard from people. (*Respondent #7, government organisation #4).

> *The government wasteland was transferred to us from the collector's office. Those village people were thinking that 'as we had been using the land for years, it's ours and hence we will not give it'. All those issues were managed (*Respondent #6, government organisation #4).

India's 2006 *Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forests Rights) Act*, mentioned above, secures for individuals and communities rights of access for grazing and traditional resource use over land falling within any forest area, sanctuaries or national parks to which a community had traditional access, disputed lands under any nomenclature in any State, and any other resource that has been in sustainable use. The allocation of such lands for any state projects is subject to the condition that the same is recommended by the *Gram Sabha* (village self-governing body) and that the free informed consent of the *Gram Sabha* relating to resettlement and rehabilitation has been obtained in writing. The Act came about in recognition of historical injustices – both during the colonial period and independence – as suffered by the scheduled tribes and pastoral communities.

In the Charanka case, even though people had no legal rights of private ownership, this Act protects the Rabari's right (as a Scheduled Tribe) to use the government land for grazing on several grounds: (i) it was located near a protected forest area and a national park, (ii) the Rabaris had been living on it for several decades, and (iii) its definition was under dispute. Hence, had the government failed to take written consent that it was not used for grazing, the clearance of land would had been legally problematical.

The evidence from both community and government interviews strongly suggests the extra-legal practices of the land acquisition committee, which includes various stakeholders (e.g. the solar park implementing organisation, the Revenue Department in charge of land clearance procedures, and, most importantly, the District Administration coordinating the resettlement, rehabilitation and compensatory procedures). Unaware of the 2006 Act and its procedures and

being unable to read what they signed, the local people succumbed to the administrative officials' false verbal assurances of providing rights to the land.

What is more, there were also many reports of extra-legal mechanisms to acquire cultivable *private* lands – so-called *Benami* land transactions. *Benami* (translated as 'no-name') specifies a land transaction in which the named purchaser of the land is not the real beneficiary. Such transactions are illegal according to the *Benami Transactions (Prohibition) Act of 1988*. In Charanka, middlemen acquired privately owned farmlands at throwaway prices prior to the project's notification. There is no data on how much land was sold in this way, but the narratives of locals suggest that that these transactions became rampant. In the beginning, people could not comprehend why outsiders would want to buy land in such a remote village in bulk. With a lack of information about the future project and therefore of the real market value of their land, and with a need for quick money for children's marriage, medical treatment, and suchlike reasons, more than half of the 50-60 small and poorer farmers households, and those few Rabaris who legally owned private land plots, were reportedly induced to sell their land at prices lower than the market value to middlemen from other places:

> *I know people who sold land due to their problematic situation. They gave at cheap rates but right now the rate is Rs 13 lakhs*[2] (Respondent #28, Male, Muslim)

> *Some people sold before the project at so much lower prices. They sold to some parties. No one knows about it, some mediators bought it. Outside people have taken at price like Rs 20,000/acre, that's so much less*. (Respondent #21, Male, Gadhvi)

The intermediaries, who were aware of the project before its official announcement, bought private farmlands, and then resold the lands wholesale to the government at a much higher price. It is not clear the extent to which the development coalition were complicit in such situations or whether the middlemen were acting entirely independently to take advantage of an opportunity that they saw, but these unethical land transactions lie at best somewhere between speculation and Benami; what is important is that the sellers of the land were deliberately kept unaware of the development and of who the middlemen already planned to sell on to, at the time of purchase. Furthermore the local leaders in Charanka, who may be complicit in property development interests, turned a blind eye to these transactions and may even have been involved:

> *They bought at very little cost. For example, my brother sold at Rs 21,000/acre. His land touched solar park boundary, just one and half year before he sold it. Right now if you ask [to buy] the same land, even for 10 lakhs, no one will sell.*

[2] 1 lakh = Rs100,000

> *That land was bought by X Gadhvi and now he sold it to some other party.* (Respondent #1, Male, Muslim)

> *Parties used to come and buy land, that time no one got to know [why], but suddenly it struck, that is why this much land is being sold here…people [buying the land] used to say that they want to become farmers here, they want to do factory here, etc.* (Respondent #22, Male, Gadhvi)

> *Some people got cheated and some people gave willingly. They sold at very low price before. Small people can't buy this land so all industrialists from companies bought this land from parties. Outside parties got at lesser price and then they gave to companies* (Respondent #24, Male, Thakore)

Our interviewees revealed that except for the literate and very large land owning farming families (those having more than 25acres), a large number of the farming households sold land in this way. Small farmers sold their land plots, spent money, and were left with no other means of subsistence than temporary labour jobs in the solar park, ending their long-term dependence on agricultural activities. Many of them had actually expected to survive off the common/government land, only to find it was also enclosed as discussed above. Harvey (1973) refers to this situation as an 'intriguing paradox' in which 'the rich are unlikely to give up an amenity *at any price* whereas the poor who are least able to sustain the loss are likely to sacrifice it for a trifling sum'.

More educated and larger farmers were more conscious of the implications of losing their land title; for them land is a 'life-giving' source or an 'insurance policy' providing financial assistance at hard times:

> *Some time ago when [X official] came we said 'Land is our Life', that's it, give land for land…those who wanted to do agriculture didn't give and those who wanted money gave* (Respondent #15, Male, Rabari).

> *Two sons will waste in playing cards, two sons will drink alcohol, whole life will not run on the same money. If land is there, it gives so much money, some years it won't give money, but some years it gives money, it makes us live, someone can give money on debt on land, but if land is not there from where will we get money?* (Respondent #28, Male, Rabari).

> *Government is ready to pay money for the land. Even if government gives more money, we are not ready to give land. After money [is spent], where can people go?* (Respondent #13, Male, Muslim).

These respondents, who were aware of the long-term livelihoods that land provides to those dependent on it, related their life to land and argued that land can provide continuous income

flow through sale of crops, besides protecting them through providing access to credit markets in times of financial stress caused by low harvest, and unforeseen expenditure incurred through social obligations (anonymised for review). The interviewees emphasised that many marginalised communities, such as Rabaris, had a strong attachment to their land and associated their identity with it and they could not think of dissociating from that which has come to them from their ancestors.

Thus, even at the higher prices after the project was eventually publically announced and especially after the enclosure of the public land for the solar development became obvious, some people refused to sell their land plots. Originally, the intention of the government was to install 500 MW in Charanka; however, as a result of the collective protest of private landowners that unfolded during the course of solar park implementation and in the light of state legislative assembly elections in 2012, only 216 MW was installed.

Technically, the state government has legal capacities for continuing acquisition of land, although the process is often cumbersome for the government and therefore increases risks and reduces potential profits. The *Land Acquisition (LA) Act* of 1894 allows the government to appropriate land by paying a compensatory amount (compulsory purchase). This Act is based on the principle of the state's pre-eminent domain. A colonial-era act, it facilitated the land acquisition for most public projects in India, until the 2014 *Right to Fair Compensation, Resettlement, Rehabilitation and Transparency in Land Acquisition Act* came into force. However, as the solar park project was implemented between 2010 and 2012, the land acquisition for the project fell under the old Act.

The 1894 Act makes two provisions for fixing the compensatory amount. The first is based on the timing of consent. If a landowner agrees to surrender land before the 6(1) notification (i.e., the compulsory purchase order), the compensation is determined based on the market value. On the other hand, the compensation for the land acquired after the 6(1) notification will be decided based on the registry value of land, i.e. the value of land according to the government land records – which is normally much lower than the market value at that point. Hence, in most cases people surrender land for a development project before the 6(1) notification and those who can least afford to take an economic risk would be most likely to do so.

A mixed situation emerged in Charanka as a result. At the time of fieldwork in 2011-12, some farmers with low capacity to exert pressure on the government, and who were persuaded by the financial compensation, had already sold to middlemen or were getting ready to sell land to the government. On the other hand, several large farmland owners refused the submission of their land. In the end, as emphasised above, the private farmland owners managed to retain their land through organised resistance (anonymised for review). Furthermore, perhaps in the light of state legislative assembly elections held in 2012 (during the solar park implementation), the government of Gujarat also did not exert further pressure on the acquisition of the private land.

**Articulations with spatial injustices**

As could be argued from the above, while projects like the Charanka solar park allow the concerns of low carbon energy transitions to be addressed, they are not immune from the injustices involved in the processes of exploitative accumulation and land grab (see also McCarthy, 2007; McCarthy et al., 2012). Landless Rabaris and agricultural labourers who were dependent on government land as a common property resource emerged as a major victimized group – they have lost their traditional livelihoods and ability to pursue their customary lifestyle (Baka, 2013, 2014). The smaller land-owning farmers belonging to the rural lower middle class emerged as another group of the dispossessed. The speculative / Benami land dealings, coupled with the lack of information about the proposed development (anonymised for review), not only led to the sale of their land at a price below the new market value in many cases but also to the dispossession of their homestead and sources of livelihood. The use of multiple instruments of power and institutional interest – legal, illegal and extra-legal – and a disregard shown by the panchayat and district government officials towards the communities all appear to be instruments of the cumulative spatial injustices that have emerged in the land clearance procedures.

In contrast, in the face of compulsory acquisition of private land through the legal framework of the LA Act 1894 and its successor in 2014, a small sector of larger landowners managed to retain their land through collective action and organised resistance. In the light of state legislative assembly elections that were held in 2012, the national economic crisis in 2013, and the lapse of the 2009 Gujarat Solar Power Policy (GSPP) in 2014 (which led to the reductions in solar investments), the government of Gujarat did not push much further. However, it remains to be seen how long these people can actually hold their land, given that the government released a new GSPP in August 2015 and is planning the implementation of Phase II.

Whatever the future holds, it can already be argued that the Charanka solar park project is another example of the dispossession of people from their livelihoods in the name of progressive development. Prior to the solar park, villagers could either find new opportunities outside of the agricultural or pastoral sector or try to intensify their land uses (e.g. by double cropping). The redistribution of 'waste land' in favour of the solar park, the undermining of the lives whose labour contributed to the re-making of 'wasted spaces' as 'valuable spaces' – what Gidwani (2013) terms 'wasteful lives' – and extra-legal land dealings are constitutive features of the process through which the state's coercive power can be deployed to condition accumulation by dispossession. Indeed, as discussed by Levien (2015), this case reflects a larger practice: as acquiring large tracts of land is difficult for large development projects, state governments, usually through parastatals and local authorities, acquire land from low-value users (peasants and pastoralists) and redistribute it upwards to classes considered to be more capable (and therefore deserving) to 'improve it'.

With regard to spatial (in)justice (Harvey, 1973, 1996; Soja, 2010), our case demonstrates an unfair distribution of benefits and burdens, that crosses of a number scales. The least advantaged

(illiterate pastoralists and marginal farmers) are the greatest burden bearers from the redistribution of socially valued resources, while the processes that produced these outcomes were themselves unjust. Here, the welfare of the low status and minority groups were overridden for the purported national benefits of development. However, as scholars have pointed out, the uneven development and dispossession of livelihoods serves to ultimately amplify existing inequalities in such agrarian caste-based social structures (Levien, 2011; Yenneti and Day, 2016).

## Conclusions

In this paper, in resonance with previous work (Heynen and Perkins, 2005; Shiva, 1997), we have emphasized that the enclosure of commons and land acquisitions under the narrative of infrastructure development even for 'environmentally progressive' projects can alienate vulnerable communities from their sources of livelihood and increase their precarious status. This micro-politics of renewables points to the importance of interrogating such state-mediated solar energy projects more closely. Although such projects are less known for their socio-material impacts than the likes of, for example, hydropower developments that put vast territories under water, the nature of large-scale solar parks is that they similarly involve the conversion of large tracts of land into a non-agricultural use. Moreover, while hydropower water reservoirs can be used for alternative ends (e.g. recreation, fishery, and shipping), ground-based solar parks normally involve a more exclusive land enclosure. As such projects become more massive in scale and scope, they will be affecting the interests of ever larger populations, most probably becoming an increasingly more contentious issue in India's larger national politics.

Indeed, policy documents and media coverage from the period when India began to expand its solar program point to the emergence of concerns over justice and welfare. For example, when reviewing the recent solar development in Maharashtra, one of the top three solar states in India, Woods (2014) finds that 'Land titles are usually not very clear [and] the matter can be sub-judice for years, if not decades'. Similarly, in assessing the progress under Phase I of JNNSM, Ghosh et al. (2012) noted:

> Currently, the majority of Phase 1 grid-connected solar projects are in remote locations, where the primary contentious issues are conflicting land claims and land allocation for grazing. Land acquisition issues, including siting, clearances, and grid proximity, are delaying projects.

As the competitiveness between India's sub-national states intensifies to capture foreign and national investors for solar developments, more and more common property resources and farmlands are being acquired for that purpose through 'fast track procedures'. Adequate provisions should be made to avoid accumulation by dispossession and ensure justice in land acquisition, through proper compensatory mechanisms at the very least. Though losing land can surely be traumatic, at least compensating with alternative land, and acquiring and transferring land holdings through fair and legitimate procedures could be redeeming. In the process of land

acquisition, the government could follow transparent rules that allow communities to understand exactly why and how each relinquisher was chosen. Such conditions, to some extent, could also be the basis for arriving at spatial justice in 'progressive' solar projects.

Failure to implement just and legitimate procedures in land acquisition is not only central to increasing the precariousness of the marginal communities, but it also dilutes communities' trust in political institutions. Literature on wind farm implementation in the global North (Cowell et al., 2011; Walker et al., 2010) and the emerging literature on solar energy implementation in India (anonymised for review) supports this narrative by arguing that the lack of trust can make even 'environmentally good' renewable energy projects face resentment, create conflicts and eventually delay project implementation.

A positive step is India's long-awaited 2014 Right to Fair Compensation, Resettlement, Rehabilitation and Transparency in Land Acquisition Act, mentioned above. The emergence of the new Land Acquisition Act was mainly due to the multiple issues in legitimate land acquisition procedures implemented under the British-era Land Acquisition Act 1894. In response to 'Right to Information (RTI)' cases filed by several citizens affected by land acquisition processes across the nation, the Supreme Court of India noted that, in the name of development, large amounts of public and private land were being accumulated in the hands of large businesses (Kothari, 1996; Nagarabhavi, 2007). The LA Act 1894 was also criticised for driving masses out of their traditional occupations, its draconian procedures often resulting in illegitimate land acquisition, low rates of compensation for the land, and no rehabilitation and resettlement provisions for the affected persons.

The principles of the new Act could potentially address some of the issues identified in this research, such as adequate provision for resettlement and rehabilitation for all the affected and those to be affected. A major shortcoming of the new Act is, however, that it is not applicable when private players purchase land directly (as in the case of individual or private-led solar energy projects). Hence, provisions for inclusion of private purchase of land into the Act could potentially prevent illegal/extra-legal instruments (such as mediators buying private land and selling it to the government). It is also important to see that in cases where land has to be acquired from marginalised communities, such as subsistence farmers, Scheduled castes, or Scheduled tribes, resettlement and rehabilitation through land-for-land, and not monetary compensation, should be provided. An effective strategy and stricter enforcement of it for ensuring these provisions of justice could also result in improved trust in public institutions and foster social acceptance of the 'environmentally progressive' energy.

Finally, this research has illustrated the value of the concepts of spatial justice and accumulation by dispossession to solar energy implementation, which can only become more important as solar energy is rolled out on a massive scale globally. In India, further analysis of solar energy implementation in other states, such as Rajasthan and Madhya Pradesh, would offer useful

comparisons and a deeper understanding of the specifics of the spatial justice concerns arising from the ambitious roll out of national and state energy development policies. However, the basic concerns of energy justice have resonance globally and would also apply to the energy transitions of both developing and developed nations, and to other new energy technologies.

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