



Distributional justice in solar energy implementation in India: The case of Charanka solar park



Komali Yenneti*, Rosie Day

School of Geography, Earth and Environmental Sciences, University of Birmingham, Birmingham B15 2TT, United Kingdom

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ABSTRACT

Large scale renewable energy developments, although seen as environmentally good, also have the potential to damage a community's well-being if the distribution of outcomes of the development, both good and bad, is unfair. Inequality in the distribution of benefits and costs, especially when some sections of a community benefit at the expense of others, can divide communities, damage relationships, and result in conflicts. In recent years, a considerable number of empirical studies examining the controversies over distributional inequalities in renewable energy practices have emerged. However, most of them have focused on the developed world; there has been little research in the context of the Global South, where large scale and rapid development of solar energy especially is anticipated to contribute to economic development and relieve energy poverty. This paper provides an empirical case study of 'Charanka Solar Park' in the Indian state of Gujarat. The objective is to qualitatively analyse the distributional concerns in the implementation of the large scale solar park, developed in a remote rural location. The research illustrates how the benefits of renewable energy development tend to accrue at regional and national level whilst local host communities bear adverse consequences. Distributional inequalities also occurred at the local scale in Charanka, where while the upper caste and economically better off sectors of the community were able to take opportunities, while vulnerable pastoralists and small farmers suffered the most from loss of land resources and associated livelihoods. Thus, the uneven distribution of benefits arising from the solar park development reinforced and deepened existing inequalities. The paper concludes by discussing how distributional injustice in such developments might be ameliorated in the future.

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1. Introduction

With over 300 days of sunshine, solar radiation of 5.6–6.0 kWh/m² per day and the availability of large tracts of 'waste' land, the State of Gujarat in India has a huge potential for generating solar energy (GEDA, 2009). Realising this potential and the benefits that solar energy can bring in addressing climate change and energy security issues, the Government of Gujarat released the Gujarat Solar Power Policy (GSPP) in 2009, making it the first of India's states to do so. This was a year before the release of the National Solar Mission (NSM) of India, a national level policy for accelerating

solar energy development in the country.¹ With more than 850 MW of capacity installed by early 2013 under the GSPP 2009, Gujarat not only leads in total installed capacity but also in the number of projects (GEDA, 2013). Apart from supporting individual solar photovoltaic (PV) power projects, the GSPP 2009 was also an experiment by the State government to develop a series of public-private partnership based large-scale 'solar parks' in the state (Yenneti, 2014a, 2014b). The first of the solar parks was initiated in 2010 in a remote village called Charanka, and completed in April 2012. With an installed capacity of 216 MW on about 2000 ha of land, and an investment cost of about US\$280 million, the project became the Asia's largest solar park after overtaking China's

* Corresponding author. Present address: Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences (NIGLAS), Nanjing 210008, China.

E-mail addresses: yenneti@niglas.ac.cn (K. Yenneti), r.j.day@bham.ac.uk (R. Day).

¹ Due to decentralization, the national and state governments in India have equal legislative powers in making and implementation of energy policies. Accordingly, the Gujarat government's State solar policy is independent of the NSM.

200 MW Goldmud solar park (Yenneti, 2014a). The project was not only given an award by the Confederation of Indian Industry (CII) for being the most innovative and environment-friendly project in India, but was also recognised globally.

At state and national scale, this is a success story. The huge amounts of power generated help to meet the demands of Gujarat and India's rapid industrialisation and booming economies, and the leap forward in the scale of renewable energy production progresses India's ambition to be world leading in climate change mitigation initiatives (Yenneti, 2016). Drilling down however, the picture is less universally positive. Concerns about the local upheaval and impacts of the mega-development come into view which echo those already raised in India by the implementation of large dam projects (e.g., Sardar Sarovar dam in Gujarat) and more recently economic development projects (e.g., Special Economic Zones) in India (Mukherji, 2012; Shiva, 1997; Vasudevan, 2008).

Before the solar park, Charanka was a small remote village with a population of around 1500, engaged largely in farming and animal herding. For about 4 months of the year, the village is home to a community of Rabari, a pastoral nomadic group who travel with their herds for the other 8 months. The land acquired for the solar park project came entirely from the environs of this one village. It was a combination of private land bought from small farmers and a large amount of government owned land, classified as 'waste' land. This waste land had however been used by subsistence farmers and Rabari as a common resource for grazing and gathering *gando baval* (*Prosopis juliflora*), which is used for making charcoal. Hence, its loss represents a severe threat to their livelihoods and way of life.

This situation raises important questions about the distribution of the benefits and burdens arising from such developments. Large scale renewable energy projects are widely perceived as a good thing, both environmentally and socially, and as such, Charanka solar park was exempt from the requirement for an environmental impact assessment or any formal assessment of social impacts. Nevertheless the case of Charanka highlights the potential for marked inequity in the distribution of benefits and costs of such 'environmentally good' projects. Not only is such inequity unjust, but when it is taken seriously by affected communities, it affects the social acceptance of such development projects (McIntyre and Gilson, 2002; Walker and Devine-Wright, 2008). Given that Charanka solar park is merely the start of a wave of such large scale renewable energy projects in India and beyond, it is an opportune time to examine and reflect on these issues.

The objective of this paper is to identify and understand the distributional justice concerns in the implementation of the Charanka solar park, from the perspective of the Charanka village community. In doing so it aims to give some voice to the disenfranchised rural communities most impacted by such ambitious large scale development. The case study makes an important contribution to the growing field of energy justice as an example of theoretically informed empirical work on distributional justice in energy development, and especially by adding to the relatively small amount of literature on justice in renewable energy development in developing economies.

The remainder of the paper is organised as follows: first, it begins with theoretical debates on distributional justice, reviewing key concepts from social justice literature and moving on to explore how distributional justice has been considered in literature on renewable energy. Following the presentation of the case study's geographical context and the research strategy employed, distributional concerns in four themes are discussed through drawing on interviews with the Charanka community and representatives of solar power development companies. Finally, we discuss the issues in the context of notions of distributional justice, and provide some concluding remarks.

2. Theory

2.1. Formulations of distributional social justice

While different theories of distributional justice have been formulated by different scholars in the past century, some of the most influential ideas originated with John Rawls. In his seminal work 'A theory of justice' (1971), Rawls argued that the fundamental idea in the concept of social justice should be fairness in the distribution of goods and advantages (also see Rawls, 1967). He proposed that a notion of fairness can be arrived at from an 'original position' whereby subjects mentally position themselves outside of a society in which they know that they will be a member, but without knowledge of who in that society they will be. From this position, principles of fair distribution and functioning of institutions can be agreed. Rawls principles thus derived include that any inequality in a given distribution of primary goods (i.e. those fundamental to wellbeing, participation in society and the ability to access further opportunities) should favour those who are in more general terms the least advantaged in society, either directly or through trade-offs (Rawls, 1971). This proposition of justice as fairness was put forward in large part in opposition to utilitarian approaches (Bentham, 1789; Mill, 1863) which had been highly influential for more than two centuries. The utilitarian position, which would maximise aggregate utility (or happiness, satisfaction etc) runs the risk of overlooking and condoning systematic discrimination against some individuals and minority groups, and the sacrifice of their wellbeing for the greater good.

Critics of Rawls have been quick to point out that his principles are not so easy to apply in real situations: how do we know who the least advantaged are? What is to be counted in the distribution of goods? How do we assess whether justice is done or not, or to what degree? (Smith, 1994; Dryzek, 2000). Walzer (1983) also points out that goods (that are to be distributed) may not be valued similarly by all individuals and groups, adding a further complication. Nevertheless, Rawls notion of distributional justice has provided a touchstone for justice work ever since, heavily influencing following justice theorists including some of his critics (Harvey, 1973; Soja, 2010; Sen, 1992, 2009).

A somewhat different notion of social justice to develop in the later 20th century came from the 'basic needs' school, for whom social justice means ensuring that all citizens have the means of meeting their basic needs, for example Fried 1983: A person has a claim on his fellows to a standard package of basic or essential goods – housing, education, health care, and food, i.e. the social (or decent) minimum – if by reasonable efforts he cannot earn enough to procure this minimum for himself. (p. 52). Griffin (1986) puts the list of basic needs under categories such as means of existence (food, clothing, shelter etc), pleasure (a good life), work, rest and play (well-balanced life), and social relationships (family, friends, etc).

Related to the basic needs approach but developing in a distinctive manner is the capabilities approach of Amartya Sen (1999, 2009), and similarly Martha Nussbaum (2000, 1992). Like Rawls, they are critical of utility focused assessments of optimal outcomes, given that people in different positions have different propensities to be satisfied, but they also critique Rawls' focus on primary goods as the object of concern in justice formulations. Instead, they argue, the focus should be on outcomes, and on what people are able to be and to do – their 'capabilities'. Importantly, individuals cannot convert primary goods to outcomes at the same rate, and so they argue the focus on outcomes is better. Nussbaum (2000, 1992) drew up a list of 'central capabilities', suggested as a list of what individuals should expect the state to support as a matter of justice, whilst Sen's approach argues that priority

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