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Do Wastelands Exist? Perspectives on "Productive" Land Use in India's Rural Energyscapes

Introduction

Since the 1970s, the Government of India (GOI) has sought to cultivate energy on so-called "wastelands," an official government classification for marginal or degraded lands. The policies enabling this strategy have framed wasteland development as a mechanism for addressing interlinked rural-development, energy-security, and environmental challenges. This paper evaluates two such development programs—the 1970s Social Forestry Programme and the 2003 National Mission on Biodiesel—and reflects on the implications of these energy transitions for rural energy users. Each program presented similar optimistic visions for the potential of India's wastelands to generate energy and revitalize rural communities. However, they have both largely failed to meet the various "improvement" goals motivating the programs. In what follows, I compare their objectives and argue that an incomplete understanding of the significance of wastelands to rural livelihoods helps to explain the adverse social outcomes that have resulted. Without developing a more holistic conceptualization of the significance of wastelands, India's future wasteland development schemes are likely to continue the decades-long trend of exacerbating, rather than improving, rural energy security.

Wasteland Discourses and "Improvement"

John Locke coined the term "wasteland" in the seventeenth century to refer to any lands not privately owned: lands that are frequently referred to as common property lands. Arguing that there is little incentive to maximize returns from common property lands, Locke advocated privatizing them. Privatizing the commons, he argued, would improve the value of nature lying in waste.[1] During India's colonial era, the term "wastelands" was used in land-classification processes to refer to marginal or degrad-

1 John Locke, *Second Treatise of Government* (Hollywood, FL: Simon & Brown, 2011 [1680]).

ed lands unsuitable for agricultural production. In practice, the category forged class divisions between indigenous communities and colonial settlers. Indigenous people, who often occupied wastelands, were deemed "backward" and incapable of putting wastelands to productive (revenue-generating) use. As a result, the colonial government often redistributed the lands to British settlers and others who were considered more capable of cultivating the lands for profit. Wasteland classification and "improvement" schemes extended beyond the colonial era in India but took a distinct twist when they were linked to the country's energy-security and environmental goals.

In the 1970s, the GOI initiated strategies to improve the productivity of the country's natural resource base. One such strategy focused on addressing the "other energy crisis" of the decade: the forecast shortage of fuelwood supplies in developing countries. The Social Forestry Programme was a prominent part of this strategy. It established fuelwood lots on wastelands throughout the country in order to provide biomass energy for rural households and to alleviate land-use pressures in India's high-value forests. This strategy aimed to secure household energy supplies but also to create new jobs for rural communities. Although highly criticized for promoting industrial forestry over household fuelwood needs, the Social Forestry Programme introduced one tree species, *Prosopis juliflora* (hereafter Prosopis), that has helped alleviate rural fuelwood shortages in certain regions of the country. Yet, unbeknownst to policy planners, Prosopis became a menace to landowners because it rapidly spread throughout the dryland regions of India, becoming an invasive species. Officials began classifying Prosopis lands as wastelands, despite the tree's significance to fuelwood users.

Another shift in wasteland development policy at the turn of the twenty-first century responded to the interlinked crises of climate change and energy security. The GOI initiated a National Mission on Biodiesel (2003) in hopes of cultivating a domestic biofuel industry by growing *Jatropha curcas* (hereafter Jatropha) biofuels on wastelands. Jatropha is a tree capable of growing in degraded environments. The tree yields nonedible oilseeds that can be used to manufacture biodiesel, a substitute for diesel fuel. Because the tree would not, in theory, compete with food production on agricultural land, the Biodiesel Mission attempted to establish Jatropha plantations on 17.4 million hectares (mha) of wasteland throughout the country—about three percent of India's total geographic area. In order to make space for Jatropha plantations, the government began uprooting Prosopis lands, which represented a sizeable portion of

the wastelands targeted for the Biodiesel Mission (Figure 1).

Figure 1: Jatropha tree (left) in front of Prosopis trees (right) on wastelands, Tamil Nadu. Photo by author.

In practice, the Social Forestry Programme in India and analogous community forestry projects throughout the world have been criticized for their regressive effects. Scholars have argued that conceptualizing the fuelwood "crisis" as nothing more than a supply shortage overlooked the broader economic and political processes facilitating deforestation. Further, many of the tree species promoted under these projects, such as eucalyptus and teak, were better suited as feedstocks for emerging pulp and paper industries than as household fuelwood. These disconnections between policy and practice motivated community protests, including the famed *Chipko* movement in India, in which rural women created human chains around trees in protest against deforestation. The Jatropha Mission is today widely considered a failure for technological, economic, and political reasons, and has been linked to public-private land grabs within the country. Making space for Jatropha has also exacerbated rural energy shortages, as Jatropha is not a substitute for Prosopis.

Wasteland Development: Getting the Numbers "Right"

Defining and classifying wastelands was a key component of India's postcolonial development schemes. Such definitions, however, focused on the ecological and economic conditions of lands, rather than their social significance. In the 1980s, India initiated the *Wasteland Atlas of India*, a classification project that uses remote sensing to identify degraded lands, and categorizes wastelands by type and severity. According to the most recent version of the *Atlas*, nearly 15 percent of India's total geographic area is currently classified as wasteland (47.2 mha). These definitions serve to construct wastelands as empty, unused lands that are available for improvement projects. However, wastelands, and common property lands more generally, are often used by

landless communities for gathering fuelwood and fodder. These dimensions are not included in India's current wasteland classifications. This is because of official assumptions as to what constitutes "productive" land use and "modern" energy services. Scholars have argued that the GOI's conceptualization of "wasteland" has become so malleable a term that it is difficult to discern what types of lands could be converted to Jatropha plantations; recent shifts in classifications, they assert, are aimed at facilitating land transfers to industry.[2] As I have argued elsewhere, wasteland development acts as a metaphor for the entrenched struggle between government conceptions of land-use "improvement" and existing local land-use practices.[3]

The Transition from Prosopis to Jatropha

The interlinkages between the Social Forestry Programme and the National Mission on Biodiesel are starkly illustrated by the transition from Prosopis to Jatropha in rural India. To better examine this transition, I conducted a comparative energy-flow analysis of the Prosopis and Jatropha energy economies in Sattur Taluk, Tamil Nadu, India (Figure 2). The objective of such an analysis was to evaluate the mobilization, transformation, use, and disposal of energy within society.[4]

The energy-flow analysis revealed that the existing Prosopis economy currently provides three to 10 times more useful energy than India's proposed Jatropha economy. Despite this, neither the central nor state government biofuel policies mention the Prosopis economy. The study also compared the types of energy services provided by the Prosopis and Jatropha systems in order to evaluate the distribution of costs and benefits resulting from India's efforts to replace one with the other. Prosopis is primarily used as fuelwood by local households and small-scale industries, and as a feedstock for energy provision. For many decades, it was used to manufacture charcoal but in recent years, as numerous small-scale biomass power plants have opened throughout Tamil Nadu, it has been used as a feedstock for electricity generation.

2 Pere Ariza-Montobbio, Sharachchandra Lele, Giorgos Kallis, and Joan Martinez-Alier, "The Political Ecology of Jatropha Plantations for Biodiesel in Tamil Nadu, India," *Journal of Peasant Studies* 37 (2010): 875–97.

3 Jennifer Baka, "The Political Construction of Wasteland: Governmentality, Land Acquisition and Social Inequality in South India," *Development and Change* 44 (2013): 409–28.

4 Jennifer Baka and Robert Bailis, "Wasteland Energy-Scapes: A Comparative Energy Flow Analysis of India's Biofuel and Biomass Economies," *Ecological Economics* 108 (2014): 8–17.

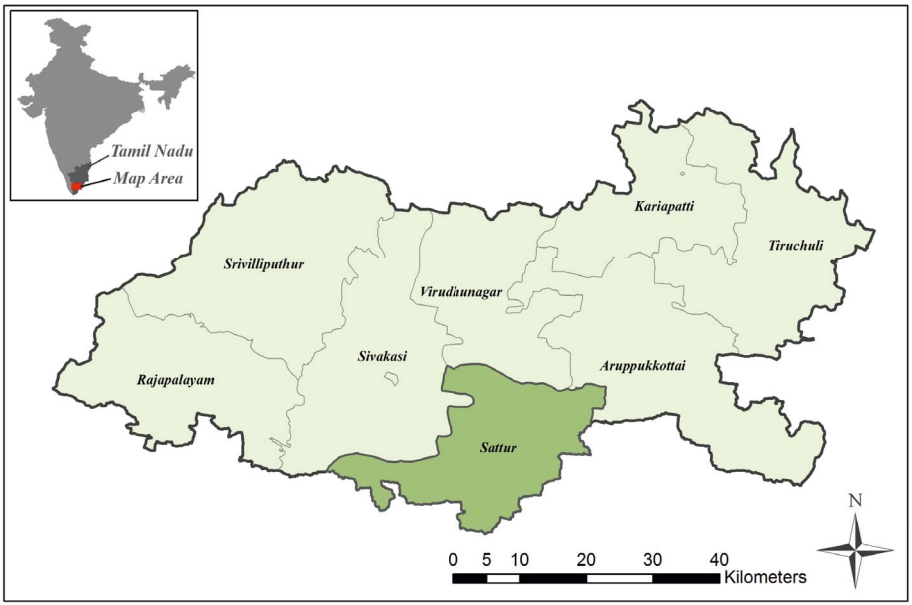

Figure 2:
Map showing Sattur Taluk, Tamil Nadu. Map by author.

While some of the energy services provided by Prosopis are exported from Sattur, most of the energy is consumed locally. In contrast, Jatropha is used to manufacture a liquid transportation fuel, an energy service not currently provided by Prosopis. Although some of the by-products from the manufacture of Jatropha biofuel could, in theory, be used as substitutes for Prosopis, they are insufficient to match the quantity of energy that the Prosopis energy system presently provides.

Because of both the differences in the quantity of energy and incommensurate types of energy services provided by these two economies, replacing Prosopis with Jatropha in Sattur has engendered a rural energy deficit, exacerbating rural energy poverty and contributing to what geographers refer to as "uneven development." Further, landless rural communities are disproportionately bearing the costs of India's efforts to develop an environmentally friendly domestic renewable-energy economy. The benefits of this energy economy flow instead to the country's rapidly urbanizing vehicle-owning, biodiesel-consuming households, as well as to industrial elites who have profited from the land transfers and economic subsidies implemented by the GOI to establish Jatropha plantations. Lastly, the energy flow analysis supports environmental-justice activist

Vandana Shiva's assertion that Jatropha fuels cars while impoverishing rural communities.[5] Elsewhere I have termed this process "energy dispossession."[6]

Hidden Livelihoods: Land Grabs and Surplus Populations

The process of energy dispossession was also enabled by GOI efforts to privatize and enclose wastelands. Specifically, the GOI extended land leases, lines of credit, and subsidies to biofuel companies who were willing to establish Jatropha plantations on wastelands. In a rush for wastelands, land brokers throughout Sattur started to amass contiguous plots of wastelands in order to establish Jatropha plantations. Land grabs ensued, as land brokers began bribing government officials for land records rather than attempting to purchase these plots. Once land brokers had acquired the land, landless communities could no longer use it for animal grazing and fuelwood harvesting.

Further, the energy transition from Prosopis to Jatropha translated into net job losses in rural Sattur. Landless laborers had frequently worked on Prosopis cutting crews, a job that provided about nine months of steady employment (Figure 3). In contrast, Jatropha plantations in the Sattur region provided about two weeks of steady employment, and only once the trees had reached maturity after three to four years (Figure 4).

As a result of energy dispossession, affected land users have been migrating to urban areas in search of wage labor in paper and firework factories. However, the availability of low-skilled industrial work has been in decline in recent years because of the expansion of high-tech Special Economic Zones (SEZs) into the region. Tamil Nadu's Prosopis land users are therefore at risk of becoming what Marxist political-economy scholars call a "surplus population."

These findings are not unique to Sattur. Prosopis is being uprooted in many states to make space for Jatropha. The GOI has been actively establishing SEZs on "vacant" lands throughout the country, further exacerbating processes of dispossession. In particular, SEZ projects in the north of India have been linked to widespread protests over

5 Vandana Shiva, *Soil not Oil: Environmental Justice in a Time of Climate Crisis* (New York: South End Press, 2008).

6 Jennifer Baka, "Making Space for Energy: Wasteland Development, Enclosures, and Energy Dispossessions," *Antipode* 49, no. 4 (2017): 977–96.

the loss of land-access rights.

Figure 3: Landless laborers cutting Prosopis in rural Tamil Nadu. Photo by author.

Figure 4: Female laborer harvesting Jatropha, Tamil Nadu. Photo by author.

Conclusion

This paper illustrated the objectives and social impacts of India's transition from biomass to biofuel. A problematic conceptualization of wastelands has been central to the outcomes of this process. Rather than acknowledging the significance of wastelands to livelihoods, the GOI has focused efforts on getting wasteland estimates "right" in order to locate rural development schemes. These conceptualizations of wastelands have dispossessed rural wasteland users, creating rural energy shortages and job losses. Yet, the impacts on agrarian livelihoods have been obscured in policy discussions because of the government's shifting perceptions of what constitutes "modern" energy and "productive" land-use practices.

It is likely that future land-use improvement schemes will continue to center on wastelands. To avoid repeating the outcomes of the Social Forestry Programme and the National Mission on Biodiesel, it is imperative to acknowledge the livelihood significance of wastelands in policy debates and to challenge the idea of wasteland users as "backward." When I asked interviewees to define wastelands, I was repeatedly informed that there are no such things as wastelands, since all lands are currently in use.

In other words, wastelands are already "improved" because the lands are providing important energy services to rural communities. Policymakers would do well to incorporate this perception into their energy policy planning.

Further Reading

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