

# Solar power, state power, and the politics of energy transition in pre-Saharan Morocco

Environment and Planning A

2016, Vol. 48(3) 540–557

© The Author(s) 2015

Reprints and permissions:

[sagepub.co.uk/journalsPermissions.nav](http://sagepub.co.uk/journalsPermissions.nav)

DOI: 10.1177/0308518X15619176

[epn.sagepub.com](http://epn.sagepub.com)**Karen Eugenie Rignall**

College of Agriculture, Food, and Environment, University of Kentucky, Lexington, KY, USA

**Abstract**

In 2009, the Kingdom of Morocco embarked on the Solar Plan, an ambitious 10-year plan to become a leading solar power producer. This paper examines the genesis of the first project in the plan, a concentrated solar power plant near the pre-Saharan city of Ouarzazate, in order to explore the “energy transition” as a political as well as geographic project. I specifically address how the government’s acquisition of land drew on colonial strategies for dispossession that were subsequently embraced by the post-colonial state. At the same time, bureaucratic processes for responding to community demands effectively narrowed popular opposition to a set of technocratic problems to be solved by development interventions. The official discourse of global environmental remediation obscured the socio-ecological relations at work in the project, constructing the land as marginal so as to facilitate investment and foreclosing resident’s broader political claims. Attending to the political dynamics surrounding solar power challenges assumptions that an energy transition necessarily involves a transition away from an environmentally destructive carbon-based economy—or from the forms of governmentality that support current energy regimes.

**Keywords**

Solar power, energy transition, renewable energy, land tenure, green grabbing, state, Morocco, Middle East and North Africa

**Introduction**

In 2009, the Moroccan government formally unveiled the Solar Plan, an ambitious initiative to reduce Morocco’s dependency on imported fossil fuels, which currently provide 95% of the country’s energy needs. The goal is to *valoriser* (develop) the sun as a national resource and to create a global competitive advantage in renewable energy (Royaume du Maroc, 2009: 4). Over ten years, the plan calls for developing 2000 MW of solar energy capacity in

**Corresponding author:**

Karen Eugenie Rignall, College of Agriculture, Food, and Environment, 713 Garrigus Building, University of Kentucky, Lexington, KY 40546, USA.

Email: [krign2@uky.edu](mailto:krign2@uky.edu)

five sites throughout Morocco's Saharan fringe, bringing the percentage of energy supplied by renewable sources from the current 5% to 42% (Moroccan Agency for Solar Energy (MASEN), 2011). One combined solar and natural gas plant already supplies electricity to the national grid, but the first large-scale plant to exclusively use concentrated solar power (CSP) is currently under construction in the arid steppe outside the regional capital of Ouarzazate, on the southeastern edge of the Sahara.<sup>1</sup> With a planned capacity of 500 MW, the Ouarzazate plant will be one of the largest CSP plants in the world, supplying electricity to the national grid and to the European countries helping to finance the project.<sup>2</sup>

The Moroccan Solar Plan forms part of a global effort by national governments and transnational partnerships to integrate renewables into international energy markets. The plan draws on the globally circulating discourse of a sustainable energy transition, but at the same time is embedded in contentious spatial and political dynamics that complicate a straightforward narrative of environmental regeneration. This paper uses the Moroccan case to examine one facet of the renewable energy transition—large-scale solar power—as a political as well as geographic project. It asks two related questions. First, how do existing transnational energy regimes shape the economic and political governance of the renewable energy transition? Second, how do these energy regimes relate to practices of governing at the “point of production”—the people and territories enlisted to supply renewable energy to the global marketplace? I examine the Moroccan government's acquisition of land for a massive solar power project in the country's southeastern desert as an example of how progressive narratives of renewable energy can join entrenched modes of governmentality to secure control over marginalized populations and the economic rents embedded in their land.

This paper focuses on one facet of the project's early stages—the Moroccan Agency for Solar Energy's purchase of 3,000 hectares of collectively owned land—to analyze how discourses of environmental remediation confronted popular resistance to the solar installation. The state-of-the-art CSP plant in the collective lands outside of Ouarzazate, while staged for a national and international audience focused on the benefits of renewable energy, became entangled in contestations over land tenure, political authority, and subsistence claims in Morocco's rural periphery. Solar power emerges in this context as a socio-ecological relation in which the fetishism of solar energy—especially its inexhaustibility, cleanliness, and immateriality—obscures the social relations necessary for its production (Huber, 2013). I extend Huber's analysis of oil's foundational role in shaping the “ecology of the forces of capital” to renewable energy (Huber, 2013: xviii), attending to the relation between politics and solar power. Huber (2013) contends that in order to understand the relationship between oil and modes of life in contemporary capitalism, “we must also follow social relations, power and struggles over how life is lived” far beyond the immediate sites of oil production (xii). In the case of the Ouarzazate solar installation, I argue that popular resistance to the plant moved beyond who would benefit from the plant to include broader claims about resource access, political power, and economic justice. This paper is based on 12 months of ethnographic fieldwork conducted in 2010 on land use, agrarian change, and governance in southern Morocco. The solar power plant had just come to public consciousness in the region as this fieldwork was coming to a close, provoking extensive discussion—and resistance—throughout the southeast. I returned in the summer of 2012 to conduct ethnographic interviews specifically on the solar installation. Interviews were conducted in the capital of Rabat at the offices of the Moroccan Solar Energy Agency and in Ouarzazate with local elected and ministry officials, activists, and residents involved in mobilizing around the plant.

The paper proceeds by theoretically linking ideas of an energy transition to scholarship on the political and geographic arrangements undergirding existing energy regimes. I then explore how the Ouarzazate solar project drew on solar energy's apparent *immateriality*—its evocative properties of invisibility and minimal impact and its potential to transform “marginal” land into an infinitely productive power source. Fissures in this narrative quickly became apparent in popular resistance to the state's acquisition of collectively owned land for the CSP plant. Critiques by European development advocacy groups as well as residents living around the plant emphasized resource access issues. The problem for people living around the plant was not simply that they did not receive a fair price for their land or would not benefit from the electricity it generated, but that they would not get the *life* that electricity offered to the European consumers to whom it would be sent. They were aware of their subordinate position in a national and global “economy of repair” that commodifies nature in novel ways on the presumption that “unsustainable use ‘here’ can be repaired by sustainable practices ‘there’, with one nature [and one population] subordinated to the other” (Fairhead et al., 2012: 242). People in the region were also aware that they were marginalized by a pattern of uneven development closely tied to state territorialization strategies. The final section details how the state foreclosed residents' political claims by absorbing their complaints into what Swyngedouw (2013) calls the “technomanagerial eco-consensus.” In the Moroccan context, this consensus held that the benefits of solar power outweighed any countervailing concerns: popular demands represented a barrier to clean energy to be overcome by transforming political claims into a technocratic problem to be addressed through development interventions.

### Theorizing the energy transition

Though the discourse of an energy transition implies a break with incumbent energy regimes, especially through transformations in infrastructure, land use dynamics, and governance structures, renewables adoption is closely tied to the political dynamics of those incumbent regimes (Bridge et al., 2013; Pasqualetti, 2011b; Scheidel and Sorman, 2012; Zimmerer, 2011). On the one hand, renewable energy may be seen as oppositional, with decentralized models of generation and distribution that could broaden access, refigure consumption practices, and challenge hierarchies of power in energy markets. On the other hand, renewable energy developed on a large scale and based on centralized generation models that plug into existing infrastructure may serve to perpetuate the inequalities and environmental damage associated with incumbent energy regimes. In this context, Huber's observation about the political dimensions of oil—how “energized practices shape particular forms of thinking and feeling about politics” (xi)—holds true for renewable energy as well (see also Limbert and Ferry, 2008; Mitchell, 2011; Swyngedouw, 1999; Watts, 2004). Continuities in “energized practices” across incumbent and emergent energy regimes are particularly apparent in the contestations over renewable energy projects in marginalized spaces around the world, projects often termed “green grabbing” for their links with the most recent wave of land grabs: exclusion from economic benefits or the energy production, top-town planning, land and other natural resource dispossession, foreclosure of livelihood activities, among others (Fairhead et al., 2012). Resistance against such resource appropriation, though hardly uniform, often extends beyond the direct effects of any given project to make claims about how the state promotes an ecology of capitalism premised on accumulation by dispossession (Harvey, 2005).

David Harvey's notion of accumulation by dispossession has become an influential framework for exploring the diverse mechanisms for capital accumulation and the

political arrangements that make them possible. Examining the Ouarzazate CSP plant in relation to land tenure dynamics is important, then, because it illustrates how capital accumulation and state territorialization strategies can support one another, especially in the contemporary context of large-scale land transfers (Hall et al., 2013). This has two major implications for a critical understanding of the renewable energy transition: first, renewable energy presages a troubled transition when it relies on an entrenched governmentality—in the Moroccan case, the deployment of colonial legal instruments for territorial dispossession—to acquire the land necessary for solar power development. Second, renewable energy that is simply “plugged into” existing grids of power and privilege extend the logic of carbon-based energy regimes. This is not necessarily because of corruption or inattention to legal norms. Rather, by remaining embedded in the political economy of those regimes, this approach to solar power reinforces dominant discourses in climate politics, which concede that “we have to change radically, but within the contours of the existing state of the situation. . .so that nothing really has to change!” (Swyngedouw, 2013: 4). In other words, renewable energy that supports existing ways of life premised on capital accumulation and its attendant dispossessions will only reproduce those forms of power imbricated with capitalist ecologies (Huber, 2013).

Capitalist ecologies facilitate capital accumulation by promoting energy-intensive consumption patterns and assuring steady fuel supplies, with geographical implications far beyond the economies where consumption is concentrated. Bridge et al. (2013) emphasize that “contemporary patterns of economic activity rest on geographies of energy capture and conversion. . .that displace the environmental costs of energy use over time and space” (p. 333). This is as true for renewable energy as it is for incumbent sources, though the geographies of renewables develop differently from those of fossil fuels because of their extensive nature (Pasqualetti, 2011a). Energy demand in Organisation for Economic Co-operation and Development (OECD) countries and other high-growth economies drives land transformations both within and outside of their borders, in regions especially amenable to bio-fuel, solar, and other renewable production (Matondi et al., 2011). Scholars have identified this demand as a driver of the emerging land grab, and the demand will only increase as renewables with large territorial footprints become more widely adopted (Cotula, 2012; Scheidel and Sorman, 2012). The political implications are as complex as the environmental and economic ones. The landscapes called on to support a low carbon transition are highly contested, and large-scale renewable energy projects often exacerbate existing inequalities because they rely on land governance regimes rooted in a history of dispossession or extraction (Boyer, 2014; Bridge et al., 2013).

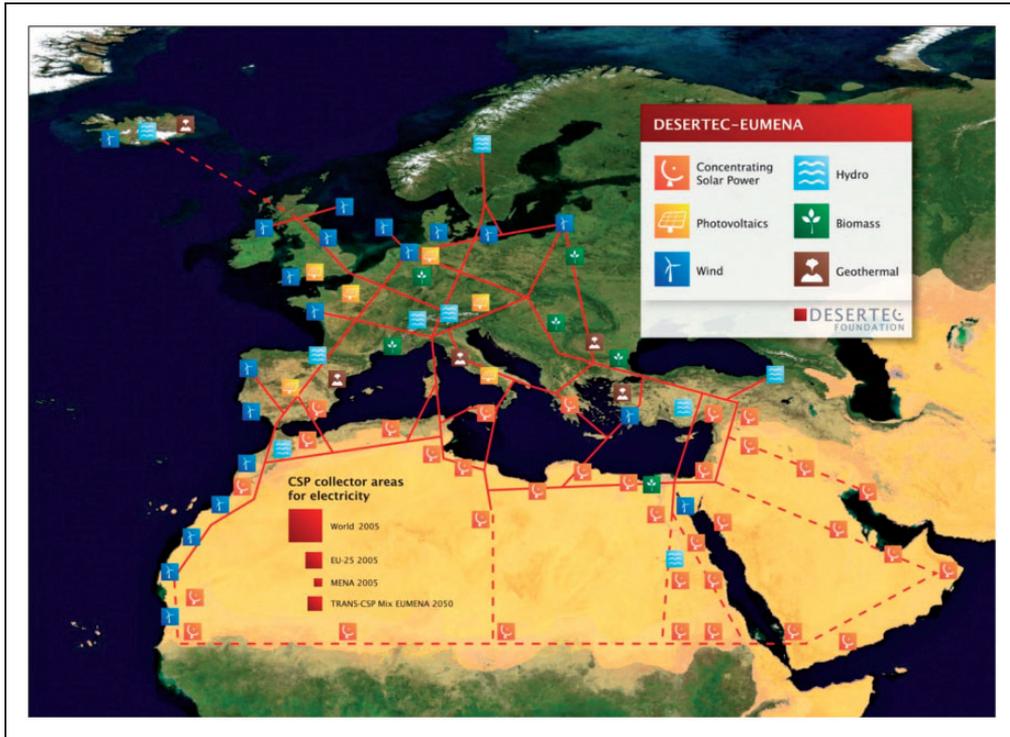
The appeal of many regions targeted as future renewable suppliers to industrialized economies is not only ecological, then, but political. Commonly, opaque land tenure systems and overtly repressive regimes facilitate land transfers from marginalized populations and foreclose their claims regarding the impact of or benefits from renewable energy projects (Matondi et al., 2011). While resistance to wind and solar power in OECD countries centers on aesthetic opposition to landscape changes, claims extending beyond landscape change to include the right to land and subsistence often go unheard in peripheral zones targeted for renewable energy development (Pasqualetti, 2011b). There is a particular kind of governmentality at work here, one that sustains a tension between making putatively idle land available for investment and actively resisting legibility in order to facilitate land acquisition (Hall et al., 2013; Li, 2014). Land in places such as Morocco’s expansive desert is constructed as empty or unproductive to pave the way for the renewable energy investments that will give it value, creating new opportunities for capital accumulation—not usually for local residents but rather at their cost. Nalepa and Bauer

(2012) argue that this ontology of resource productivism “categori[zes] world spaces by their potential to be accumulated and commoditized for the ‘global good’ and feeds the collective northern imagination that there is still surplus land yet undefined by endemic socio-ecological relationships waiting to be commoditized for agrofuels,” or in this case, solar power (p. 405). While these lands are rendered legible in some respects to facilitate investments, other processes undermine legibility in the ways land tenure is adjudicated to support those same investments. As Tania Li (2014) and a number of Africanist scholars (see, for example, Chimhowu and Woodhouse, 2006) underscore, fuzzy legal frameworks and markets are often the most profitable means of enclosing land and eroding the property rights of marginalized groups. This tension between legibility and obfuscation is heightened further when discourses of sustainability encounter a history of marginalization and land appropriation, as it did in the southern Moroccan steppe when the Ouarzazate solar project was announced.

### **Capitalizing the Moroccan sun: Sustainability discourse and Morocco’s strategic energy advantage**

On 26 October 2010, King Mohamed VI of Morocco made an official visit to Ouarzazate to formally preside over the signature of the conventions inaugurating the first phase of the Solar Plan (Amourag, 2010). Such royal visits were rare in the pre-Saharan provinces long neglected by the government, but recent years had seen a flurry of high-level activity around Morocco’s plan to become a leading producer of solar energy. The solar plan is a *projet de grande envergure et structurant* (a large-scale, structural project), an expression of the King’s personal interest in renewable energy as leveraging the country’s “strategic position at the heart of an energy crossroads” (Royaume du Maroc, 2009: 4). The overall program—a total of five plants—is estimated to cost MAD 70 billion (US\$8.8 billion) by the plan’s completion in 2020 (Royaume du Maroc, 2009). The MASEN, a state-owned corporation, is executing the plan with the help of nearly \$ 1 billion in loans from the World Bank, the African Development Bank, the European Investment Bank, Agence Française de Développement, KfW Bankengruppe, and the EU Neighborhood Investment Facility for (Banque Africaine de Développement, 2012). This list indicates that much more is at stake than Morocco’s dependence on imported oil: the Solar Plan’s energy will be exported to Europe, supporting the country’s strategic goal of making itself indispensable to European Union countries on a number of fronts.<sup>3</sup> The discourse of marshalling an unlimited national resource—the high rates of solar irradiation on the country’s desert—for assuring domestic energy security and global environmental renewal receives added purchase when joined with Europe’s ambitious renewable energy goals.

One Moroccan official remarked that renewable energy is “like a religion over there in Europe,” enabling Morocco to position itself as a pillar of Europe’s geo-political strategy for energy security (personal communication). This geo-political strategy belies a populist conception of an energy transition whereby households and communities use decentralized photovoltaic cells to power their homes and businesses. There are, in fact, plural energy transitions that are possible depending on the scale, social goals, economic arrangements, and political framework used to structure renewable energy regimes. The model that emerges in the European strategy involves massive international investments in capital-intensive, centralized power generation plugged into existing electricity grids. The map (Figure 1) introducing the “DESERTEC Concept for Energy, Water and Climate Security” illustrates the geographic imaginary for this kind of energy transition (DESERTEC, 2009). A satellite view shows lines linking a green but energy-poor Europe



**Figure 1.** Map of the DESERTEC Concept for Energy, Water and Climate Security. The DESERTEC White Paper depicts a Mediterranean and European riparian basin linked by the production and trade of renewable energy.

to solar and wind installations in the expansive brown desert of North Africa and the Middle East. When viewed at this regional scale, the Moroccan solar plan is framed not as a national energy strategy but as the first phase of a *European* initiative to “provide 15% of Europe’s electricity by 2050 through a vast network of solar and wind farms stretching right across the Mena [Middle East and North Africa] region and connecting to continental Europe via special high voltage, direct current transmission cables” (Hickman, 2011). This regional initiative was spearheaded by the Club of Rome and then formalized as the DESERTEC Industrial Initiative, a public–private consortium formed to help Europe meet its renewable energy goals. DESERTEC’s white paper calls for an “Apollo-like” mission to “bring humankind back into balance with its environment, by putting deserts and technology into service for energy, water and climate security” (DESERTEC, 2009: 8). With North Africa already linked to Europe by one high voltage transmission cable (currently used to send Spanish electricity to Morocco) and others slated for installation, solar power and other renewable energies could supply an infinite source of economically harvested energy to Europe—only “1% of the area of global deserts would be sufficient to produce the entire annual primary energy consumption of humankind as electric power” (DESERTEC, 2009: 19). In this formulation—unlike, say, in immigration policy—the Middle East and North Africa become part of EUMENA, “the Mediterranean riparian region of Europe, the Middle East and North Africa” (DESERTEC, 2009: 6). It is a region that when “integrated”, will not only satisfy existing energy needs but will enable European economies to keep growing in an environmental and economic win-win situation.

The optimism surrounding solar power lies at least in part in its apparent immateriality: it appears clean in all senses of the term, literally in terms of its emissions and metaphorically in terms of the shiny, smooth cells that quietly sit on the landscape with none of the pollution and violence associated with fossil fuels or even bio-fuels.<sup>4</sup> The social and environmental impact study for the CSP plant spells out the ostensibly minimal impact. The plant is being built on a plateau, literally invisible from the national road that skirts its lower perimeter and the five villages located at the eastern edge of the allotment (Kouz et al., 2011). The report details how there will be some dust and noise during the construction phase but ongoing operations will be both silent and imperceptible to the surrounding communities that farm the oasis plots lining an irregularly flowing river to the east or the extensive pastoralists that bypass the site twice annually with their herds. The noise created by the turbines will be minimized by situating them at the furthest end of the allotment from human habitation. The plant could spill the synthetic oils and salts used to store heat produced by the sun and then used to power turbines, but aside from this minimal risk, the report asserts that there will be no impact on the surrounding environment. The report details little impact on livelihood activities; it will engender only “the slightest conflict” over land uses because the site is currently only used for pasture and has a poor supply of forage, “No displacement of either population or economic activity is envisioned” (Kouz et al., 2011: 10). It also emphasizes the plant’s minimal water requirements: the impact assessment predicts an annual water consumption of 6 million cubic meters to be taken from surface waters in the reservoir of the nearby Mansour Eddahbi dam, which stores anywhere from 54 million to 1,300 million cubic meters depending on the wildly inconsistent rainfall in the region (Kouz et al., 2011: 112).<sup>5</sup> The project’s impact appears minimal even compared to other renewable energies, such as wind farms, that elicit substantial public resistance (Howe, 2014; Pasqualetti, 2011b).

These reported impacts may be accurate in and of themselves but they provide a partial picture of the initiative’s overall effects on the region. The discursive frames of environmental remediation and the project’s “minimal impacts” obscure the contested socio-ecological relations underpinning the Solar Plan. These contestations involve diverse resource access issues, which will be addressed in greater detail in the next section. Here, I emphasize the land question to illustrate these discursive operations. In project documents and interviews, officials emphasized the “marginality” of the land purchased for the installation, which at 3,000 ha constituted only a small percentage of the 64,000 ha owned by the ethnic collectivity of Ait Oukroun Toundout (MASEN, 2011). However, constructing this marginality required substantial political work. One of the central tropes used to transform putatively marginal or underutilized land into a resource available for capital accumulation constructs wide swathes of the globe as “empty of people, histories, and claims, but full of potential for new and improved use” (Li, 2014: 4). In southern Morocco, the land was imagined as alternately empty and misused by the extensive pastoralists and oasis farmers who had based their livelihoods here for centuries. In her definitive environmental history, Diana Davis details the French colonial origins of declensionist narratives that blamed nomadic pastoralists for degrading the rangelands, though overwhelming evidence indicates that anthropogenic degradation has been minimal, with the bulk of that degradation caused by French colonial policies (Davis, 2007). These narratives justified both outright expropriation and the development of an institutional infrastructure for natural resource management that politically contained mobile populations and undermined or destroyed their livelihoods. These narratives continue to shape the political economy of Morocco’s rangelands (Davis, 2005). Discriminatory policies, imported pastoral development models, and the commoditization

of the livestock market have been compounded by chronic droughts in a progressive desiccation caused by global warming (Benassi, 2008; Gertel and Breuer, 2007). If the lands surrounding Ouarzazate appear unused, it is in part because extensive pastoralism has long been considered an unproductive land use to Moroccan policy makers.

These have long debated how to render collective lands productive for national economic growth, from pastoral improvement zones, to intermittent policy discussions about modifying collective land tenure to encourage productive investment (Bouderbala, 1997; Davis, 2006). For them, solar energy represents an innovative way to extract value from the country's marginal zones, mobilizing Morocco's vast collectively owned lands for national economic growth, stronger economic ties with the EU, and global environmental renewal. The use of the steppe to generate solar power therefore joins a global trend that uses specific technologies and discourses to frame "marginal lands" as a "potential global economic resource" to support climate change mitigation efforts (Nalepa and Bauer, 2012: 404). In the case of pre-Saharan Morocco, marginality is produced in relation to an alternative land use—pastoralism—that is labeled unproductive. Excising only 3,000 ha from the region's collective lands is therefore deemed inconsequential for local populations, who should cede that land for the greater good. The Moroccan state plays a fundamental role in these discursive and juridical constructions, much in the way other national governments facilitate large-scale land transfers for extraction, agriculture, or other 'environmental ends' (Fairhead et al., 2012; Wolford et al., 2013). Official efforts to frame the Moroccan steppe as marginal not only obscure the relations of power and inequality in which the solar installation is embedded, they construct popular resistance as an attitudinal barrier to a progressive energy transition or a development problem to be resolved through aid projects.

### **Situating resistance to solar power: Resource access and the land question**

Resistance to renewable energy initiatives tends to focus on top-down planning procedures, the uneven distribution of project benefits, and public "opposition to landscape changes and the associated impacts on the way of life such changes might bring" (Pasqualetti, 2011b: 202). While resistance is often expressed through NIMBYism and a defense of cultural traditions, more fundamental questions about the state's role in perpetuating unequal resource access and control also permeate these contestations. In the case of Ouarzazate, both European advocacy groups and the people living around the plant raised resource access as a central critique. But claims regarding resources—the sale price of the land, the jobs, and other benefits from the installation—were also about more than the resources themselves; they were about social and political struggles around uneven development and the role of the state in the region's marginalization. Such "political reactions from below" did not distinguish between renewable energy, extractive industries, or other forms of dispossession but rather emerged from the Moroccan south's complex history of marginalization (Hall et al., 2013). This history informed the types of resistance residents around the plant adopted and did not always conform to the discourses of "Global North" groups that took up the Ouarzazate case in their advocacy for energy and economic justice.

European development advocacy groups have raised concerns about the technical and financial viability of Morocco's Solar Plan as well as its equity implications (Hickman, 2011). The idea that Morocco would take on massive debt to produce energy for Europe when the economic viability of the initiative is hardly assured raises questions about externalizing the risk of Europe's renewable energy strategy to Morocco and other struggling economies around the region. Advocates also wonder whether local people will benefit from the

regional strategy to export energy to Europe, as when Greenpeace Germany warns that “we have to avoid European companies getting their hands on local resources” (Hickman, 2011). Another report labels the Ouarzazate project an “EU energy grab” (Reyes, 2012). It warns of “pumping money into a mega-project whose purpose is to generate electricity for export to the EU instead of investing in enhancing energy access” for local populations but goes on to note that “such concerns should not be misinterpreted: there *is* a clear need for a rapid transition to solar and other forms of renewable energy globally. To the extent that this is prioritised above fossil fuel infrastructure, that is a welcome development. However, this laudable end does not necessarily justify the means by which it is achieved” (Reyes, 2012: 4). For the World Development Movement, a UK-based advocacy group now called Global Justice Now, the primary concern is a Moroccan energy policy based on an “energy export and competitiveness-led model, to which the goal of widening access and addressing poverty is subordinated” (Reyes, 2012: 11). In this view, the Ouarzazate project represents a financially and technically dubious strategy for centralized, capital intensive energy production.

European advocates also question whether the project adequately addresses the needs of the rural poor in Ouarzazate and elsewhere in Morocco who have limited access to electricity. However, nearly all of Morocco’s rural poor villages do have access to electricity, a recent result of a government initiative to electrify the countryside, especially the dispersed and isolated villages in the mountains and pre-Saharan regions (Royaume du Maroc, 2011).<sup>6</sup> The cost of energy is a concern in this chronically poor area, especially when the most vulnerable households cannot afford to connect to the grid. However, the main issues for the residents around the installation were land, jobs, and the financial rewards from the project. The approximately 8,300 people in nine rural towns surrounding the plant historically relied on oasis agriculture, extensive pastoralism, and more recently, labor migration for their livelihoods but still figure among the poorest in the country. European advocates view the plan warily, but they do so through the relatively narrow lens of unequal energy access. Popular claims included but also exceeded the issue of energy access, linking solar power more fundamentally to how the state used law and bureaucratic procedure to sustain the region’s peripheral status.

The government’s land acquisition for the installation provoked popular resistance in large part because it rehearsed state territorialization strategies that since the colonial era had marginalized the region and eroded local sovereignty in favor of strong central control. These strategies were not extra-legal. Well aware of the stakes involved in the high profile project, officials scrupulously followed the law governing collective lands. The World Development Institute’s critical assessment of the project blandly notes that “the site was originally owned by the Ait Oukroul Toundout ethnic community. The sale followed the usual procedure adopted by the Moroccan government when public agencies purchase land from a local community” (Reyes, 2012: 15). There is no further discussion of land tenure in the advocates’ critiques but there is much more to this story. Ait Oukroul is not in a formal sense an “ethnic community.” It is an ethnic collectivity, the French colonial euphemism for another problematic term (“tribe”) used in the protectorate’s (1912–1956) indigenous policy and land law.

This juridical framework still governs land tenure in Morocco and assumes central importance for the Ouarzazate installation because it guided the transfer of property from Ait Oukroul to MASEN in a way that excised residents from the decision-making process and effectively denied them access to proceeds from the land sale. Shortly after the French established the protectorate in 1912, a government decree placed Morocco’s estimated 12 million hectares of collectively owned land under the tutelage of the Office of

Indigenous Affairs (Davis, 2007; Lyautey, 1927; Rivet, 1988). Moroccan tribes retained ownership but the Office “protected” the lands from illegal appropriation or encroachment; a “substitute for the collectivity,” it had “the responsibility of a diligent tutor, a good father to its children” (Guillaume, 1960: 25). The Protectorate administration established a structure for the “rational” distribution of portions of those lands for the goals of colonial economic development while ostensibly ensuring that any given ethnic collectivity would retain enough land for their members’ livelihoods (Bidwell, 1973; Pascon, 1986). A committee composed of Indigenous Affairs officials along with the collective land representative from the relevant tribe weighed proposals for allocating collective lands for individual projects (usually French agribusiness or concessions for colonial settlers) or state-mandated infrastructure projects such as road building. A state-led enclosure process essentially created a reserve of collective lands under protectorate control to be doled out through opaque and unaccountable procedures while still retaining ethnic collectivities’ formal ownership of those lands (Bidwell, 1973; Pascon, 1986).

The decree of 1919 has remained essentially unchanged since its inception. The Office of Indigenous Affairs is no longer, but the Ministry of Interior inherited its tutelary authority upon independence in 1956 and currently, the Rural Affairs Directorate at the Ministry coordinates those same committees charged with allocating collective land and manages the financial accounts of the ethnic collectivities receiving rent on the long-term contracts on their property.<sup>7</sup> The staff of the Directorate takes their work very seriously, scrambling with a meager budget and inadequate staff to manage hundreds of thousands of hectares on behalf of ethnic collectivities. The officer in charge of shepherding the sale carefully followed procedure, but he also offered a frank analysis of the state’s role in the “collective land problem.” He rued the persistent tension inherited from the colonial period between the role of the state in “protecting” collective lands on behalf of their true, legal owners and allocating those lands for “productive purposes” to investors, who were now striking out for economic opportunities in even the most peripheral fringes of the country. The Moroccan state held collective lands in abeyance, relying on an allocation procedure that concentrated communal authority over land disposition in one office holder per ethnic collectivity. Collective ownership was expressed entirely in the person of the collective land representative, a liminal bureaucratic figure officially chosen through indigenous democratic procedures by tribal members but in reality, a life-long sinecure held by powerful regional notables, some with more popular legitimacy than others. Some were seen as staunch defenders of collective lands against outside investment projects, while others were widely dismissed as weak, easily manipulated by the state.

It was the three collective land representatives of the different fractions of Ait Oukrouh who approved the land sale to the state for the solar installation in January 2010, and the sale was completed in early October 2010, just prior to the King’s visit in late October to officially inaugurate the Ouarzazate project (MASEN, 2011). Residents of the surrounding communities had never heard of the project before the King’s visit: they were not consulted during the site selection process and did not learn of the terms of the sale until after the October 2010 announcement of the CSP plant. There are no mandated procedures for consulting with community members. The process for determining the sale price was the same as for other investment projects approved by the Ministry of Interior: allocation committee consensus on what the land was worth based on previous projects. According to one official, collective land in Ouarzazate proper was being rented or sold at MAD 10-12 a square meter; since the land slated for the solar installation was deemed unproductive, the sale price of MAD 1 per square meter made sense. At MAD 30 million (US \$2.5 million), this sale was by far the largest transaction ever involving collective lands in the Ouarzazate area.

And yet people resisted it. As one activist described, “the conflicts come from the authorities (*as-sulta*). People just saw the topographer walking around and asked what was going on. They accosted him. The government does not know the diplomacy of working with people; they just didn’t tell them.” The first public meeting about the solar installation took place in November 2010, a month after the King’s announcement of the project in Ouarzazate. The meeting consisted of a formal presentation of the environmental impact study in Ouarzazate’s most luxurious five-star hotel. Attendees included government officials and NGO representatives; residents had no formal channels for making their voices heard or impacting the process. The symbolic intimidation of the meeting location was not lost on members of these marginalized rural communities. A local activist shrugged that residents never had a chance to say no: “the Governor said, the project will be done. Don’t fret over it.” Following this meeting, communities began to voice resistance, beginning an informal campaign of visits, letter writing, and public complaints against the way the government was approaching the project. Residents and activists balked at the low price; as one activist observed, the “government only talks about the number 30—MAD 30 million—and not the fact that the sale price is so low.” People were concerned about the whether the project would generate the kinds of jobs and other benefits they had been promised. As one local teacher spearheading the resistance asked me, “if we can help the whole world with clean energy, why we cannot do more to build factories here,” improve agriculture, and help people out of poverty in Ouarzazate? In short, they asked why the project did nothing to address a long history of marginalization in the region and instead drew on the same strategies of exclusion to force the project on area residents.

Local officials anonymously expressed frustration that despite the international profile of the installation, they were left to explain the laws governing collective lands to angry residents. People were furious when they learned they would not directly receive the proceeds from the sale. Though the impact report (2009) asserts that “all of the rights-holders in the Ait Oukrouir collectivity” were compensated, the entire sale price actually went to the Ministry of Interior, disappearing into a bank account held in the tribe’s name but to which no tribal representatives had access—a feature of the government’s tutelary authority held over from the colonial period. They were similarly dismayed to learn that this money would be used to finance development projects throughout the region. In essence, the sale was not a sale at all: it was a transfer of funds from one government agency to another in an expression of the Ministry of Interior’s ongoing tutelage over collective lands and the tribes that formally owned them. It was all fully legal.

The state therefore used bureaucratic legal procedures rooted in colonial dispossession to disengage people from their land, transforming collective sovereignty over communal lands into a narrow form of property ownership that paved the way for state-led enclosure. Over the course of a century, the transformation of ethnic collectivities into wards of the state, among other policies, reconfigured sovereignty from a diffuse authority held by multiple polities to a univalent relationship between a collective land representative and the state. But this was an incomplete process. State policy simultaneously eviscerated tribal sovereignty over land and people *and* sustained the tribe as a vaguely defined juridical entity by retaining the institutional infrastructure of colonial property law in a way that facilitated ongoing land transfers. Resistance to the CSP installation therefore contested this shift from sovereignty over collective land in the broad sense of governing territories and people to a narrow and arguably deceptive conception of ownership. In this context, the transfer of 3,000 hectares for a solar energy project was about far more than what happened on that plot of land or who would benefit from the energy and jobs produced by the plant. That narrow optic renders resistance to the installation unintelligible, or worse, irrational, obscuring how this project

had become caught up in regional struggles over what it meant to be governed by the post-colonial state, collectively own land, and exercise the right to extract value from that land.

Local officials were surprised by the level of dissent around the solar installation and the new modes of expressing it: “Things keep on coming up. People send demands, write letters, to us, to the Ministry of Interior in Rabat, even the palace, and we have to run around to respond to Rabat’s questions and meet their demands. Three villages have held up the whole project for months with these requests and we are not finished with them.” To a certain extent, this state of affairs reflected the impact of the Arab spring, but not in the way a dominant narrative about the uprisings would suggest: that for the first time, people felt empowered to voice their demands and reclaim their dignity (many in these countries had mobilized at great risk to themselves for a long time). Berbers in Morocco’s rural south did not feel any great kinship with Egypt, Libya, or even Tunisia, distant Arab countries with little relevance for their lives. However, they did see an opening. They knew that the governor was hamstrung by the palace’s desire to avoid violent confrontation and, as one activist described to me, they took advantage of this caution to mobilize around longstanding grievances about land, water, and the right to benefit from projects such as the solar installation and the mines that dotted the south. People were savvy about seizing the moment. One government official sighed that “ils veulent tout, et dans les média! [they want everything and they demand it in the media]” Though they may have made these broader claims, they found that their space for political maneuver was circumscribed not only by the “progressive” discourses of renewable energy but also by entrenched modes of governmentality that reduced populations to objects of development. In the final section, I explore how their political claims were “rendered technical,” transformed into technical problems to be solved by community development projects framed as participatory in nature (Li, 2007). Renewable energy, then, was enabled by political arrangements that had economically and politically marginalized this region and at the same time supported state territorialization goals by further weaving the state into the everyday lives of residents.

### **Transforming political claims into problems of development**

The 3,000 ha outside of Ouarzazate did not simply need to be secured in a formal, legal sense in order for the plant to be constructed. The solar installation, like other extractive industries, was creating new forms of economic rents that because of the sun’s inexhaustibility would extend indefinitely into the future. In order to secure this opportunity for capital accumulation, the state circumscribed who could exercise claims over those rents. The process of limiting claims on the land slipped into a well-established pattern of unequal relations between the marginalized populations in the southeast and post-colonial governance structures that used opacity and bureaucratic maneuvers to erode collective sovereignty over the land. Just as the land had been constructed as marginal yet full of potential, the people who were its historical owners were constructed as ontologically poor, attached to their land out of sentimentality, yet also available for “development.”

One community activist described how “The project people talk about this as a desert that is not used but to people here it is not desert; it is pasture. It is their territory. The future is in land. When you take my land, you take my oxygen.” This activist expressed frustration that officials dismissed his language as over-dramatic. He rejected the common assumption that people’s attachment to the land was essentially sentimental even when, like this rocky plateau, it might appear useless. According to him and the ethnographic research I conducted throughout the region, people did not simply understand land in terms of the past, but also in terms of the future—a future in which the kinds of value that land could

produce was in flux. Pastoralism had shifted from a cornerstone of the region's livelihood systems to an insupportable economic risk for many; environmental and economic changes of the past three decades forced increasing numbers of households from the livestock sector. People were leaving the drought stricken mountains, moving into the steppe for housing or, where water was available, to expand their agricultural operations. Expanding urban centers were incrementally appropriating collective lands for city services and housing, while larger agricultural projects were appearing in the open steppe thanks to long-term rental contracts signed through the same Ministry of Interior allocation committees and deep wells most residents could never afford to sink. Land values were increasing throughout the region, but people talked particularly about the way speculation and rising prices were taking hold in communally owned lands. While private property (*melk*) is long-established in the intensively farmed oases and urban centers, communal lands had never been subject to market-based transfers. When speculative value assigned to the expansive desert drove demand for land in the southeast, communal lands were treated as commodities for the first time.

The solar installation then, must be understood within a broader context of appropriation, neglect, and speculation. The land, sold at a cheap MAD 1 per square meter was clearly worth a lot more now.<sup>8</sup> People understood the rise in land values that such a project would engender and the new kinds of competition it would encourage over communal land situated near economic opportunity—land along the national road where gas stations could be built, near the solar installation where stores for the employees or tourists could be located, near market towns where immigrants fleeing drought from the mountains could build their homes to gain better access to wage labor opportunities. One official described increasing land conflicts in the region: “there is no law now; it is the law of the jungle, the strong over the weak.” This perhaps overstated the situation but the opacity of land transfers in the collectively owned steppe was widely acknowledged to be fueling conflicts. These were struggles over the right to subsistence from land ostensibly held communally but channeled for the benefit of the few, the right to receive individual rights in land that had acquired a new economic value, and the right to autonomy—the ability to decide themselves, not through a tutelary authority or a single collective land representative, the disposition of their lands.

Popular resistance focused on claiming historical tenure rights and sustaining rural livelihoods, but it was also about enabling residents, the formally collective owners, to extract some of the emergent values being created through that land. However, just as discursive constructions of marginal land imagined it as full of economic potential, those same constructions operated to remove other claimants to that value. Removing subaltern claimants evokes the dispossession that invariably accompanies capital accumulation; it was, however, a more discursive violence wrought by bureaucratic erasure than the physical violence more commonly associated with other resource grabs, such as Indonesian palm oil plantations or Nigerian oil fields (Harvey, 2005). In southern Morocco, people's political claims were transformed into technocratic problems of community development and participation. To gain access to international loans the Moroccan government had to follow a series of protocols assessing the environmental and social impact of the project and instituting consultations with local populations. However, these consultations were not simply imposed—the state drew on institutionalized practices and discourses of participatory development in a way that responds to the specific imperatives of governance and territorialization in Morocco. From the moment he ascended to the throne in 1999, the King made a very public commitment to a new philosophy of governance, a “politics of efficiency, based on the principles of proximity and participation” (Royaume du Maroc, 2010). Officials at MASEN, the state-owned corporation in charge of the project, were explicit that consultations were not required

by law or an external funder but rather expressed their voluntarist commitment to the people living near project sites.

The process of community consultation, then, was both real and indigenous, but it narrowed the range of issues open to discussion. Consultations were intended to inform local populations about the project rather than seek their approval. Residents balked at how late they were brought into the process and MASEN's policy of "social accompaniment" could not keep up with dynamics on the ground. Activists and some local government officials described this policy as reactive, a hurried attempt to make the benefits more apparent to local residents who were getting progressively more vocal about their displeasure. When the movement of letter writing and local protests gathered steam, the state agency's first response was to distribute bicycles to children in the surrounding communities. Local ministry officials were then charged with cataloguing people's complaints so that they could be used as a list of priorities for the social support program. The resulting development projects amounted to MAD 45 million; 30 million of that came from the proceeds of the sale and the remainder was going to be funded by the ministries directly. These projects included road paving, lining irrigation canals, financing for local tourism projects, and a youth complex, among others.

The consultation process was intended to develop priorities in concert with local communities but limited who could speak on behalf of the communities. Local ministries and elected officials received a steady stream of visitors, documenting their requests. Project documents detail meetings with community stakeholders: local elected officials, representatives of local associations or NGOs, and other community leaders, though as I noted above, unaffiliated community residents had no formal mechanism for impacting the process. Despite this constant traffic, the priorities, as one elected official told me, were taken directly from the *Plans Communaux de Développement* (PCDs, or Communal Development Plans)—a national mechanism for developing local planning priorities that had been mandated by the Ministry of Interior independently of the solar project—and not from any sustained consultation with communities. The PCDs offered a turn-key list of projects that line ministries could present to MASEN and the Ministry of Interior in Rabat for inclusion in the solar installation's social program. That program has since been contracted to a French NGO that will run participatory development projects in the region.

Something about this process felt wrong to local residents but the state had effectively narrowed the discursive field to close off a deeper analysis of the power dynamics surrounding the arrangement, limiting discussion to a list of development complaints and the infrastructural projects that could address them. By taking the MAD 30 million from the sale and directly folding the funds into social accompaniment projects that the state would implement on behalf local residents—or out-source to a foreign NGO—the government had effectively transformed people's fundamentally political claims about land into technical problems of development, completing the removal of sovereignty described in the context of land tenure and property law (Li, 2007). People were literally paying for their own "development" in a process that erased any future claims to the rents that the CSP plant would produce. In this context, the solar installation accomplishes much more than the creation of a new export commodity to Europe: it supports more parochial projects for refiguring the way populations relate to the state and disabling their capacity to interrupt circuits for capital accumulation.

## Conclusion

In conducting a close reading of the solar installation in Ouarzazate, I am interested in the question of what the solar plan *does* for politics and what kinds of political arrangements are

necessary for renewal energy projects that support existing forms of capital accumulation. The discourse of global environmental renewal can be disarming, obscuring relations of power as well as the continuities with carbon energy regimes and the political arrangements that buttress them. But the issue is not simply that renewable energy can rehearse the errors, corruption, or iniquities of the old way of doing business. Rather, it cannot by definition challenge those iniquities when it is embedded in the same processes of capital accumulation that defined previous energy regimes. Energy transitions are therefore not only about energy, or even geography, they are about how power infuses the relationships between energy, politics, and the spatial transformations associated with transition. The solar plan in Morocco therefore reveals dynamics at work in many types of renewal energy projects—how they are implicated in international discourses around climate change and energy transitions *and* in the everyday practices of governing marginalized lands and people.

The language of cleanliness and carbon emissions masks the ways in which the CSP plant is much like a fossil fuel or an extractive mine in the way it occupies space and circumscribes people's sovereignty over the land so as to capture the rents generated on that land. In the case of southern Morocco, the state deftly used legal and bureaucratic procedures to effectively erase the broader political and resource claims raised by residents around the plant. But discourses of sustainability could not quite suppress the uncomfortable connections people had begun to make between this clean energy project and the other extractive industries, such as mining, operating in the area. As construction on the CSP installation proceeds, people throughout the region are demonstrating around the silver and cobalt mines, closing them down or going on strike, to demand a more equitable distribution of mine revenues. Activists and officials alike in Ouarzazate explicitly linked these mobilizations against the mines to that around the solar project: one local official asserted that the authorities had addressed popular discontent despite the project's rocky start, favorably comparing the CSP installation to a mine experiencing some of the region's most sustained confrontations. "It's not like Bouazer here! Have you seen that? It's a mess. We are doing a much better job here than they are." Others did not agree; they considered Ouarzazate a mess, too. The solar installation did not necessarily cause the mess, but it became enmeshed in the struggles over land and power that struck at the heart of people's subject relations to the state and sovereignty over their land.

### **Acknowledgments**

The author thanks the research participants in the provinces of Tinghir and Ouarzazate as well as Mona Atia, Patrick Bigger, David Hughes, Peter Kalliney, and Julie Shepherd-Powell for their assistance in improving this manuscript.

### **Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: the American Institute for Maghrib Studies, the National Science Foundation (Award numbers: 0920370 and 3048110665), and the Wenner-Gren Foundation for Anthropological Research (Award number: 0920370).

## Notes

1. Concentrated solar power (CSP) is a set of solar electric technologies that uses mirrors to concentrate sunlight and generate heat that can be stored (unlike photovoltaic cells) and drive conventional turbines to generate electricity. Because of its capital-intensive and centralized technology—as opposed to the small-scale and decentralized photovoltaic cells commonly associated with solar energy—CSP is regarded as more easily integrated into existing electricity grids. See Barlev et al. (2011) and Zhang et al. (2013) for a review of CSP technology. The particular configuration used in the plant under consideration here lays out an array of mirrors over a large area surrounding a central tower where the steam turbine is located.
2. As of fall 2014, the plant was still under construction after initial delays in securing the financing for the project in the wake of the global financial crisis.
3. Morocco was the first country in the southern Mediterranean to receive the EU's preferential "advanced status" in 2008; Morocco has been the largest recipient of EU aid for over a decade as part of the EU's Neighborhood Policy. Advanced status includes preferential relations in terms of trade and other forms of cooperation and political dialogue. See [http://ec.europa.eu/europeaid/where/neighbourhood/country-cooperation/morocco/morocco\\_en.htm](http://ec.europa.eu/europeaid/where/neighbourhood/country-cooperation/morocco/morocco_en.htm) for an official description of this relationship.
4. This "clean" imaginary elides the resources required for the production of solar power technologies, including rare earth metals, and the toxic waste produced in the life cycle of those technologies (Silicon Valley Toxics Coalition, 2009).
5. The statistics are deceptive in suggesting that the take-off for the plant will be inconsequential because the dam is essentially the only source of water for the entire Dra' valley to the south. The Dra' is home to the country's most extensive date palm oasis and arguably cannot spare any irrigation water given the region's worsening cycle of chronic droughts.
6. However, not all households have electricity because the cost-share for installation is too costly for many.
7. While the Ministry oversees the funds collected on behalf of the ethnic collectivities, those collectivities have no access to or control over their accounts and most have never received the money due for contracts on their land since those contracts started being issued in 1919. In the province of Ouarzazate, the first efforts to disburse the millions of Dirhams that had accumulated over the previous century to the many collectivities began in 2003. The Ministry's inability to trace exactly how much money was due to each tribe or to resolve the controversial issue of identifying eligible rights-holders meant the Ministry did not attempt to distribute cash directly to the ethnic collectivities. Instead, they established a community development fund to finance economic and social projects around the province.
8. Discussions about land tenure and titling in the development literature ignore the extent to which many of the most active market players in land—state actors and private investors—may not want a transparent market in land (Li, 2014). In southern Morocco, the non-market framework for transferring land as it exists in the laws governing collective lands maintains low prices and simplifies the acquisition process.

## References

- Amourag A (2010) Coup d'envoi du plan solaire marocain. *Maroc Hebdomadaire*, 22–28 October.
- Barlev D, Vidu R and Stroeve P (2011) Innovation in concentrated solar power. *Solar Energy Materials and Solar Cells* 95: 2703–2725.
- Banque Africaine de Développement (2012) Rapport d'évaluation de projet: centrale solaire d'Ouarzazate-phase I. Banque Africaine de Développement, Abidjan.
- Benassi M (2008) Drought and climate change in Morocco: Analysis of precipitation field and water supply. In: Lopez-Francos A (ed) *Drought Management: Scientific and Technological Innovations*. Paris: Centre International de Hautes Études Agronomiques Méditerranéennes, pp. 83–87.
- Bidwell R (1973) *Morocco under Colonial Rule: French Administration of Tribal Areas, 1912–1956*. London: Cass.

- Bouderbala N (1997) La modernisation et la gestion du foncier au Maroc. *Options Méditerranéennes* 29: 155–164.
- Boyer D (2014) Energopower: An introduction. *Anthropological Quarterly* 87(2): 309–334.
- Bridge G, Bouzarovski S, Bradshaw M, et al. (2013) Geographies of energy transition: Space, place and the low-carbon economy. *Energy Policy* 53: 331–340.
- Chimhowu A and Woodhouse P (2006) Customary vs private property rights? Dynamics and trajectories of vernacular land markets in Sub-Saharan Africa. *Journal of Agrarian Change* 6(3): 346–371.
- Cotula L (2012) The international political economy of the global land rush: A critical appraisal of trends, scale, geography and drivers. *Journal of Peasant Studies* 39(3–4): 649–680.
- Davis DK (2005) Indigenous knowledge and the desertification debate: Problematising expert knowledge in North Africa. *Geoforum* 36: 509–524.
- Davis DK (2006) Neoliberalism, environmentalism and agricultural restructuring in Morocco. *Geographical Journal* 172(2): 88–105.
- Davis DK (2007) *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa*. Athens: Ohio University Press.
- DESERTEC (2009) *Clean Power from Deserts: The DESERTEC Concept for Energy, Water and Climate Security*. Bonn: DESERTEC Foundation.
- Fairhead J, Leach M and Scoones I (2012) Green grabbing: A new appropriation of nature? *Journal of Peasant Studies* 39(2): 237–261.
- Gertel J and Breuer I (eds) (2007) *Pastoral Morocco: Globalizing Scapes of Mobility and Insecurity*. Wiesbaden: Dr. Ludwig Reichart Verlag.
- Guillaume A (1960) *La Propriété Collective au Maroc*. Rabat: Éditions La Porte.
- Hall R, Edelman M, Borrás S Jr, et al. (2013) Resistance, acquiescence or incorporation? An introduction to land grabbing and political reactions ‘from below’. *The Journal of Peasant Studies* 42(3–4): 467–488.
- Harvey D (2005) *A Brief History of Neoliberalism*. Oxford: Oxford University.
- Hickman L (2011) Could the desert sun power the world? *The Guardian*, 11 December.
- Howe C (2014) Anthropocenic ecoauthority: The winds of Oaxaca. *Anthropological Quarterly* 87(2): 381–404.
- Huber MT (2013) *Lifeblood: Oil, Freedom, and the Forces of Capital*. Minneapolis: University of Minnesota Press.
- Kouz K, Cherkaoui Dekkaki H, Cherel S, et al. (2011) *Etude d'Impact Environnementale et Sociale Cadre du Projet de Complexe Solaire d'Ouarzazate*. Rabat: Moroccan Agency for Solar Energy.
- Li TM (2007) *The Will to Improve: Governmentality, Development, and the Practice of Politics*. Durham: Duke University Press.
- Li TM (2014) What is land? Assembling a resource for global investment. *Transactions of the Institute of British Geographers* 39(4): 589–602.
- Limbert M and Ferry E (eds) (2008) *Timely Assets: The Politics of Resources and their Temporalities*. Santa Fe: School of American Research, Advanced Seminar Series.
- Lyautey H (1927) *Paroles d'Action: Madagascar-Sud-Oranais-Oran-Maroc (1900–1926)*. Paris: Librairie Armand Colin.
- Matondi P, Havnevik K and Beyene A (eds) (2011) *Biofuels, Land Grabbing and Food Security in Africa*. London: Zed Books.
- Mitchell T (2011) *Carbon Democracy: Political Power in the Age of Oil*. London: Verso.
- Moroccan Agency for Solar Energy (MASEN) (2011) *Plan d'Acquisition de Terrain*. Rabat: Moroccan Agency for Solar Energy.
- Nalepa RA and Bauer DM (2012) Marginal lands: The role of remote sensing in constructing landscapes for agrofuel development. *Journal of Peasant Studies* 39(2): 403–422.
- Pascon P (1986) *Capitalism and Agriculture in the Haouz of Marrakesh*. London: KPI Limited.
- Pasqualetti M (2011a) The geography of energy and the wealth of the world. *Annals of the Association of American Geographers* 101(4): 971–980.
- Pasqualetti M (2011b) Social barriers to renewable energy landscapes. *The Geographical Review* 101(2): 201–223.

- Reyes O (2012) *Power to the People II: Moroccan Solar Power and the EU Energy Grab*. London: The World Development Movement.
- Rivet D (1988) *Lyautey et l'Institution du Protectorat Français au Maroc, 1912–1925*. Paris: L'Harmattan.
- Royaume du Maroc (2009) *Projet Marocain de l'Énergie Solaire: Projet Intégré et Structurant*. Rabat: Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement.
- Royaume du Maroc (2010) *Discours de SM le Roi à la Nation à l'occasion de la fête du Trône*. Available at: <http://www.maroc.ma/PortailInst/Fr/Actualites/Discours+de+SM+le+Roi+de+la+f%C3%AAte+du+Tr%C3%B4ne.html> (accessed 11 March 2012).
- Royaume du Maroc (2011) *Les Caractéristiques du Secteur Énergétique Marocain en 2011*. Rabat: Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement.
- Scheidel A and Sorman A (2012) Energy transitions and the global land rush: Ultimate drivers and persistent consequences. *Global Environmental Change* 22(3): 588–595.
- Silicon Valley Toxics Coalition (2009) *Toward a Just and Sustainable Solar Energy Industry: A Silicon Valley Toxics Coalition White Paper*. San Francisco: Silicon Valley Toxics Coalition.
- Swyngedouw E (1999) Modernity and hybridity: Nature, *Regeneracionismo*, and the production of the Spanish waterscape, 1890–1930. *Annals of the Association of American Geographers* 89(3): 443–465.
- Swyngedouw E (2013) The non-political politics of climate change. *ACME: An International E-Journal for Critical Geographies* 12(1): 1–8.
- Watts M (2004) Resource curse? Governmentality, oil and power in the Niger Delta Nigeria. *Geopolitics* 9(1): 50–80.
- Wolford W, Borras S Jr, Hall R, et al. (2013) Governing global land deals: The role of the state in the rush for land. *Development and Change* 44(2): 189–210.
- Zhang H, Bayeyens J, Degrevè J, et al. (2013) Concentrated solar power plants: Review and design methodology. *Renewable and Sustainable Energy Reviews* 22: 466–481.
- Zimmerer K (2011) New geographies of energy: Introduction to the special issue. *Annals of the Association of American Geographers* 101(4): 705–711.