The Social Life of Mangroves: Resource Complexes and Contestations on the Industrial Coastline of Kutch, India

Shilpi Srivastava and Lyla Mehta
The Social Life of Mangroves: Resource Complexes and Contestations on the Industrial Coastline of Kutch, India

In the last few decades, mangroves have attained significant environmental, climatic and therefore economic importance. As environmental assets, they have given rise to different regimes of conservation, valuation and marketisation in various parts of the world. These processes are associated with new relations of power, dispossession, valuation and contestation. This paper unpacks these relationships in the context of state and market-led conservation programmes in Kutch (India), a district which has been at the forefront of accelerated industrialisation in Gujarat. By analysing the discourses and practices that have shaped the social life of mangroves in Kutch, we argue that the interaction of industrialisation processes with conservation measures has not only led to the privatisation of mangrove lands but has also fundamentally altered the livelihoods as well as well-being and identities of mangrove dependent communities such as fishers and pastoralists. Largely these trends have intensified the processes of uneven capitalist growth, dispossession and inequality, but have also opened up some opportunities and spaces for promoting transformational change.

About the authors

Shilpi Srivastava is a Research Fellow at IDS. Trained as a political sociologist, she uses the lens of water to understand issues of power and patterns of authority to explore spaces of justice, rights and accountability. Besides researching on water policy and environmental processes, she is also increasingly interested in cross cutting research in the areas of health, sanitation and nutrition. Shilpi’s current research focuses on interlinkages between uncertainty, climate change and transformation in India.

Lyla Mehta is a Professorial Fellow at IDS and a Visiting Professor at the Norwegian University of Life Sciences. Her work focuses on water and sanitation, forced displacement and resistance, scarcity, rights and access, resource grabbing and the politics of environment/development and sustainability. More recently, her projects have addressed peri urban dynamics, the politics of Integrated Water Resources Management (IWRM) in Africa and uncertainty and climate change from below in India. She has extensive field research in India studying the politics of water scarcity, the linkages between gender, displacement and resistance, access to water in peri urban areas and climate change and uncertainty.

About the STEPS Centre

Today’s world is experiencing rapid social, technological and environmental change, yet poverty and inequality are growing. Linking environmental sustainability with poverty reduction and social justice, and making science and technology work for the poor, have become central challenges of our times. The STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) is an interdisciplinary global research and policy engagement hub that unites development studies with science and technology studies. We are developing a new approach to understanding and action on sustainability and development in an era of unprecedented dynamic change. Our pathways approach aims to link new theory with practical solutions that create better livelihoods, health and social justice for poor and marginalised people. The STEPS Centre is based at the Institute of Development Studies and SPRU (Science Policy Research Unit) at the University of Sussex, with partners in Africa, Asia and Latin America. We are funded by the ESRC, the UK’s largest funding agency for research and training relating to social and economic issues.

www.steps-centre.org.

Follow us on Twitter @stepscentre

Other titles in this series include:

1. Dynamics Dynamic Systems and the Challenge of Sustainability
2. Governance Understanding Governance: pathways to sustainability
3. Designs Empowering Designs: towards more progressive appraisal of sustainability
4. Agriculture Agri-Food System Dynamics: pathways to sustainability in an era of uncertainty
5. Health Health in a Dynamic World
6. Water Liquid Dynamics: challenges for sustainability in water and sanitation

For more STEPS Centre publications visit:
www.steps-centre.org/publications
The Social Life of Mangroves: Resource Complexes and Contestations on the Industrial Coastline of Kutch, India

Shilpi Srivastava and Lyla Mehta

STEPS Working Paper 99
Acknowledgements

The authors would like to thank Fazilda Nabeel, Maxmillan Martin, Jagruti Sanghvi and Subir Dey for their research assistance. We also thank Drs V Vijay Kumar and Thivakaran of the Gujarat Institute of Desert Ecology (GUIDE) for hosting us during our visit to Bhuj and helping facilitate the research. Most importantly, thanks to the fishers, pastoralists and stakeholders from the industry, civil society and the government who gave us their valuable time and shared their insights with us. We thank Ian Scoones and Synne Movik for their valuable feedback and gratefully acknowledge the support from Harriet Dudley and Parveen Mungroo. We thank the ESRC STEPS Centre for funding this research. We also acknowledge additional support from the Research Council of Norway funded projects on Greenmentality and Uncertainty, Climate Change and Transformation.

For further information please contact: STEPS Centre, University of Sussex, Brighton BN1 9RE

Tel: +44 (0) 1273915673; Email: steps-centre@ids.ac.uk; web: www.steps-centre.org

STEPS Centre publications are published under a Creative Commons Attribution – Non-Commercial – No Derivative Works 3.0 UK: England & Wales Licence (http://creativecommons.org/licenses/by-nc-nd/3.0/legalcode)

Attribution: You must attribute the work in the manner specified by the author or licensor.

Non-commercial: You may not use this work for commercial purposes.

No Derivative Works: You may not alter, transfer, or build on this work.

Users are welcome to copy, distribute, display, translate or perform this work without written permission subject to the conditions set out in the Creative Commons licence. For any reuse or distribution, you must make clear to others the licence terms of this work. If you use the work, we ask that you reference the STEPS Centre website (www.steps-centre.org) and send a copy of the work or a link to its use online to the following address for our archive: STEPS Centre, University of Sussex, Brighton BN1 9RE, UK (steps-centre@ids.ac.uk).
Contents

Acronyms ........................................................................................................................................... ii
Glossary ............................................................................................................................................... iii
Abstract ............................................................................................................................................. iv
Introduction ....................................................................................................................................... 1

1. Conceptual Points of Departure .................................................................................................. 3
   1.1. Marketisation and Environmentality ..................................................................................... 3
   1.2. Knowledge and Value ............................................................................................................. 4
   1.3. Alliances and Transformations ............................................................................................. 4

2. Methodology ................................................................................................................................... 6
   2.1. Site Description ...................................................................................................................... 6

3. Inside the Wetland Complex: Discourses, Assemblages and Institutional Regimes ................. 8

4. Conservation Through Community Ownership: The Creation of Environmental Subjects .... 12
   4.1. Harm vs Protection: Claims to Authority and Knowledge ................................................... 13

5. Compensatory Afforestation ....................................................................................................... 16

6. Shrinking Commons: Industrialisation and Dispossession ........................................................ 19
   6.1. Contested Values: Identity and Livelihoods ........................................................................... 21

7. Discussion and Conclusion .......................................................................................................... 23

References .......................................................................................................................................... 25
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARR</td>
<td>Afforestation Reforestation and Rehabilitation</td>
</tr>
<tr>
<td>CBMR</td>
<td>Community Based Mangrove Restoration</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organisation</td>
</tr>
<tr>
<td>CGPL</td>
<td>Coastal Gujarat Power Limited</td>
</tr>
<tr>
<td>CISF</td>
<td>Central Industrial Security Force</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>CWRA</td>
<td>Central Wetlands Regulatory Authority</td>
</tr>
<tr>
<td>FSI</td>
<td>Forest Survey of India</td>
</tr>
<tr>
<td>GEC</td>
<td>Gujarat Ecology Commission</td>
</tr>
<tr>
<td>GUIDE</td>
<td>Gujarat Institute of Desert Ecology</td>
</tr>
<tr>
<td>ha</td>
<td>Hectare</td>
</tr>
<tr>
<td>ICSF</td>
<td>International Collective in Support of Fish Workers</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>KUMMS</td>
<td>Kachchh Unt Uccherak Maldhari Sanghatan</td>
</tr>
<tr>
<td>MASS</td>
<td>Machimar Adhikar Sangharsh Sangathan</td>
</tr>
<tr>
<td>MNPS</td>
<td>Marine National Park and Sanctuary</td>
</tr>
<tr>
<td>MOEFCC</td>
<td>Ministry of Environment, Forest and Climate Change</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
</tr>
<tr>
<td>NPV</td>
<td>Net Profit Value</td>
</tr>
<tr>
<td>REMAG</td>
<td>Reforestation of Mangroves in Gujarat</td>
</tr>
<tr>
<td>SEZ</td>
<td>Special Economic Zone</td>
</tr>
</tbody>
</table>
Glossary

**bet** island

**bhungas** traditional mud huts in Kutch

**bhai** brother

**chakada** three-wheeled rickshaw

**cheria** mangrove

**ghuspaith** insurgency

**gram sabha** village council

**Jats** pastoral community in Kutch who trace their ancestral links to Iran. They belong to the Sufi syncretic tradition. They are different from the Jats of Northern India

**maldharis** one who owns livestock

**mazdoor** labour

**pagadias** those who fish on foot and do not use boats

**Rabariris** pastoral community in Kutch, primarily camel herders

**samiti** society

**vand** hamlet
Abstract

In the last few decades, mangroves have attained significant environmental, climatic and therefore economic importance. As environmental assets, they have given rise to different regimes of conservation, valuation and marketisation in various parts of the world. These processes are associated with new relations of power, dispossession and contestation. This paper unpacks these relationships in the context of state and market led conservation programmes in Kutch (India), a district which has been at the forefront of accelerated industrialisation in Gujarat. By analysing the discourses and practices that have shaped the social life of mangroves in Kutch, we argue that the interaction of industrialisation processes with conservation measures has not only led to privatisation of mangrove lands but has also fundamentally altered the livelihoods as well as well-being and identities of mangrove dependent communities such as fishers and pastoralists. Largely these trends have intensified the processes of uneven capitalist growth, dispossession and inequality, but have also opened up some opportunities and spaces for promoting transformational change.

Keywords: mangroves, neoliberalism, conservation, transformation, pastoralism, Kutch, India
Introduction

Right from the beginning of the world, there have been fisherfolk on the seashore...

(A fisher on the loss of livelihoods due to industrialisation in Kutch)

This is all part of nature. It is wrong to say that camels destroy the mangroves. If they were harmful for mangroves, why do we still have mangroves around and why have the camels and mangroves co-existed for centuries?

(A Jat herder on the disputed claim of camels destroying the mangroves)

'Mangroves live life on the edge, with one foot in the land and one in the sea' (Warne 2007), they support both land and marine ecosystems. Marine and land animals depend on them for their survival as do so many poor coastal communities who engage in fishing, farming and livestock rearing. These lush wetlands save the coast from the impacts of storms, high tides, salinity ingress and are 'landbuilders' preventing sea erosion (ibid.) whilst supporting other ecological functions. Increasingly, mangroves have attained environmental, climatic and therefore economic significance with their potential of carbon capture which is now widely recognised (Vishwanathan undated). They have now become an environmental asset giving rise to different regimes of valuation and 'marketisation'. Unlike in other parts of the global South, in India, the discourse on carbon markets is still in its infancy with mangroves being interpellated with market arrangements in different ways and heavily influenced by the discourses and practices on afforestation,1 restoration2 and rehabilitation3 (ARR). These processes are associated with new relations of power, valuation, regimes of accumulation, dispossession and contestation that we describe through the case of Kutch, Gujarat.

On the western coast of India thrives the second largest patch of mangroves in the country. Stretching across the Gulf of Kutch, the wetland has supported the livelihoods of fishers, camel and cattle herders who often live on the margins. Here the 'social life' (cf. Appadurai 1988) of mangroves, i.e. how they are valued and the relationships that transpire, is marked by contradictions and conflicts of interest, especially given the political economy of rapid industrialisation along the coast after the 2001 earthquake. On the coastline of Kutch, diverse sets of stakeholders have sketched out a terrain of uneven development and resource claims, ranging from multinational companies investing in a range of industrial projects such as coal, energy and port developments; scientists advocating for conservation; and civil society activists and local communities claiming their rights to the commons (Kohli and Menon 2016a).

Mangroves are unique ecosystems and can only thrive in specific ecological environments with particularities of temperature, soil and climate conditions, tidal fluctuations, and wind velocity (Thivakaran et al. 2016; Singh 2006). This makes their regeneration difficult and challenging. While mangrove conservation has been a part of the Indian environmental discourse for a few decades now, community based mangrove restoration (CBMR) is more recent. In Kutch, this started under the Restoration of Mangroves in Gujarat (REMAG) project, a community-based conservation model but more recently industries have also adopted this model with certain variations regarding ownership, access and use. The corporate-community model is a by-product of the compensatory afforestation measures where denudation in one place can be offset by undertaking plantations in the same or

1 Planting in non-forest habitats.
2 Re-establish the basic and key functions of the habitat.
3 To bring an ecosystem back to its near original functions.
different place (Ghosh 2015; Sullivan 2013). These conservation measures are usually aided by scientists who train the local communities and also undertake monitoring and evaluation assignments for the industries.

Thus, between the land and sea, the social life of mangroves is shaped by both material and social values and relationships (cf. Bridge 2009) spanning a diverse range of actors, such as the resource dependent communities (of herders and fishers), scientists, Non Governmental Organisations (NGOs) and industrial actors. In this paper, we focus on these very 'materialities' and social constructions of mangrove resources and their particular assemblages (e.g. people, social relations, industries, technologies, and discourses) and how these are practised or 'enacted' (cf. Mol 2002) in symbolic, social and material ways.

As corporate and conservation debates abound on the Kutch coast, we ask:

- How have diverse processes of industrialisation, marketisation and conservation transformed the ‘social life’ of mangroves in Kutch?
- What are the competing claims and perspectives around mangroves ownership, access and offsets, and how are they ‘enacted’?
- How is the relationship between these diverse stakeholders being reshaped, negotiated and sustained in the face of the marketised landscape of Kutch?

This paper is organised into seven sections. Section 1 lays out the conceptual points of departure drawing on the political ecology of marketisation and commodification. This is followed by a brief methodological overview in Section 2. In the subsequent Sections, the social life of mangroves is unpacked along the axes of actors, assemblages and discourses (Section 3) with a more detailed account of the two conservation models (Sections 4 and 5). In Section 6 we discuss the contestations around values and livelihoods, before finally drawing out the conclusions in Section 7.
1. Conceptual Points of Departure

Since the 2001 earthquake in Kutch, a remote border district has become a new ‘resource frontier’ (Barney 2009; Li 2014) where the economy, nature and society are being re-configured to create ‘spaces of capitalist transition, and where new forms of social property relations and systems of legality are rapidly established in response to market imperatives’ (Barney, 2009: 146). In this new frontier, mangrove conservation is a form of ‘resource grabbing’ by both the state (e.g. forest department) and the corporate actors that neatly align with conservation measures. In this process, they alienate direct local users from productive resources and re-allocate rights to more powerful players (cf. Benjaminsen et al. 2011; Borras et al. 2011; Mehta et al. 2012).

As much as mangroves span ecological relationships between land and marine resources, they also lead to the formation of different relations among different actors – pastoralists, fishers industries, scientists and the state. These constitute the social life of mangroves in Kutch. In this paper, we focus on these social actors and their perspectives, the assemblages of mangroves with their myriad sets of values and relationships with people and livestock, multiple knowledges, material artefacts and technologies (cf. Rochealeau 2011; Appadurai 1988). For this purpose, we draw on Watts and Peluso’s (2014) idea of resource complex, whereby we argue that the coastline of Kutch has now become a wetland complex. Here ‘configurations of historically and geographically contingent institutional and political economic forces’ occur (Watts and Peluso 2014:184) and, more specifically, the centralisation and neoliberalisation of the state has accelerated the development of this resource frontier (Harvey 2005; Floyd 2010).

Since the mangroves are imbricated in these processes giving rise to complex struggles around values, conservation and marketisation, we use the framework of a wetland complex to examine: (1) how mangroves that were considered as wastelands at one point are drawn into the ambit of regulation; i.e. how they become regulable; (2) how they are governed under particular regimes or systems of rule (state, market and community); and (3) what the various practices are by which these relations are ‘enacted’ making them self-reproducing (cf. Watts and Peluso 2014; Mitchell 2009). We study these contestations and relationships across three axes: marketisation and environmentality; knowledge and value; and alliances and transformations.

1.1. Marketisation and Environmentality

In Kutch, the afforestation, reforestation and rehabilitation (ARR) efforts have contributed to the process of ‘environmentality’ (cf. Agarwal 2005), the creation of environmental subjects through particular configurations of power, knowledge, institutions and subjectivities. Here, marketisation refers to the variegated social and political processes and relations through which property and accumulative rights are formalised, new goods and marketising institutions, relations and alliances are assembled and co-produced (Çalışkan and Callon 2010; McAfee 2014; Ossandón 2015). These include the way mangroves are assembled as a resource (through scientific narratives of conservation) or how mangrove lands are taken over and mainstreamed into neoliberal accumulation, leading to dispossession and the loss of livelihoods. It also highlights how local people are either disciplined through conservation activities or through neoliberal processes and marketisation, which are currently underway in Kutch.

Diverse technologies are employed for this ‘enactment’ of the market. These may include texts, discourses and narratives that frame values and meaning in particular ways (for example degradation narratives as opposed to wellbeing and identity); technical and scientific knowledge (around plantation and resource use) and characteristics embodied in living beings and non-living materials (Çalışkan and Callon 2010: 3). This nature of market environmentalism (cf. Bakker 2005) may also be shaped by certain practices that seek to reshape and reposition existing relationships. These may include: (1)
organisational changes in ownership or management from public/private sectors resulting in privatisation and resource grabbing; (2) commercialisation or institutional changes in resource management practices that introduce commercial principles (efficiency), methods (cost-benefit assessment; metrification), and objectives (profit maximisation) their commercialisation; or (3) commodification, i.e. the creation of an economic good through the extraction of value (Bakker 2005). In short, the processes by which 'nature is turned into a finite set of objectives and services and decontextualised from its habitus’ (Kohli and Menon 2016b: xviii).

As resources are both material and symbolic in nature (cf. Mehta 2005), marketisation processes tend to make nature and its relations (both human and non-human) visible through intervention, and technical by making them seemingly apolitical (cf. Li 2007). Thus commodification becomes a process where the 'uses' of nature are revealed, measured and categorised while the unmeasurable qualities (such as associative identity of pastoralists or fishers) remain either hidden or are labelled as unproductive (Kohli and Menon 2016b). Some examples of such strategies discussed in this paper include: industry-driven conservation programmes that succeed in both depleting and privatising the common grazing lands; corporate social responsibility (CSR) activities by industries that create relations of patronage and dependency in villages that have lost access to the coast and mangrove resources (Kohli and Menon 2016a); and finally the discourses of dominant players, including some scientists who sanitise, in their environmental impact assessments, the impacts of industrial activities whilst at the same time often blaming herders and fishers for degradation. At play are powerful narratives that sediment exclusionary practices by labelling communities as the primary cause of resource depletion or framing their livelihoods as archaic and unprofitable.

1.2. Knowledge and Value

As with other natural resources, the nature of mangroves in Kutch is shaped in different ways by scientific, policy and activist debates around development, industrialisation, and ecosystem functioning and conservation trajectories. Their meaning, valuation and preservation also differ according to the different actors’ positioning and perspective. For the Jat and Rabari camel herders they are linked to culture and identity. By contrast, scientists highlight the importance of their conservation for the 'stocks' and 'services' that issue from the mangroves (Costanza et al. 2012), such as flood protection, carbon sequestration and coastal management, and industries offer compensatory services alongside high-intensity CSR activities that seek to compensate for the damage to the communities and ecosystem. In this paper, we seek to focus on both these so called top-down systems of knowledge making and valuation (Burke and Heynen 2014). We also analyse how these knowledge systems are challenged by largely undervalued, and alternative, perspectives that are prevalent amongst local people, especially camel herders, who for centuries have grazed camels in mangrove landscapes, as well as critical NGO actors.

In order to so, the metaphors such as 'rhizomes' (multiple, non-binary relations and processes) and 'networks' (cf. Deleuze and Gualtari 1988) come to our aid. By bringing the social, ecological and the material relations together, these transcend binaries of nature/culture and can offer alternative hybrid perspectives (Rochealeau 2011) that can aid transformation in marginal environments such as Kutch (e.g. revival of indigenous livestock breeds, traditional dryland agriculture etc.). We contend that these emerging perspectives offer possibilities or 'seeds' of deep structural change (cf. Bennet et al. 2016).

1.3. Alliances and Transformations

Transformations go beyond marginal, incremental change. They are non-linear and challenge the entrenched inequality in the development structures, calling for fundamental changes in power relations and governance regimes, value systems and conceptions of well-being (Pelling et al. 2015). They are by their very nature multiple and contested, and are closely associated and shaped by
understandings of culture, place, identity and contingent conditions within the political economy (e.g. Brown and Westaway 2011; Scoones et al. 2015). Transformations could be those moments or opportunities that trigger change, they could take place at various scales and can range from the individual to the collective, from the sectoral to the macro fora or from local to the global (Marshall et al. 2012).

Transformation pathways are rarely linear and can be routed through cultures of resistance (that challenge incumbent power), experimentation or innovation and learning that offer alternative imaginaries of change. While they can lead to pro-poor or emancipatory outcomes challenging social inequalities, they may also simultaneously intensify other processes of marginalisation (Stirling 2014).

Structural transformations require coalitions spanning across vertical and horizontal networks; alliances across scales that can unsettle incumbent networks. They deliberately create spaces that may offer radical socio-economic change, which incorporates ecological considerations (health and quality of the ecosystem) and offer development alternatives. These alliances can be mobilised through bundling diverse interests, such as subaltern interests, social movements and civil society that can potentially shape 'the broader normative and cultural climates in which explicitly structured procedures are set' (Smith and Stirling 2007:13). Some examples of these alliances are discussed in this paper.

Taking a place-based approach on how value around mangroves is contested and negotiated amongst a range of actors, we focus on community and market-based conservation measures (both state and market led) in this paper. These initiatives have either sought to reduce the fodder dependency of the mangrove dependent communities and turn these local resource users into 'responsible stewards of forest' (Conklin and Graham 1995; Eghenter 2000), or have resulted in privatisation of the commons as grazing land is re-allocated for industrial development in Kutch.
2. Methodology

The paper draws on qualitative methods and brings in a long durée perspective. This work builds on research carried out in Kutch over the last two decades by one of the authors. After undertaking an intensive literature review to map the key stakeholders and policy processes on mangroves ARR in Kutch, a field plan was chalked out which was divided into three phases – the pilot phase (June 2016), an intensive local field visit (August 2016), and stakeholder interviews (October 2016). The field visits covered the various coastal hamlets of camel herders and fishers in Mundra and Abdasa taluka (block or sub-district). Semi-structured interviews were conducted with experts which included environmental activists, scientists, ecologists, bureaucrats, representatives from civil society and industries in Kutch and in Ahmedabad and local people (primarily fishers and pastoralists in field sites). This research also drew on the ongoing photovoice exercise in a coastal hamlet of Jimlivand, and documents women’s relationship with the mangroves in this area.

2.1. Site Description

For detailed research, two sites were chosen in Kutch which demonstrate the prevalent models of conservation, the REMAG model of community ownership (Jimlivand), and compensatory afforestation undertaken by the industries (Mundra taluka). Jimlivand, a hamlet of approximately 35 families, is located in the northwest coast of the Kutch district. It is a compact community of Fakirani Jats (different from the Jats of Northern India), a sect influenced by the Sufi syncretic tradition, who have settled in various hamlets across the Gujarat coast (The Hindu 2017). They claim their ancestral links to the Halaf region in Iran (Bharwada and Mahajan 2007). The vand (hamlet) is a compact hamlet with trees, vegetable gardens and cattle sheds, and is a few miles off the main port. Though fishing is one of the predominant livelihoods in the community, the identity of Jimlivand is closely linked to camel and cattle-rearing, i.e. being maldharis (one who owns livestock). However, the residents have given up on camel breeding and rearing and now keep buffaloes instead (see Section 4). The village now has about 600 to 700 buffaloes. Jimlivand was the pilot site for the REMAG project (2002–2007) and is cited as a model village for restoration activities, which are now being monitored by the Gujarat Ecology Commission (GEC). Jimlivand depends on two mangrove plots for its fodder needs. The mangrove plot, which is part of the REMAG project and other restoration efforts, is on the panchayat (village council) land close to the hamlet. They rely on this plot especially during the dry summer months or when there are no rains and alternative sources of fodder are far and few. The second plot is some distance away from the coast and falls into the reserved area, and consists of natural mangrove forests. The Jats prefer to collect seeds and foliage from this plot during the monsoon season (July to September). Since the port is manned by the border security force, permission has to be sought from the security forces to go offshore, and it is the women who take these boat rides accompanied by a few men from the vand.

About 150 kilometres away from Jimlivand, in Mundra, the community restoration effort has taken a different form. Mundra, a coastal town which survived the destruction from the 1998 cyclone due to its ‘thick’ mangrove shield, is now a bustling industrial zone with thermal plants and cement factories. It is

---

4 Undertaken between June and November 2016.

5 In order to protect the identity of our respondents, they have either been anonymised or given pseudonyms. Pseudonyms have also been provided for the hamlets where this research was conducted.

6 The photovoice research is part of the ongoing research in Kutch under the NFR funded project - Uncertainty, Climate Change and Transformation. For more details, see https://www.nmbu.no/en/faculty/landsam/department/noragric/research/our_projects/projects/node/21234
estimated that Mundra housed nearly 20 percent of the mangroves in the Gulf of Kutch (Asher 2008) before the industries came in the late 1990s. The mangrove shield is now replaced by cement and thermal plants and a sprawling Special Economic Zone (SEZ) (extending over 10,000 ha and covering 10 villages) with liberal business and trade laws aimed at export-oriented manufacturing. Due to the construction of the SEZ (including the private port) it is estimated that about 3000 ha of mangroves were cleared by the Adani Group, for the SEZ, over a period of about nine years and in some cases, as in Mundra and Hazira, they virtually disappeared overnight (Singh quoted in Asher 2008). On the margins of the SEZ are the communities of the small-scale fishers (pagadias and boat fishers) and the Rabari7 camel herders whose livelihoods have been at risk due to large-scale industrialisation which has made mangroves off bounds for the local communities. Mundra is the site for compensatory afforestation where local communities are hired for plantation work but have limited or no access to their resource benefits.

7 Rabaris belonged to Jaisalmer in Rajasthan and migrated to Gujarat. According to the folklore, they moved to Gujarat to escape a king whose marriage proposal was rejected by a Rabari bride and her family (Paniyil 2016).
3. Inside the Wetland Complex: Discourses, Assemblages and Institutional Regimes

Mangroves in India account for at least three percent of the world’s mangrove vegetation with the Sundarbans on the eastern coast accounting for approximately 50 percent of the mangrove cover in the country (Forest Survey of India 2011). Even though India is a signatory to the international conventions for protection of mangroves (such as the Ramsar Convention and Convention on Biological Diversity), there is no clear cut and comprehensive legal framework for the protection of wetlands in general and mangroves in particular (Bassi et al. 2014).

In India, the national legal framework for the protection of mangroves is spread over a variety of instruments, creating a blend of old and new, sometimes overlapping and archaic legislation. These legal instruments relate to a range of ecological issues ranging from water quality, notification of ecologically sensitive areas and conservation of biodiversity in aquatic bodies. At the national level, the primary responsibility for mangrove management lies with the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. The National Environment Policy of 2006 recognises the need for a legally enforceable regulatory mechanism for the protection of wetlands, including mangroves (Bassi et al. 2014). A Central Wetlands Regulatory Authority (CWRA) was constituted to restrict and regulate industrial activities in protected areas, such as management of solid waste and effluents, reclamations (Jain 2016).

Kutch has the second largest mangrove cover in India after the Sundarbans comprising 118 hectare (ha) of dense and 671 ha of sparse patches (Forest Survey of India 2013). Here particular historical and social forces, in addition to the specific geographical settings, have given rise to a patchwork of regimes and relationships that are shaping the social life of mangroves. Unlike the high rainfall tropical zones, mangroves in Kutch are discontinuous along the coastal belt with large clusters around the regions of Mundra, Jakhau and Kandla. The Kutch mangroves constitute 71.5 percent of the state’s mangrove coverage. The dominant species is *avicennia marina*, a hardy staple species that can survive high levels of salinity (IUCN 2015, Thivakaran et al. 2016). Referred to as *cheria* in the local language, the mangrove ecosystem supports two major livelihoods: fishing and livestock (for fodder needs). Amongst other ecosystem services, they act as fishing nurseries, and are a source of timber and non-timber products⁸ (Bharwada and Mahajan 2007). Kutch also has a unique inland mangrove ecosystem in the Banni grasslands, which is one of the most important sacred groves in Gujarat. It is striking to note that with no access to sea water or regular water supply these mangroves have continued to thrive in a landlocked location (Tripathi et al. 2013).

Due to the pronounced aridity of the dryland belt in Kutch, mangroves are one of the main sources of fodder for communities living on the coastal belt especially during the summer months when the sources of fodder are far and few. This human dependence on mangroves is often cited as one of the

---

⁸ The timber and fuelwood needs are largely met by *prosopis juliflora* (Bharwada and Mahajan 2007), an invasive weed originally planted in Kutch to check desertification, but eventually resulted in the loss of arable land and destruction of the largest grassland in Asia, Banni. Considered harmful for the cattle, *prosopis* or *ganda bawal* (mad shrub) is a serious challenge for local livelihoods in the region. It thrives in dry, salty environments unsuitable for most other species of plants, but it gradually replaces them. While it can provide up to three-fourths of the fuel needs of people in arid and semi-arid regions, local villages complain intensely about how it has become a weed and has reduced biodiversity and local species. Finally, its thorns hurt humans and animals alike, and livestock like cows and small ruminants in particular suffer. (HDRA et al. undated). Despite these controversies, we were told by the forest department that it is a ‘wonderful tree’ that has checked salinity ingress and prevented Kutch from becoming the Thar Desert (interview with Forest official, October 2016).
principal reasons (by the conservationists) for their large-scale depletion in Kutch. As argued by a scientist:

> It is these *maldharis* (pastoralists) who are the biggest threat to the mangroves, and not the industries. They destroy the mangroves through active grazing and their unscientific ideas. Our restoration projects have targeted these communities as we need to cut down their dependence on mangroves.

(interview with scientist, Kutch: October 2016)

Others, however, argue that systematic industrial development on the coastal belt in the aftermath of the 2001 earthquake is a more serious challenge to contend with (interview with scientists and NGOs, Kutch: August and October 2016). The 2001 earthquake had a pronounced effect on the political economy of Kutch. Once considered to be the backyard of the developed and prosperous state of Gujarat, and a 'punishment post' for the bureaucrats (Mehta 2005), Kutch was slowly and strategically turned into a corporate enclave, whereby the region was 'exposed to real business agendas' (interview with NGO: October 2016). Today, the coastline of Kutch is dotted with several major industrial establishments, which includes ports, thermal power plants, cement factories and other industrial (regulated and unregulated) establishments.

This corporatisation of the Kutch coastline has affected the mangroves in two key ways. One, large swathes of mangroves have either been cleared or destroyed due to industrial and port activities, or creeks have been blocked to cut off the natural supply of salt water, thus virtually 'killing' the mangroves. Two, industries and saltpans have blocked access to the remaining patches of mangroves (interview with NGO, Kutch: October 2016). This destruction of mangroves has also threatened and displaced the livelihoods of the resource dependent communities, primarily the *Rabari* camel herders and small-scale fishers - the *pagadias* - who walk into the creeks and shallow waters for fishing. While the *Rabaris* resent that they can no longer access the grazing lands, the local fishers, for whom mangroves act as natural fishing nurseries, complain about the destruction and restrictions placed by the industry.

Continuous depletion of mangrove cover between the 1960s and 1980s led to a series of state notifications and to the establishment of the Marine National Park and Sanctuary (MNPS) as a 'protected area'. Mangrove depletion was largely attributed to the diversion of mangrove lands for industry, decreased fresh water discharge into mangroves due to the damming of rivers, port related activities, aquaculture, expansion of salt industries, marine oil pollution, gathering of fodder and fuelwood and reduced natural regeneration. Though mangrove cover has been on the rise since the 1990s (Biswas 2006; NCSCM and GEC 2014), unchecked industrialisation in the name of development has had an adverse impact on the sustainability of ecosystems and livelihoods of the local communities (Agoramoorthy *et al.* 2014). The tax holidays granted by the Gujarat Government also accelerated the pace of this industrial development in Kutch post the 2001 earthquake (Thivakaran undated).

Despite repeated notifications that prohibit industrial activities in this eco-sensitive zone and warnings and indictments from various government authorities, the industrial development projects have been on the rise (MoEF 2012 a; MoEF 2012 b; MoEF 2013; Namati 2013). For example, industrialisation along the Mundra coastline has always been contested. A 2002 report from Government of India noted:

> The southern coast of the Gulf of Kachchh is almost occupied with ecologically sensitive features like mangroves, corals and mudflats [...] the ecology along the southern coast is already under severe stress from major commercial projects already situated, hence the southern coast cannot withstand any further stress from future development which are under the sanctioning stage.

(quoted in Mundra Hitrakshak Manch *et al.* undated: 23)
Adanis acquired large tracts of the coast, facing opposition from fishers’ trade unions, and are alleged to have cut mangroves even after protests from environmental groups and regulatory bodies. It is alleged that a total of 3000 ha of mangroves were cleared in Mundra to aid industrial development (Mundra Hittrakshak Manch et al, undated; Kohli and Samdariya 2010) for which they were fined 200 crore Indian rupees by the Ministry of Environment, Government of India (The Economic Times 2013).

The compelling demands of development also bring into sharp focus a wide array of actors who often work in contradictory ways. For instance, in the Gulf of Kutch-MNPS about 87 percent of the area under the protection zone also falls under the jurisdiction of the Gujarat Maritime Board, which brings port-building activities directly into contestation with conservation. Other departments such as fisheries, customs, tourism, religious affairs, revenue and forest, and industries are also significant stakeholders in this wetland complex. Given the strategic location of Kutch as a trading route and the easy availability of resources such as limestone and common salt, the Kutch coastline is dotted with oil refineries, soda ash plant and salt pan industries, which have caused considerable damage to the ecosystem due to effluent discharge and oil spills. For example, in the vicinity of the MNPS, an area of 103.25 sq km of mangrove forests was leased out to 21 salt industries in 2006 (Biswa 2006). The Gulf of Kutch is also a popular destination for thermal power plants, from both public and private stakeholders, such as the Gujarat Electricity Board, Essar, Tata and the Reliance Group. In addition, because of its location as a conducive trading route, extensive port development activities and ship breaking units have been established in this area.

In parallel with this aggressive industrialisation, restoration efforts that include a diverse assemblage of actors (such as the state government, the industry, international financial institutions like the World Bank, and civil society organisations) have tried to reverse the environmental damage (Bassi et al. 2014).

The Forest Department is primarily responsible for the state-led conservation efforts. Though the mangrove areas were largely designated as commons before independence whereby the princely state of Kutch allocated grazing rights to the communities and collected taxes, this tax system was abolished by the Indian Government and the mangroves in the Gulf of Kutch were notified as forests; Mundra in 1969 and Abdasa-Lakhpat in 1975 (Bharwada and Mahajan 2007). The commons that were taken over by the Indian state after independence have been re-allocated for economic development, but the herders continue to claim their ancestral rights on these lands.

Sitting on the jute charpoy, and gazing at the distant port which once had thick mangroves, Lepa-bhai, a Rabari camel herder, tells us that kings had given rights to their ancestors over mangroves and the grass-land and in return, they paid taxes. His ancestors grazed their camels in the mangroves that were abundant along the coasts of Kutch for over 500 years. As he showed a yellow paper stamped with indigo insignia (believed to be the royal seal of the princely state of Kutch), he narrated that they chose Phuleri vand because of the mangroves on the coast of Mundra and the nearby fishing hamlets. In Jimlivand, Suleiman bhai narrates a similar story of royal permission and states that the Rabaris and the Jats had settled around these mangrove patches because of fodder needs.

While the herders continue to claim their ancestral rights over these grazing plots, these rights are not recognised by the government which has meant the loss of their traditional grazing grounds. The officials justify re-allocation of these lands to other players in the name of national development:

> For development, India requires a good port and infrastructure so that the country can flourish. What is more important? It’s a rational choice [...] industry is an important part [of development], we are sacrificing the environment for national development. (interview with government officer, Kutch: October 2016)

The Department’s strategy to mitigate this loss is via the ARR efforts. The Forest Department carries out regular plantation drives in the areas that are marked as reserved or protected areas. These cannot be
accessed by the common public. Trespassing incurs fines and punishments. Grazing is allowed on the lands owned by the revenue department but not on the lands under the jurisdiction of the Forest department. The labour for plantation work is drawn from the local communities at a daily wage determined by the number of saplings planted (between two to four rupees per bag) (interview with Forest officer, Kutch: October 2016). But these communities are not allowed to access these areas for grazing their camels. The herders resent this blockade. Ghuspaith (insurgency) into these protected areas has become a way to challenge the authority of the department and claim grazing rights to these lands. One of the camel herders in Jimlivand stated: 'The Forest Department does not allow us into the islands but we still go, our camels need fodder' (interview with Jat herders, Kutch: June 2016). Some studies have also revealed that reforestation activities by the Forest Department have been narrow in their focus, resulting in a loss of diversity in the species of mangroves and a movement towards monoculture of species that can tolerate hyper-saline conditions (Singh 2006).

Over the last two decades, changes in the wider political economy have shaped the emergence of a 'resource frontier' in Kutch, whereby land and marine resources were 'taken over' by the state and industries to promote economic development in the region and on the coast, more specifically. With the accession of Kutch to the Indian state, mangrove lands were drawn into the ambit of state regulation as commons became 'protected' areas under the Forest Department or were 'privatised' for industrial development. Though a fuzzy environmental framework and its weak implementation has aided mangrove denudation, the conservation discourse has successfully excluded the communities from access and ownership of these lands. We now lay out how these discourses are mobilised to create environmental subjects through the case of a marginal herder community in Kutch.
4. Conservation Through Community Ownership: The Creation of Environmental Subjects

As the climate functions of the mangrove ecosystem began to gain salience in the 1990s (Vishwanathan, undated), other arrangements, such as involving communities in the restoration of mangroves, were put in place. The aim of these conservation measures was to reduce the fodder dependency of the mangrove dependent communities and turn these local resource users into 'responsible stewards of forest' (Conklin and Graham 1995; Eghenter 2000). In Kutch, this started under the REMAG project.

Jimlivand was the pilot site for the 2004 REMAG project in Kutch. One of the principal aims of the project was to reduce the mangrove dependence of the communities by providing alternative livelihood options and creating 'alternative' grass plots for cattle grazing to actively discourage the community from relying on the mangroves for fodder. The programme was implemented by scientists from the Gujarat Institute of Desert Ecology (GUIDE) and coordinated and funded by the Gujarat Ecology Commission (GEC). GEC continues to work in the village and regularly monitors the plantation work under the umbrella of different projects. It is estimated that the REMAG project, in Jimlivand, created 17,375 person-days over a five year period (Thivakaran et al. 2006). Local people also participated in the efforts because they recognise the benefits of the mangroves especially as fishing nurseries, fodder reserves and protection from storm surges.

REMAG is a typical example of a public-private partnership or community management of resources where the local residents were organised into a management committee to take over management and conservation of mangroves, thus institutionalising the practice of 'governing themselves’ to 'protect' the environment. GUIDE advised them on how to go about planting mangroves. The seeds are collected from the natural mangrove habitats. In the village, the work is coordinated by a local samiti (society), a registered Community Based Organisation (CBO), with office bearers, an executive committee and a gram sabha comprising one man and one woman from each household of the village serving as its general body. The village communities leased the land from the collector (top district administrator), and the plantation was done on revenue land. Unlike areas under the jurisdiction of the Forest department, plantations carried out on revenue land have fairly flexible rules of movement. Stories of how people cut mangroves for timber and fuel needs, and excessive grazing resurfaced in most of the interviews with officials. REMAG became a potent technology to reverse this trend and attempted to transform the ways in which the Jats 'associated with, accessed and used' the mangroves. The programme sought to create conditions by which this community would ‘learn’ to ‘value and care’ about the environment (cf. Agarwal 2005).

Given their primary dependence on the mangroves, rules were set around access by scientists from GUIDE, and camel grazing was actively discouraged in the initial years of the restoration efforts. The villagers largely cooperated with this restriction hoping that the rules would change eventually once the plants were mature, and camel grazing would be possible thereafter. Alternative grass plots were created for livestock grazing to reduce mangrove dependency that would aid in regeneration. According to GUIDE, the REMAG project and the successive initiatives of GEC in the village regenerated 251 ha of mangroves which eventually generated long-term fodder security, and provided employment to the villagers through the plantation work (Thivakaranet et al. 2006). Though the Jats recognised the value of mangrove plantations, especially in relation to fodder requirements, they also resent the covert control by the authorities who have set rules of access, most importantly related to grazing. Omar bhai, the patriarch of the village tells us in his reflective tone:

We were told that we can use these plantations after five years for fodder and grazing but it’s not the same [...] they do not allow camels to graze, and do not want us to collect seeds. Is this really our plantation?
Though Jimlivand promised to be a community governance model, the rules of access were not as clear cut especially when it came to camel grazing. The challenge of camel fodder resurfaced regularly in our discussion with the villagers who saw it as the main hurdle in maintaining camels. As Omar-bhai goes on to narrate the story of Jat migration from across the India-Pakistan border, he is overcome with nostalgia and recounts: ‘a few years ago, every household would own about 10-20 camels, but now there may be just two households in the hamlet which actually keep camels. When I was young, my family had about 100 camels. They are a part of our Jat people’s identity’ (interview with Omar bhai, Kutch: June 2016).

In several historical accounts, such as Westphal’s study on Jats in Pakistan (Westphal-Hellbusch and Westphal 1964), Fakirani Jats have been admired for their camel breeding skills. Other pastoral communities, such as the Rabaris and Bharwads, would also entrust the Jats with their camel herds for breeding and grazing (Bharwada and Mahajan 2007). Jats continue to associate their identity with camels. In contrast, scientists on the other hand, actively discouraged camel grazing, labelling camels as harmful for mangrove plantations. This brought into focus the divergent values that these actors placed on the mangroves and the contestations around it.

4.1. Harm vs Protection: Claims to Authority and Knowledge

In scientific and policy discourses in Kutch, the dependence of communities on mangroves is cited as one of the major threats to the survival of mangrove habitats. It for this reason that the conservation programmes such as the REMAG have primarily targeted these communities. For several ecological and conservation scientists, the herder communities did not ‘care’ about the environment. A GEC field manager who has been involved with the plantation work in Jimlivand for nearly a decade now told us how the Jats had to be moved out of ‘bad habit’ of mangrove dependence:

> The animals owned by the Jats do not spare the mangroves. It is not so bad now because there have been good rains in the last five to six years unlike previous years, but in future it is unlikely that good rains will come. They don’t cease to use the mangroves and retain their dependency even though there is plenty of grass to go around. Though they have [fodder] stock for a full year, they do not want to let go of the habit. They think that if their cattle get into the habit of sweet grass, they will not eat mangroves.

(interview with field manager, Kutch: August 2016)

While scientists argue that overgrazing, 'unscientific grazing patterns' (camels browsing on leaves and damaging the tree) and cutting are responsible for the destruction of mangroves, economists characterise mangrove dependence as 'primitive and unsustainable' (interview with economist, Ahmedabad: September, 2016). Therefore, the conservation projects have usually included a diverse bundle of targets, reducing dependence on mangroves, providing alternative sources of livelihood, education and community development. These initiatives inherently begin from the premise that these communities 'do not know what they are doing and should be nudged towards modernity' (interview with scientist, Kutch: October 2016). In this process, the village committees, plantation work, and dairy business became the sites of enactment that led to the creation of environmental subjects in Jimlivand.

In Jimlivand, both GEC and GUIDE have been centrally involved with the plantation efforts. In Kutch and elsewhere, GEC is known for large-scale mangrove regeneration efforts. 'The biggest factor is to build trust', said a field manager of GEC who coordinates mangrove reforestation work and looks like man on a mission. He explains:

> We built that trust with them and then began to bring the government schemes like Indira Vikas Yojana (development scheme). Then we started the Awas Yojana of fisheries department over
there. So, few pucca houses began to come. Their water problem was resolved and then their livelihood began to increase. Then dairy started [...] then that created money. Then they began to build on their own.
(interview with field manager, Kutch: August 2016)

The initial years of the REMAG project targeted the indiscriminate cattle grazing, which was often characterised as a 'bad habit' that needed to be dispensed with. Camel grazing was also a serious problem because the camels directly graze on the flowers. Some scientists also believe that camel's saliva is harmful for the mangroves - a claim that is yet to be scientifically proven - and disturbs the regeneration process (interview with scientist, Kutch: October 2016). This is actively contested by the local community who argue that camels have lived and grazed in these habitats for centuries, 'even before science arrived' (interview with Omar-bhai, Jimlivand: October 2016). They argue that camels actually help in the regeneration process because their hooves press the seeds deep into the soil and help with germination. This view is also advanced in NGO documentation (e.g. Kachchh Camel Breeders Association 2013). This is disputed by the scientists who claim that the trampling of seeds arrests the growth of mangroves as it blocks the pneumatophores (the respiratory mechanism of plants) (Bharwada and Mahajan 2007). The Jats denounce the claim that camels could 'ever be bad for mangroves because they share a natural relationship with the cheria'. By contrast, they claim that scientists get their knowledge only 'from books, and do not look at the reality of everyday life' (interview with Jat herder, Kutch: October 2016).

Though there are very few camels in the village now, this has not decreased the community's dependence on mangroves. A recent study shows that 96 percent of the households in Jimlivand depend on mangroves for their livelihood (Viswanathan undated). Villagers often collect mangrove leaves, branches and seeds as fodder for buffaloes while camel herders graze their animals inside the mangrove plantations. The Jats believe that seeds boost milk production and improve the quality of milk and shields the livestock against diseases.

Younger women of the community travel every day (in the monsoon months of July to September) to collect seeds from the reserved mangrove areas and pick leaves from the mangrove plots (the plantation sites). Between July and September, every morning groups of women from the vand go to the mangroves offshore to collect mangrove seeds and foliage. They leave the vand early in the morning and only return in the afternoon and then get on with household chores, such as milking the cattle etc.

Seed-picking and foliage collection has always been a woman's job and this tradition seems to be practised in all Jat communities of the area. Sameena-bai, in her 60s, belongs to one of the first two families that has a permanent house in Jimlivand. 'I have lived here for 50 years, but our families have been living here for so many years. We have been going into the mangrove forests for five or six generations.' Almost all women aged between 20 and 50 in Jimlivand are either engaged in plantation work, or they collect mangrove seeds and leaves.

As stated above, one aim of the REMAG project was to make the Jats gain livelihoods that are not totally dependent on the mangroves. In part, this is also due to the widespread sedentary bias of mainstream science and officials in Kutch who are keen to get rid of pastoralist and transhumant livelihoods in the semi-arid to arid Kutch environment (Bharwada and Mahajan 2007). One key change has been the switch to buffaloes. Until a few decades ago, camels were used for farming, patrolling and transport, recalls Omar bhai: 'Camels could work for hours in the dry heat of the desert and live for days without access to water' (interview with Omar bhai, Kutch: October 2016). However, with changes in agricultural patterns and reduced access to grazing fields, camels are no longer an asset.

Omar bhai's family now owns over 150 buffaloes, the highest in the village. He explains: 'Camels are not much in demand these days. Fodder is a big problem, so people are selling herds. It is mainly buffaloes that people keep'. Bharwada and Mahajan's (2007) study on maldharis in Gujarat also makes similar
observations regarding the use of camels as draught animals. They also observe that before chemical fertilisers invaded the agriculture market, camel dung was used as manure and maldharis were paid (in kind with food grains) for penning their livestock in the fields.

This transition from camel herding to buffalo rearing is also closely linked to the conservation programmes that started in the village in 2004 alongside the rise of the dairy business. Omar bhai tells us:

A few decades ago, there was no organisations to promote mangroves in this area. Mangroves and the sea were all it was. We used to graze camels. Then the time of camels was over. When these organisations came, they advocated for its conservation especially the saplings. Camels were also becoming expensive to maintain due to lack of fodder. So, we did away with the camels and sold them to a trader from Rajasthan. Then we turned to buffaloes.

(interview with Omar bhai, Kutch: August 2016)

Many Jats we spoke to appreciate the benefits that the dairy business brought to the village through the buffaloes but deep down resented the loss of camels. Today, dairy and fishing are the dominant livelihoods of this village. In the official discourse of the conservationists at GEC and GUIDE, Jimlivand has emerged as a 'model village', a success story of how 'jungle people' arrived into the modern lifestyle of 'education, dairy business and pucca houses' with their livelihoods becoming economically more viable (interviews with scientists, Kutch: June-October 2016). However, this notion of modernity is debated within the village, especially among the older members of the community who believe that a Jat’s real identity lies with the camels.

Despite claims of Jimlivand’s success, it should be noted that it is also an outlier because it is a compact hamlet, a homogeneous community with families who share kinship ties, which has made it easier to mobilise and implement the programme in contrast with other sites. The 'success' of REMAG was also stymied by constant development pressures. A 2006 GEC study notes that most of the area demarcated for reforestation under this project between 2001 and 2006 was also identified for deforestation for the Kalpsar Dam in 2003, hence forestalling the restoration efforts (GEC 2006).

The case of Jimlivand aptly demonstrates how herders were turned into environmental subjects as a result of the conservation discourse and its practice. Changes in the wider economy, such as the dwindling demand for camels aided this process. Besides the discursive technologies of 'harm', 'scientific grazing', and 'bad habits' that were deployed to devalue the indigenous system of knowledge, these discourses were also fuelled by the larger narrative of 'forest' people whose traditional pastoral livelihoods were in need of complete reform. By making conservation technical and scientific, the conservationist agenda secured compliance from the community but not without contestations. The scientists and the herders placed different values on the mangroves. For the herders, mangroves were part of their natural habitat, sharing a natural relationship with the camels and therefore central to their livelihoods and pastoral identity of the maldhari or Jat. The scientists however saw mangroves as environmental assets performing a specific set of ecosystem functions with little regard to the social relationships that herders had established with the mangroves. This knowledge bias has also fed into the compensatory afforestation initiatives, which follow a similar trajectory of implementation because they tend to be implemented by the same set of scientists. Marketisation processes, however, add another layer to this exclusionary dynamic. We discuss this in the next section.
5. Compensatory Afforestation

Compensatory mechanisms have been part of the Indian legislation for the last three decades (through the Forest Conservation Act of India 1980), whereby users of the forest land are to compensate for the loss, in physical terms, by undertaking afforestation on a non-forest land. In 2006, this simple system of compensation was further revised to include the valuable services that forests perform for the full life cycle. The concept of Net Present Value (NPV) was brought into the compensatory mechanism, whereby value of the forest was billed to the investor so that forests could be created elsewhere making them 'mobile, fungible, mechanical units producing an itemized list of services’ (Kohli and Menon 2016b: xxiv).

How far these policies are implemented and monitored is still disputed, but compensatory afforestation mechanisms have provided new ways of metrification, measurement and cost-benefit analysis of forests - as economic goods, rather than livelihood resources having cultural and symbolic value.

Towards the end of the last decade, public outcry over environmental destruction in Kutch 'forced' the industries to take the mangrove denudation seriously. Government regulations now require that industries compensate for the loss of mangroves that are destroyed in the process of industrial development. In order to offset the destruction, plantation drives are carried out in different parts of the state. However, a marine scientist we spoke to has doubts about the long-term future of Kutch’s mangroves. This is because of dredging around ports, reclamation and post reclamation efforts as well as land-based de-notification. All these are changing the tidal flows that mangroves depend on which will ultimately lead to them getting stunted and scrubby in the long term (interview: October 2016).

Still, official discourse focusses on the need to mitigate the environmental damage and the success of these various regeneration efforts.

Large scale mangrove planting is continuously being carried out by the State’s Forest Department, coastal industries and NGOs under different schemes. This has also led to the increase in the aggregate forest cover. The FSI’s district-wise satellite data shows a two-fold increase in mangrove areas from early 1990s to 2016 (Ministry of Environment 2016). But doubts persist over whether such compensatory afforestation will be able to compensate for the loss of natural mangrove species and perform the same ecosystem functions as the natural mangroves (interview with scientist, Kutch: October 2016; see also IUCN 2015). Experts on mangroves estimate that out of 30,000 such plantations undertaken in the state, nearly 50 percent of these afforestation measures are a failure as some plantations are either stunted or are not able to perform the same ecosystem functions. A mangrove expert in Kutch states that ‘the original functions of the mangroves are hard to achieve through afforestation measures’ (interview with scientist, Kutch: October 2016). He also explains that one of the reasons for this failure is the environment in which these mangroves are planted:

In the original habitats, local communities often depend on the mangroves, so their cooperation to conserve helps in protection. In areas where afforestation is done, it is hard to expect that level of commitment from the communities who have nothing to do with the mangroves.
(interview with scientist, Kutch: August 2016)

Compensatory afforestation measures have an underlying conservation bias. The loss of livelihoods has rarely been a priority especially so because these livelihoods are often considered primitive or economically unviable according to the industries, scientists and some government stakeholders. For some, compensatory afforestation provided 'wages to the idle manpower in the village' and is a much better alternative to 'fishing which does not have regular fund flows' (interview with forest officer, Kutch: October 2016). These larger narratives of ‘the archaic, poor and ignorant’ provided a spin on the conservation programmes which are now packaged as community development schemes and thus demonstrate the science-policy nexus at work. These programmes tend to aid and promote a different and rather apolitical understanding of the 'environment' and the mangroves. They either overlook the
values that herders or fishers ascribe to their natural habitats or further dilute them through the scientific protocols of 'harm' and 'protection' blaming the communities for the loss of biodiversity. These in turn feed into state regulation and policies that are critical of pastoral livelihoods (cf. Li 2007; Leach and Scoones 2015).

Local communities also have doubts regarding the quality of these mangroves. In Jimlivand for instance, the Jat herders have mixed responses regarding the rate and quality of regeneration. They acknowledge its importance in meeting the fodder needs, providing protection against storm surges but also recognise that the quality of regenerated mangroves cannot be compared to the original and natural mangrove plantations. Suleiman bhai, a camel herder in his past life and now a Sufi mystic and poet, suggests:

[…] what is natural is natural! You ask how the mangroves are now. Well it is as follows: Seeds are brought from outside and planted here. If anything manages to grow then it is useful. The naturally occurring mangroves are usually taller and they are no longer around. Those which are still standing are there but otherwise for the last six to seven years, the planted mangroves grow to about five feet only. (Interview with Suleiman bhai)

Restoration may often take place several hundred kilometres away from where destruction took place, with local villagers providing labour for the plantation work but having limited or no rights of use to mangroves since these commons are largely off limits now, largely because they have become 'private' lands under the control of the companies. Most of the afforestation efforts are led by the Forest Department or the GEC, the two main agencies working on ARR in Kutch. Both rely heavily on the communities to provide cheap labour. For example, the Adani group has undertaken a massive mangrove afforestation programme at Tus village in Mundra taluka When afforestation started in 2011, it gave many villagers assured labour for two or three months in a year. Local fishers act as contractors and help to mobilise the community and GUIDE trains these fisherfolk. Men and women are hired from the village for mangrove plantation work at an average daily wage of 200 rupees (approximately US$3). Amidst tidal and wave movement, afforestation efforts face practical difficulties as seeds are washed away and need to be planted three to four times. Contractors, who are fishers from the local community, complain about low payments for such tedious work.

This compensatory afforestation is also accompanied by high-intensity Corporate Social Responsibility (CSR) activities. Through CSR, communities are provided with low-scale employment in the industries, and with other amenities such as housing, education facilities for children, medical facilities for the family. To compensate for the loss of fodder, alternative grass plots are also provided. Some industries have also engaged the civil society to ensure that their business operations are environmentally and socially sustainable (CGPL 2016). Though some vands seem to welcome these efforts, others share an underlying resentment due to the loss of livelihoods and identity (as discussed below).

CSR activities and compensatory afforestation programmes have also given rise to different networks and alliances. Several NGOs are now being 'co-opted' as advisors or partners to promote the CSR activities of these industries. For example, the Tata group, which has a long history of philanthropic activities in India, now has a Memoranda of Understanding with the top NGOs of Kutch which advise them on their CSR activities and sustainability matters. While the Tatas have long been into CSR efforts, even before it was mandatory, and have a good record in working with the local communities affected by their industrial activities, many NGOs are still reluctant to work with the Adani group which, until very recently, has cared less about being socially and environmentally concerned (interviews with various NGOs, Kutch: October 2016). Industries have also roped in technical experts and scientists to support their compensatory afforestation activities. Having worked in these areas for decades, these scientists not only bring along technical expertise, but are also able to act as interlocutors between the industry and the communities that provide labour for the plantation work. Their scientific expertise helps in
insulating the deeply political nature of these conservation schemes as technical protocols of monitoring and evaluation, metrification measures on loss and sustainability are deployed to make 'nature' and the communities amenable to rule by the corporates (cf. Li 2007).

The emergence of these alliances has to be read in the context of the changing funding climate. Shrinking development funds often leave CSR money as the only, or predominant, source of funding for many development NGOs and research organisations in Kutch. While some of the NGOs argue that this provides an opportunity 'to bring about change from within by having a seat at the table' (interview with NGO, Kutch: October 2016) they do acknowledge that these relations are ridden with tensions.

Compensatory afforestation measures in Kutch have also inherited the conservation bias underlying the community ownership model of REMAG as they systematically overlook and 'devalue' the cultural and symbolic values that communities place on the mangroves. Unlike the community conservation models, where access and use of mangrove habitation is permissible when within certain bounds of 'scientific patterns', compensatory afforestation severs these ties completely. In most cases mangroves are afforested elsewhere and decontextualized from its habitus (cf. Kohli and Menon 2016b). As mangrove lands are acquired by industries and mainstreamed into private capital, they lead to further dispossession of communities. These people are then either absorbed as cheap labour or their dissent is muted through CSR activities. We focus on the 'enactment' of this dispossession through marketisation processes in the next section.
6. Shrinking Commons: Industrialisation and Dispossession

The pastoral communities have been severely affected by the industrial development on the Kutch coastline. While local people in Mundra town bemoan the loss of their coastline to ports and industrial enclaves, it is the pastoralists who have lost access to grazing lands that are either destroyed, encroached upon or made off-bounds for them. A Kachchh Camel Pastoralists’ Organisation (KUUMS 2010) study notes that camel grazing lands are shrinking due to widespread encroachment and degradation due to large-scale industrialisation in the coastal areas, construction of ports and mining and the fencing off, of protected areas. The report alleges that steel and thermal power plants have ‘appropriated’ huge areas of mangroves, making them hard to access or useless for grazing. This private appropriation of mangrove lands is a form a blue grabbing. These lands are not grabbed for eco-tourism or conservation programmes (Benjaminsen and Bryceson 2012) but for the expansion of industrial and port activities. The coastline becomes a productive capital aiding industrialisation and represents a form of primitive accumulation at work in Kutch (cf. Harvey 2005; Li 2009).

A couple of miles inland from the old port at Mundra, the secretary of Machimar Adhikar Sangharsh Samiti (MASS), is involved in legal action and advocacy to protect fishers’ rights. MASS is an influential organisation that has taken corporates to task, and their protest has led to legal proceedings against International Finance Corporation (IFC), the lending arm of the World Bank. He is critical of the industrial invasion of the coast, and he does not see the point in compensatory afforestation in lieu of large-scale deforestation (IFC 2016; Kohli and Menon 2016a). He argues:

There are violations (all around) that you can see. Mangroves are good for camel fodder. Now there is not even [one] camel [...] People do not use it for fodder anymore. Mainly it goes for industry encroachment. If you look at these patches (on a Google map) they were all mangroves. Now it is all mud. These are salt pans.
(interview with secretary, Kutch: September 2016)

Close to the Mundra SEZ is the Rabari hamlet of Phuleri, which is dotted with bhungas (circular mud huts which are the traditional homes of villagers). The residents of the Phuleri vand have primarily been camel herders. The vand is a traditional neighbourhood where the Rabaris are trying hard to preserve their nomadic pastoralist livelihood and lifestyle, which now seems to be under attack. The village is now surrounded by industries from all sides. Over cups of tea made from camel milk, our host pastoralists complained about this encroachment, narrating:

This is a problem that involves 500 to 700 acres (roughly 200 to 280 hectares) of land. We want grazing land free from companies. If we go there, they say this is forest land, and plantation work is going on inside. They are not allowing us to go inside.
(interview with Rabari herder, Kutch: August 2016)

Mahir, a feisty young man in his forties, said that these days he cannot freely use these lands for grazing his herd. Rabaris often have to walk their herd along the thin edges of a multi-track national highway, crossing the buzzing port town of Mundra in search of fodder. 'Some go near the Kandla port, some go to the mangroves of Bhachau taluka (sub-district), and some are going near Jogninar' (interview with Rabari herder, Kutch: August 2016). Camel herders, however, prefer to let their animals graze right in the mangroves as they require huge quantities of fodder. According to a Rabari legend 'it is the camels that decide when to move out of a grazing land. The herdsman just listens to his animals' (interview with ecological scientist, Kutch: August 2016). Being a border district, the threat of terrorism and international security is often overplayed to deny common people access to the coast as well as coastal resources. This has become particularly difficult after ports and thermal power plants were set up in the Special Economic Zone, which is now guarded by the Central Industrial Security Force (CISF).
In Phuleri vand, the camel headcount has dipped from 10,000 to 80 camels over the past few decades. ‘We just can’t get enough fodder, after a port and two thermal power plants took away much of the mangroves, and forest guards prevent entry to some other areas’, laments Jarod-bhai. He states:

Presently, in Phuleri vand 20 people have camels. There is a total of 300 houses in vand with problems of grazing lands and with the company’s arrival people started selling their camels and some have migrated to other places in search of fodder. We are assuming that if this grazing land problem is not solved, in future no single camel will be available in this vand. We have to fight the company and the forest department.
(interview with Rabari herder, Kutch: August 2016)

Unlike the Jats in Jimli vand, the Rabaris in Phuleri continue to rear camels. They argue that ‘buffaloes are more profitable but buying them and maintaining them is very tough. [...] a camel can be satisfied but not a buffalo’.

The massive degradation of mangroves is also threatening the survival of an indigenous breed of camels, the kharai (salty) camels that are famous for their ability to swim and browse on mangroves in both the sea and the desert and can survive by drinking sea water. ‘They are used to (drinking sea water) from birth, therefore they do not face any problem’, explains Ahmed bhai, a Jat herder from a remote hamlet of Khimri vand. We met Ahmed bhai in one of the grazing plots on the outskirts of the vand. As we watched the kharai camels graze on trees, we were awestruck. Decorated with colourful metallic beads around their neck that jingled as they grazed around, the kharai are a wonder to watch with their humped back and relatively shorter height when compared to the camels of Rajasthan. Over cups of tea made from fresh camel milk, Ahmed bhai tells us how his family has been breeding camels for several generations. He said:

We only take care of our camels and take them to graze. (We have) 100 – 125 camels. Out of this 60 is our own, 10 – 12 belong to my brother and others belong to Rabaris. They are all grazing in Lun bet (island) more than 6 km away. The camels are owned by 15 or 16 persons, all from our family – our son and his son, like that. Often buyers come from Rajasthan. We don’t sell milk. Milk is mostly consumed by calves and the rest we use at our home.
(interview with Ahmed bhai, Kutch: October 2016)

Due to industrialisation, the traditional grazing routes of these camels have been blocked, it is a question of access explains an ecologist at Sahjeevan:

Mangroves [islands] are still there as per their [camel’s] knowledge but they cannot access those mangrove islands...so now they keep on migrating from one place to another. The herders are selling their animals. Earlier they had 500 to 600 camels in this particular area. Now they hardly have about a 100 camels.
(interview with ecologist at Sahjeevan)

Mangroves constitute about 70 percent of this camel’s diet. Left with no choice due to blocked access, the herders are trying to change the kharai’s diet risking its survival (Shrivastava 2013). Though female camels are considered to be sacred in these communities (ibid), pastoralists are now forced to sell them. This has not only risked their livelihoods but also resulted in a loss of identity whereby herders have either migrated to low-scale contractual jobs in the companies or to other activities.

Over the last few years, however, attempts by alliances between civil society and local people have been made to preserve the pastoral identity. The kharai camels have now been recognised in India as a distinct breed or ‘threatened’ species that needs protection. This also links with attempts in Rajasthan to highlight the importance of camel milk and market camel products, since camels are no longer required as draft animals. Sahjeevan, an NGO in Kutch, is working closely with these marginal
communities to revive their indigenous systems, and to restore the native habitats, food stocks and grazing routes of these kharai camels. They have established three pockets or clusters where such restoration activities are taking shape.

6.1. Contested Values: Identity and Livelihoods

The fishers in Kutch also report a similar tale of dispossession as they struggle to maintain their traditional livelihoods. Across fishing communities in Mundra and Abdasa, fishers have noticed several changes in their habitats and attribute this loss to port activities and waste that is dumped into the sea. While the destruction of mangroves, which are the natural nesting grounds for fish, has resulted in the decline in fish catch, fishers' access to water channels is also blocked as the coastline is now populated by industries. Ilyas bhai, a veteran fisher a former office-bearer of MASS put it:

Fishing is our livelihood. My father, my grandfather, all were fishers. We have been involved with fishing [for a long time]. For the past six to seven years it has been particularly bad [...] they draw water from the sea to cool their plants, small fish get stuck in the process and die. Then they release hot water – that is pollution [...] because this is a creek with less water, pollution has more effect on this [stretch of water]. Fish go away. That is how they work. A lot of big projects come up on the coast. They pollute the air as well. All these factors lead to less catch.
(interview with Ilyas bhai, Kutch: August 2016)

Salt pan activities have also afflicted both the fishers and herders because they result in the decline of fish catch as well as destroy the tender mangrove plants. Trucks ferrying salt from the port often leave a trail of white crystals on the road that destroy the tender mangrove shrubs. Suleiman-bhai who resents industrialisation on the coast and the loss of open sea, bemoans:

But water moves beneath and flows to their roots. All trucks are lined up and a lot [of salt] is dropped and a bit of it flies like dust and settles at the roots [of mangroves] as well. But this is not considered. The companies deny this. The effect on water is also similarly denied.
(interview with Suleiman bhai, Kutch: October 2016)

The corporates see fishing as a primitive and economically unviable livelihood and take credit for the fact that they have brought 'development' to these coastal communities. Not only are the fishers involved in mangrove regeneration (as contractors and laborers) the companies also provide education, healthcare and civic services to the villagers. 'Six years [of work] has made a lot of difference to the fishing community', said a corporate CSR official who described how CSR initiatives had transformed the lives of the villagers:

Earlier children were involved in fishing and sorting. Now they go to school. Now the local people are more aware about the benefits of education. We give basic facilities like water and houses made of fibre-reinforced plastic sheets. We provided community toilets for five years [...]. Earlier people had to buy water brought in chakada (a three-wheeled rickshaw). We have built water tanks, and now we are thinking of a desalination plant. Earlier there was no electricity in the village. We tied up with the power company, so that people can even watch television now. Fishers pay their own bills for utilities. We also provide medical and transport facilities.
(interview with CSR official, Kutch: August 2016)

These contingent political and economic conditions and the ensuing social processes have also led to the rise of different kinds of alliances and networks between communities and corporates as well as within communities. The afforestation projects have created fissures within the local communities, especially between those who have benefited from the compensatory afforestation measures and the CSR activities as opposed to those who were not their direct beneficiaries and/or resisted the industrial
encroachment. Seeing a lot of development activities on the seashore, some fishers nurse dark fears about the future of fishing while others see resistance as a case of sour grapes for being left out of the process. Despite these divisions, fishers are sceptical of the future of their children, especially related to job security and education after completing secondary school.

In Mundra, the lines are also drawn between two resource dependent communities, the fishers and the Rabari camel herders. Fishers who are involved in corporate afforestation measures also guard the plantations and complain that the Rabaris forcibly enter the plantations with their herds and destroy the young plants. They say, ‘we tell them let the plants grow. But they challenge us and taunt us. They say, ‘complain to forest officials if you want’’. However, the Rabaris, justify such forcible entry into plantations saying that, 'camels are voracious eaters and need their food, and there are not many mangroves around' (interview with Mahir, Kutch: August 2016). Unlike the Phuleri vand where the Rabaris want to reclaim their grazing lands, the fishing hamlets remain divided on issues of CSR activities and the loss of livelihoods.

The corporate invasion of the industrial coastline is most inevitably a story of dispossession and contestations around value, identity and well-being. This dispossession through marketisation is not to mainstream labour into capitalist accumulation, but a process by which spaces and resources are appropriated (cf. Li 2009). It is enacted through establishment of no grazing or fishing zones, limitations on utilisation of mangrove resources, and appropriation of coastal areas by the industries complemented by narratives, which tend to discredit traditional livelihoods, such as artisanal and small scale fishing and pastoralism (cf. Benjaminsen and Bryceson 2012). As Li (2009) indicates in her study on rural dispossession in Asia, this unskilled labour resulting from dispossession is not a ‘reserve’, but surplus labour in relation to capital. However, fishers who become wage labourers during plantation drives actually become part of ‘floating labour’ (people who are cyclically unemployed) and conduits to maintain the corporate ‘rule’. Through these diverse yet interconnected processes, the livelihoods and associative identity of pastoralists and fishers is systematically eroded.
7. Discussion and Conclusion

So far, we have highlighted the contested trajectories of accelerated and aggressive industrialisation in Kutch. As the mangroves are denuded or are increasingly privatised under the current conservation and marketisation measures, conflicts and contestations have emerged around resource use and control. Thus, the wetland complex on the Kutch coastline consists of different actors at work who have deployed powerful discourses, vetted by neoliberal trajectories of growth, around ecological harm, development and conservation that tend to legitimise these resource enclosures. This has fundamentally altered the social life of mangroves in several key ways.

First, the discourse on carbon markets is nearly absent in Kutch, but marketisation processes have significantly changed the landscape and resource regimes on the coastline. These include the altered property relation around mangroves (from commons to state owned), the processes of privatisation of mangrove lands (either by the industries or the state), the metrification of biodiversity loss and the mechanics of 'decontextualised' offsets. In addition, the discourses and narratives that were deployed to create compliant environmental subjects out of herders, through conservation programmes, or fishers through CSR activities, have shaped the enactment of these practices. As this paper demonstrated, different communities have experienced this resource marginalisation and dispossession in different ways. The Jat herders in Jimlivand reluctantly accepted these changes, albeit regretting the loss of identity. The Rabari camel herders took recourse to subversive acts and direct resistance to claim their rights to the 'common' grazing lands. The fishers also faced a similar predication of loss of livelihoods and identity in Kutch while some intermittently benefitted from the CSR programmes.

Second, the 'enactment' of the market is of course significantly shaped by the changes in the political economy of Kutch following the 2001 earthquake. This brought in a wide array of actors and assemblages that have stabilised particular ways of 'conserving' mangroves through offsets and privatisation. Through these processes, the communities were tied into relationships of patronage and dependency either with the state (through scientists in Jimlivand) or the industries (through CSR activities in Mundra) as some of them became the foot soldiers of plantation drives and beneficiaries of CSR activities. Packaged as 'community development' programmes, these initiatives represented a form of biopolitics (cf. Foucault 1991; also see Li 2009) aimed at a certain understanding of 'well-being' which was at odds with perception of the community.

Third, discourses and value framings also played a critical role in augmenting these processes. The conservation scientists valued mangroves as an environmental asset, which provided various environmental services. This was demonstrated through the case of Jimlivand where degradation narratives aided in 'protecting' the mangroves from the Jat herders. Mundra, however, is a case of enforced conservation where industries undertook compensatory afforestation measures to fulfil a legal mandate. Here resource dependent communities were either excluded or denied access to the mangrove lands that were eventually released into the 'privatised mainstream of capitalist accumulation' (Benjaminsen and Bryceson 2012: 336). By contrast, the communities shared a symbiotic relationship with the mangroves, which have supported their traditional livelihoods (herding and fishing) and also shaped their identity in significant ways.

Fourth, this value contestation also led to the emergence of conflicts and alliances between different kinds of actors. In the context of afforestation measures, the scientists and the NGOs often acted as intermediaries within these tenuous relationships. They helped convert the deeply political processes of plantation enclosures into technical projects with their scientific assessments and bureaucratic protocols (cf. Li 2009). Against the backdrop of shrinking development funding, these corporate-scientist and corporate-NGO alliances may have provided some legitimacy to the 'development'
discourse in Kutch as they are co-opted in the neoliberal project but there are others who seek to challenge these top-down systems of knowledge.

While the scientific discourses of harm and degradation legitimised the exclusion and dispossession of resource dependent communities, innovative experiments around the revival of indigenous practices are also underway that challenge this 'scientific' hegemony. There have been calls to reframe conventional and colonial understandings of 'wastelands' or 'drylands' and instead call them 'savannahs', typical to the Indian context which have their own dynamics and can sustain lives and livelihoods (interview with Virmani and Iyengar, Kutch: October 2016). Other initiatives include efforts to enhance biodiversity of drylands and embrace dryland dynamics. For example, revival of indigenous seeds system (in Banni grasslands) or revitalising pastoralist livelihoods (through indigenous breeding of the *kharai* camel). This has also given impetus to the formation of alliances (between local communities, state agencies, civil society, and academics) that seek to allow hitherto disempowered and excluded herder communities to preserve their local livelihoods and pastoral identity. It is here that one sees the moments or opportunities that can potentially trigger change. In addition, local communities have also taken recourse to direct action and resistance through litigation as they petition (with the help of civil society organisations such as MASS) in national and international tribunals. The subversive acts of *ghuspaith* or instances of direct action have opened up spaces of resistance on the coastline that are challenging the status quo.

To sum up, the Kutch coastline has been on the path of rapid and aggressive capitalist industrialisation, a neoliberal transformation, for the last two decades. This transformation has significantly altered the social life of mangroves turning them into environmental assets in need of protected enclosures or 'things' that are uprooted from their habitus and planted elsewhere as their natural habitats are brought into the service of capitalist production. In this process, fishers and pastoralists who shared a symbiotic relation with the mangroves have risked the loss of livelihood and identity. Besides the communities that share direct and associative relationship with the mangroves, a host of other actors have also shaped the meaning, value and relationships around mangroves. Alliances forged between different actors - state and corporate, corporate and scientists, and scientists and communities - have intensified the capitalist growth trajectories producing winners and losers. In parallel, new alliances are emerging which seek to challenge these incumbent neoliberal regimes of valuation and marketisation. They demonstrate the beginnings of the unruly political re-alignments (*cf.* Stirling 2014) that are seeking to challenge incumbent power structures as well as top-down systems of knowledge, and could potentially foster pathways to social transformation.
References


Li, T. M. (2009) 'To make live or die? Rural dispossession and the protection of surplus populations', *Antipode* 41.1: 66–93


Tripathi, N., Singh, R. S., Bakhori, B., Dalal, C., Parmar, D. and Mishra, B. (2013) 'The world's only inland mangrove in sacred grove of Kachchh, India, is at risk', Current Science 105.8: 1053–105

Viswanathan, P.K. (undated) Conservation, Restoration and Management of Mangrove Wetlands against risks of Climate Change and Vulnerability of Coastal Livelihoods in Gujarat, Ahmedabad: Gujarat Institute of Development Research

