

The social life of mangroves: Neoliberal development and mangrove conservation in the changing landscape of Kutch

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Abstract

This article explores the convergence of neoliberal development and mangrove conservation in marginal environments, which are becoming the new resource frontiers. We focus on Kutch, a border district in western India and highlight how the contested trajectories of accelerated and aggressive industrialisation and its convergence with state and corporate-led conservation programmes are shaping the social life of mangroves on the Kutchi coast. We focus on the discourses, practices and politics of value-making and un-making that constitute the multiple modalities of repair as mangroves are depleted and securitised simultaneously. Although these trends are augmenting capitalist accumulation on the coast, they are also giving rise to new kinds of alliances that seek to challenge the logic and practice of repair by highlighting the synergistic relationship of coastal communities with their mangrove habitats.

Keywords

Mangroves, conservation, social life, pastoralism, marginal environments, Kutch

Introduction

The integration of nature into capitalist accumulation is situated in the logic that conservation can become an ‘ecological fix’ to the capitalist crises of accumulation and environmental degradation (Castree, 2008) and can seemingly ‘repair’ or ‘greenwash’ the contradictions within capitalism. The messy and complex character of neoliberal conservation encompasses a broad spectrum of practices that are often rooted in the particularities of place (Roth and Dressler, 2012). These shape the nature of exclusion, surveillance and deployment of technologies of power that are often bound up with pre-existing discourses of state formation, coloniality and overarching discourses of development

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(Holmes and Cavanagh, 2016; Huff and Orengo, 2020). This point is especially critical for places that were hitherto considered remote (economically, spatially and politically) or ‘marginal’ to the gaze of mainstream development, but are being reimagined and remade as ‘resource frontiers’ (Barney, 2009; Huff and Orengo, 2020; Mehta et al., 2021). These include border regions such as Kutch, the focus of this article, where aggressive industrial development is increasingly bound up with narratives of national security, the grand narrative of ‘development’, conservation and securitisation of resources by both corporate and state actors, thus making these landscapes, their populations and ecologies, increasingly legible to both state and corporate-led interventions (Damodaran et al., forthcoming; Scott, 1998).

Processes of development and globalisation imbricate nature in different patterns of extraction, production, exchange and accumulation across time and space, and these patterns are conditioned by contestations and struggles around how value is ascribed, by whom and to whose benefit. We argue that these value struggles, in Kutch, constitute the ‘social life’ (Appadurai 1988) of mangroves, that is, how they are valued and devalued, the discourses and practices of regulation and repair which are enmeshed in the political economy of rapid industrialisation. Drawing on the framework of accumulation by restoration (AbR), this article extends and clarifies our understanding of how processes of production and mediation that are simultaneously material, social and discursive create ‘spaces of capitalist transition’ including emergent ‘ecologies of repair’ at the landscape level in Kutch (Bakker, 2005; Barney, 2009: 146; Huff, 2021; Huff and Brock, 2017; Swyngedouw, 1999). We focus and unpack the notion of value-making and un-making through AbR highlighting the diverse modalities of repair which are used simultaneously to degrade and securitise mangrove landscapes in Kutch.

Kutch is a dryland known for its ecological diversity, ranging from wetlands to thorn forests and the desert. Pastoral and fishing communities have harnessed this variability and developed a symbiotic and cultural relationship with the mangrove habitats over several centuries (Mehta, 2005; Bharwada and Mahajan, 2007; Srivastava and Mehta, 2017). Referred to as *cheria* in the local language, mangroves continue to be one of the main sources of fodder for the *maldharis* (one who owns livestock) living on the coastal belt, especially during the summer months when the sources of fodder are few and far between. For fishers, mangroves act as nurseries for fish breeding and directly affect their livelihoods.

As a border region, Kutch is quite significant to India’s territorial claims, but this district remained ‘remote’ and neglected until the turn of this century, marking its distinctiveness as well as its marginality. Kutch was long considered spatially, politically as well as socio-culturally remote because of the cultural difference between Gujarat (which was part of the Bombay Presidency in the colonial period) and the erstwhile princely state of Kutch.¹ Gujarat was referred to as *pardes* (foreign land) in several accounts of the older herders, who identified more with Sind (now in Pakistan), which provided green and welcoming pasture land, especially during droughts. Many older pastoralists still reminisce about these migratory routes to Sind (Interview: February 2016). The partition of India and Pakistan (in 1947) and the subsequent wars between the two nations ripped apart these cultural ties.

An earthquake in 2001 marked a turning point for Kutch. It opened up the region to a project of aggressive industrialisation. This also paved way for the rapid integration of Kutch into the so-called Gujarat model of development which has led to infrastructure expansion (e.g. roads, ports, industries) and top-down modernisation processes. But as critics have argued, these processes have been uneven and exclusionary, promoted crony capitalism and have not been accompanied by investment in human development (e.g. public health, education and gender equity) (see Breman, 2014; Sud, 2020).

In the name of post-earthquake reconstruction, tax holidays and subsidies were provided for special economic zones (SEZs)² along the coast leading to massive denudation of Kutch’s

coastal mangroves to make way for industries, highways and ports. This was justified on grounds of national ‘development’ (see above), and offsetting measures were put in place by the state. Compensatory offsetting based on afforestation, reforestation and restoration (ARR) is common practice in India, although the principle of Net Profit Value (NPV) was brought into the initiative in the mid-2000s. In Kutch, however, the additional introduction of Community-based Mangrove Restoration (CBMR) and its transition into compensatory mangrove ARR has created a new and curious convergence of neoliberal development and conservation, which is the empirical focus of this article. In this rapidly evolving context, diverse sets of stakeholders have sketched out a terrain of uneven development and resource claims. These include multinational companies investing in a range of industrial projects such as coal, energy and port development; scientists advocating for conservation; and civil society activists and local communities claiming their rights to the commons (Kohli and Menon, 2016a).

Our focus on mangrove ARR projects that do not explicitly focus on producing commodities provides an interesting example to unpack the modalities of repair and how these work as sub-components of an incomplete and patchwork marketisation process that is currently underway in Kutch. In this way, the article builds on the scholarship on the diverse modalities of neoliberalism (Bakker, 2005; Li, 2007; Peck and Tickell, 2002; Srivastava, 2021). As these marginal environments are strategically turned into sites of re-regulation, the role of the state is reconfigured to facilitate capitalist extraction (Bakker, 2005). This transition from state-led to state facilitated corporate-led restoration showcases how compensatory biodiversity offsetting – a key technology of the ‘repair mode’ is increasingly becoming a favoured strategy, to secure not only territory but also to pacify resistance and gain public acceptance. This ‘greenwash’ by the companies has also become a source of gaining legitimacy for the contested Gujarat model of development.

In this regard, applying the lens of AbR helps us in understanding how these dynamics of making, un-making and contesting value(s), monetary and otherwise, are associated with the re-imagining and re-making of the margins as resource frontiers. AbR allows us to link value struggles around mangroves to the dynamics of changing state-corporate and nature-society dynamics to the actual process of accumulation to understand how these inscribe in marginal landscapes and produce diverse ecologies of repair.

We begin by laying out the conceptual framework that we use to study the social life of mangroves and how it intersects with processes of value-making and un-making as degradation and repair narratives are mobilised. After providing the methodological overview, we unpack the continuities and discontinuities in conservation discourses and practices focusing on Jimlivand (site for community-based conservation) and Mundra (corporate-led conservation) before concluding with some reflections on the contested practices of AbR in Kutch.

Conceptualising the social life of mangroves

‘Mangroves live life on the edge, [and] with one foot in the land and one in the sea’ (Warne, 2007), they support both land and marine ecosystems. Mangroves perform significant ecological functions, such as saving the coast from the impacts of storms, high tides, salinity ingress and sea erosion (Warne, 2007) whilst sustaining the livelihoods of resource-dependent communities. Owing to their environmental, climatic and economic significance (Locatelli et al., 2014), in recent years, mangroves have become an environmental asset, giving rise to different neoliberal regimes of valuation and conservation because of their widely recognised potential for carbon capture (Alongi, 2012).

As hydric resources (Mehta and Srivastava, 2019), mangroves engender different relations between land and marine systems leading to the formation of certain values and modes of exchange. In *The Social Life of Things*, Appadurai (1988) examines ‘things’ that move in and out of the

commodity phase, which he broadly interprets as regimes of value and exchange. In Kutch, mangroves are imbricated in different patterns of exchange across time and space; for example, denudation in one place is meant to be offset by plantation in another region; and grass plots are exchanged for mangrove enclosures. We unpack these meanings and values that get inscribed as mangroves circulate through the dynamics of conservation, forming different relations among diverse actors – pastoralists, fishers, industries, scientists and the state. These discourses and practices of value-making and un-making constitute the social life of mangroves in Kutch.

AbR and value-making and un-making

Value is not the inherent property of an object but is often governed by the social, economic and political context, making value creation and denigration a politically mediated and highly contested process (Appadurai, 1988). We examine the various trajectories of knowledge-making and value-making (Burke and Heynen, 2014) associated with mangroves and how they get shaped by different regimes of resource ownership. These in turn drive the degradation and repair narratives and practices that shape value-making in distinct ways through different historical periods (see Table 1 below). In this process, mangrove ‘uses’ are revealed, measured and categorised by powerful actors, while the unmeasurable qualities (such as the associative identity of resource-dependent communities) or the contribution to livelihoods either remain hidden or are labelled as unproductive (Kohli and Menon, 2016a). In its most aggressive form, value-making within capitalism ceases to be place-based because nature and nature-based services become universal, abstract and mobile (Büscher and Fletcher, 2015). As Sullivan and Hannis (2015) argue, place-based and affective values that make up ‘nature’ are dislocated through the calculative (capitalist) value frames that emphasise abstraction, substitutability and exchangeability between different species, places and temporalities. Thus, we explore ways through which mangroves are assembled as a resource by different actors through scientific narratives of conservation or afforestation efforts. However, how are these processes enacted and why do particular values gain ascendancy?

Enactment of repair

Diverse technologies are employed for this ‘enactment’ of repair. These include texts, discourses and narratives that frame values and meaning in particular ways (e.g. degradation narratives as opposed to the wellbeing and identity of local pastoralists); technical and scientific knowledge around plantation and resource use; and practices that seek to reshape and reposition existing relationships around ownership, use and governance. The dynamics and contradictions of the repair mode are also mediated and enacted through the performative and metrological rendering of ‘mitigation’, often framed as no net loss by corporates and the state (Huff and Brock, 2017). This is largely practised through biodiversity offsets but more importantly normalised through corporate-backed initiatives, such as corporate social responsibility (CSR), that conceal the multiple forms of harm that we discuss below.

Power is deployed in various ways as this repair mode is operationalised. While some forms of power are relatively covert and ‘oppressive’ such as in fortress conservation where transgressions are penalised, other forms are more subtle leading to the process of ‘environmentality’ (Agarwal, 2005), whereby resource-dependent communities are disciplined through particular configurations of power, knowledge, institutions (Foucault, 1991) and narratives of ‘improvement’ and reform (Li, 2007).

This binary interplay of power is quite central to conservation in this remote frontier where the state is present in overt (disciplining movement because of the border) and covert ways (in alliance with capital to facilitate capitalist expansion), as mangroves become sites of re-regulation. The state

through its dispersed (formal and informal) institutional practices, policy frameworks and networks tends to facilitate these practices of enclosures (Ferguson and Gupta, 2002; Srivastava, 2021) whilst displaying features of both roll-back (retreat of the state) and roll-out neoliberalism (increased penetration of the state through industrial capital) in these marginal environments (Peck and Tickell, 2002). This hydra-headed (Mann, 1993) and dispersed nature of the state also accounts for the contradictions in the enactment of repair and re-regulation of landscapes.

According to Bakker (2005: 544), re-regulation ‘usually involves three interrelated processes: privatization, commercialization, and commodification’. Although neoliberalisation implies the growing prevalence of market institutions, it does not automatically imply complete commodification of socio-natures, which is always partial, transient and incomplete, a manifestation of the tension between roll-back and roll-out neoliberalism. In this article, we understand marketisation in a broader sense in terms of the (non-commodity) production of marketized socio-nature as resource frontier and landscape, which must be understood as a ‘continuous historical-geographical process’ (Swyngedouw, 1999: 445) of production and mediation that is simultaneously material, social and discursive (Gandy, 1997).

Taking a place-based approach, we ask: how values around mangroves change as conservation is rolled out in Kutch, and examine the practices and discourses through which these relations are enacted. By following the transitions in discourses and practices of conservation, we demonstrate how social and cultural values are being abstracted from these fragile ecosystems to service the engines of aggressive industrialisation on the Kutchi coast.

Methodological overview

This paper draws largely on fieldwork conducted in Gujarat between 2015 and 2019, but also builds on earlier doctoral and other long-term research and engagement by one of the authors in another part of Kutch. Following an intensive literature review, interviews and focus group discussions were conducted in the various coastal hamlets with camel herders, pastoralists and fishers. For detailed research, two sites were chosen on the North-West coast of Kutch, which demonstrate the prevalent models of conservation: the community managed conservation in Jimlivand, and corporate-led conservation in Mundra *taluka* (sub-district). The local level fieldwork was followed by semi-structured interviews ($n = 30$) with experts, which included environmental activists, scientists, ecologists, bureaucrats, representatives from civil society and industrial actors in Kutch, Gandhinagar and Ahmedabad.³

Regimes of value in Kutch

Kutch has the second largest mangrove cover in India, about 994.77 km², and Kutch mangroves constitute about 67% of the state’s mangrove cover (Forest Survey of India (FSI), 2019). 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. Mangrove conservation needs to be read in conjunction with Kutch’s development trajectory which has determined how nature came to be governed under different resource regimes (see Table 1).

Until India’s independence in 1947, Kutch was a princely state and mangrove areas were largely designated as commons. The state of Kutch allocated grazing rights to the communities and collected taxes. Several herders spoke of this arrangement between the pastoral communities and the princely state during our fieldwork. For example, Lepa-*bhai*, a *Rabari* camel herder, tells us that his ancestors grazed their camels in the mangroves that were abundant along the coasts of Kutch for over 500 years. Various kings had granted their ancestors rights to mangroves and grasslands and in return, they paid taxes. As he showed a yellow paper stamped with indigo insignia

Table 1. Resource regimes in Kutch.

Period	Regime of rule	Conservation approach	Values	Strategies	Actors
Pre-1947	Commons under royal patronage; colonial rule	Wasteland in colonial discourse	Associative and place-based identity; unproductive for the colonial government	Rights to grazing and taxation	Princely state; colonial government; herders and fishers
1947–2001	State-led	Fortress conservation; securitising the coast	Protected areas; national development prioritised over nature	Natural reserves; sedimentarisation of pastoralists; gradual reallocation of the commons for industrial and agricultural development	Forest department; state agencies and scientists; herders and fishers
2001–2008	Roll-back neoliberalism; accumulation by dispossession	Fortress conservation; flexible conservation	Commodification of land and coast; degradation of mangroves	Community-based conservation; state-based conservation	Forest department; industries; donor agencies; scientists; herders and fishers
2008–present	Roll-out neoliberalism; accumulation by repair	Corporate-led ARR; biodiversity offsets	Metrification of loss and biodiversity cover; mangroves become mobile and fungible	Offsets through compensatory afforestation; CSR activities; a fusion of community and corporate-led models	Industries; scientists; civil society; herders and fishers

Source: Adapted from Büscher and Fletcher (2015).

ARR: afforestation, reforestation and restoration; CSR: corporate social responsibility.

which he believed to be the royal seal of the princely state of Kutch, he narrated that they chose Phuleri *vand* (in Mundra) because of the existence of a thick belt of mangroves (Martin, unpublished). 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 their fodder needs.

After independence in 1947, this tax system was abolished by the Indian government and the mangroves in the Gulf of Kutch were largely notified as forests (Bharwada and Mahajan, 2007), although some areas were also problematically designated as ‘wastelands’, carrying forward the colonial legacy of labelling non-revenue generating lands as ‘wasteland’. Recent statistics also reveal that about 11% of land in Gujarat is categorised as wasteland with large swathes of Kutch falling under this classification (Devarajan, 2020).

Reserved forests came under the jurisdiction of the Forest department. Even today, access to these areas continues to be highly regulated because of its proximity to the India-Pakistan border. To access mangroves on the islands, referred to as *bets*, special permission is required. Grazing is allowed on the lands owned by the Revenue Department but not on the lands under the jurisdiction of the Forest Department.

Until the early 2000s, the herders had to negotiate their access via the Forest Department which largely followed the practices of fortress conservation, following a command and control approach, deploying a fence and fine strategy (Brockington, 2002; Igoe, 2004). Even today, trespassing incurs fines and punishments. The Forest Department carries out regular plantation drives in the areas whereby plantation labour is drawn from the local communities but they are not allowed to access these areas for livestock grazing (Srivastava and Mehta, 2017). Between 1947 and 2001, a few salt and cement industries were also granted access to the coast which has caused significant damage to the tender mangrove plants over the years. Trucks ferrying salt from the port often leave a trail of white crystals on the road that destroy the tender mangrove shrubs. Suleiman-*bhai*, in Jimlivand, who resents industrialisation on the coast and the loss of open sea bemoans:

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: October 2016)

Due to the pronounced aridity of the dryland belt in Kutch, mangroves have always been one of the main sources of fodder for communities living on the coastal belt. This human dependence on mangroves is often seen by conservationists as one of the principal reasons for their large-scale depletion in Kutch. As argued by a scientist working with a government-affiliated research organisation, which also conducts environmental assessments for industries:

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: October 2016)

The aggressive industrial development on the coast that followed the 2001 earthquake has led to a systematic reallocation of revenue lands. As argued earlier, the earthquake had a pronounced effect on the political economy of Kutch, veritably turning the district into a corporate enclave. This problem is more severe in several coastal talukas such as Mundra (discussed below) as the coastline is securitised by the corporates who control access to the coast. The SEZ is also guarded by the Central Industrial Security Forces (CISF) and these infrastructures are treated as national security assets. Today, the coastline of Kutch is dotted with several major industrial establishments, which include ports, thermal power plants, cement factories and other regulated and

unregulated industrial establishments (Srivastava and Mehta, 2017). This massive securitisation has undermined the access of residents to coastal resources including mangroves. The officials justify the reallocation 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 is a rational choice [...] industry is an important part [of development], we are sacrificing the environment for national development. (Interview: October 2016)

Massive reallocation of land for development has led to dispossession from grazing and coastal commons for pastoralists. Since most of the coast was securitised or declared off bounds, fishers and pastoralists lost access to mangroves which are key to their sustenance. This aggressive development also led to widespread denudation of mangroves and thus required stepping up of ARR efforts. A flexible conservation approach was pursued through community-based conservation, which integrated conservation and development projects (cf. Büscher and Fletcher, 2015). It is in this context that CBMR projects gained prominence in Kutch. For example, the case of Jimlivand (discussed below) sought to introduce principles of community management of resources in conservation through the Restoration of Mangroves in Gujarat (REMG) project. The Gujarat Ecological Commission (GEC) along with scientists from the Gujarat Institute of Desert Ecology (GUIDE) spearheaded this change and Jimlivand soon assumed the status of a model site for conservation.

The ARR efforts now include a diverse set of actors such as the state government, industries, international financial institutions like the World Bank, and civil society organisations, which have tried to reverse the ‘ecological crises’ produced by the capitalist expansion in Kutch. Although compensatory mechanisms have been part of the Indian legislation since the Forest Conservation Act of India (1980), it is only in 2006 that the concept of NPV was brought into the compensatory mechanism. The 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). This also provided new ways of metrification, measurement and cost–benefit analysis of forests as economic goods, rather than livelihood resources having cultural and symbolic value.

Compensatory afforestation was meant to revive degraded or lands lost to industrial development.⁴ Following the public outcry over environmental destruction in Kutch in the late 2000s, government regulations were strictly enforced to ensure that industries compensate for the loss of mangroves that are destroyed in the process of industrial development. Mangrove regeneration and compensatory afforestation efforts in Kutch are undertaken by the state agency GEC, which finds areas for reforestation and lobbies with the government to make large-scale mangrove reforestation mandatory and finds space in huge tracts of revenue land for community projects. The scientists from GEC and GUIDE work closely to assess the environmental impact of industrial development and the implementation of offsetting measures (Martin, unpublished). In parallel, CSR activities are also undertaken by industries to mitigate the loss of livelihoods caused by their infrastructure projects (see below).

The messy character of coastal governance and development has led to the involvement of a wide array of actors in mangroves conservation. This also showcases the diffused nature of the state which can often work in contradictory ways. For instance, in the Gulf of Kutch, about 87% 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. Although various legislations and preventive measures have been put into place to avoid destruction, their implementation remains weak and fuzzy (Bassi et al., 2014). These regulations are often

determined by how mangrove landscapes are framed in policy discourses. In the subsequent sections, we outline the discourses and practices that shape these mangrove habitats and how pastoralists and fishers are interpellated in the conservation process.

Conservation through community ownership in Jimlivand (2004–2007)

Jimlivand is a coastal hamlet of approximately 35 families of Fakirani *Jats*, a sect influenced by the Sufi tradition, who have settled in various hamlets across the Gujarat coast. Though fishing is one of the predominant livelihoods in the community, the identity of the *Jats* is closely linked to camel, goat and sheep rearing, that is, being a *maldhari*. However, the residents no longer rear camels and keep buffaloes instead. The village now has about 600–700 buffaloes (Srivastava and Mehta, 2017). The *Jats* rely on two mangrove plots, one is closer to the hamlet and the second plot is some distance away from the coast and is protected by the Forest Department. The *Jats* prefer to collect seeds and foliage from the mangrove plot during the monsoon season (July to September). Since the port is operated by the border security force, permission has to be sought to go offshore (Srivastava and Mehta, 2017).

To counter the human dependence on mangroves, REMAG sought to create mangrove protection sites and ‘nudge’ the community to change their livelihood practices in Jimlivand. Funded by the India Canada Environment Facility (ICEF), the project aimed to reduce the mangrove dependence of the *Jats* by providing alternative livelihood options and creating ‘alternative’ grass plots for grazing to actively discourage them from relying on the mangroves for fodder. As a public–private partnership between the community, ICEF and the state, REMAG largely followed the principles of community-based resource management. The local residents were organised into a management committee to take over the management and conservation of mangroves, thus institutionalising the practice of ‘governing themselves’ to ‘protect’ the environment. The village residents were advised by scientists on how to go about planting mangroves and the work was coordinated by a local *samiti* (society). REMAG sought to create conditions by which the *Jats* would ‘learn’ to ‘value and care’ about the environment and get rid of their ‘bad habits’ of dependence and overgrazing. Thus, conservation under REMAG became a potent technology to transform how the *Jats* associated with, accessed and used mangroves.

The initial years of the REMAG project targeted indiscriminate grazing, which was often characterised as a ‘bad habit’ that needed to be dispensed with. Stories of how people cut mangroves for timber and fuel needs and excessive grazing resurfaced in interviews with officials. Camel grazing was also a serious problem and the scientists aimed to reduce this substantively in the first few years of the programme. One of the field managers, from a state-funded organisation, who was leading the REMAG project in Jimlivand argued:

The animals owned by the *Jats* do not spare the mangroves. They do not 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. (Interview with field manager: August 2016)

Rules were set around access by scientists, 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 (Srivastava and Mehta, 2017). Alternative grass plots were created for livestock grazing to reduce mangrove dependency that would aid in regeneration (Thivakaran et al., 2006). In our conversations, the *Jats* recognised the value of mangrove plantations but vehemently resented the covert control by the authorities who set rules of access, most importantly related to camel grazing. One resident remarked:

A few decades ago, there were no organisations to promote mangroves in this area. *Cheria* and *dariya* [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 [...] So, we did away with the camels [...] then we turned to buffaloes. (Interview: August 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. This transition from camel herding to buffalo rearing is also closely linked to REMAG alongside the rise of the dairy business. With REMAG, the scientists actively discouraged camel herding labelling camels as harmful for mangrove plantations (Mehta and Srivastava, 2019) and encouraged buffalo rearing to reduce *Jats*' dependence on the mangroves (Interview: August 2016).

Some scientists believe that camel's saliva is harmful for the mangroves and disturbs the regeneration process (Interview: October 2016). This is a claim that is yet to be scientifically proven and is actively contested by many local pastoralists who argue that camels have lived and grazed in these habitats for centuries, 'even before science arrived' (Interview: 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).

The scientists and the herders place different values on the mangroves. For the herders, *cheria* is 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, see mangroves as environmental assets performing a specific set of ecosystem functions with little regard to the social relationships that herders have established with the mangroves over several generations. While scientists argue that 'unscientific grazing patterns' (e.g. 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: September 2016) and promote livelihoods transition. In part, this 'nudging' by way of livelihoods transition 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; Mehta and Srivastava, 2019).

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: October 2016). In this process, the village committees, plantation work and dairy business become the sites of enactment of repair.

This knowledge bias has also fed into the corporate initiatives, which follow a similar trajectory of implementation because they also conveniently employ and involve the same set of scientists from state-affiliated research organisations. Industrial processes, however, add another layer to this exclusion and marginalisation because offsetting processes lead to spatial dislocation directly affecting the affective value-making pursued by these communities over several generations. We now turn to these corporate-led conservation practices, which build on the discourse of exclusion, identity and abstraction of value by delinking the mangroves from their habitus through the compensatory offsetting system.

Degrade, dispossess and compensate: value-making and un-making in Mundra

About 150 km away from Jimlivand is Mundra, a coastal town, which survived the destruction from a massive cyclone in 1998 due to its 'thick' mangrove shield (Srivastava and Mehta, 2017). A sprawling SEZ has now replaced this shield. To develop the port, it is estimated that about

3000 ha of mangroves were cleared by the Adani Group over nine years. In some cases, as in Mundra and Hazira, they virtually disappeared overnight (Singh quoted in Asher, 2008; also see Kohli and Samdariya, 2010). These have negatively affected communities on the margins, namely small-scale fishers (*pagadias* and boat fishers) and the *Rabari* camel herders whose livelihoods are at risk due to this large-scale industrialisation. Industrialisation along the Mundra coastline has always been contested. A 2002 report from the Government of India noted:

The southern coast of the Gulf of Kachchh is [...] already under severe stress from major commercial projects already situated, hence [it] cannot withstand any further stress from future development. (quoted in Mundra Hitrakshak Manch et al., undated: 23)

Despite repeated notifications, warnings and indictments from various government authorities, industrial development projects have been on the rise (MoEF, 2013; Namati, 2013). Taking advantage of tax holidays, and support from the state government, the corporate house, Adani, acquired large tracts of the coast, facing opposition from fishers' trade unions. Although they were fined 200 crore Indian rupees, this penalty was later revoked by the central Ministry of Environment after the BJP-led government came to power at the centre (Srivastava and Sethi, 2018; The Economic Times, 2013).

Large swathes of mangroves were cleared or destroyed by blocking the creeks to cut off the natural supply of salt water, thus virtually 'killing' the mangroves. This deliberate degradation strategy enabled the industries to get these areas earmarked as wastelands so that claims of compensation and compensatory afforestation can be neutralised. In the wasteland Atlas of India, large areas of Kutch which include scrub savannahs, grasslands, saline flats and mangroves have been classified as wasteland undermining the rich diversity of this ecosystem (Pardikar, 2021). This goes back to the archaic colonial practice where non-revenue generating lands (esp. non-agricultural lands) were often labelled as wasteland. 'Framing these landscapes as wasteland makes it available for greening and industrialisation projects' (Jayaraman cited in Pardikar, 2021). In the case of Mundra, mangrove lands were actively produced as degraded by destroying the mangrove habitats through overt and covert means. For example, a 2015 report by the Comptroller and Auditor General of India found that the Gujarat government 'wrongly classified mangrove forests as degraded forests to divert land to Adani Group-promoted Mundra Port and Special Economic Zone (MPSEZ)' which resulted in a profit 58.64 crore Indian rupees for the Adani Group (Chakravarty, 2015).

To offset the destruction, plantation drives are carried out by different actors such as the state agencies and coastal industries. These activities have led to an increase in an aggregate forest cover 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: October 2016). Experts on mangroves estimate that out of 30,000 such plantations undertaken in the state, nearly 50% of these afforestation measures are a failure as some plantations are either stunted or are not able to perform the same ecosystem functions. For example, a mangrove expert in Kutch working with a government affiliate research organisation stated that 'the original functions of the mangroves are hard to achieve through afforestation measures' (Interview: October 2016). He also explained 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 helps in protection. In areas where afforestation is done, it is hard to expect that level of commitment from the communities that have nothing to do with the mangroves. (Interview: August 2016)

Adding to this complexity is the fact that mangroves can only thrive in specific ecological environments with particularities of temperature, soil and climate conditions, tidal fluctuations and wind velocity (Thivakaran et al., 2016). This makes ARR challenging. Moreover, unlike the community conservation models, where access and use of mangrove habitats is permissible when within certain bounds of ‘scientific patterns’, compensatory afforestation severs those ties completely. In most cases, mangroves are afforested elsewhere and decontextualised from their habitus (Kohli and Menon, 2016a). 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 lands are largely off-limits (Srivastava and Mehta, 2017). Through compensatory afforestation, industries can justify and often defend denudation in the name of compensation and no net loss.

An increase in aggregate forest cover has also become a major trope in deflecting culpability and side-stepping other forms of value-making. In this way, offsetting ‘neutralize[s] multiple dimensions of harm across social, spatial and ecological contexts’ (Huff and Brock, 2017). In our interviews with state officials and industry representatives, denudation was justified on the grounds of ‘national development’ and afforestation activities were presented as the ‘green’ fix. However, repair is often enacted through a diverse set of activities which include high voltage CSR programmes ostensibly framed as ‘repairing’ the loss of livelihoods’, a social fix for the harm done by the industries on the coastal communities.

Resource grabbing and dispossession

The corporate invasion of the industrial coastline is most inevitably a story of dispossession and contestations around value, identity and wellbeing. This dispossession is enacted through the establishment of no grazing or fishing zones, limitations on the 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. This appropriation of mangrove lands is a form of blue grabbing (Benjaminsen and Bryceson, 2012), whereby these lands and their accompanying marine resources are grabbed for the expansion of industrial and port activities. Being a border district, the threat of terrorism and international security is often overplayed to deny common people access to the coast and coastal resources. This has become particularly difficult after ports and thermal power plants were set up in the SEZ, which is now guarded by the CISF. Elaborate procedures of security checks are required to access coastal areas.

Due to the securitisation of the coast, camel grazing lands are shrinking because of widespread encroachment and degradation, construction of ports, mining and the fencing off of protected areas (KUUMS, 2010). Camel herders prefer to let their animals graze right in the mangroves as they require huge quantities of fodder and complain about this encroachment in the following way:

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: August 2016)

In the *Rabari* hamlet of Phuleri, as of 2016, the camel headcount had dipped from 10,000 to 80 camels over the past few decades. This 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. However, due to industrialisation, the traditional grazing routes of these camels are now blocked, explains an ecologist based with the NGO, Sahjeevan:

Mangroves [islands] are still there as per their [camel's] knowledge but they cannot access them [...] 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 100 camels. (Interview: August 2016)

Mangroves constitute about 70% of this camel's diet. Left with no choice due to blocked access, the herders are forced to roam longer distances (Ganju, 2019) or are trying to change the *kharai's* diet risking its survival (Shrivastava, 2013). This has posed significant risks to their livelihoods. Several herders have now moved on to low-scale contractual jobs in the companies or are migrating into towns to work as drivers, security guards and casual labourers.

The fishers also report a similar tale of dispossession as they struggle to maintain their traditional livelihoods. While the destruction of mangroves, the natural nesting grounds for fish, has resulted in the decline in fish catch, fishers' access to water channels is also blocked because the coastline is now populated with industries (Mehta and Srivastava, 2019). A veteran fisher narrates his plight in the following way:

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. A lot of big projects have come up on the coast. All these factors lead to less catch. (Interview: August 2016)

As with pastoralism, 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. As per the environmental clearance conditions, compensatory afforestation is undertaken by GEC on behalf of the companies. Some companies also undertake afforestation activities within their premises. For example, the Adani group has undertaken a massive mangrove afforestation initiative at Tasu village near Mundra, as part of the CSR drive. For the industry, CSR based afforestation provides 'wages to the idle manpower in the village' and is a much better alternative to 'fishing which does not have regular fund flows' (Interview: October 2016).

The high-intensity CSR activities provide communities with low-scale employment in the industries and with other amenities such as housing, education facilities for children and medical facilities for the family. '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 of the benefits of education [...] We provided several facilities to the community [...]. Earlier people had to buy water brought in *chakada* (a three-wheeled rickshaw). 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 bills for utilities. (Interview with CSR lead, Kutch: August 2016)

Representatives of the CSR units defend their activities in the name of 'modernising' the 'backward' communities. Through the spectacle of CSR, they facilitate the elite performance of sustainability whilst simultaneously obscuring the alienation produced through denudation and restoration schemes. These activities 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 regulations and policies that are critical of pastoralism and fishing. Despite this spectacle of 'improvement', subjugation of the local communities remains partial. Although some coastal hamlets seem to welcome these efforts, others share an underlying resentment due to the loss of livelihoods and identity.

Conflicts, resistance and compromise

The afforestation projects have created fissures within the local communities, especially between those who have benefited from the CSR and employment activities (such as the fishers in Mundra) as opposed to those who are not their direct beneficiaries and/or resisted the industrial encroachment (pastoralists and other fishing communities). For example, for the mangrove afforestation programme at Tasu village in Mundra, local fishers acted as contractors and helped mobilise the local residents. Scientists from a government-affiliated organisation were hired as expert consultants to train the fishers (Srivastava and Mehta, 2017). 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 of loss and sustainability are deployed to make 'nature' and the communities amenable to rule by the industries.

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' (are cyclically unemployed) and conduits to maintain the corporate rule. These fishers also guard the plantations from the *Rabari* herders who they refer to as *ghuspaiithiyas* (intruders).

Faiz *bhai*, is a former fisher who has been working with the afforestation programme in Tasu since 2011. He has also featured in the company's public relations brochures. He and his fisher friends have planted mangroves along a seven km stretch along the coast in Tasu. Expressing his frustration over the *Rabari* infiltration, he stated-, 'we tell them to let the plants grow [...] but they challenge us and taunt us'. 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: August 2016). In Tasu, we witnessed a standoff between the fishing and pastoral communities. Faiz *bhai* and his fisher friends are increasingly convinced that mangroves need to be protected from the *Rabaris* as they expend their sweat and labour in guarding the saplings. An astute advocate of conservation activities, Faiz *bhai* spoke highly of the Jimlivend model of conservation and its 'modernising' agenda. He stated: 'Anyone who lives in the jungle can be called an *Adivasi*.⁵ The village had only two houses. Now there are services like electricity and we have an interface with the government'. Still, this notion of 'development' is debated across the fishing hamlets.

Besides this tension between fishers and pastoralists, the fishing hamlets also remain divided on issues of CSR activities and the loss of livelihoods. Seeing a lot of development activities on the seashore, some fishers nurse dark fears about the future of fishing while others as Faiz *bhai* see resistance as a case of sour grapes for being left out of the process of 'development'.

MASS (*Machimar Adhikar Sangharsh Sangathan*), an influential organisation organised resistance against these big corporate houses, and their protest led to legal proceedings against International Finance Corporation (IFC), the lending arm of the World Bank. MASS helped local fishers and farmers of Gujarat to sue IFC in a US court over a \$450 m loan for Tata's coal-fired power plant that destroyed their livelihoods (Kennard and Provost, 2016; Martin, unpublished). Both IFC and the Tatas justified their stance arguing that those measures are in place to *improve* (emphasis added) quality of life of local communities, including fishing communities (Kennard and Provost, 2016; Interviews: October 2016). Given these contestations, corporates have also embarked on an image make-over. Several NGOs have also been 'co-opted' as advisors or partners to promote CSR activities and highlight the achievements of compensatory afforestation and CSR activities.

Alternatively, over the last few years, attempts by alliances between civil society and local people are being made to preserve the pastoral identity. The NGO, Sahjeevan, is working closely with the

pastoral communities to revive their indigenous systems and to restore the native habitats, food stocks and grazing routes of the *kharai* camels. To protect the mangrove landscapes, KUUMS (the union of camel pastoralists) along with Sahjeevan is using legal routes to mobilise against the industries. They have taken them to court to demand an injunction on encroachments and environmental degradation (Smitha, 2018). Through the creative use of the Forest Rights Act, which recognises the rights of indigenous communities to forests and landscapes, these initiatives are seeking to provide a strong counter-narrative to the depoliticised notions of repair, which have thus far marginalised or abstracted the voices of herders and fishers from the ARR programmes.

Discussion and conclusion

In this article, we have highlighted how contested trajectories of accelerated and aggressive industrialisation and their convergence with state and corporate-led conservation programmes have shaped the social life of mangroves in Kutch. As the mangroves are denuded and dislocated, conflicts and contestations have emerged around resource use and control. In these marginal landscapes, AbR unfolds through a series of modalities and practices. These include the altered property relations around mangroves, narratives of harm, degradation, reform and improvement, and eventually ‘decontextualised’ offsets. Powerful discourses, vetted by neoliberal trajectories of growth, around ecological harm, economic development and modernity have been used to legitimise these resource enclosures, dispossess marginal communities and produce dislocation as social relationships and cultural values that may have developed over several centuries are consistently denigrated. Hence, one patch of mangroves in Kutch can easily be denuded in the name of industrialisation in so far as it can be exchanged for another patch of mangroves elsewhere in the district or the state. Corporate enclosures also work in sync with a heightened sense of border security that is often overlaid to restrict access. It is these modalities of securitisation, abstraction and dislocation that constitute the enactment of repair.

This process is significantly shaped by the changes in the political economy of Kutch following the 2001 earthquake, which brought in a wide array of actors that stabilised particular ways of ‘conserving’ mangroves. For example, the afforestation measures in Mundra inherited the conservation bias of REMAG as they systematically overlook and ‘devalue’ the cultural and symbolic values that communities place on the mangroves. Through these processes, the communities are 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. Besides, the discourses and narratives of ‘improvement’ that are deployed to create compliant environmental subjects out of herders (through conservation programmes) and fishers (through CSR activities) have shaped the enactment of these practices. 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. This also affects how mangroves can simultaneously be characterised and produced as ‘wasteland’ to facilitate the corporate takeover of land (in Mundra) and become ‘protected’ when it relates to access for resource-dependent communities (in Jimlivand). Thus, the AbR technologies of metrification, abstraction and substitution are effectively deployed to compensate for or correct ‘actually existing degradation’ and CSR programmes help to compensate for the loss of livelihoods.

Discourse and value framings also play a critical role in augmenting these AbR processes. Different actors associate different values with mangroves. 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), and industries offer compensatory services alongside CSR activities that seek to compensate for the damage to the communities and ecosystem. This value contestation has also led to the emergence of conflicts and alliances between different kinds of actors. In the context of

restoration activities, the scientists and the NGOs often act as intermediaries within these tenuous relationships. They help convert the deeply political processes of plantation enclosures into technical projects with their scientific assessments and bureaucratic protocols. 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. This has also given impetus to the formation of alliances (between local communities, sympathetic state agencies, civil society and academics) that are seeking to empower marginalised herder communities to preserve their local livelihoods and identity (Srivastava and Mehta, 2017).

Gaining legitimacy for industrial development (mangrove denudation) is tightly bound to aspects of state formation in these marginal landscapes. The state, however, is not a monolith, it operates in multiple sites and the state effects are a result of interactions between actors (departments, local communities, industries) and practices (of depletion, degradation and mitigation) that constantly reproduce the state. The state plays a key role in legitimising modes of repair by mediating relations between industries and local communities especially through scientists and state agencies. Neoliberal trajectories of growth and state formation intersect with mangrove conservation as dominant narratives of ‘exploit-deplete-mitigate’ facilitate the spatial, temporal and social displacement of both destruction and culpability (Huff and Brock, 2017).

In conclusion, conservation on the Kutchi coast leads to maintaining a veneer of ‘repair’ as mangroves become ‘things’ that are uprooted from their habitus and planted elsewhere. In this process, fishers and pastoralists who share a symbiotic relation with the mangroves experience the loss of livelihood, place and identity. Besides the communities that share a direct and associative relationship with the mangroves, several 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 value-making, dispossession and draw on the historical and cultural relationship of these communities with their mangrove habitats.

Highlights

- Conservation discourses and practices have intensified practices of resource enclosures in marginal landscapes which are emerging as the new resource frontiers.
- Contested trajectories of aggressive industrialisation and its convergence with state and corporate-led conservation programmes are shaping the social life of mangroves in Kutch.
- Various discourses and narratives are deployed to create compliant environmental subjects out of herders and fishers.
- The livelihoods and associative identity of pastoralists and fishers are systematically eroded in this process.
- Alliances are forged between different actors – state and corporate, corporate and scientists, and scientists and communities – to legitimise these actions.
- In parallel, new alliances are emerging to challenge these top-down framings. They highlight the synergistic relationship of coastal communities with their mangrove habitats.

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Notes

1. In 1947, the princely state of Kutch acceded to India. Kutch became part of the Bombay state in 1956 and was merged with Gujarat when Bombay was bifurcated into Gujarat and Maharashtra in 1960.
2. Areas demarcated to promote investment and trade. Business and tax regulations are far more relaxed in the SEZs in comparison to other parts of the country.
3. To respect anonymity, names of respondents have been changed and we have provided pseudonyms for the hamlets in Kutch.
4. In 2010, the central government introduced a new fund for compensatory afforestation, CAMPA, to ensure transparent implementation. Individual states need to apply to the central government to access this fund (Rajshekhhar, 2012).
5. Term used for tribal communities in the Indian sub-continent.

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