UNRULY LANDSCAPES: POLITICS OF BIODIVERSITY, ENERGY AND LIVELIHOODS IN INDIA

BY

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Abstract

Global concerns on climate change mitigation and reduction in emissions are influencing sustainable projects worldwide. The global discourse on sustainability is manifested locally in various forms that re-arrange human-environment relationships. Such 'green geographies' are inevitably rooted in territoriality and are operationalized through controlling access to natural resources. The re-working of the spatial arrangements demarcating control over access to natural resources can pose a threat to local livelihoods that depend on nature. For projects located next to areas of conservation concern, it necessitates a political process of prioritization between conservation, development and livelihoods. In this dissertation, I focus on the re-working of these green geographies.

I examine cases of local opposition against renewable power projects that are located in or around areas of prime conservation. The case sites are located in the Western Ghats and near the Great Himalayan National Park in India. I argue that these green geographies are inherently dynamic and democracy provides the context within which these landscapes are contested and re-defined. Further, I argue that the introduction of renewable energy projects in pre-territorialized landscapes reorients spatial arrangements, resulting in a re-territorialization of these geographies. Further, I position this re-territorialization as an outcome of intense political

wrangling that traverses multiple scales and is influenced by the larger politics of environment and development at higher scales. This study contributes to an understanding of how low-carbon geographies are operationalized.

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Chapter 1

Introduction

At a village near Mangalore in the biodiverse rich Western Ghats of Karnataka, India, local activists are resisting the encroachment of a renewable energy project upon their land and livelihoods. The villagers have been successful in stalling a run-of-the-river 24 MW renewable small hydropower project that is proposed to be constructed at the confluence of Kumaradhara and Gundia, two tributaries of the river Nethravati. Even as the villagers oppose the project as it threatens their land and livelihoods, they strategically used the argument of biodiversity in order to gain an upper hand against the project proponents, who argue in favour of the sustainability of the small hydro project. By pitting the global concerns about conservation of biodiversity against the emphasis on renewable energy, the local activists have exposed the inherent contradictions in the manifestation of global discourse on sustainability.

In recent times, concerns over protecting the environment have transcended regional and national scales. The environment as a resource or a management issue is seen by scientists and policy makers to have assumed global proportions. Global concerns on reducing carbon emissions and mitigating climate change are influencing policies across countries that seek to incorporate sustainable development. As a result, the

international community, national and regional governments are increasingly emphasizing the 'greening' of their respective economies, in accordance with global priorities. These efforts to incorporate sustainability are characterized by producing spatial arrangements that serve to re-define the relationships between people and natural resources.

Such spatial arrangements manifest as 'green geographies' at the local level. These green geographies, contingent upon the context, are continuously challenged and as a result re-shaped and re-worked. In this dissertation, I focus upon the production and re-working of these green geographies. I do so through analyzing local opposition to renewable energy projects that are located next to prime biodiversity landscapes, spread across three sites in the Western Ghats and the Western Himalayan region of India. I examine the interstices within which cultural and political processes unfold to either oppose or justify renewable energy development in order to pry open the interaction between politics at the local, regional, national and global scales. I propose three arguments. Firstly, I contend that these green geographies are dynamic entities that are produced as a result of politics that interacts across multiple scales. Secondly, I contend that this politics emerges from using democratic processes that allows an exploitation of diverse platforms by actors to stake competing claims and facilitate the re-shaping of these green geographies. Finally, I position the re-territorialization of green geographies as an outcome of the specific politics that takes shape between

attempts to resist the control over access to natural resources and the political process of prioritization between conservation, development and livelihoods.

There is extensive literature on the production of conservation geographies and territorialization (Li 1999, West 2006 , Zimmerer 2006) but most of the studies have not taken into account the central role of democratic processes that shape the re-territorialization of such landscapes. In this study I show how democracy works as an analytical category to result in a re-territorialization of the existing conservation geographies. Further, I argue against a mere top-down imposition of global discourses on sustainability (Adger 1999) and show that they are a result of politics that interacts across multiple scales.

A starting point to unravel the nature of green geographies is to examine the global discourse on sustainability that results in these green geographies. At the highest scale the global discourse on sustainability is flexible, vague and aimed at resolving resource, energy and conservation issues (Zimmerer 2006). The crisis of biodiversity, threat to endangered species, deforestation, global warming, climate change mitigation and adaptation inform the global discourse on sustainable development. This lends the concept of sustainable development a certain flexibility at the higher scales which allows for competing claims on territory at the local scale (Adams 2003) . The vague, abstract idea of sustainable development concretizes at the local level in the form of expansion of protected areas, renewable energy projects, climate change

adaptation projects, payments for ecosystem services and other projects. This operationalization of the global discourse on sustainability differs across regions and countries, depending on the natural resource endowment and is mediated by politics.

The flexibility inherent in the concept of Sustainable Development makes it appealing for a broad range of constituencies. Yet, even as the proponents of sustainable development claim that it balances concerns regarding protection of the environment with the need for economic development, this utopian vision seldom translates into reality. Competing claims on natural resources serve to complicate this win-win scenario. Even as sustainable development has gained traction in development practice and theory, there are examples of unintended consequences of sustainable development projects. Worldwide, there are instances of actors questioning the unintended benefits of renewable energy projects and opposing them on various grounds. For instance, the local Inuit population in conjunction with environmental groups is opposing a renewable hydroelectric project in the province of Newfoundland and Labrador in Canada. The hydroelectric dam replaces 13 coal-fired plants and has come under fire for being disruptive to the ecology of the landscape (Michelin 2015). In July 2015, the Australian Prime Minister Tony Abbott cancelled 10 million dollar funding for clean energy and government subsidies for wind power projects as he reasoned that wind farms are not visually appealing and are a threat to ecology as they cause bird hits (Kent 2015). In Oaxaca, Mexico local communities are resisting wind power projects because they encroach upon customary uses of land and threaten traditional and local land based livelihoods (Howe 2015). These

examples bring to fore the complexities that are intrinsic to the concept of sustainability. Particularly, they point to the conflicts that are manifested as a result of competing claims on territory.

A crucial component in operationalizing these global discourses is the project of territorialization. Being inscribed in territory lends the vague discourse on sustainable development a concrete form. The project of territorialization essentially implies establishing control over access to natural resources (Peluso and Vandergeest 1995). Regulation of territory and rules governing resource access are shaped by local histories and politics that transcend scale. In other words, rarely does the manifestation of the sustainability discourse follow a pre-determined route. Rather, this project of territorialization is a result of intense political wrangling that produces spatial arrangements.

I use the concept of territoriality to denote resource control strategies that states have deployed to control what people do inside those territories (Peluso and Vandergeest 1995). Peluso and Vandergeest's conceptualization of territorialization deviates from most political theorists of the modern state who have focused their work on the organizational characteristics of states and state-society relations. Instead, they focus on how territoriality shapes state-society relations, in particular the nature of internal territorialization that is characteristic of the modern state rule as well as the role that natural resource control plays within territorial strategies. They distinguish between internal and external territorialization and define internal

territorialization as a resource control strategy that works to proscribe and prescribe activities as legitimate within a spatial arrangement, while excluding others. For instance, in order to set up a protected area, the project of territorialization implies that human pressures have to be significantly removed from the area reserved for conservation of biodiversity. As a result, local forest dependent communities are asked to relocate outside the park. Their rights to access the grazing pastures inside the protected area are curbed. These processes signify internal territorialization.

The utopian vision that sustainability propagates is predicated on the notion of creating mutually exclusive spatial categories. In other words, ideally the boundaries of protected areas for conserving biodiversity are supposed to be distinct from the geographies of energy that are in turn meant to be exclusive of local livelihoods and human interference. In reality, this does not translate into practice. Natural resources, especially in the global south, are precariously contested spaces that harbor wildlife, livelihoods, and resources for energy. Essentially, this mandates that boundaries for setting up protected areas have to compete with boundaries to set up development projects that in turn have to compete with local livelihoods. This gives rise to a political process of prioritization between conservation, development and livelihoods that is employed by state agencies, intergovernmental organizations, private enterprises, development practitioners and policy makers.

The conflict between resources primarily results from the fluid dimensions of the global discourse on sustainability. The emphasis on promoting solutions that are

technologically advanced, resource efficient yet avoid social and environmental costs results in an ever-expanding definition of 'sustainable development' (Adams 2003). The worldwide rise in renewable energy installation, for instance, is a direct consequence of the shifting of the global sustainability discourse in favour of solutions that reconcile both environment as well as economic development. The expanding nature of sustainable development brings green geographies into conflict with pre-existing territorial arrangements and with each other. The intensified tension necessitates further internal territorialization of natural-resource control accompanied with spatial arrangements.

In this dissertation, I argue that the introduction of renewable energy projects disrupts the pre-existing landscape to allow for conditions for re-territorialization to emerge. As a result of the conflicts over control of natural resources, the state attempts to re-territorialize the landscape. The local people resist these attempts at re-territorialization because their livelihoods are threatened and in order to resist predatory development. The attempts at re-territorialization work through a political process of prioritization of conservation, development and livelihoods. It is in the interstices of attempts to resist re-territorialization and the political process of prioritization that the politics takes place. Through staking claim over the natural resources and mobilizing global discourses, the local activists resist attempts at re-territorialization by the state. Simultaneously, the politics also establishes new ways of gaining control over access to natural resources, thereby ensuring a further re-territorialization of the landscape.

The attempts to re-territorialize the landscape are met by resistance from the local people because it conflicts with their land and livelihoods that depend upon access to natural resources. The local movement against renewable energy projects, is however, encased within the logic of biodiversity. The need for casting the local resistance in the mould of ecological protection stems from the politics of prioritization accords differential priorities to conservation, development and livelihoods. The developmental state routinely prioritizes development over conservation or in rare instances conservation over development but rarely does it prioritize livelihoods. The political process of prioritization, therefore, sets the tone for and shapes the local resistance. Simultaneously, it also provides for the local activists to engage in intense political wrangling and transcend regional and national scales in order to appeal to authorities at the global scale. Democracy is an explanatory variable and the element of democracy central to my study is representation. The motivations and incentives for actors to engage with the conflict are aligned with the larger interests of citizens at different spatial scales. The renewable energy project is routed through elected representatives (panchayat members) and this serves as a channel through which democracy is used to counter or support the project.

Democracy also allows for actors to approach multiple avenues to stake competing claims over nature and the ability of local actors to engage with institutions at the local or higher spatial scales is varied. The responsiveness of the institutions to the demands of the citizens also varies cross-scales and influences the resistance to renewable energy projects. The politics that shapes the local resistance and

ultimately works to re-territorialize the landscape, takes place at various spatial scales.

In the following section, I elaborate upon the central theoretical themes that inform my overall argument.

1.1 Central Themes

1.1.1 Democracy

I use the concept of democracy as a starting point to understand how claims are articulated and legitimized across local, regional, national and global scales. I move beyond the concept of formal democracy towards a wider democratic context to include trans-local activism, media attention, lobbying with politicians and bureaucrats, exercise of legislative authority and judicial review. Studies have focused on how citizens experience democratic governance on an everyday basis (Manor 2000, Krishna 2011, Witsoe 2009). Aniruddha Krishna explains the role of mediators in operationalizing democracy through an analysis of institutions and actors that serve as middle-men or interlocuters on behalf of the state and are crucial for citizen to gain access to public goods (Krishna 2011). Following from his analysis of democratic governance, various actors in this study located across different spatial scales act as middle institutions.

Specifically, I refer to the concept of political articulation to expand the notion of wider democratic context (Chhatre 2008). As Chhatre argues, politically articulate systems provide the space and opportunity for actors to influence the political process through direct engagement. In other words, in highly articulate systems, citizens have a wider opportunity to influence policy through engagement with the democratic process. By engagement, I refer to the community agency and its linkages with local or institutions at higher scales, which is contingent upon the opportunities provided by the larger democratic context. In an articulated system, a key characteristic of this engagement is the responsiveness of institutions and actors at multiple scales to the specific concerns expressed by local communities. A higher degree of articulation is characterized by both the ability of the community to engage as well as the responsiveness of the institutions to the demands of the community. The engagement process, therefore, differs across time, scale and context and the forms of mobilization may change as an attempt to re-configure political spaces over time.

In a democratic context the civil society has relative freedom to engage with the State. Theoretically speaking, in a democratic system, elections serve as measures to elicit responsiveness from elected representatives and public officials. Empirically, there is a lot of variation in the responsiveness of public officials, bureaucrats and elected representatives (Goetz and Jenkins 2001). Bureaucrats, administrative officers and public officials are insulated from citizens and politicians precisely to guard against the short-term agendas of self interested machinations of politicians and influential

social groups. Yet democracy is the analytical category through which people stake claims and form networks to influence environmental decision making (Hochstetler and Keck 2007). The formation of these dense networks is key to understanding the ways in which the democratic context is conducive to staking claims, particularly over control of access to natural resources (Kumar and Kerr 2013).

The local opposition to renewable energy projects mobilizes resources, tapping into alternate channels and networks and by sustaining their claims on territory. Even as these actors sustain and stake claims, they elicit varied responses from actors and institutions across multiple scales. A key point of concern is the representation of actors across scale and across spatial locations. Across all the three case sites, multiple actors coalesce to form dense networks and evince a certain politics of the environment. In the conflict between conservation and development, of paramount interest is who acts on behalf of which actors, non-profit organizations fight the cause on behalf of the local activists, even as their motivations to do so are often divergent.

In their study on environmental politics in Brazil, Hochstetler and Keck provide a rich analysis of how trans-local and transnational activist networks are formed, thereby laying bare the working of a democratic context (Hochstetler and Keck 2007). These networks and engagements are fraught with intense political wrangling and the machinations of representation mean that such struggles over natural resources are often tough and conflict-ridden negotiations. They explore the actual mechanisms through which such processes take root and result in a peculiar kind of

environmental politics that gives as much importance to the domestic sphere as to the rise of environmentalism as a global or international phenomena. While environmental concerns have no doubt reached a global ascendancy, they are re-worked and challenged across scales ranging from the local to the global. In the process, they invite new actors to the larger debate pertaining to conservation and development, often lending it a recursive flavour (Hochstetler and Keck 2007). They further reveal the role of multiple actors that re-work the global ideals of environmentalism in order to shape the trajectory of nation-states on issues of global concern such as environmental protection.

Terming it a boomerang strategy, Keck and Sikkink in their seminal work, reveal the role played by transnational networks in envisaging a coalition of actors that bring together a variety of actors in issue campaigns to influence governments unwilling to respond to demands of their citizens (Keck and Sikkink 1998). Such networks, they argue, have expanded environmental protections, defended human rights, and achieved other collective ends around the world.

In my study I also embark on this sort of process tracing to tease out the networks that form at the case sites. I pay particular attention to the constellation of actors that come together across scales, in order to flesh out the encasing of the arguments in opposition of the renewable energy projects in the larger discourses of biodiversity and sustainability. The networks help the local actors in channeling aspects of the global discourses on sustainability at their particular case sites.

1.1.2 Development

Development can be defined, interpreted and practiced in multiple ways, lending it a certain opaqueness. The ambiguous meanings associated with development and the elusiveness that accompanies it is used effectively by state agencies, development practitioners, public and private institutions to peddle an innumerably diverse set of strategies. Sustainable development, which emerged as a 'buzzword' in the 1990s, has been tacitly used to propel a variety of initiatives (Adams 2003). The flexibility of the term renders it a certain appeal and constructs it as a concept that appears to straddle two distinct formulations. Those concerned about the tensions between poverty and development on one hand, vis-a-vis those concerned about preservation of biodiversity on the other, position sustainable development as a panacea that seems to straddle both these concerns. Even as the concept is shot through with contradictions and riddled with complexities, it has emerged as a widely accepted term in the lexicon of inter-governmental authorities, national governments, international policy makers, bureaucrats and other development practitioners.

While sustainable development has achieved global ascendancy, yet the context and experiences of the global south are vastly divergent. Environmental groups in developing countries, for instance, have opposed development projects that threatened the indigenous and subsistence way of life. The pressures on natural resources are intense in the global south and it inevitable leads to a political process

of prioritization between conservation, development and livelihoods that are contingent upon controlling access to natural resources.

Scholars of development have argued that the idea of development extends limits to how alternative futures can be imagined (Escobar 2011). Studies also position development as a vehicle used by the omnipresent state to propel its agenda through policies and programmes rooted in postcolonial nationalistic discourse (Chatterjee 2004). My work joins others (Subramanian 2009) in arguing for the ability of development interventions to foster competing claims on natural resources. Development projects open up a charged political space and provide actors new tools to negotiate the terrain between state imposed development agenda and the actual practice of development. The development discourse justifies specific interventions that are inextricably linked to sets of material relationships and to the exercise of power (Subramanian 2009). Of particular concern is the practice of development, especially sustainable development that is inherently political. Discussions on how natural resources have to be managed, controlled and restricted are political in the sense that they serve to prioritize competing claims on territory. For instance, while sustainable development ostensibly balances the demands of conservation of biodiversity with socio-economic realities and traditional livelihoods, in practice it is often one that trumps the other.

In my study, I also position development as a category that sets up the conditions and in part defines the ability of local actors to resist predatory interventions that

encroach upon their livelihoods. The level of development enables the networks, coalitions and associations that mediate the nature of resistance.

1.1.3 Re-territorialization

The project of territorialization is reflected as spatial arrangements that dictate the strategies of resource use or delineate control over access to natural resources. Specifically, internal territorialization as defined by Vandergeest and Peluso is a 'resource control strategy of the modern state' (Peluso and Vandergeest 2001). They contend that the State divides the territories under its control into political and economic zones, rearranges people and resources within these units and regulates who can and cannot use these resources. In establishing its territory the modern state legitimizes certain rights over natural resources while delegitimizing others. Most governments have tended to overlook customary, local systems of rights and access, while privelleging the incursions of state or private property rights. Territorialization is therefore an inherently political process as it prescribes and proscribes certain activities within the demarcated boundaries and excludes or includes people within particular geographic boundaries (Peluso and Vendergeest 2001). The project of territorialization determines the relationships between nature and people by controlling their access to natural resources.

There are various processes by which territorialization is operationalized. The re-configuration of rights and relationships is a linear process (Peluso and Vandergeest 2001) as it begins with the state identifying and asserting its ownership over

unclassified and unoccupied tracts of land. As Peluso and Vandergeest reveal in their study, the state codifies and establishes property rights over the unclassified areas and uses law as an instrument to classify certain pockets of land into forest areas, thereby imposing restrictions on resource use. Some of these forests are marked as permanent forest, which deems them as unfit for agrarian use. Scientific classification is then used to further demarcate these areas which contests with local, customary use of these lands and makes them legible for state governments to appropriate. The process of territorialization, however, is not a mere top down imposition of state agenda. It is negotiated, contested and is often an outcome of political wrangling. The boundaries that emerge from territorialization remain malleable and open to counter-claims., thus ensuring that the project of territorialization remains unfulfilled.

Studies have shown that there is great variation in the project of territorialization (Chhatre 2003). Elaborating upon the case of establishing forest rights in Kullu, a district in the Western Himalayas of India, he distinguishes between intensive and extensive territorialization. Intensive territorialization has a focus on full ownership of the state over a small area of productive forests in Kullu with no interference from local population while leaving tracts of land in control of the revenue department to be managed with some help from locals. Extensive territorialization, on the other hand, entailed bounding all of forestland as state property with some rights and privelleges for local people (Chhatre 2003). The resolution of this debate had severe implications as the state did not have full autonomy to implement coercive policies and emerges instead as an entity embedded in society (Chhatre 2003). This further

reveals that state's capacity to territorialize is also contingent upon the historical trajectory of territorialization and is a layered, multi-dimensional exercise.

The layered, contextual and contested domains of historical territorialization provide the backdrop within which contemporary territorialization takes place. The project of territorialization unfolds through diverse processes that change over time, such as land titling, handing over land to corporate interests or creating exclusionary protected areas or other geographies in accordance with global discourses. Yet, these processes are not implemented in unchartered or non-territorialized landscapes (Chhatre 2003). The exercise of territorialization remains continuous and the landscape serves as a palimpsest for future projects of territorialization and further re-territorialization. Local people and actors at other scales resist and work to thwart territorialization and in the process shape state-society relations. New forms and processes of territorialization, for instance, development projects that serve to further control access to natural resources, open up a politically charged terrain that allows further attempts to re-territorialize the landscape.

1.2 Chapter Summaries

Chapter 2: Context and Cases

In this chapter, I layout the renewable energy, the conservation context of India and explain the conflict across the three case sites. To inform the renewable energy context, I explain how India has emerged as one of the leading countries for renewable energy installation worldwide. I elaborate upon the role and configuration

of institutions, national as well as subnational that have been instrumental in expanding the renewable energy installation in India. A mix of federal and regional policy initiatives, capital subsidies and tax benefits, have supported the rise of renewable energy installation across Indian states. Yet, there is a lot of variation in renewable energy outcomes that does not correspond with natural resource endowment. Further, I explain the conservation of biodiversity context in India. The fortress model of conservation has come under attack for its detrimental effects on local livelihoods and access to natural resources. Yet, it remains the dominant paradigm in conservation. This sets up the conflict with regards to access to natural resources between biodiversity preservation, renewable energy operationalization and local livelihoods and establishes the territorial nature of the conflict. I also explain the opposition to renewable energy projects across the three case studies and the backdrop against which the cases unfold.

Chapter 3: Technology and Scale

Across the three case studies, the renewable energy projects differ by technology and by scale. The state routinely prioritizes certain renewable technologies over others, particularly in and around conservation landscapes. In this chapter, I illustrate the process by which the technocratic justification that is used to legitimize the projects, provides the local opposition an opportunity to resist the onslaught of the state. Further, I focus on the processes and practices that render certain technologies as more environment-friendly than others. I also account for the scale of the renewable

projects and how that affects the prioritization of renewable energy projects, thereby setting the tone for a certain kind of politics to take shape.

Chapter 4: Politics

In this chapter, I argue that the local opposition to renewable energy projects is dynamic and influenced by the broader politics of environment and development. Since the case sites are located in or around areas of prime conservation concern, conservation politics mediates the outcome of the conflict as well as the ideological formulation of the resistance. The territorial nature of the conflict mandates a political process of prioritization between conservation, development and livelihoods. The specific politics takes place between attempts to resist the control over access to natural resources and the political process of prioritization between conservation, development and livelihoods. The peculiar nature of the conflict allows protagonists to channel aspects of the same global discourse on sustainability to either oppose or justify the renewable energy project. Hence, I argue that the same conflict is manifested either as an environment versus environment or an environment versus development conflict, contingent upon the scale of analysis.

Chapter 5: Land, Livelihoods and Development

In this chapter, I illustrate the interaction between land, development and livelihoods, pertaining to the conflict across the three case studies. I show how this interaction mediates the claim staking over natural resources by the local communities. The level of development across the three case sites interacts with the historical, cultural and

economic relationships that the communities have with the land. Further, the networks, coalitions and strategies of the resistance are shaped by the ability of the local people to engage with a diverse, broad ranging set of people. This gives rise to certain associational strategies, which mediate the outcome of the conflict and the nature of claim staking over natural resources.

1.3 Methodology

The broad research question that guided my study was: How are renewable energy geographies re-territorialized or re-worked? This dissertation presents an analysis of the cultural and political processes that serve to re-territorialize green geographies. A central argument in this study is that green geographies are dynamic entities that are produced as a result of politics that takes shape across multiple scales. This politics follows from the introduction of renewable energy projects in pre-territorialized conservation landscapes leading to new ways of facilitating claims over nature. They expand a niche, politically charged arena that allows multiple, often competing claims over access to natural resources. Diverse actors located at multiple scales channel aspects of global discourses on sustainability, form networks and associational strategies that inform their resistance. Their ability to do so is influenced by their level of development and their historical, cultural and economic relationship with land.

A key staring point for my argument was to explore how and why are local actors opposing renewable projects and then trace the final outcome of the conflict and the resulting re-territorialization. I conducted 11 months of multi-sited fieldwork dividing my time across Delhi, Karnataka, Maharashtra and Himachal Pradesh in India. Apart from visiting the areas where the conflict was taking place, I also spent time conducting fieldwork in capital cities of the three states – Bangalore, Mumbai and Shimla. I spent the most time in Karnataka, where I interviewed the members of panchayats and local activists that were opposing the project and the other villagers and panchayat members that were in favour of the project. Across all the three field sites I also interviewed the local government officials, forest officers, conservationists, ecologists and regional and national level members of non-profit organizations that had a key role to play in the conflict. I conducted interviews with bureaucrats, project developers, consultants, journalists and policy makers particularly at the regional renewable energy provincial authorities. In total, I conducted 42 semi-structured interviews with various respondents. In addition, I also analysed policy documents and project development reports, detailed comment reports submitted to UNFCCC and the documents of legal proceedings. I present the breakdown of the overall research question into sub-questions below:

a) What are the competing claims that actors are staking over access to natural resources? What is the justification for their competing claims?

I started by probing the claims that local actors were staking over access to natural resources. My entry point in the research sites was the local activists. My initial questions were about the resistance and how the social movement took shape. In understanding the dimensions of the resistance, I also probed the associational networks that the local activists formed that helped them encase their arguments in the biodiversity discourse. I traced the constellation of actors that had coalesced at each field site in order to answer this question. After tracing each actor's involvement in the conflict, I probed the motivation for each actor to either oppose or justify the renewable energy project at each of the field site. Further, I traced the percolation of the global discourse on sustainability through the public script that each actor used to either oppose or justify the renewable energy project.

b) What are the processes and avenues that the actors employ to stake their claims?

To answer this sub-question, I asked questions related to the multiple avenues and fora that the actors at cross-scale used to stake their claims. I analyzed the letters and petitions that the local activists used to claim access to natural resources and their network with actors across scale. I analyzed the legal documents focusing on the processes that led them to encase their arguments in the discourse of biodiversity. The actors at the local scale across the three case studies used a variety of cross-scale avenues including state departments, various ministries and popular media. I also

followed this with semi-structured interviews with the officials to whom they sent their petitions, particularly those at the renewable energy development agency and the forest department.

c) What is the materiality of renewable energy projects and how are certain technologies prioritized over others?

To answer this question, I conducted semi-structured interviews with renewable project developers and officials at the provincial renewable development agencies. I analyzed the Detailed Project Reports and the Project Design Documents for each of the projects located across Karnataka, Maharashtra and Himachal. I analyzed the ways and means through which the project developers justify their project, including the technical justification for the project. The Project design document also details how the project developers projected the renewable energy project as sustainable. I also analysed the project documents that were submitted to the UNFCCC (United Nations Framework Convention on Climate Change) in order to request the CDM (Clean Development Mechanism) status for the project. This was useful in understanding how and why the local activists contested the project and provided justification for opposing the project at the global scale.

Chapter 2

Context and Cases

2.1 Introduction

In this chapter, I provide the background context of the conflict between renewable energy and conservation of biodiversity. I present the renewable energy context of India, followed by the Conservation context. I follow this with a detailed description of three case studies – Karnataka, Maharashtra and Himachal Pradesh. Across all the three case studies, local people are protesting because their land and livelihoods are threatened by renewable energy projects. Yet, across all the three case studies, the agitators encase their arguments in the logic of biodiversity and conservation. The outcome across all the three case studies is varied. While in Karnataka and Himachal Pradesh, the local activists have been successful in stalling the renewable energy project, in Maharashtra renewable energy trumped conservation concerns.

2.2. India's renewable energy context:

India is one of the top five leading countries worldwide in terms of renewable installation as renewable power contributes to 13% of the total electricity share across the country (MNRE 2015). The federal level Ministry of New and Renewable

Energy considers wind power, small hydro (less than or equal to 25 MW), solar and biomass as renewable sources. India's renewable energy installed capacity has grown from 3.9 GW in 2002-03 to about 41.8 GW in December 2015, the bulk of which is wind power (MNRE 2015). Wind power accounts for 68% of the renewable capacity in India (19.1 GW), followed by, small hydro (3.6 GW, 12.9%), Biomass (3.6 GW, 12.8%) and Solar (1.7 GW, 6%). Through a mix of attractive policies and a regulatory framework, India seeks to triple the current renewable capacity by 2020, and the bulk of the targets are to be achieved by wind power.

Approximately, 90% of the capacity addition to the renewable power sector happened after 2003. This is attributed to (a) India ratifying the Kyoto Protocol and the subsequent rise of clean development mechanism (b) A supportive legislative framework that enabled renewable policy making at the provincial level and (c) The rise of manufacturing units set up in India by international multi-national corporations like Vestas, NEG, Enercon and Suzlon. Suzlon, for instance, the Indian wind turbine manufacturing company, is the world's fifth largest turbine manufacturer and currently owns about 11% of the global wind turbine manufacturing share.

A slew of legislations ensured an institutional structure that enabled renewable policy making across Indian states. The Electricity Act 2003 mandated the setting up of provincial regulatory commissions and the onus is on them to promote and develop a market for renewable energy. The State electricity regulatory commissions

(SERC) were made responsible for the regulatory decision on renewable resources and the promotion of generation of renewable power through incentives (Section 61 (h) of Electricity Act 2003). The SERCs were also made responsible for promoting generation of renewable power through suitable incentives for grid connectivity, purchasing power and increasing the share of renewable through specifying a percentage (Section 86 1 (e) of the Electricity Act, 2003).

The two main instruments through which the SERCs were supposed to incentivize renewable energy production were through the use of preferential feed-in-tariff and renewable purchase obligations. Renewable Purchase Obligation (RPO) requires distribution licensees, captive power consumers and open access consumers to purchase or generate a certain percentage of their total electricity requirement from renewable sources. Feed-in-Tariff (FIT) is a long-term contract that guarantees an above market price for renewable power. Both these instruments vary by state and by technology In addition, fiscal incentives issued by the central government were combined with state specific incentives. Tax holidays, capital subsidy, provision of banking and wheeling facilities, allowing open access, third party sales, concessions on land acquisition, subsidized rent, water and power cess were some of the state specific financial incentives offered to renewable power developers.

Following the Electricity Act 2003, the National Electricity policy of 2005 and the National Tariff policy of 2006 also re-iterated the responsibility of the state electricity regulatory commissions in promoting renewable sources of energy. The National

Electricity Policy 2005 mandated the SERCs to set up progressive RPOs and differential Feed-in-tariffs. The National Tariff Policy 2006 in particular, directed the SERCs to announce RPOs that were consummate with the natural resource endowment (available potential) and take into consideration the impact of RPO on retail tariff of renewable power (National Tariff Policy 2006, Section 6.4 (1)). The Integrated Energy policy mandated the linking of incentives with generation of wind power and to actively promote private participation in renewable sector. Further, the National Action Plan on Climate Change, announced in 2008, stipulated a dynamic minimum renewable purchase target of 5% in 2009–10 escalating by 10% each year. The National Tariff Policy was amended in 2011 to re-structure the RPO. In line with the re-prioritization of the state to focus on solar rather than wind, the RPO is now structured as solar and non-solar. This mandates that a certain percentage of electricity must come from solar technology, whereas, non-solar RPO can be fulfilled using any renewable technology including solar.

100% FDI in renewable energy was announced in December 2009. The policy announcement was in conjunction with announcing the automatic route for FDI inflows. The new route did not require the investor to seek permission from the Government of India or the Reserve Bank of India. Rather, it only required that the investor should notify the share of investment to the concerned regional office of the RBI within thirty days of the inward remittance. This dramatically eased the channel through which FDI flows were being routed. Simultaneously, generation based incentives were also announced to enable the foreign investors to get incentives for

every MW generated. This was especially beneficial because foreign investors could not avail other incentives like accelerated depreciation before this policy change. Tradable renewable energy certificates were introduced by the Central electricity regulatory commission in 2010, which allows the utilities across states to trade in these certificates in order to meet their renewable purchase obligations.

Across renewable technologies, the wind energy sector has seen the highest growth in capacity, especially in the post 2003 scenario. The western state of Maharashtra with an installed capacity of 4500 MW is the second leading state for wind power capacity after the south eastern state of Tamil Nadu (MNRE 2015). Maharashtra Energy Development Agency (MEDA) is the nodal agency responsible for developing and facilitating wind power and encouraged increased private sector participation early on to boost the wind sector in Maharashtra. MEDA actively facilitates the acquisition of land, building approach roads, electricity sub-station and other power evacuation arrangements for the wind power developers and had announced a wind power policy to increase private investments in the sector as early as 2004 (MEDA 2008). The state had also announced attractive policy instruments including a higher buy-back rate for wind power to promote the sector and to project Maharashtra as the front-runner in wind energy installation. This combined with federal incentives and an investor friendly approach to attract a high level of private investment in the wind power sector of Maharashtra. The wind power sector has been subject to allegations of forcible and illegal land acquisition, especially in the poor and adivasi belt of Maharashtra (Jamwal and Lakhanpal 2008). Even as such claims are reported

in the national media, the wind sector has remained relatively free of controversy as compared to the hydropower sector. There are national non-profit organizations that seek to highlight the damage to ecology as well as local livelihoods as a result of small and large hydropower projects. Yet, there are no specific non-profit organizations that seek to highlight the dispossession wrought by wind power projects.

Large hydropower projects in India have a long history of being opposed on accounts of predatory land acquisition, submergence and the resultant loss of livelihoods (McCully 2001, Singh 2002). As a result of this violent history associated with large hydropower projects, the discourse has now shifted in favour of small hydropower projects. Small run-of –the-river hydropower projects are considered the environment friendly, sustainable counterpart to large hydropower projects. As a result, small hydropower in India is considered renewable whereas large hydropower projects are not considered renewable. The small hydropower sector in India comprises projects that are equivalent to or less than 25 MW and come under the federal Ministry of New and Renewable energy. On the other hand, dams above 25 MW are considered large and come under the purview of the federal Ministry of Power.

Furthermore, small hydropower dams that require less than 5 hectares of land are exempt from an Environmental Impact assessment (EIA), which is carried out to assess any damage to the environment because of the project (MoEF 2006). In addition such projects don't require the mandatory clearance from the federal level

ministry of environment, rather are mandated to furnish a clearance certificate from the regional forest department (MoEF 2006). Most of the small hydropower projects employ run-of-the river technology. Run of the river dams are often portrayed as benign, low-impact and environment-friendly alternatives to large dams. They don't involve storage of water and instead divert the river flow through turbines that spin generators before returning the water back into the river stream.

The National mission on small hydropower states that, "Small hydro projects are run-of-river and are environmentally sustainable. These projects do not encounter the issues associated with large-scale hydro projects. There is no deforestation, resettlement or rehabilitation." (MNRE 2015) Such projections, however, hide the threat to livelihoods, culture, land and biodiversity that the run-of-the-river projects can cause. As a result there is now a growing concern from environmental activists and many non-profit organizations are encouraging protests contesting the sustainable nature of these dams (Das et al. 2012).

Karnataka has the highest installation of small hydropower across Indian states (950 MW), followed by Himachal Pradesh at 550 MW (MNRE 2015). Karnataka has prioritized the small hydropower sector over the wind and solar energy sector through attracting private sector investments. The state offers high tariffs to small hydropower producers and has utilized majority of its hydropower potential through dams that are range from 8-24 MW capacity. The bulk of hydropower development in Karnataka is in proximity to forest areas or within forest areas. Since it is easier to

garner forest clearance for projects less than 5 ha of land, therefore, most small hydropower projects in the forest areas of Karnataka claim to require less than 5 hectares of land. In 2010, the Karnataka high court had issued a ban on small hydro projects in the Western Ghats. This was a consequence of the protest and legal advocacy against a series of small hydropower projects being constructed in the reserve forest area of Pushpagiri wildlife sanctuary (Raghuram 2013). As a result the provincial nodal agency, KREDL (Karnataka renewable energy development limited) is not too keen on encouraging small hydro projects that are located in conservation landscapes.

Himachal Pradesh has 25% of the country's hydropower potential and has been successful in harnessing majority of the potential through private investments (MNRE 2015). Himachal's hydropower policy announced in 2006 encouraged increased private sector participation in the small and mini hydropower sector. Deviating from the federal categories of hydropower sector, Himachal Pradesh considers dams that are less than or equal to 5 MW as small and renewable (GoHP 2006). A separate nodal agency, HIMURJA is responsible for facilitating the construction of dams below 5 MW in Himachal. The state prioritizes mini hydel dams (less than 5 MW) because they are easier to construct in the Himalayan terrain and explicitly encourages run-of –the – river technology (GoHP 2006). Himachal Pradesh has been accorded a special status that enables it to receive central financial assistance to encourage hydropower development in the state. Hydropower sector has been a source of revenue for the state government and has witnessed indiscriminate hydropower development. As of

today, there are a total of 655 mini hydel power projects at the implementation stage in Himachal Pradesh (HIMURJA 2014). The hydropower sector in Himachal has been prioritized by politicians, bureaucrats and other state officials to build a himachali identity around hydropower development (Chhatre and Saberwal 2006).

2.3. India's Conservation context

The dominant paradigm for India's conservation strategy was founded on the idea that the State has to set aside certain areas for total environmental preservation, devoid of human presence. This followed western, largely American Ideals of setting aside Single Large open spaces exclusively for preserving biodiversity (Lewis 2003). The politics of conservation over the years as it has played out has seen the evolution of actors that challenge this dominant view, even as the state agencies, across scales, negotiate this complex terrain between local efforts from the grass-roots versus the top-down imposition of the conservation agenda.

Indira Gandhi, India's prime minister from 1966-77 and from 1980-84, provided unflinching support to environmentalists often relying upon a small, core group for ideas. The slant towards conservation helped her to gain international recognition and also led her to cultivate a small yet influential constituency back home that saw her as being above petty politics. Her speech at the Stockholm Conference in 1972, on the need for measures sensitive for people established her as a leader of developing countries while showcasing her allegiance to influential westerners. Back home, in India, she supported a small but influential wildlife lobby that won significant gains in

a short span of time. In 1983, she intervened in the Silent Valley issue in Kerala by scrapping the dam project that threatened the biodiversity of the region. Her other initiatives included the end of all tiger hunting and the creation of core zones in tiger reserves. The 48 Tiger reserves were created and brought under stringent protection under the National Project Tiger scheme launched in 1972. As a result, the protected area network in India greatly expanded between 1980-1984.

During the late 1980s through 1990s, the notion of nature as free of human presence was increasingly coming under scrutiny. Activists that promoted an alternative vision of co-existence between biodiversity and human use of the same landscape cited the Amazon Basin as exemplary as it had supported local population as large as 2 million. This aligned well with other innovative research in other parts of the world, such as on the American Indian controlled areas in Southern United States. In India alternative voices rose promulgating models that relegated the role of the state to providing support services and incentives for biodiversity and not the heavy-handed direct control approach. The Gadgil-Rao bill of 1995 propagated for the central role of village level committees and strongly advocated for decentralized systems of resource control. At the global scale, in the mid-1990s , an increasingly vocal body of conservationists argued for a greater recognition of the symbiosis between 'nature' and culture' and the processes by which each informs the other (Rangarajan 1996). Will cronon referred to the spectacular Yosemite National Park, to argue that the particular vision of Yosemite that is conserved is a reflection of the cultural values and that there is nothing 'natural' about the landscape (Cronon 1996). In blurring

these boundaries between nature and culture, such scholarship served to highlight the issues of power and control over nature. In the Indian context, the moot point was that the failure to provide people with a stake in conservation will simply result in an alienation of these communities which will result in an active undermining of state-initiated conservation policies.

In 1997, in response to a case filed by the World Wildlife Fund for Nature-India, the Supreme Court of India passed a judgment requiring country-wide Forest departments to settle all 'existing rights' within Indian Protected Areas in a span of one year. It did not materialize for most of the protected areas simply because eviction of local residents was not feasible due to political and administrative reasons. A body of work questioned the stance that such eviction will ensure the survival of India's wildlife. In fact, this judgment and other events such as the carving out of a section of the Great Himalayan National Park to make way for the 800 MW Parbati hydroelectric power project (Chhatre and Saberwal 2006), brought the role of the state under a scanner. Activists and academics argued that it is resource exploitation by large industries, which are heavily subsidized by the state, that play a bigger role in threatening India's biological diversity.

The 1990s also saw a prominent status given to 'eco-development' as a panacea to cure all ills, especially the conflict between human habitation and preservation of biodiversity. The World Bank-GEF supported eight projects in India, with the underlying logic that local forest dependent communities would be provided

alternative livelihoods through a series of development initiatives and this would ultimately reduce their dependence on natural resources and precious biodiversity, over time. As experience from Great Himalayan National Park shows, eco-development was a failure in reality (Chhatre and Saberwal 2006). At the site of the Great Himalayan National Park, the forest department officials were made in charge of this seemingly participatory exercise and they failed to account for social hierarchies. As a result, the most powerful local actors usurped the funds meant for alternative livelihoods with no benefits to the poor local forest dependent communities.

This tension between a certain section of conservationists that believe that protected areas must be devoid of human presence versus the activists (especially local activists) that advocate for a synergistic relationship between people and biodiversity still persist in the Indian conservation context. One of the key events that jolted the former community and widened the debate on the issue is the disappearance of tigers from the Sariska Tiger reserve. In 2004, studies reported that there were no tigers inside the reserve even as government officials denied it (Mazoomdar 2005). The number of tigers in the Sariska Tiger reserve, located in the Western state of Rajasthan, had always been a matter of dispute. But by early 2005, it was confirmed that tigers had disappeared as a result of illegal poaching in the area. A powerful mining lobby , keen to continue its illegal operations, was thrilled with the news as were the local politicians that argued in favour of de-notification of the area. The Supreme court had ordered the closure of about 215 mines located within the

perimeters of the reserve, yet illegal private dolomite mining continued with the connivance of park authorities and state officials. Villagers in and around the surrounding areas were threatened, harassed and half-hearted attempts were made to re-locate them. The claims of tiger population and the park authorities had sparked antagonistic sentiments among the local residents on account of ill-treatment of the villagers. The inhabitants of one village that had been re-located came back in the face of shoddy and tardy rehabilitation efforts.

In face of this conservation crisis, the Prime Minister constituted a 'Tiger Task Force' in 2005, to suggest remedial action. The appointment of the Chairperson of the Tiger Task Force, Sunita Narain was deemed controversial as she was an outside to the Tiger conservation lobby (Chengappa 2005). The recommendations of the Tiger Task Force bordered on promoting collaborative efforts between tigers and humans. Importantly, the task force pointed out that the areas earmarked under tiger reserves also overlapped with some of the poorest districts in India (Schedule V areas) and with the presence of natural resources which were of specific interest to the mining lobby. The conflicting nature of creating reserves solely for tigers was thus a utopian vision that was fraught with failure. The Task Force recommended a holistic plan that included providing agricultural and grazing land for the villages that would be re-located. Additionally, the task force recommended that the villages for which re-location was not possible should remain inside the park and that the park authorities should work in tandem with the local people.

Following this debacle, tigers were re-introduced in the Sariska reserve from other reserves across the country. Yet, the crisis in Sariska and the recommendations of the Tiger task force served to highlight the futility of enclosing protected areas without human habitation. In the last ten years, the rhetoric of accelerated development and the need for growth have ensured that predatory development has made deeper incursions into protected areas. In the face of growing media opposition, catering specifically to an urban intellengtsia, a federal committee was constituted to rescue the Western Ghats from indiscriminate development. The Western Ghats, also a UNESCO World Heritage site for their natural beauty and diversity in flora and fauna, are one of the world's topmost hottest biodiversity hotspot. Yet, the recommendations of the Western Ghats Ecology Experts Panel were sidelined in favour of the solutions presented by another federal committee which advocated for a more benign approach to conservation and promoted growth based development arguing for the greater common good of the nation.

Cases presented in this study, analyze the local opposition against renewable projects located next to areas of conservation concern to illustrate this shift in the conservation-development debate. The projects are wind and small hydro projects and are located in prime conservation areas of India, the Western Ghats of Karnataka and Maharashtra and the region next to the Great Himalayan National Park.

The Western Ghats are one of the world's eight topmost "hottest hotspots" of biodiversity. (UNESCO 2014) They exhibit exceptionally high level of biological

diversity including at least 325 globally threatened flora, fauna and other species. The Ghats are recognized internationally on account of exceptional levels of endemism of flora and fauna and are inscribed as a UNESCO world heritage site. Two of the projects that inform this dissertation are located in the Western Ghats of Maharashtra and Karnataka and pose a threat to the ecology and biodiversity of the Ghats. The wind power project in Maharashtra borders the Bhimashankar Wildlife Sanctuary and poses a threat to the endangered Indian squirrel and large tracts of contiguous forests. The Kukke small hydropower project in Karnataka is threatening to destroy tracts of reserve riparian forests and endangered fish species found at the confluence of two rivers- Kumaradhara and Gundia. (Dandekar 2013).

The third case is about proposed mini hydel projects on the Tirthan river that flows within the eco zone of the Great Himalayan National Park, also a UNESCO world heritage site. The Great Himalayan National Park (GHNP) is home to several endangered flora and fauna, primarily the Musk deer, Western Tragopan and the Himalayan Brown Bear (UNESCO 2014). The Tirthan is an upper water head tributary of Beas, a major Himalayan river and is home to the highly prized Brown Trout and supports the human population living in the eco-zone of the national park. The local people who live in the eco-zone of the GHNP protested against a series of nine mini hydel power projects, marshalling the biodiversity discourse. They were successful in evicting the power projects from the valley on environmental grounds. In order to preserve the Himalayan ecology, the Shimla high court declared the Tirthan valley as

the only 'No-project' watershed in India and consequently out of bounds of any hydropower projects.

2.4. The three cases:

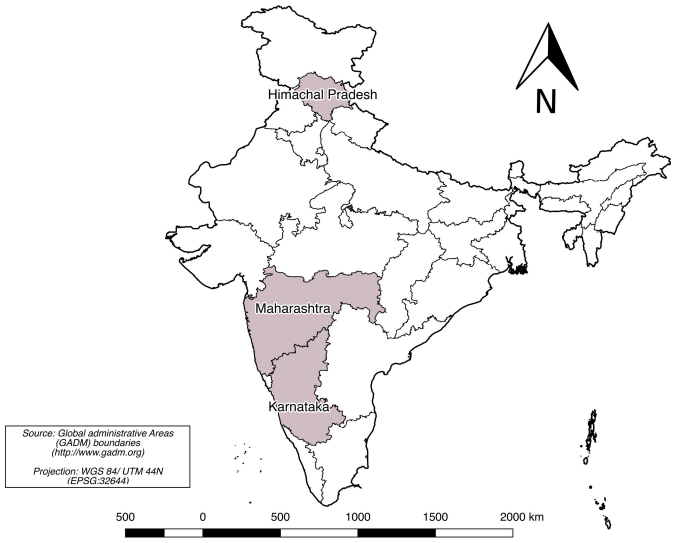

Figure 1 Showing the location of the three case studies across India

2.4.1 Karnataka case study

The Kukke small hydel power project is proposed by Greenko International Limited, near Uppinangady, 90 kms off the coast of Mangalore in the rich biodiversity hotspot of Western Ghats. It is located at the confluence of the Kumaradhara and Gundia, both tributaries of Netravathi, a major river in south India and a rich freshwater biodiverse region. Even as the project has been approved and sanctioned by the government, it has not yet been able to start construction. This is because the local people are protesting against the proposed 24 MW small hydropower project, as they believe

that it is going to cause submergence of their lands that the activists own and cultivate and in doing so, disrupt their livelihoods.

All development projects need the prior approval of the village level local elected bodies (panchayat) in the form of a No-Objection Certificate (GoI 1992). This certificate is required for all development activities in the village and is an instrument to seek the approval of the local people before constructing any project. The Kukke small hydel project in Karnataka requires the no-objection certificate from four gram panchayats. Three gram panchayats are opposing the project and have refused to give the NOC to the project developers. Only one gram panchayat has issued the NOC to the company officials and is explicitly in favour of the project.

The rice fields in the valley are irrigated with perennial streams from the forested hill slopes. The rivers and the land support cultivation of coffee, tea, rubber, pineapple, cocoa and cashew. Sacred groves, known locally as deverakadus, are community protected forests that dot the lush landscape. The Kumaradhara river an important landmark along the western part of the ghats originates in central western ghats near Kodagu. It winds its way through steeply descending slopes and joins another river-Gundia at Kunthur Perabe. It is here, at the confluence of the two rivers, that the proposed small hydropower project is to be situated.

The project is at 74 m altitude in the Puttur Taluka of Dakshin Kannada and about 64 km downstream from the origin of Kumaradhara in Kodagu district. It aims to build a dam across the Kumaradhara, a powerhouse with sub-station, control room, a tailrace

pool and tunnel. The local activists and those opposing the project claim that in doing so, it will submerge 123 hectares of rubber plantation, 522 hectares of areca nut gardens and 35 hectares of cocoa plantations (Ramachandra et al. 2013). A reserve forest wedged between the Kumaradhara river on the south and the Gundia in the north is also threatened by the project. The project is also a threat to an existing mini hydel system of 4.8 MW and its associated generator house. Patches of riparian forests, agricultural land and horticulture areas are likely to be submerged according to the actors opposing the project.

The leader of the agitation, Pradip Kumar lives in Kadaba, about 10-15 kms away from the project site. The imposing threat of land submergence and the resulting loss of livelihoods for him and many others, including panchayat members, is the major reason for their protest. Local people opposed the projects on livelihood, environmental, religious and cultural grounds. Through strategic alliance with conservationists, the local activists have been successful in highlighting the rich biodiversity of the area and encasing their arguments in the sustainability discourse. As a result, the project developers have not been able to gather the mandatory No-objection certificate and the nodal provincial agency (KREDL) has asked the company to discontinue construction.

Figure 2 A section of the river Kumaradhara that is under threat from the small hydropower dam. The local actvisits have painted on a stone that the river belongs to the local people and not for dams.

The project developers nominated the project to be considered for the international clean development mechanism finance. The CDM or the clean development mechanism under the Kyoto protocol allows the developed countries to reduce their carbon emissions through funding emission reduction projects in developing countries (UNFCCC 2002). At the international scale, the UNFCCC (United Nations Framework on climate change mitigation) approves projects that apply for CDM financing. The local activists strategically used the biodiversity discourse and submitted their claims to the UNFCCC. As a result the project has not been able to get CDM validation. In Karnataka, the successful mobilization of the local actors around the biodiversity discourse has enabled them to stall the small hydro renewable power project.

2.4.2. Himachal case study:

The Tirthan river originates in the upper mountain glacial region of the Great Himalayan National Park which lies in the globally significant 'Western Himalayan Temperate Forests' eco-region in the northern Indian state of Himachal Pradesh. The Great Himalayan National Park is characterized by riverine forests, meadows and alpine peaks and is part of the Himalaya biodiversity hotpot (UNESCO 2014). It includes a rich assemblage of species including the globally endangered Western Tragopan and Musk Deer. The park demonstrates outstanding significance for biodiversity conservation and is the source of several glacial rivers, including the Tirthan, which support human settlements downstream (UNESCO 2014)

In 2002, the local people living downstream of the Tirthan in the eco-zone bordering the Great Himalayan National park had protested against a series of nine mini hydel projects proposed on the Tirthan. The dams were proposed by private investors, notably Swastik companies which has its headquarters in Calcutta. The project had the active support of HIMURJA, the regional level renewable energy authority. The loss of local livelihoods was the prime reason for opposition to the mini hydel dams. In 2006, they won a long drawn legal battle against the private companies that were building the mini hydropower projects. The high court banned the construction of any hydel power project on the river and as a result, the Tirthan River that flows within the eco-zone has been designated as a 'No-Project zone'– only such watershed of its kind in India (GoHP 2006). However, the legal outcome was because of the

proximity of the construction site to the Great Himalayan National Park, now proclaimed as a UNESCO World Heritage Site. Even as the opposition to the small hydropower projects was primarily because it threatens the people's livelihoods; it is the protection of Himalayan Ecology that convinced the court. The verdict was given because it threatened the Himalayan Ecology, the Western Tragopan and the Trout fish. The verdict did not even mention the adverse effects of the project on people's livelihoods. The high court's judgment prioritized Conservation over Development and local livelihoods the least.

The nine power projects would have disrupted the water flow of the Tirthan and disrupted the kuhls, the local irrigation network. The projects would have rendered the gharats, water flourmills inoperable and useless. Since the creation of the GHNP in 1999, the local people now increasingly rely upon tourism. The brown trout (Salmo trutta) which is found downstream on the river Tirthan is important for sport fishing, which in turn is a major draw for tourists. Because of the mini hydel dams, the Trout population would have declined and the livelihoods of the local people, severely affected.

Figure 3 A 'gharat' or a water flour mill destroyed because of the construction of a small hydropower project on the river Sainj. Source: SANDRP.

Due to re-settlement and restrictions on forest use, the relationship between the forest department and the local people has been antagonistic (Chhatre and Saberwal 2006). The creation of the Great Himalayan National Park, in 1999, was exclusionary because as per the Indian Wildlife Act 1972, national parks provide for strict protection without human pressures. For the traditional forest dwellers this meant that they could no longer graze their livestock or rely on the forest produce for their livelihoods. The local people had protested against the creation of the park but were unsuccessful. The need to preserve Himalayan ecology trumped the destruction of traditional livelihoods (Chhatre and Saberwal 2006).

The same activists who protested against the exclusionary conservation practice also protested against the proposed mini hydel projects. The local activists had to strategically align with conservationists and showcase the fragile nature of

Himalayan ecology at the project site. This is fascinating, because exclusionary conservation practices in the form of the GHNP had disrupted their livelihoods. The instrumental decision to join forces with the conservationists helped them couch their argument in the sustainability discourse and hence successfully oppose the renewable energy projects. The Himachal case study is a great example of effective mobilization of local people around the discourse on conservation and preservation of biodiversity.

2.4.3. Maharashtra case study

The Andhra Lake 132 MW wind power project, developed by Enercon India, is situated next to Bhimashankar wildlife sanctuary (BWS) in prime conservation area of the Western Ghats in Maharashtra (Byatnal 2011). The Western Ghats are prized for their outstanding ecological significance and designated as a UNESCO world heritage site for its biodiversity (UNESCO 2014). The Bhimashankar wildlife sanctuary, located in the Pune district, exhibits a mosaic of different vegetation patterns and harbours 529 species of animals. Bird Life International has identified the sanctuary as an Important Bird Area (IBA). Large tracts of contiguous forests in and around the BWS form an upper catchment of River Krishna. These forests are the northern most stretch of semi-evergreen and seasonal cloud forests and home to endangered fauna and flora such as the Indian giant squirrel (Ratufa indica), the leopard (Panthera pardus), some rare medicinal plants and the bio-luminous fungus, among others.

The project is set up in an extension of these forests that forms the southern buffer of the wildlife sanctuary. A total of 192 acres of forest land was allotted to Enercon India for the 132 MW wind power project (Byatnal 2011). The construction of the project required felling of trees, cementing an access road from the lower ghats to the project site, widening of the access road to allow for wind turbines and construction of a power sub-station and linear transmission lines for power evacuation. The project spread across 14 villages in Khed and Maval talukas of Pune and is situated in the buffer zone of the Bhimashankar Wildlife Sanctuary. It violates the Supreme Court order that stipulates that every state should declare a 10 km radius of buffer zone as an ecological sensitive zone (ESZ) around protected areas (MoEF 2011). This eco-sensitive zone should be free from development activities that threaten the biodiversity of the region. The state of Maharashtra has not declared the buffer zone of the sanctuary as an ESZ, even after strong protests and lobbying by conservationists (Aggarwal 2014).

The creation of the sanctuary in 1985 restricted the use of the forests for the local people. The forest dependent communities that live here are the Mahadev Koli, Katkaris and Dhangars scheduled tribes. They are engaged in main agriculture work, and depend on forests for a number of livelihood generation activities, including collection of NTFP (Non-Timber Forest Produce) and medicinal plants. Due to threats of re-settlement and restriction on forest use, a relationship of animosity and mistrust is evident between the people and the forest department. The wind power

project was implemented against the backdrop of this contested relationship between conservationists and the local people.

The construction of the wind power project faced stiff opposition from people living in surrounding villages and environmentalists. The protests, led by Arun K, a journalist and environmentalist from Pune, were organized because of three reasons. Firstly, the villagers demanded that they should get development outcomes because of the project. Simply put, they wanted electricity, local jobs and other benefits from the wind power project. Secondly, they demanded that the construction of the project should stop as it was disrupting their farming practice and thirdly, the ecology and critical biodiversity of the region was threatened due to cutting of trees and other construction related activities.

The primary motivation of the local people to agitate against the project was the lack of development outcomes as a result of the project and not the conservation of biodiversity. However, the local activists contested the case in the Bombay High court on environmental grounds and claimed that the project threatened the rich biodiversity of the Western Ghats. The Bombay high court, however, was not convinced by the argument and ordered the project to proceed as long as the developers carried out compensatory afforestation (Byatnal 2011). The project developers channelled development outcomes to selective villages and the mobilization of local actors by conservationists was unsuccessful in this case. As a result, the protest weakened and the opposition to the wind power project was

unsuccessful. In the next three chapters, I present the analyses of empirical material organized around three dimensions – Technology and Scale, Politics and Land, Livelihoods and Development.

Chapter 3

Technology and Scale

3.1 Introduction

In this chapter, I will focus on the ways in which renewable energy projects have gained currency. Specifically I will focus on the processes and practices that render certain technologies as more environment-friendly in contrast with others. The state prioritizes certain technology forms over others and seeks legitimization for these technologies through references to global discourses.

How is it that renewable technologies have come to be considered legitimate? I argue that renewable technologies are rendered legitimate through consensus building and channeling certain aspects of global discourses. The practice of building consensus requires the project proponents to gather approval and no-objection certificates from a host of institutions, including those at the local scale. Once the approval comes about, these institutions serve as allies for project proponents and in turn renders these projects legitimate. The ultimate goal is to prove that the project will benefit the local community and is green and sustainable.

I argue here that the process of prioritizing renewable energy projects over other energy generation and development projects, particularly in conservation landscapes,

is inherently political. In the same vein, I argue that the process of prioritizing certain renewable projects over others is also political. In doing so, I serve to highlight how and under what conditions are renewable projects deemed to be virtuous. The act of considering and labelling these projects as virtuous establishes them as powerful and also informs the local resistance which needs to disprove the virtues of these projects across local, regional and national scales.

Previous scholarship has pointed out the de-politicizing effects of technocratic tools that seek to extend the bureaucratic reach of the state. By framing the problem as a technical one, with technical solution and ignoring the political-economic conditions (Ferguson 1994), development projects whisk the political realities out of sight and serve to strengthen their own political agenda of strengthening the state. I use this as a point of departure and argue instead, that the technocratic tools that are used to legitimize the projects, provide the local resistance an opportunity to actively resist the encroachment of the bureaucratic state. In other words, the act of overlooking political-economic realities by development projects, provides a space, a niche for the community to interject, protest and in some cases bypass the regional and national level institutions. Simultaneously, the local resistance also channels aspects of global discourses on sustainability to appeal to institutions at higher scales.

Within the ambit of renewable energy technologies, the state prioritizes certain forms of renewable over others. Interestingly, the prioritization of a certain form of renewable technology does not always correspond with the natural resource

endowment. For instance, Karnataka prioritizes small hydropower projects over wind energy projects, even as it has a high potential of wind power. Maharashtra prioritizes wind power projects over small hydropower projects even though the state has a high potential of small hydropower. In the next section, I detail the ways in which small hydropower and wind power projects are prioritized and granted legitimization.

3.2 Prioritization of technologies

3.2.1 Small hydropower

What constitutes a small hydropower project is debatable, fluid and arbitrary. The definition of small hydropower projects varies worldwide and this allows government authorities to categorize small hydropower in arbitrary ways. In India, the federal level Ministry of New and Renewable energy has demarcated hydropower projects as follows: projects that are equal to or less than 25 MW are considered renewable and come under the purview of the Ministry of New and Renewable energy. Large hydropower is defined as projects that are above 25 MW and are overseen by the Ministry of Power. For small hydropower projects to qualify as 'sustainable' and hence renewable, they must also employ the run-of-the river technology. The logic being that run-of-the-river projects, also known as 'transparent' projects, have the same inflow and outflow of water. In other words, instead of storing water in large reservoirs, these projects have little or no storage of water and divert the flow of river using a tunnel and channel the natural elevation of the river to

produce electricity. A penstock tunnel is constructed to divert the flow of the river and turbines are constructed downstream of the river at a location that provides good elevation for the water to generate electricity. The electricity is evacuated through constructing transmission lines that carry the power to the grid. A tailrace tunnel is constructed to return the water back to the river stream.

Run-of-the-river projects are celebrated as the benign counterpart to reservoir based large hydropower projects. Because the risk of land submergence is minimal, this technology is gaining traction worldwide. Canada for instance, has only commissioned run-of-the-river projects since 1980 and has banned large reservoir based hydropower projects (Reiter 2015). The replenishing of water that is diverted using the penstock and then restored in the river, is the primary argument used to justify the 'sustainable' and environment-friendly nature of run-of-the river small hydropower projects. This characteristic makes them 'non-consumptive'- meaning they are expected to make little change to a river's flow. The Draft National Mission on Small Hydropower in India, for instance, states,

"Small hydro power projects are normally run-of-the-river and no dam is constructed. There is no storage of water and no dam is constructed in these projects and hence there are no displacements of habitation. These projects do not encounter the issues associated with large scale hydro power projects of deforestation, resettlement and rehabilitation."

This posturing of run-of-the-river small hydropower projects as environmentally benign obscures the threat such projects can actually pose to aquatic life, agriculture, irrigation, land and traditional livelihoods. For instance, diverting large quantities of the river flow can affect the water velocity and depth, reduce river flows and severely minimize the habitat quality for fish and aquatic organisms.

While most of these disadvantages of run-of-the-river projects are obscured, there are a few isolated cases of these projects being scrapped because of environmental concerns. One of the most widely known cases is the Blue Inlet Hydroelectric power project in British Columbia, Canada. The project was scrapped as a result of opposition from environmental groups as this run-of-river project would have diverted over 90 kilometres of streams and rivers into tunnels and pipelines, requiring 443 km of new transmission line, 267 km of permanent roads, and 142 bridges to be built in wilderness areas (Gillis 2012). In India, non-profit organizations such as the South Asian Network on Dams, Rivers and People are highlighting the disadvantages of small hydropower projects on rivers, aquatic life and the livelihoods of people that depend upon the river. Primarily, such organizations contest the 'sustainable' nature of these projects by pointing to the imminent threat that such projects pose to natural resources and dependent communities.

Large hydro power projects have a long history of violence and historically have been sites of contestation and protest. Projected by the post-colonial state as symbols of development they have morphed into symbols of destruction, over time. Concerns

over displacement, submergence of villages and re-habilitation have been contentious issues as a result of which large hydropower development is now controversial, especially in the global south. Post-independence, large dams were celebrated projects as a consequence of Nehru's idea of modern development (Roy 2007). The state employed various policy discourses to uphold scientific development and advances in engineering as the ultimate need of the nation. Large dams served as key plugs in the grand project of unification across the fragmented Indian landscape orchestrated by the post-colonial Indian state (Khagram 2004, Singh 1999)

The critique of large dams from activists, academics and policy-makers pressed for more benign solutions as against constructing mammoth concrete structures that could submerge entire villages. The ecological, social and political impacts of large dam structures are the basis for prioritizing environment-friendly alternatives to these structures. Primary among these voices has been the anti-Sardar Sarovar Dam, Narmada Bachao Andolan. Such movements were instrumental in painting narratives of the helpless adivasi against the mighty forces of the World Bank, that had commissioned the project. Such narratives, while obscuring the irrigation and agricultural needs of the larger community (Omvedt 1999) also helped to strengthen the strong narrative against large reservoir based hydropower projects.

The push for small, environment friendly alternatives from the anti-large dam community coincided with the rise of global concerns over carbon emissions and climate change mitigation. Renewable energy projects epitomize sustainability and

are considered a virtue for their property to balance emissions reduction and the need for growth. It is against this backdrop that small hydropower dams and other renewable energy projects are increasingly being favoured by governmental agencies, international development organizations and the private sector.

However, even across renewable technologies, there are certain technologies that have not been adequately critiqued, even as they dispossess communities from their land and/or livelihoods. Wind power projects, in contrast to hydropower projects, have not been subject to mass based protests, revealing the threat these projects pose to local livelihoods. Such projects have remained relatively free of controversy as studies around dispossession as a result of wind power projects have remained few and far between. Especially in the global south where such projects threaten to dispossess marginalized communities, the political and social impacts of such projects have not been adequately studied. Yet, there are cases where local opposition to wind power projects, particularly in the Indian context, has been successful. Indeed, the volley of criticism against large hydropower projects has served to grant legitimization to small hydro power and wind power projects.

In the case of small hydropower projects, they are exempt from EIA as long as they are below 25 mw. However, small hydropower projects need permission from state pollution control boards under Air and water act. For small hydropower projects equal to or below 25 MW and requiring less than 5 hectares of land, all the clearances required are at the regional level. This makes small hydropower especially attractive

for project developers that have close ties with regional level authorities. In contrast, for wind power projects, alliances with officials at the federal level ministry of environment and forests are a key concern.

3.2.2 Wind power

A wind power project has a PLF (plant load factor- a measure of efficiency of the plant) of 18-20%. A large number of turbines are needed to provide the same amount of power as provided by a conventional plant (3,000 wind turbines could be needed to replace one coal plant). As a result, the amount of power transmission lines increases dramatically. This means that a wind power project requires more land per mw in comparison with other renewable sources of electricity. Wind power projects require land to the order of 15-20 acres per MW. The setting up of transmission lines, hauling of construction cranes for setting up wind masts along with the hauling up of wind turbines requires construction of roads necessitating the large scale deforestation of forests, habitats and soils. This leads to landslides, conflicts with local livelihoods and massive soil erosion in high rainfall areas. Even as wind power projects can pose equal if not greater threat to ecological biodiversity and cause dispossession of lands and livelihoods, they are rarely critiqued.

The Ministry of Environment and Forests in India has exempt wind power projects from the mandatory requirement of Environmental Impact Assessment, particularly if the project is located in forest areas. Environmental impact assessment is a crucial indicator of the destruction of ecology and wildlife in the area, which is a key concern

for conservationists. Wind power projects are exempt from Environmental Impact Assessment irrespective of their scale, magnitude and the area of land required for construction. Forest lands are by default the choice of location for wind power project proponents. This is primarily because it is cumbersome for project proponents to acquire private land. Agricultural land needs to be converted to commercial land, in order to be procured for renewable energy development. In comparison, it is relatively easier to get permission for forest lands for wind power projects. The General Manager of the provincial level Maharashtra Energy Development Association had stated in an interview,

> "Since they are exempt from EIA, the wind power projects only need to seek permission from the central level ministry of environment and forests and attach an application stating that they will carry out compensatory afforestation. While the federal Ministry of Environment and Forest guidelines require that compensatory afforestation be carried out in the areas contiguous to the forest land, a lot of developers attach proof of afforestation on private land that is actually far away from the forest."

There is scant research on the social impact of renewable energy projects, especially wind power projects. In most cases, the certificate of consent from village level panchayats (elected officials) provides mere lip service. Empty claims of providing electricity to impoverished, local communities are used to jumpstart the projects. There is no mechanism to monitor how much electricity will be provided and to how

many households at the local level. In short, a mix of pro-renewable policy initiatives, attractive subsidies, an assured buy-back rate and tax holidays make the renewable energy sector a highly lucrative investment option.

Within the case sites, certain renewable technologies have been prioritized over other. The wind energy sector has been prioritized over other renewable energy sectors in forest areas in Maharashtra. Small hydropower projects that are less than 25 MW and require 5 hectares or less have been prioritized in forest areas in Karnataka. Himachal Pradesh favours mini, small and large hydro power projects over and above other renewable technologies. While in the case of Himachal, this prioritization largely corresponds to natural endowment, this is not so in Karnataka and Maharashtra. Himachal Pradesh has been accorded a special status by the central government to boost hydropower and the state seeks to fulfill a huge chunk of its revenue from hydropower.

3.3. The political process of building consensus for renewable energy projects

The practices through which renewable energy projects are rendered as legitimate involve forging a consensus in favour of the renewable energy projects. Renewable energy project proponents have to secure a wide range of institutional allies, cutting across spatial scales. In doing so, the process of consensus building and alliance formation also serves to counter dissent and opposition to the renewable energy projects. In this section, I detail the process by which renewable energy projects are

approved while presenting the material realities through which the renewable energy projects are set up.

One of the first steps for project proponents is to gain approval from the state level nodal renewable energy agencies. These nodal authorities serve as interlocutors on behalf of project proponents and actively assist them in acquiring land, facilitating construction of access roads and other power evacuation arrangements. In many cases, the nodal agencies also help the project developers in acquiring the consent-to-establish from other public institutions. Renewable projects require mandatory clearances from regional level state pollution control boards, irrigation department, revenue department and forest department in case the project is set up on forest lands. Once the provincial nodal agency intervenes on behalf of the project proponents, it becomes easier for the renewable energy projects to get approval and gain traction.

In order to appease the provincial nodal agency, the renewable energy developers have to carry out an initial survey. The survey essentially demarcates the area where the renewable energy project will be set up and the project developers have to prepare a detailed project report (DPR). The project developers hire third party consultants and engineers to survey the lands, assess the technical aspects of setting up the renewable energy project and provide a roadmap of how the project will be executed. These consultants are entrusted with the task of obscuring any land submergence as well as threat to local livelihoods and biodiversity. The DPR is

submitted to the State level renewable energy nodal agency, which assesses the feasibility of the project. In some cases officials from the State level nodal agency travel to project site and verify the information in the DPR. If the state level nodal agency accepts the DPR, it initiates the process of gathering consent from other departments in favour of the project.

Meanwhile, the project developers set about the task of preparing the project Design Document, if they want to apply for CDM credits. The developers have to submit the Project Design Document to the UNFCCC (United Nations Framework Convention on Climate Change) in order to seek finance through the clean development market mechanism (CDM). Initiated under the Kyoto protocol, the clean development mechanism is a market instrument designed to allow technology transfer, knowledge sharing as well as reducing carbon emissions through allowing companies in developed countries to purchase carbon credits from projects located in developing countries. CDM finance is highly lucrative for renewable energy project developers as it significantly offsets the costs for setting up the project and also ensures a steady monetary flow. The Project Design document needs to provide evidence for additionality and the fact that it will contribute to the reduction in the emission of greenhouse gases.

The National Clean Development Mechanism Authority (NCDMA), based in Delhi, is the designated operational entity for CDM approval in India. The NCDMA reviews the project design documents, before submitting them to the UNFCCC. In consultation

with the project developers, the NCDMA authorizes the 'Host Country Approval' for the project. Importantly, the organization verifies that the project activity has achieved reductions in anthropogenic emissions by sources of greenhouse gases. The project documents are then submitted to the UNFCCC for approval. The UNFCCC hosts the PDD on its website for a global stakeholder consultation on the project for a period of 30 days. During this period, the UNFCCC invites comments from the general public on the feasibility and viability of the project. If there are no comments challenging the sustainable development claims and the feasibility of the project, the project processed to the validation stage and subsequently is registered as a CDM project.

In order to receive the highest priority, it is imperative for renewable energy projects to be located in an area where no power plant whether conventional or renewable has existed before (UNFCCC 2012). This is termed as a 'greenfield' project. Greenfield projects are accorded the highest priority especially by the international United Nations framework on Climate Change for availing carbon credit finance. A key concern for project developers is to establish that if the renewable project had not existed, the electricity delivered to the grid would have otherwise been generated by thermal power plants. In order to acquire CDM finance and revenue from the state nodal agency, the project proponent has to show that the renewable energy project will not be possible without CDM or state revenue. To do so, the project developers claim that renewable energy projects are low return on investment and is essentially not a profit making enterprise.

Across the three case studies the logic that all renewable energy projects have employed is that the PLF of renewable energy projects is lower than the PLF of thermal electricity plants. Hence, they generate less electricity per MW and that it is not a profitable enterprise rather is a risky endeavor. In doing so, the project developers position renewable projects as high-risk, capital intensive projects that allows them easy access to regional, national as well as international CDM financing. The DPR of the Enercon Andhra lake wind power project in Maharashtra thus states,

> "Conventional (thermal and large hydro) power projects are a more attractive investment option as compared to non-conventional (renewable energy power projects), primarily because of the lower risks that such project activities face as compared to renewable projects. Conventional power plants supply firm power, operate on higher PLF and are not subject to the vagaries of nature. Renewable energy projects, on the other hand, operate at a much lower PLF and have a higher capital cost. Thus, from the perspective of a private investor, investments in thermal power plants are a safe option."

The justification of the project is rooted in national as well as local development. The DPRs of all projects explicitly states that the project will contribute to minimizing the fiscal load on the national economy from the imports of fossil fuels. In India, the federal Ministry of New and Renewable Energy, influenced by the UNFCCC, has mandated certain indicators that seek to prove that the project contributes to

Sustainable Development. These indicators range from social wellbeing to environmental, technological and economic wellbeing, The project design documents, which are crucial for CDM finance, have to rely upon these criteria to prove that their project satisfies the criteria for sustainable development.

3.4 Counter-claims

Groups that oppose renewable energy projects challenge the sustainable development claims, especially the assertion that the project will provide power to the local residents and that it will lead to social and economic well being. In Karnataka, the activists submitted their comments to the UNFCCC and challenged the claims of additionality and the discrepancy in DPR and PDD. For instance, while the DPR of the project states clearly that cultivated land will be submerged, the PDD obfuscates this reality. The DPR states that the project may affect more than 7 villages along the Kumaradhara river. The project has a mean water level (MWL) of 74 masl (meters above sea level) and taking into consideration the backwater effect, the project will lead to higher water levels upstream. Villagers indicated that at MWL of 74 msl, the project will submerge a minimum of 297 acres of Forests, 400 acres of Agricultural lands and affect the population of landless labourers that have homes alongside the river. They also pointed out that the project will cause water levels to be dangerously near a bridge on River Kumaradhara, which is at 75 masl, thereby increasing the chance of flooding in the area. They notified the UNFCCC that there are already 12 small hydropower projects on the Kumaradhara river and a total of 44

such projects in the Netravathi basin. The activists thus debate the additionality and sustainability claims of the project.

The proposed small hydropower dam will also submerge the tailrace of another run of the river 4.8 MW dam. The Hosmatha dam finished construction in 2005 and was also subject to opposition from the local residents. The company that constructed the dam, Disha power corporation, extended support to the villagers protesting against the Kukke small hydropower project. The agitating villagers were planning to disrupt the initial survey being carried out by the engineers on behalf of the Kukke small hydropower project. At the behest of the Managing Director of the Disha Power Corporation, the local activists allowed the project developers to carry on the survey detailing the height of the dam, the meters above sea level and the submergence as a result of the dam. Once the survey was complete, they used the information gleaned from the DPR and from conversations with surveyors to prove that the project will indeed lead to submergence of cultivated land. Pradip, K, the leader of the agitation, stated that they decided to wait and let the company officials finish the survey. This strategy helped them in estimating the total area of land that is likely to be submerged as a result of the project.

In consultation with the owners of the Hosmatha dam and activists from the non-profit, South Asian network for Rivers Dams and People, they adopted the technical terms which the project proponents had used to justify the 'sustainable development' aspect of the project. Particularly, they contested the claim that the project contributes to social, economic and environmental well-being. They challenged the

claim that the project proponents had consulted the stakeholders, especially the local community and highlighted that the villagers were not informed about the project. The project developers had approached only one village panchayat (Perabe village) and only the president of the elected body and a few other villagers were present at the 'stakeholder' meeting. Further, the opposition highlighted the rich biodiversity of the area, including the Mahaseer (Tor) fish that is an endangered species and is found in the Kumaradhara river, the Madhuca insignus an IUCN red category endangered plant that was thought to be extinct but has been re-discovered at the project site. Finally, the activists pointed out the 'Stop-work' notice that the State level Nodal Agency had issued to the company as a response to their petitions. The notice had asked the company to stop work on the project as it threatens the local lands and livelihoods. The UNFCCC has not validated the project as yet as a result of these comments submitted by the opposition groups. The villagers have not allowed the company officials to undertake any more surveys in the region. Greenko private limited, the project developer has enclosed a portion of the road and some area by constructing a wall and a signboard that proclaims the name of the project.

It is easier to contest the intended benefits of small hydropower projects as opposed to large scale wind power projects, particularly when they are backed by multinational corporations. The 132 MW Andhra Lake wind power project near Bhimashankar wildlife sanctuary is developed by World Wind India. World wind India, was earlier known as Enercon India, is the Indian subsidiary of the German multinational corporation. Along with Enercon India, CLP Hong Kong has invested

heavily in this project. CLP, listed on the Hong Kong stock exchange is one of the largest investor owned power businesses in Asia. This wind power project in question, at the edge of the Bhimashankar sanctuary, is one of CLP's largest investments in India. Enercon has grown to become one of the largest operators in India's growing wind energy market. It has the second largest market share in India, next only to Suzlon private limited.

In an interview with the General Manager of MEDA, he denied the existence of the wind power projects next to the wildlife sanctuary. When probed further, he stated that the project had been validated by the UNFCCC as a CDM project. The local activists did not approach the UNFCCC at the validation stage and he used that to justify the authenticity, viability and sustainability of the project.

3.5. Discussion

The overarching theoretical framework of this study is that the introduction of the renewable energy project leads to a re-territorialization of the existing conservation geographies through political contestation. The empirical evidence presented in this chapter shows the ways through which two dimensions of the project – technology and scale; lead to political contestations that result in a re-territorialization of the landscape.

In the hydropower sector, large-scale hydropower projects are discouraged due to issues of dispossession, submergence and their ecological impact. As a result, Run-of-the-river small hydropower projects are favoured precisely because of their smaller

scale. The scale of the small hydropower projects works to establish that such projects are environment friendly and not as destructive for the ecology and livelihoods as large hydropower projects. The wind power sector, on the other hand, presents an interesting contrast. Large scale wind power projects that require greater land, widening of access roads and also cause greater dispossession of land and livelihoods don't have a history of being opposed. The contestation presented to the large hydropower projects including run-of-the river large hydro-projects has lent creditability to their smaller counterparts.

The location of the projects near conservation landscapes demands that the development projects be sustainable and are consequently justified on the basis of the sustainability discourse. The project design documents and the detailed project reports for the renewable energy projects therefore are encased in the logic of sustainability. The process of re-territorialization starts when the project is introduced in the landscape that has been territorialized to form conservation geographies. This leads to a political contestation that forms groups that either oppose or justify the renewable energy projects. The political contestation involves building of coalitions; alliances and strategies that inform the justification or the opposition of the renewable energy project and takes place across spatial scales, leading to a further re-territorialization of the landscape.

The political contestation pertaining to technology and scale involves the actors in favour of the project justifying the inclusion of renewable power projects within

conservation geographies. The Wind Turbine Manufacturing Association, for instance, petitioned the federal Ministry of Environment and Forests to re-categorize renewable power projects as 'green' industries. This led to such projects being approved easily next to protected areas, forests and conservation landscapes. In case of small hydropower projects, the developers need permissions from authorities at the regional scale as opposed to the wind power projects, which require clearance from the federal ministry of environment and forests. At the regional scale, the project developers approach various institutions that serve as allies in order to facilitate the construction of the project. The regional nodal agency serves as interlocutor for the renewable projects and serves to build institutional allies for the project developers.

The petition from the Wind Turbine Manufacturer's Association coincided the controversy surrounding the Western Ghats Ecology Experts Panel (WGEEP). As empirical evidence from this chapter shows, the WGEEP report was sidelined in favour of the development-friendly High Level Working group committee for electoral gains, which divided the western ghats landscape into natural and cultural zones. This was a result of calculations based on electoral gains for the Indian National Congress, political party in power at the time. Jairam Ramesh, the minister in favour of the stringent WGEEP was replaced by Jayanthi Natarajan, who later resigned citing political pressure from the industrialists and upcoming elections as reasons for her removal. Renewable energy projects were allowed in both natural as well as cultural landscapes ostensibly because they exemplify sustainable

development. This is an evidence of re-territorialization of the landscape as the boundaries demarcating the control and use of natural resources were re-drawn. The state works to re-territorialize the landscape allowing certain development activities such as renewable energy projects even within highly sensitive environmental zones. The posturing of renewable energy projects as environmentally benign prioritizes renewable power projects of certain technologies over others and illuminates the ways in which the state grants legitimacy to these power projects. As the project proponents build institutional allies in favour of the project, it grants them more legitimacy and leads to consensus building in favour of the project.

Chapter 4

Politics

4.1 Introduction

In this chapter, I argue that the local opposition to renewable energy projects across the three case studies, is dynamic. It is influenced by the larger politics of environment and development and this is reflected in the ideologies, strategies and tactics of the resistance. The broader politics of Environment and Development itself keeps shifting and this gives rise to the dynamic nature of local resistance. Across all the three case studies, conservation politics mediates the ideological formulation of the resistance and also shapes the outcome of the conflict. In Maharashtra, the regional electoral politics also plays a role in diminishing the local resistance to the Wind power project. As the larger politics of Environment and Development expands to include projects such as renewable energy, which have intended environmental benefits and are operationalized through a territorial aspect, it opens up new avenues for grassroots mobilizations to strategize, network and instrumentally align themselves with broader ideologies (such as conservation of biodiversity) which have greater currency and allows the movements to gain traction. This is illustrated by the careful strategizing on part of the local resistance across all the three case studies. While the local activists are protesting against the renewable projects because they

threaten their land and livelihoods, they firmly encase their arguments within the biodiversity discourse.

In order to use alternative channels, the local resistance engages with institutions at the local, regional, national and global scales. The nature of this conflict also ensures a dynamic social movement. The conflict between biodiversity and renewable energy appears to be an environment versus environment conflict at higher scales, but at the local scales it morphs into an environment versus development conflict.

In the following sections, I detail the mobilization of actors across two aspects of the global discourse on sustainability – conservation of biodiversity and the renewable energy as sustainable development. In the process, I also lay out the associational strategies and processes by which the local activists aligned with certain networks and the constellation of actors that mediated these strategies. I start by detailing the mobilization of actors around the conservation of biodiversity discourse and follow with the mobilization of local actors around the development discourse. Further, I briefly describe the political process of prioritization between conservation, development and livelihoods in the area adjacent to the Great Himalayan National Park. This is to highlight the ways in which the local resistance relies upon and is ensconced with the larger politics of environment and development. Finally, I examine the ways in which renewable energy is governed when projects are located in or around conservation landscapes. This serves to highlight the re-territorialization of renewable energy projects in and around biodiversity landscapes.

4.2 Mobilization of actors around the conservation of biodiversity discourse:

4.2.1 Himachal Pradesh

The Tirthan river is the only watershed that has been demarcated as a 'No-project zone' as per an order by the Shimla High Court. The order came as a result of a long-drawn legal battle between local activists and project proponents in 2006. The mini-hydel power projects were proposed in 2003 when GTZ subsidized 30% of the hydropower development in Himachal, including the nine mini hydel power projects in the Tirthan valley. The constellation of actors that congregated to strengthen the opposition of hydropower projects included local activists with links to NGOs and civil society in Delhi, JP Negi the then regional additional power secretary, Sanjeeva Pandey – the additional Principal Chief Conservator of Forests and ex director of the GHNP, Dilaram Shabab- ex member of legislative assembly.

The forest department officials, notably Sanjeeva Pandey, were highly instrumental in steering the protest in order to incorporate the conservation agenda. Sanjeeva Pandey, a committed conservationist, regards the GHNP as his temple and was the key actor in the creation of the GHNP. The timing of the protest was key, he emphasized, as the proposal for GHNP to be considered as a UNESCO world heritage site was being prepared by the forest department. Sanjeeva Pandey along with Steven Parsons created an organization called, 'Friends of the GHNP'. 'Friends of the GHNP' initiated the UNESCO world heritage process by submitting a report to the Ministry of Environment and Forests (MoEF), highlighting the GHNP's pristine natural beauty

and ecological significance. This prompted the MoEF to consider and submit the proposal for GHNP's nomination. From the state government's point of view, it was imperative that the GHNP be declared as a UNESCO world heritage site for tourism revenue and to put Himachal Pradesh on the global map for world heritage.

In addition to the forest department, the ex member of legislative assembly from the area, Dilaram Shabab had approached the then additional power secretary, JP Negi. Shabab urged him to visit the area and suggest ways to counter the mini hydel power projects. Negi's visit to the Tirthan was crucial because he reasoned that the local activists should use the biodiversity angle to their advantage. Much later as I interviewed him, JP Negi pointed out that the Himalayan ecology angle would have worked better to stave off the hydropower projects in the region and hence he had emphasized that the activists should stress upon the biodiversity angle.

The involvement of the Department of fisheries in this conflict served to strengthen the biodiversity angle. Kullu district has the largest number of private trout farms in the state (GoHP 2011). The department has a fish-stocking programme and also attracts anglers from around the globe. The angling activities are supported through the Himachal Angling Association and an annual angling competition is held in the Tirthan valley (Baker 2014). There are both private and government hatcheries in the district and especially downstream of the hydropower project locations. The Tirthan is home to Brown Trout that requires clean, cold highly oxygenated water to breed and hatch. The presence of the Trout hatcheries raised the stakes and strengthened

the case against small hydropower projects. The projects would have led to the accumulation of silt in the river water thus destroying the habitat for aquatic species.

The Himachal Angling Association, an active organization that promotes sport fishing, and the state department of fisheries supported the resistance against the mini hydel power projects in the Tirthan valley. The Angling association held its 2012 Trout Anglers Meet at Sai Ropa on the Tirthan River. The keynote address at the angling competition, given by the Association's Secretary General, advanced strategies for strengthening "Angling Tourism" and denounced the negative impacts of small hydropower development on fisheries and the livelihoods they support (Baker 2014). As a result the Tirthan valley has now been declared as an Angling reserve by the Himachal government to further strengthen the biodiversity of the region (GoHP 2013). The stretch on the Tirthan river between larji and nagni has especially been named as a 'Trout sport fishing stream stretch'.

The eventual backing of the protest against small hydropower projects by the Fisheries department, Himachal Angling Association, Forest department and the proximity of the proposed sites to the Great Himalayan National Park (which was being nominated for UNESCO world heritage status)- aligned to strengthen the biodiversity agenda in Himachal Pradesh. The local activists are antagonistic towards the forest department and are still fighting the battle for settlement of forest rights act for the local people. Yet, they deftly incorporated the biodiversity angle in order to

contest the mini hydropower development in the region and draw upon the discourse on conservation and sustainability to protect their livelihoods from destruction.

The strengthening of the conservation agenda in the valley, led to a ban on the mini-hydel projects, but it also threatened local livelihoods. The BioDCS, a committee set up by the state government jointly shares the management of the GHNP with the forest department. After issuing the ban, the governing body of BioDCS under the recommendation of Mr. RanjitSinh, decided to earmark the Eco-zone that borders the park as an eco-sensitive area (a fragile ecosystem) with immediate effect. The local activists were strongly against it because their customary rights have not been settled as per the forest rights act and creating the ESA would curb development activities in the valley. This shows that the alliance between the local activists and conservationists was a strategic one, solely for the purpose of encasing their arguments in a discourse that has global traction. Furthermore, their prime concerns are with respect to land, livelihoods and other development outcomes, which they define on their own terms.

4.2.2 Karnataka

In Karnataka at the site of the contested Kukke small hydropower project, the affected people have been highly successful in mobilizing the conservation discourse to stall the small hydro project. There are clear linkages that one can draw between local activists and regional as well as national actors who espouse the conservation agenda. Even though the locals are protesting because they firmly believe that the

project will cause submergence of their lands and hence will impinge upon their livelihoods, they channelled the biodiversity discourse to protest against the project.

A crucial factor that has made the local people amenable to the use of the conservation discourse is the overall development context in the village. The locals protesting against Kukke are not the marginalized, poor victims of exclusionary conservation, rather are plantation owners with highly successful rubber, cocoa and areca nut plantations. Kadaba village, where most of the agitation committee resides, comprises 700 households and 94 % of the workforce is engaged in main agricultural work (GoI 2011). The protestors are either owners or co-owners of rubber, areca, cocoa and cashew plantations. The relative prosperity of Kadaba and surrounding villages is relevant because it tells us that the protestors are not in dire need of local development outcomes like schools, electricity and jobs. This is in stark contrast with Maharashtra, where the locals prioritize development outcomes over and above all else. Even if the project does lead to local development outcomes, it is not a priority for the actors at the local scale in Karnataka because it will destroy their livelihood. The local activists are well entrenched in the urban setting of Bangalore and even when faced with a choice to re-locate to Bangalore, choose instead to stay in the village and cultivate their lands. Pradip K the leader of the agitation against the small hydro power project has three sons who are settled in Bangalore. He is highly emotionally attached to his rubber, cocoa and areca nut plantations in Kukke. At 63 years he has no desire to rehabilitate elsewhere and is deeply concerned about the

threat of submergence to his land. The other members of the agitation echo the same concerns.

A constellation of actors was crucial in mobilizing the affected people for the conservation discourse. The chief conservator of forests in Mangalore is strongly against any development projects in the forest areas. He identified himself as an environmentalist first, a forest officer later. He was instrumental in inviting Ananth Hegde, renowned conservationist and ex- chairperson of the Western Ghats Task Force, to visit the site of the contested project and to highlight the rich biodiversity of the contested site. Ananth Hegde raised the issue in the state legislative assembly, assured the locals that they will not lose the land and highlighted the case in the national media. He also invited Prof T Ramachandran from the Indian Institute of Science in Bangalore to report on the biodiversity of the project site. The report published by IISC highlights the rich flora and fauna in the area, chiefly the tree Madhuca insignus that is endangered as per IUCN and was recently re-discovered after 125 years at the project site. The team also reported the threat to 56 fish species that are found in the Kumaradhara, especially at the confluence of Kumaradhara and Gundia river. Eight of those fish species are listed as threatened as per the IUCN and eleven are classified as vulnerable (Ramachandra et al 2013). Two community managed fish sanctuaries are located barely a few kilometres upstream and the report claimed that the project interferes with local fish conservation efforts. This report formed the basis for challenging the project using the biodiversity argument in

national, regional media and international forum like the United Nations Framework on Climate Change Mitigation.

The United Nations Framework on Climate Change mitigation (UNFCCC) is instrumental is granting clean development mechanism status to renewable projects. CDM or the Clean Development Mechanism is an international instrument that allows the developed countries to pay for reduction in carbon emissions through channelling funds to eligible projects in developing countries (UNFCCC 2002). The Kukke small hydro project developers were looking to finance their project through the CDM instrument. However, Parineeta Dandekar, an activist with the South Asian Network for Dams and Rivers, visited the area and urged the agitators to use the biodiversity angle to contest the CDM status for the project. She helped the protesters in submitting comments to the UNFCCC, contesting the claims made by the project officials about the sustainability of the project (Dandekar 2013). As a result the UNFCCC did not validate the project for CDM finance., which was a major victory for the opposition.

Interestingly, even before conservationists like Ananth hedge and Parineeta Dandekar, approached the local people, the protestors had garnered a stop work notice from the Karnataka Renewable Development Authority limited . The members of the agitation committee had written to the managing director of KREDL, complaining that the project impinges upon the livelihoods of the local people. They did not employ the biodiversity angle when writing to KREDL, the provincial agency

for implementing renewable energy across Karnataka state. KREDL issued a stop-work notice to Greenko international but the argument that convinced them was twofold: (a) That the project conflicts with the livelihood of the local people- the allegation that fertile agricultural land will be submerged by the project and (b) that the tailrace of the small hydropower project conflicts with an existing commissioned project. The stop work notice issued by Kredl states:

"Keeping in mind that fertile agricultural land will be submerged in villages of Valya, Nadoli, Baitannai, Padyulipu, Koodige, Majjaru, Kudineeru and Ulipu if the small hydro project allotted across Kumardhara river, near Perabe village is implemented. Further m/s Dishaa Power Corporaton Private limited vide their letter has submitted that the said project levels overlap with their commissioned project. In view of the above the Kukke small hydro power project is directed to stop all implementation activities until further notice."

In the words of Pradip Kumar, "KREDL supported us when we told them about our livelihoods. But for the big international organisations like UNFCCC, we had to approach through the biodiversity angle." This underscores the importance of rooting one's arguments in the global discourse on sustainability especially when contesting the project at global scale. In other words, as one moves from the local to the global scale, it is imperative that the argument is framed as a threat to biodiversity and not merely livelihoods.

Dr. Shirimala is another actor that influenced the biodiversity angle in this conflict. Dr. Shirimala is closely associated with the Karnataka biodiversity board and earned his doctorate in botany from Mangalore University. Kadaba is his maternal ancestral village and he visits often, even though he lives in Mangalore. A self confessed environmentalist, he was instrumental in interacting with Sanjay Bijjur, the chief conservator of forests, and explaining the details of the conflict. His interaction with the chief conservator of forests led to Ananth Hegde's visit and the involvement of scientists from IISC. He espouses the conservation of biodiversity agenda and emphasized that it is better for local people to live in the area, than predatory development projects to destroy the biodiversity of the area.

Interviews with Pradip revealed that they had protested against a dam to be built on the Kumaradhra at the same site almost a decade ago. During the 90's, the Bhoruka hydel power project was to be set up at the exact location of the Kukke project. Pradip Kumar and other members of the agitation committee, now protesting against the Kukke project, had also successfully stalled the Bhoruka hydel power project. During multiple conversations, Kumar often referred to Kukke as a resurrection of the erstwhile Bhoruka Hydel power project.

Thus, in the Karnataka case, the mobilization of local activists employing the biodiversity discourse was very effective. The mobilization was effective because of a host of actors including the Chief conservator of forests, the chairperson of the Western Ghats Task Force and noted environmentalists from Bangalore along with

the representatives of the Delhi based non profit organization, South Asia network for dams and Rivers (SANDRP). The primary concern of the local people remains protecting their livelihoods, yet they were amenable to projecting this as a case of preserving the rich biodiversity and natural heritage. The discourse on biodiversity and preservation of natural heritage was highly effective when challenging the international Clean Development mechanism (CDM) and submitting comments to the international agency, UNFCCC. The biodiversity discourse was also employed successfully in the national and regional media to gain attention and galvanize support for the protest against the small hydropower project.

4.2.3 Maharashtra

The Andhra lake wind power project, developed by Enercon India is one of the relatively rare cases of a wind power project next to a protected area. Arun K, an environmental activist and a Marathi journalist, was instrumental in organizing the protest against the Enercon India wind power project located on the fringes of the Bhimashankar Wildlife Sanctuary (BWS) in the Western Ghats of Maharashtra. He helped the local people living in the neighbouring Kude village to organize a protest against the wind energy project. The villages on the fringes of the Bhimashankar Wildlife Sanctuary lack basic amenities and their prime concerns are employment, education and electricity, in short development outcomes. They demanded that the project developers should electrify the villages and create local jobs. However, the protest against the project was enveloped in the biodiversity discourse and not the

demand for local development outcomes. The mobilization of local actors around the biodiversity discourse was unsuccessful. The project developers, in turn, channelled development outcomes selectively to local actors and were successful in diminishing the agitation.

The wind power project was sanctioned by the federal ministry of environment and forests and was aided by a letter from the principal chief conservator of forests at the regional forest office. The PCCF (Principal chief conservator of forests) had stated that the buffer zone of the sanctuary does not contain any wildlife and the project will not cause disruption to the ecology of the Western Ghats. The subordinate to the PCCF, the range officer, however, negated this claim. In his investigation report, the range officer claimed that "the area is known to be the habitat of endangered mammals, reptiles and birds, particularly, including the Giant Squirrel and leopards, among many other flora and fauna species". However, the project was allowed to begin construction and is currently functioning barely a few kilometres from the Bhimashankar wildlife sanctuary.

In the wake of indiscriminate resorts, tourist guest houses that have been constructed in the buffer zone, the conservationists had been arguing for the buffer zone to be declared as an Ecological sensitive zone. The construction of the wind power project sanctioned by the federal ministry of environment and forests, in the buffer zone of the sanctuary exacerbated the situation. The project was embroiled in the national level controversy between two federal committees set up to decide the course of

conservation and development projects in the western ghats; the western ghats ecology experts panel (WGEEP) and the high level working group (HLWG) on western ghats.

The Western Ghats Ecology Experts Panel (WGEEP), chaired by Madhav Gadgil was asked to review the conflict related to Andhra Lake Wind power project, on the recommendation of Jairam Ramesh, the acting federal Minister for Environment and Forests at the time (Aggarwal 2014). The local activists near BWS through the help of the Pune based NGO Kalpavriksha approached Jairam Ramesh and the Central expert committee (CEC) highlighting the discrepancy in the opinion of the range forest officer and the PCCF, along with the verdict of the Bombay high court that was favourable to the construction of the wind power project (Aggarwal 2014). The opposition to the renewable project was also able to garner the support of Madhav Gadgil and Renee Borges, influential and renowned environmental activists. Renee Borges a professor at Indian Institute of Science (IISC) filed a complaint with the central level Ministry of Environment and Forests (MoEF), explaining the ecological destruction caused by the project (Kulkarni 2012). Madhav Gadgil, visited the project site with his team and published a detailed case study on the wind power project near BWS in the WGEEP report (Gadgil 2011). The Western Ghats ecology experts panel recommended that the wind power project be subject to Environmental Impact Assessment and the eco-sensitive zone should be declared to ensure that the area is free of any development activity that threatens the ecology of the landscape (Gadgil 2011).

The WGEEP report, however, was entangled in a controversy at the federal level because it posed a threat to the indiscriminate mining and other development activities in the Western Ghats (Gadgil 2014). The report had recommended zoning 75% of the total area under Western Ghats into levels of ecologically sensitive areas quashing, power projects, mining and tourism sectors threatening the biodiversity of Western Ghats. Some parts of Karnataka and Kerala witnessed violent outbursts opposing the WGEEP report because it was projected as anti-farming and consequently anti-livelhoods (Antony 2014). Plantation owners across different parts of the Western Ghats were misinformed that WGEEP recommends all the areas where plantation owners are settled to be converted to ESA (ecologically sensitive areas) thereby minimizing human impacts (Nandakumar 2013). Concerns about accelerated growth, the need for national development and expressions of concerns about local livelihoods in the Western Ghats were cited as reasons for constituting another committee- the High level working group- to review the WGEEP proposal and suggest alternatives to the conservation-development debacle.

The HLWG also known as the Kasturirangan committee partitioned the Western Ghats into cultural and natural landscapes. The natural zones are roughly one-third of the entire Western Ghats (37%) and the cultural zones are the remaining two-thirds (63%). The natural landscapes are mostly forested landscapes that are to be preserved using the conservation-by-exclusion format (Kasturirangan et al 2013). This area, the report had recommended, should be out of bounds for a range of industrial, mining, quarrying and related activities. The cultural landscapes are areas

that also include all freshwater habitats (that are biologically diverse and highly ecologically significant) and are critical for local livelihoods and are laid open to developmental activities though subject to Environmental Impact Assessment. Renewable energy projects, however, by virtue of being sustainable are deemed as category B2 and allowed in both natural and cultural landscapes (Kasturirangan et al 2013). The report recommends that Environmental Impact assessment be carried out for all renewable projects including wind. Once the federal Ministry of Environment and Forests issues the clearance, renewable projects can start construction in ecologically sensitive areas (Kasturirangan et al 2013).

The recommendations of the kasturirangan report were accepted "in principle" by the federal environment ministry in 2013, then under Jayanthi Natarajan (Bhave 2013). The rhetoric of development and accelerated growth were the key factors in accepting the Kasturirangan committee report. The sidelining of the WGEEP report spelt doom for the opposition to the Enercon wind power project next to BWS. In comparison with the Gadgil report, the Kasturirangan committee report diluted the area designated under ecological sensitive zones and explicitly favoured and legitimised renewable energy development in prime conservation areas on the basis that it is sustainable. The Maharashtra case is in sharp contrast with the cases from Himachal and Karnataka, where the argument against the renewable project was firmly rooted in the conservation discourse. In Maharashtra, the mobilization of different constituencies around the conservation of biodiversity discourse was not effective. Lack of support from the forest department, influential and politically

powerful actors in favour of the project, differentiated development context of the neighbouring villages and selectively targeted development outcomes were some of the factors responsible for the lack of effective mobilization around the conservation discourse in Maharashtra.

4.3. Mobilization of actors around the development discourse

4.3.1 Karnataka

The Kukke small hydropower project is opposed by three village panchayats and favoured by one panchayat, which has provided the no-objection certificate to the project developers. Nagamma, the president of the Perabe panchayat, argued in favour of the project and used the logic of local benefits like employment, education and electricity to provide justification for the renewable project. “Perabe village is closest to the project site and hence is likely to get more local development outcomes”, she had reasoned. Interestingly, none of the actors at the local level, including her draw upon the sustainability discourse to favour the project. At the village level, the project is construed as any other economic development project and therefore the justification for the project is centered only on development outcomes.

The opposing panchayats counter the development claims because the project developers destroyed the existing development benefits in the village. The company officials blocked access to a public road by constructing a gate and banned the local people from accessing the road. When the locals protested, the clashes turned violent. This incident was instrumental in cementing the belief of the local activists that the

project officials are never going to invest in development outcomes for the villagers. The opposition to the project thus rejected all claims of development benefits that the project officials promised. Kadaba village, where most of the agitation committee resides, comprises 700 households and 94 % of the workforce is engaged in main agricultural work (Government of India 2011). The relative prosperity of Kadaba and surrounding villages is relevant because it tells us that the protestors are not in dire need of local development outcomes like schools, electricity and jobs. Even if the project does lead to local development outcomes, it is not a priority for the actors at the local scale in Karnataka because it will destroy their livelihood. The local activists are well entrenched in the urban setting of Bangalore and even when faced with a choice to re-locate to Bangalore, choose instead to stay in the village and cultivate their lands.

Other actors that support the project but are not located at the local scale, justify the project on the basis of national development, local economic benefits and the environmental friendly sustainability discourse. The justification for the project is contingent upon the audience and the motivation of the actors to espouse aspects of the sustainability discourse. For instance, the district RSS (a Hindu nationalist political outfit) leader in an attempt to dissuade the protestors, justified the project on the basis of national development during a speech. At an agitation march where the locals were protesting, he had intervened to say that, "We must allow the project because it will lead to India's development. And if a few individuals lose their land for India's growth then one must not protest." The rhetoric of national development,

however, did not appeal to the agitating villagers. In conversations with me, however, the RSS leader had reasoned in favour of the project explicitly using the sustainability discourse and said that, “At least it is a renewable project and not a coal power plant”. His diagnosis of the agitation was that through employing violence, the project developers had hardened the stance against the project. It would have been easier for them to implement the project if they had formed strategic linkages at the local level and provided some development outcomes to the protestors. For the RSS leader aligning with the project developers was a strategic move because he had political ambitions. At the time of the interview, he was interested in contesting elections and as a result had decided to align himself with the project developers.

The actors that draw clearly upon the sustainable development discourse are at higher scales. The chairperson of the provincial nodal agency responsible for implementing renewable projects (KREDL) is based at Bangalore and supports the project by drawing upon the sustainability discourse. For him, it is a battle of coal power projects versus renewable energy projects and he firmly affirms that India needs to mitigate climate change and hence renewable projects are necessary. However, he also asserts that the only answer to address the local opposition to the renewable projects is to offer broad development outcomes at the local level. The logic being that the likelihood of projects to encounter local opposition decreases if it offers local economic development outcomes. Hence, the dire need to encase and package the project so that it caters to the demands and aspiration of the local people.

In Karnataka the mobilization of the local people around the development discourse was unsuccessful.

4.3.2 Maharashtra

At the site of the Andhra lake wind power project in Maharashtra, the mobilization of the local people by actors who draw from the biodiversity discourse was unsuccessful. The actors favouring the project offered differentiated development outcomes for the local people. These outcomes however were contingent upon their political orientation and the existing level of development in the village. Development benefits were channelled to villages that were relatively well-developed and to individual supporters of the political party of the ruling member of legislative assembly. An elected member of the state legislative assembly strongly supported the project. He visited the area a number of times to stop the protests and to convince the agitating villagers on the grounds of national and local development. He mediated the conflict by offering electricity and employment to the local people spread across three villages (Pallavi 2011). He channeled employment and selective development outcomes to the villages which have a higher number of supporters for his political party (the NCP).

The local political economy and the geography of development in the villages played a crucial role in the mobilization of the development discourse in the region. Kharpud, the village closest to the project site and also the wildlife sanctuary is an Adivasi village and is the least developed of all the villages in the area. It is a stronghold of the

opposing party – the Shiv Sena. Shivegaon, is located farthest away from the sanctuary at a distance of roughly 10-12 kms. Shivegaon is the most developed village in the vicinity of the project site and has a higher percentage of NCP supporters. Kude, the village at a distance of three kilometres from the project site, is more developed as compared to Kharpud but less developed in comparison with Shivegaon. The member of legislative assembly selectively provided employment benefits to his own political party supporters in Kude.

Kharpud got the least development outcomes from the project in terms of local employment. Interestingly, the incessant movement of heavy vehicles carrying the huge turbines to the project site, destroyed the access road between Kharpud and Pune city. This affected the locals in Kharpud adversely as it cut-off their access to school and the industrial layout which is enroute to the city. The project re-made the categories of development, by destroying the access road between Kharpud village and Pune city, and by offering local development outcomes in certain villages. This incident was crucial in exacerbating the animosity between the villagers and the project officials. In Kude, however, where the pre-existing development context is relatively better than in Kharpud, the agitation against the wind power project was systematically weakened. Supporters of the ruling political party were given jobs as security guards contingent upon their withdrawal from the protest against the wind power project.

In Shivegaon, the local people withdrew their protest when development outcomes were channelled to the village. Shivegaon, presents a stark contrast to kharpur, with the presence of good roads and well-maintained concrete houses. Shivegaon lies on the way to Pune from the Bhimashankar wildlife sanctuary and closer to the MIDC in Talegaon. Shivegaon is also a village populated mainly by higher castes. And was the village which put up the least resistance to the project. The project developers constructed a community hall in the village and also gave a substantial number of jobs to the local people. As a result of the selective channelling of economic benefits, the mobilization of local actors around the development discourse was effective in Maharashtra and the opposition was weakened.

4.3.3 Himachal Pradesh

The actors in favour of the mini-hydel power projects justified them using the rhetoric of national and local development but they were unsuccessful in mobilizing local actors. In Tirthan valley, the local activists are well aware of the empty rhetoric of development outcomes employed to dam the Himalayan Rivers. A few kilometres downstream of the Tirthan is another river, Sainj that flows through the GHNP. Sainj river valley has been the site of ruthless hydropower dams and this has declined the water availability, denuded the hills and altered the social and cultural fabric of the valley (Rai et al. 2014). Closer to the Great Himalayan National Park, the people have witnessed their loss of land and livelihoods for the greater common good of national

development in the form of a behemoth, the 1100 MW Parbati hydroelectric project (Chhatre and Saberwal 2006).

The local activists have well-entrenched networks with Delhi based non-profit organizations like SANDRP that strongly oppose all hydropower projects and question their claims of sustainability using the argument to protect ecology. Through these and other interactions the local opposition deftly incorporated the biodiversity angle to negate the development claims of the hydropower project developers. The then additional power secretary for the state of Himachal Pradesh at the time had sanctioned and approved the mini hydel power projects. Yet he was instrumental in guiding the local activists to use the biodiversity angle to oppose the projects. "Location matters", he had insisted when I asked him his reasons for protecting the Tirthan even as hydropower development continues elsewhere in the state. He underscored the importance of hydropower development as long as it was not built in proximity to conservation landscapes. The CEO of Himurja, the regional body that promotes mini hydel projects in the state, reiterated that post-Tirthan they are now very careful not to allot any hydropower projects near sites that are ecologically significant.

The local livelihoods are intimately connected with river use. Water flourmills, traditional channels that irrigate the fields and the Brown trout (Salmo trutta) are useful for subsistence farming and tourism, which form the bulk of the livelihoods of the people in the eco-zone. The creation of the GHNP formally restricted the use of

grazing lands and prevented the locals from collecting herbs and other medicinal plants from the forests that now form the national park. The mini-hydel power projects would have destroyed the livelihoods of an already vulnerable population and as a result the local people were not amenable to the promised development outcomes from the village.

The existing development context in which the local activists operate is of utmost significance. Unlike the Maharashtra case, the local activists in Himachal are relatively well off. The director of the local NGO, SAHARA owns and operates a guest house in addition to cultivating farmland. The villages are electrified and the influx of tourists has ensured that economic benefits are available to the local people. Development is undoubtedly a concern for the local people but not at the cost of their land, tourism opportunities and traditional livelihoods. The mobilization of local actors around the development discourse in favour of the renewable project was unsuccessful in Himachal. The local political economy of development and the experiences of the local activists with hydropower projects were crucial components in rendering this mobilization unsuccessful.

4.4 Politics of prioritization: Conservation, Development and Livelihoods

The creation of the Great Himalayan National Park in 1999, restricted the access of local people to the national park and threatened their livelihoods. As per the Indian Wildlife Act, 1972, National Parks are not allowed to harbor any human habitation. In 2006, in order to protect their traditional livelihoods from encroachment by the mini-

hydel power projects, the local activists had to align with the forest department and conservationists. After the formal notification of the Great Himalayan National Park, a section of the park was deleted to make way for a large 1100 MW Parbati hydropower project. Therefore, the state prioritized local livelihoods the least, followed by conservation and development. The events in 2006 show that the priorities of the state had shifted to favour conservation the most, followed by development even as the local livelihoods remained the least priority.

Studies on the GHNP locate the events leading to the exclusion of a section of the park to make way for the large hydropower project within the identity of the region as a hub for hydropower development (Chhatre and Saberwal 2006). They assert that the state of Himachal Pradesh has steadily carved an identity around hydropower projects (Chhatre and Saberwal 2006). I extend their argument by contending that this identity has expanded to included 'sustainable' hydropower. Influenced by the global discourse on climate change mitigation and the international funding it generates, Himachal Pradesh has laid considerable emphasis on greening hydropower. Post 2000, as the global discourse on sustainability has gained traction, the identity of Himachal has expanded to include 'green development'. It is no longer just the hydropower state, rather the hydropower state that manifests 'sustainable and ecologically conscious hydropower development'. This image is cast firmly keeping an eye on international developments. As the idea of sustainable development has gained traction globally, successive state governments in Himachal have tried to cash in on it. Alternating chief ministers Virbhadra Singh (INC) and

Prem Kumar Dhumal (BJP) continuously project the state of Himachal as ecologically conscious and environment friendly. Dhumal, following in the footsteps of another BJP leader Narendra Modi, who is the current Prime Minister of India, refashioned himself and the state of himachal as a model for green development. At the launch of his own book titled "The real action: Green growth development story of Himachal Pradesh", Dhumal was careful to assert that Himachal is the first state in the country that espouses sustainable and green development.

The scale of the hydropower projects that Himachal Pradesh prioritizes is key. At the national level in India and across all states, there is a clear demarcation of hydro power projects. Two separate ministries govern the hydropower sector at the federal level in India. Projects less than or equal to 25 megawatts are labelled as small hydro power projects and are under the purview of the Ministry of New and Renewable Energy, whereas projects larger than 25 megawatts are supervised by the Ministry of Power. By contrast, in Himachal Pradesh, projects that are below 5 MW come under the purview of HIMURJA – state level nodal renewable development agency; whereas projects that are above 5 MW are overseen by the Himachal Pradesh State Electricity Board (HPSEB). This is a clear strategy by the state, to favour hydel projects equal to or less than 5 MW in Himachal. These mini hydel power projects are often constructed bumper-to-bumper in order to harness the maximum potential of the Himalayan Rivers. There are 475 small hydro power projects already allotted in the State of Himachal Pradesh, out of which 142 are in Kullu district. Kullu district, where the GHNP is located, tops the districts of himachal Pradesh with the highest number

of hydro power projects. The Tirthan valley, which is now the only no-dam freshwater river in Himachal and the rest of the country is also located in Kullu district. However, downstream of the Tirthan, abundant hydropower development continues across the river Sainj and elsewhere in Kullu and Himachal.

In 1999, the then Prime Minister of India, Atal Bihari Vajpayee had visited the GHNP area to lay the foundation stone for the Parbati Hydroelectric project and had announced a grant of 400 crores for the state of Himachal Pradesh, the bulk of what was to be used to generate hydel power. The sequence of events leading to the exclusion of local livelihoods, creation of the park and the deletion of a portion of the park to make way for the hydro-electric power project illustrates the priorities of the state. While the local livelihoods were prioritized the least, conservation was accorded a higher priority which ultimately had to make way for the larger interest of 'development' (Chhatre and Saberwal 2006). It is therefore interesting to note that the mini-hydel projects in the Tirthan river were banned and the river is now a 'No-project zone'. I contend that the location of the GHNP, next to the proposed mini-hydel projects and the peculiar conservation politics in the region resulted in re-territorializing the hydropower landscape. Secondly, I argue that by creating India's first watershed that is free from hydropower, the state apparatus actually works to grant legitimization to hydropower development elsewhere in Himachal Pradesh.

The local activists had protested against the hydropower projects on many grounds. Even as the local activists had made claims that lay in the material (access to natural

resources for their livelihood), spiritual (the drying up of the sacred pools near the source of the Tirthan river) and the ecological (conservation agenda) domains, the high court based its decision solely on the ecological claim. The high court's decision made it clear to the people that it is within the realm of broader scale politics of conservation and development that legitimacy would be accorded to their claims. This marks a clear shift in the priorities of the state to show that conservation is given a higher priority over development, which is prioritized over and above the local livelihoods.

4.5 Greening Clean Energy: Renewable energy Governance in conservation landscapes

In this section I examine the ways in which renewable energy is governed especially when projects are located in or around conservation landscapes, in order to elucidate the re-territorialization of conservation geographies. I argue that the developmental state in India, routinely prioritizes renewable energy even at the cost of biodiversity protection. There are of course exceptions to the rule, like the case of the Tirthan river valley in Himachal Pradesh and hydel projects bounding Pushpagiri wildlife sanctuary in Karnataka, where the state actively banned destructive renewable energy projects as they conflicted with the biodiversity of the area.

Industrial development in India is categorized as red, orange and green based on the level of pollution and the resultant threat to biodiversity. Red industries are the most polluting and have to follow stringent guidelines including approval from a host of

regional as well as federal authorities, followed by orange category. Green category industries are not required to gain consent from federal authorities or even conduct an environmental impact assessment.

Wind energy power projects and other renewable energy power plants were initially in the Red category, as early as 2005. In 2011, after being petitioned by the Wind Turbine Manufacture's association, the federal environment ministry decided to re-classify the renewable power sector. The red list was modified to exclude wind and solar power generation plants of all capacities, minimum hydropower plants of less than 25 MW and distributed generation of capacity less than 5 VA. Instead these projects were added to the green category. In addition to requiring consent from regional and federal level pollution control boards, red industries are not allowed inside the eco-sensitive zones or protected areas. Through this re-classification, the renewable technologies particularly wind and small hydropower plants are exempt from environmental impact assessment and stringent rules that govern other development activities in protected areas.

The re-classification of renewable industries as 'green' paved the way for greater penetration of clean energy projects, specifically in areas important for biodiversity. At the local level, these projects require forest and private land, cutting of trees, linear diversion of forests and pose a threat to local livelihoods as well as biodiversity. The lax norms for renewable power projects came under attack by conservation enthusiasts and non-profit organizations that highlighted the 'un-sustainable'

practices being carried out by the renewable power producers, even as they enjoyed lucrative tax holidays, capital subsidies and other benefits.

Two recent exhaustive studies commissioned by the Central government, the Western Ghats Ecology Experts Panel (WGEEP) report in 2011 and the Kasturirangan committee in 2013 have drawn attention to the conservation-development politics in the region. The kasturirangan report is widely viewed as a milder-watered down version of the WGEEP report with efforts to balance "development" needs with conservation. The findings and suggested remedies of both reports have become the subject of a vicious political debate in several states and at the central level in India. There are a variety of entrenched players, including renewable energy power producers, who have an interest in maintaining the status quo and allowing various harmful activities to occur in these conservation landscapes.

The federal ministry for environment and forests accepted the Kasturirangan committee report in principle. Renewable Energy, because of its projection as 'sustainable development' is construed as a virtue and allowed in varying degrees across conservation landscapes. The kasturirangan committee report partitions the Western Ghats into natural and cultural landscapes, and allows renewable energy projects to develop across both landscapes. The only point of departure for the kasturirangan committee report is that it recommends that Environmental impact assessment be carried out for small hydro and wind power projects. Yet, even as the Kasturirangan committee report has been accepted in principle, the environmental

impact assessment is still not a mandatory requirement for renewable energy projects.

4.6 Discussion

In this chapter, I have detailed the political contestations between actors located at multiple scales that lead to a re-territorialization of the landscape. The introduction of the renewable energy project in the pre-existing conservation geographies leads to actors forming coalitions, alliances and strategizing on either opposing or justifying the project. For actors located at the local scale, the project is justified on grounds of local economic development. The claims on territory from the actors justifying the project including the district RSS leader and the panchayat leader in Karnataka and the Member of Legislative Assembly in Maharashtra focus are concerned with employment and other economic development as a result of the renewable energy project. The actors located at higher scales, including at the regional and national scales justify the renewable energy project employing the discourse on sustainability. This is interesting to note because it shows that the nature of competing claims on territory changes as one shifts from local to higher scales. At the local scale, the conflict manifests as an Environment versus Development conflict but at higher scales it morphs into an Environment versus Environment conflict with both sides using aspects of the sustainability discourse.

Democratic processes play a crucial role in mediating the conflict. The motivations and incentives for actors to engage with the conflict are aligned with the larger interests of citizens at different spatial scales. The elected representatives at the local level either oppose or justify the renewable energy project and their choice to do so is influenced by the electorate. In Maharashtra, for instance, the elected representative (MLA) channeled selective development outcomes to weaken the protest and to garner support for his political party in the process. The development project is routed through elected representatives (panchayat members) and this serves as a channel through which democracy is used to counter or support the project. Additionally, some of the local actors, such as the district RSS leader, have political ambitions and act in accordance with the aim of being elected as representatives.

In Himachal, the ex- member of legislative assembly, Dilaram Shabab, was instrumental in galvanizing the opposition to the mini-hydel power projects, aligning himself with the interests of the electorate. Democracy also allows for actors to approach multiple avenues to stake competing claims over nature and the ability of local actors to engage with institutions at the local or higher spatial scales is varied. The responsiveness of the institutions to the demands of the citizens also varies cross-scales and influences the resistance to renewable energy projects. The representation of the issue and opponents of the renewable energy project by a pan-Indian non-profit organization (SANDRP) in Karnataka and Himachal Pradesh strengthened the opposition. As a result, in Karnataka and Himachal Pradesh, the local activists laid claims on territory in the ecological, spiritual as well as the

material domain. As a contrast, in Maharashtra, the local activists only laid ecological claims on the territory.

Re-territorialization as a project of creating spatial boundaries to allow control over access to nature is a result of the political contestation that occurs across scale and involves building cross-scale alliances. For instance, the river Tirthan was declared a no-project zone, on account of its importance to Himalayan ecology by the High Court of Shimla. In Maharashtra, the Bombay High Court allowed the wind power project to proceed with construction even as the area is highly ecologically sensitive. In Karnataka, the construction of the small hydropower project is stalled on accounts of threat to biodiversity. These instances are examples of re-territorialization on account of re-arranging spatial boundaries that re-work conservation geographies. The constellation and range of actors that converge at each of the three cases serve to show that it is the interaction of politics across spatial scales that leads to re-territorialization, which is a continuous process.

Chapter 5

Land, Livelihoods and Development

> "What we find difficult to believe is that our lives, our river, our forests and our lands are being destroyed in the name of Sustainable Development!" – Pradip K, Leader of Agitation against the small hydropower project in Karnataka

5.1 Introduction

In this chapter I detail the interaction between land, development and livelihoods and how this interaction mediates the claim staking over natural resources by the local communities. Specifically, I argue that the degree of modernization or the level of development interacts with the historical, cultural and economic relationships that the communities have with their lands. Further, I contend that this interaction shapes and informs the strategies of the resistance to the renewable energy projects. As a starting point, I focus upon the historical geographies of struggle that determine the nature and process of claim-staking. The class subjectivities of the local communities, level of modernization and access to land play out in their associational strategies and serve to inform the contestation over natural resources. The nature of the conflict, that pits two factions of the environment against each other, is territorial and gives

rise to specific resistance that contests the attempts towards re-territorialization by laying specific claims over natural resources.

Anti-dispossession struggles, which actively demand a re-territorialization of control over natural resources, are conditioned by the larger context of development in which they take place (Levien 2013). In other words, the level of development informs the strategies, targets and audience of the local activists. I position development as a category that sets up the conditions for the local activists to take recourse to alternative channels in order to stake their claims over natural resources. While the larger democratic context ensures that the communities can approach various alternative channels to stake their claims, it is the development context that informs their ability to do so (Gupta 1998). Akhil Gupta argues that "Underdevelopment is not merely a structural location on the global community of nations, rather it is also a form of identity and a sense of self and thereby a postcolonial condition. Who people think they are, how they got there and what they can do to alter it is informed by the practices and ideologies of development." I extend this argument to argue that the underdevelopment identity also defines the strategies and tactics that local people use in order to resist predatory development.

In order to expand this argument, I focus upon the dependence on public lands as opposed to private land ownership across the case studies. Forested landscapes, especially in the global south, overlap with concentrations of poverty and marginalized people. A key characteristic of these landscapes is the forcible takeover

of their lands by the State and their re-organization as either publicly owned land or private land. This re-organization of forestlands is often accompanied by a neglect of customary practices and local communities' rights over access to natural resources. The intersections between customary land use and the politics of resource control have had strong implications for the marginalization of forest-dependent people. The reach of the modern states to forested landscapes, thereby opening up these areas to resource extraction, has been operationalized through the process of territorialization (Sivaramakrishnan 1999). Through facilitating the penetration of capital, generation of revenue and increased state control and regulation, the formalization of tenure has led to a diminishing of local rights and claims. Local, multilayered, complex systems of rights and access have been replaced by what states perceive as legible and simplified systems.

In the Indian context, the assertion of these systems have meant diminished access to natural resources for communities, particularly the adivasis and other forest based communities. This demarcation of territory has necessitated that the marginalized communities depend upon what is now constituted as public land. A high dependence on public lands is indicative of the marginalization of forest-dependent people (Kumar and Kerr 2012). The high modernist developmental state sees poor people as passive recipients of development and not active members that engage with the state (Scott, 1999). The material resources, institutional access and networks across scales that elites can draw on to change policies are not readily available to the marginalized (Kumar and Kerr 2012). The networks, coalitions, strategies and

ideologies of resistance are shaped by the ability of the local people to engage with a diverse, broad-ranging set of people, particularly those with access to institutions at higher scales. The level of modernization also influences the resources that local activists draw upon to inform their claim staking which ranges from the material, spiritual, economic and cultural domain. Local communities with a relatively higher degree of land ownership/co-ownership have access to networks and people who are able to help them strategize and build ideologies of resistance. Their ability to locate the loss of land and livelihoods in multiple domains and thereby resist predatory development by appealing to varied institutions across scale and locations is formed through networks and actors that are available to them as a consequence of their development context.

In the following sections, I detail the development context across the case studies to show how this shapes their resistance. I follow this by elaborating upon the cultural/sacred geographies across the cases and highlight the process, which allowed the local activists to approach multiple institutions. In Karnataka and Himachal, where the activists have secure access to land, allows them to position the resistance in multiple domains. Even as the Shimla high court, in Himachal, prioritized the Himalayan ecology over and above the threat to traditional livelihoods and the cultural as well as spiritual assertions, the activists benefitted from making a multi-dimensional argument against the proposed hydropower projects. The Maharashtra case presents a contrast as the argument was solely encased in the logic of biodiversity and the absence of dense networks and actors is apparent.

5.2 Development context

In Karnataka, the local activists protesting the encroachment of the renewable energy project on their traditional livelihoods, own the lands that they cultivate. They don't consider themselves "poor", vulnerable farmers, rather are wealthy plantation owners. Their perception of themselves as "developed" has shaped their struggle, their strategies and the channels through which they resisted the small hydropower project.

Two leaders from the agitation committee travelled to the urban setting of Bangalore, to participate in rallies organized by Sanjay Gubbi – a well known conservationist. At the rally, they met Parineeta Dandekar, an activist with the South Asia Network for Rivers, Dams and People, a Delhi based organization that seeks to prevent the encroachment of lands, rivers and livelihoods by predatory dams. The chance meeting resulted in Parineeta visiting the site for the Kukke small hydropower dam and writing an article that was published in the leading national English newspaper – 'The Hindu', questioning the 'sustainability' of the Kukke small hydropower project. She was crucial in liasoning with Ananth Hegde, the then chairperson of the Western Ghats Task Force and scientists at the Center for Ecological Studies, Indian Institute of Science in Bangalore. These networks, in turn, were crucial in crystallizing the constellation of actors that were able to successfully stall the small hydropower project.

Similarly, in Himachal Pradesh, the local development context provides the backdrop for unraveling the networks, which allowed the local people to mobilize the discourse of conservation successfully. The creation of the Great Himalayan National Park excluded the local communities from their access to grazing land and their customary rights to forest land. Even as the local communities have not received their land as per the Forest Rights Act, 2006, the access to land for local communities is relatively secure outside of the park. The director of the local NGO-SAHARA and Rajiv Bharti, the chief complainant in the case against the mini-hydel power projects own land and guest houses on the fringes of the Great Himalayan National Park. The average literacy rate in Banjar is 75% (GoI 2011). Himachal Pradesh was one of the earliest states in India to achieve 99.7% electrification. Indeed, for the people of the valley that live close to the Great Himalayan National Park, access to electricity is not a major cause of concern. The local MLA, Dilaram Shabab and his son, who organized the agitation, would have had to give up their private lands in order to make way for the mini-hydel power projects. Simultaneously, JP Negi the then additional chief power secretary of the state, visited the valley, met Shabab and told him to encase their arguments in the logic of biodiversity. These two events were crucial in forming the association between the local activists and the forest department officials. However, they must be considered against the backdrop of the development context of the local area, the site of the conflict. Access to secure land outside the park with a higher degree of modernization also made the local activists amenable to using the

biodiversity discourse, especially catering to a wide variety of urban metropolitan audiences.

The villages bordering the Bhimashankar Wildlife Sanctuary in Maharashtra present a stark contrast to Himachal and Karnataka. Sets of three villages with differential development contexts help clarify the ways in which level of development interacts with relationship to land. Kharpur village, which is the nearest village to the sanctuary, is also the nearest village to the wind power project, barely a kilometer away. Approximately 87% of the population consists of Mahadev Kolis in Kharpur which is a small village of about 600 residents (GoI 2011). The main occupation for the adivasi forest dependent community is agriculture labour with low levels of land co-ownership. The community also depends upon the Non timber forest produce such as the fruit of Terminalia chebula (hirda), which is sold to the tanning industry and the pods of Acacia (shikakai) and honey. Their access to forests was diminished with the creation of the Bhimashankar wildlife sanctuary in 1985. This dispossession has led the adivasis to find alternative work like casual labour particularly in the nearby towns and cities for employment and also access the forest illegally from time to time.

The construction of the wind power project destroyed a section of the road that connects Kharpur to the Industrial zone at Talegaon along the Bombay-Pune highway, disrupting the access to livelihoods for the villagers. The incessant movement of heavy vehicles carrying large turbines, cranes and other construction material

damaged the road that has not been repaired since. Along the same road is the neighbouring village of Kakurbar, where the nearest school is located for the villagers from Kharpud. In essence, the wind power project re-made the categories of development for the adivasis. The alternative channels and strategies available to protestors at the villages of Kude and Shivegaon were not available to the protestors in Kharpud. Kalpavriksha, a non-profit organization, has been working in the Adivasi villages around Bhimashankar on the settlement of forest rights for the adivasis. Yet, Kalpavriksha did not play a central role in organizing the protests against the wind power project, especially at Kharpud.

Shivegaon, situated on the National highway 53 that connect the wildlife sanctuary to the city of Pune is a stark contrast to the village of Kharpud. Well-maintained concrete houses and good roads dot this village that is largely populated by upper caste Hindus. The total population of Shivegaon is 1370, of which 10% comprise scheduled tribes and 2% are scheduled castes (GoI 2011). The main occupation is agriculture and 61% of the working population either owns or co-owns cultivable lands (GoI 2011). The village has its own school and boasts of a community center which was constructed by the wind power project developers. The village is a National Congress Party (NCP) stronghold and the Member of the Legislative Assembly (MLA) from the NCP was instrumental in galvanizing support for the wind power project. During a meeting with the MLA, the local people demanded that a community hall should be constructed in the village premises. The project

proponents readily agreed and decided to build the community hall. As a result, the villagers of Shivegaon withdrew their protests.

This shows that levels of modernization and development interact with the cultural significance that is vested in the land by the community, to inform the strategies, ideologies and tactics of the resistance. For instance, the majority of the population in Shivegaon is not concerned with the cultural significance of forests and is not dependent on the forests for their livelihoods. For the forest dependent adivasis, their concerns are with the forests as a marker of their cultural identity, livelihoods as well as with the overall development outcomes of the project.

5.3 Cultural/Sacred Geographies

The cultural and sacred meanings that land hold intersect with the levels of modernization to shape the resistance movements across the three cases. Protestors in Karnataka and Himachal Pradesh staked their claims in the spiritual, ecological and material domains. By contrast, the agitators in Maharashtra laid their claims only in the ecological domain. This is surprising, because the Bhimashankar wildlife sanctuary in Maharashtra harbours sacred groves that are threatened by the project. Studies have focused on the role of communities in conserving rich biodiversity of the region through traditional practices. Yet, the discourse of traditional practices by communities, which serve to protect the forests is absent from the voices of the protestors in Maharashtra.

Even as the logic of biodiversity that trumped renewable energy in Karnataka and Himachal and rendered the local protests successful, the importance of underscoring the cultural and sacred geographies cannot be undermined. In the following section, I describe the processes and networks that helped establish a clear case for the cultural and spiritual meanings that are invested in the land, forests and rivers threatened by the predatory development projects. These processes, especially in Karnataka and Himachal, throw light on the attempts of local communities to re-territorialize the landscape as a means to resist the renewable energy project. Simultaneously, they also shape and define the trajectory of the resistance. For instance, in Karnataka, the attempts to focus on the cultural and sacred meanings of natural resources, prompted the project developers to re-christen the name of the project as 'Kukke Small Hydropower Project' – after the Subramanya-Kukke temple complex. It also led the project proponents to approach the district leader of RSS (Rashtriya Swayamsevak Sangh), a right-wing Hindu political organization, in order to urge the protestors to stop opposing the project. The district leader of the RSS tried to convince the local people by justifying the project on the grounds of national development and proclaiming that the project proponents mean well for the community, since they have changed the name of the project. In response to him, the protesting villagers, recounted an incident where the RSS district leader had opposed the widening of the road in order to build a national highway, as he would have lost a section of his private property. These incidents were crucial in hardening the stance of the protesters against the project developers, thereby shaping the resistance.

Subramanya-Kukke, a temple complex barely 5 kilometers from the site of the dam, attracts pilgrims from far and wide for religious reasons. The community in and around Kukke especially that live along the Kumaradhara, have their own rules for biodiversity management. Downstream of the small hydro power project, there are a couple of community owned fish sanctuaries that serve to protect the fishes of the river, particularly the Mahaseer. As a part of meticulous rituals, the community members have banned fishing in certain seasons and restricted the use of explosives across certain sections of the river. It is these sections are threatened by the proposed small hydropower project.

Swami Balganga of the Swarnahalli math, a couple of hundred kilometers north of Kukke, and the Swami from the Kukke-Subramanya temple were instrumental in organizing support of the local population on religious, spiritual and cultural grounds. The riverbank holds special significance for the Tulu-speaking community. The landscape is dotted with square-shaped short structures that are believed to hold 'buta' or ancient spirits. During the months of May-December, there are a cycle of rituals celebrated by the local communities that also serve to protect the biodiversity of the region. The villagers carry out a procession of the local gods called Jatra that travels from the section designated as reserve forests to the banks of the Kumaradhara. The site of confluence of the two rivers- Kumaradhara and Gundia is particularly sacred for the local dwellers and has been invested with myths. It is at the site of this confluence that the small hydropower project is planned.

As the jatra travels to the site of the confluence, it culminates in a ceremonial worship (avabratta) to appease Kapileshwara, one of the many deities that the locals believe resides in the sacred groves (devrakadu) by the river. The locals also worship some fish species that they believe are invested with holy properties. The section of the land where the avabratta takes place, along with the sacred groves, the reserve forest and the fish species are all threatened by the small hydropower project. Other than the sacred groves, there are also community managed fish sanctuaries along the Kumaradhara, only a couple of kilometers from the site of the dam. The Yenekkal and Nakur Gaya fish sanctuaries, where the panchayat has built a small weir with wooden gates for maintaining water levels for the fish, are threatened particularly by the Kukke small hydro power project. The Fisheries Department however has given an NOC to this and many other mini hydels coming across the region without even attempting to study their impacts on Mahaseer and other fish.

About 20 kilometers upstream of the site of the dam, along the Kumaradhara river is the town of Shishila. Shishila derives its name from a local god Shishileshwar, and there exists a legal as well as community protection system to protect the fishes in a two kilometer long stretch of the Kumaradhara. An official order of 22nd October, 1930 prohibits fishing in this area (Pinder et al 2013). A British officer had been tempted to angle for the fast swimming Mahaseer which was considered as a prime sport fish. The official reportedly suffered a great deal of misfortune that he attributed to his violation of the sanctity of the holy river. As a measure of his repentance he promulgated the order, prohibiting fishing in this area. It is crucial to

examine this, in light of the argument that communities have a long-standing commitment to protect biodiversity, especially along the Kumaradhara river.

Swami Balganga and Swami of Kukke Subramanya temple met the protestors and urged the local people to pass a 'biodiversity' resolution in the gram sabha, in order to protect their local heritage. The two gram panchayats of Kannivoor and Uroombi, which are closest to the site of the dam, passed a biodiversity resolution that declares the area as important for biodiversity, and off-limits for hydropower projects. This resolution was crucial in inscribing the site of the Kukke small hydropower project as an ecologically sensitive zone in the Western Ghats Ecology Experts Panel report and to point out that the predatory dams threaten the biodiversity of the region but also the sacred, ritualistic practices of the community. While the forest department has classified the forests and the lands – yet the traditional cultural practices of the community have been institutionalized to protect the biodiversity long before the current classification of the forest department.

The panchayat leaders in Himachal Pradesh appealed to the higher authorities by describing their spiritual and cultural practices that would be obstructed by the small hydropower project. The local spiritual leaders, particularly the president of the devi-devta association, claimed that the locals would be unable to carry out the procession of their local deities as a result of the mini-hydel projects in the Bathaad valley adjoining the Tirthan river. He compared the Tirthan river to the Ganga, one of the holiest river for Hindus, and claimed extraordinary spiritual qualities for the section

of the river that crosses through the village of 'Gushaini'. The letter stated, "Thousands of people visit the part of the river that especially flows through Gushaini for an annual festival that is held on the night of the new moon. And the projects will destroy the most religious and spiritual part of the river." These assertions were made to the state department of tourism and relied upon the tourism department's ubiquitous representation of the Kullu valley as the 'Valley of the Gods'. The link between local spiritual activities and the tourism revenue was made explicit and it resulted in the then Power Minister- Vidya Stokes asserting that there will be no power at the cost of tourism. This helped the cause of the local activists tremendously, especially as the conflict was being mediated upon by the Shimla High court.

5.4 Discussion

In this chapter, I showcase the interaction between land, development and livelihoods and how this interaction mediates the claim staking over natural resources by the local communities. Specifically, I argue that the degree of modernization or the level of development interacts with the historical, cultural and economic relationships that the communities have with their lands, which in turn informs the ideologies and strategies of the local resistance. The strategies, alliances that people form are across scale and it sets the tone for the re-territorialization of the conservation geographies. The claims that local people lay on the territory vary across all the three case studies. While in Karnataka and Himachal, the local activists stake claims on ecological, spiritual and material grounds, in Maharashtra they solely stake claims on ecological

grounds. This is interesting to note because across all the three cases, the local livelihoods are intrinsically wrapped in sacred geographies that contain immense cultural value for the local people. For instance, in Maharashtra the Bhimashankar wildlife sanctuary harbours sacred groves and the wind power project threatened the sacred as well as the cultural geographies of the area. The local people that are most dependent upon the forest areas are the marginalized adivasis, that don't have access to the kinds of resources that the local people in Karnataka and Himachal have which in turn inform their claim-staking on territory.

Development projects or predatory conservation practices often overlook the cultural and sacred value of land for local communities. For local communities, their livelihood system has a landscape element to it, which also subsumes the cultural and sacred meanings. Practices that seek to compensate the local communities for their loss of land and livelihoods often overlook the irreplaceable value that these sacred and cultural geographies have. In this study, the renewable energy projects threaten the livelihoods and the sacred and cultural geographies of the local people. The interaction between cultural geographies and the level of development provides insight into the nature of claim-staking and its role in the re-territorialization of the landscape.

Studies that focus on the interaction between cultural/sacred geographies and the level of development, often argue that as the level of development increases, communities attach less value to sacred geographies. In other words, local actors are

less likely to prioritize the sacred and cultural meanings vested in land with a higher level of development context. The logic is that a higher level of development usually reduces the dependence on forests and as a result the primacy accorded to sacred and cultural geographies also reduces. However, the evidence that I present in my study, contradicts this argument. Instead, I argue that a higher level of development does not necessarily mean a reduced priority accorded to sacred geographies by local communities. For instance, in Karnataka and Himachal Pradesh, the local activists also highlight their sacred and cultural geographies that are threatened as a result of the predatory development. This is in stark contrast to Maharashtra, where despite the encroachment by the wind power project on sacred groves and cultural landscapes, the local activists do not highlight it when staking their claims over access to natural resources. In such circumstances, it is therefore easier for external actors, located at multiple scales, to de-legitimize the claims on nature, despite the presence of sacred and cultural geographies. The evidence presented in this chapter thus reveals that the level of development serves as a category and shapes the political contestation and along with it the re-territorialization as an outcome. A higher level of development allows the local activists recourse to a multiplicity of avenues to stake their claim. Simultaneously, it allows them to form strategic alliances, which lead to re-territorialization of the landscape. The forms of representation of the opposition of the renewable energy project by concerned civil rights and environmental activists are informed by the development context of each case-site. The claims on territory

and the representation of issues by civil society are crucial for the process of re-territorialization by the state, which itself is ongoing.

Chapter 6

Conclusion

6.1 Introduction

In this concluding chapter, I first review the central preoccupations of this study, its key findings and arguments and its broader theoretical contributions. I then reflect upon the contributions of the study to discussions around green geographies and sustainable development in practice. I embarked upon this project for multiple reasons, primarily to pry open the contradictions that are inherent within the idea and discourse of sustainable development. I was drawn to these cases of conflict against renewable energy because this provides a complex and multi-layered approach to questions about energy governance. While simultaneously, dwelling upon the precariousness of local populations that reside in close proximity to conservation landscapes and are also at a threat as a result of development projects.

My research spanned multiple scales and actors, encountering among other actors bureaucrats, energy developers, project proponents, politicians and activists. These are all agents that hold different and largely irreconcilable visions of how energy should be governed in conservation landscapes and the resulting threat to local livelihoods. These competing visions when taken together provide an insight into the

landscapes of struggle over natural resources and how they lead to re-territorialization. The rhetoric of sustainable development has gained great traction in the last few years yet the utopian ideal of sustainability is far from its actual practice.

It is precisely this contradiction that is exploited by actors that oppose the project to showcase the futility of sustainable development projects if they impinge upon local livelihoods and biodiversity protection. This is crucial to understand in light of the fact that local people encased their arguments in the discourse of biodiversity protection rather than the threat to their livelihoods or the demand for development outcomes. The projection of renewable energy as a virtue because it ostensibly balances the need for growth with environmental concerns is a crucial leverage point for the opposition.

6.2 Summary of Chapter arguments

In Chapter 3 – Technology and Scale, I show how renewable projects gain currency as opposed to other development projects. At the local scale, such projects are akin to other development projects, because they require land, power evacuation arrangements, widening or construction of access roads and pose a threat to local livelihoods that depend upon access to natural resources. Yet, at the broader scales they are considered a virtue and this conveniently serves to hide the detrimental effects it has for natural resource based livelihoods. This is envisioned and aided through a series of activities that form a consensus for the project as sustainable. The

materiality of operationalizing renewable power projects comprises building a set of institutional allies for the project specifically located at regional or federal scales. Provincial level nodal authorities, for instance, serve as interlocutors on behalf of project proponents and actively facilitate land acquisition and the consent-to-establish from other authorities. Further, I argue that the obscuring of local realities and the resultant endangering of livelihoods is ammunition for the opposition party and they employ strategies to ensure that these are challenged. Further, I show how the local activists use the technocratic tools that are used to legitimize the projects as a means to resist the encroachment of the bureaucratic state.

In Chapter 4- Politics, I argue for the dynamic nature of the local resistance to renewable energy projects. It is dynamic as it is influenced by the larger politics of environment and development at broader scales. As the politics of environment versus development itself keeps shifting, it lends a dynamic nature to the local resistance. As the larger politics of environment and development expands to include projects such as renewable energy, it opens up new avenues for grassroots mobilizations to strategize and form associational networks that inform the resistance. I detailed the mobilization of actors across two aspects of the global discourse on sustainability – conservation of biodiversity and renewable energy as sustainable development. I lay bare the strategies and processes by which the local activists aligned with certain networks and the constellation of actors that came together across the three field sites. The same conflict therefore manifests as either an Environment versus Environment or an Environment versus Development conflict,

contingent upon the scale of analysis. I also describe the political process of prioritization between conservation, development and livelihoods in the area around the Great Himalayan National Park, in order to highlight the ways in which the local resistance relies upon the broader politics of environment and development.

In Chapter 5- Land, Livelihoods and Development, I show how the interaction between land, livelihoods and development mediates the claim-staking over natural resources by the local communities. This interaction shapes and informs the strategies of the resistance to the renewable energy projects. I position development as a category that sets up the conditions for the local activists to take recourse to alternative channels in order to stake their claims over natural resources. In other words the networks, coalitions, strategies and ideologies of resistance are shaped by the ability of the local people to engage with a diverse, broad-ranging set of people, particularly those with access to institutions at higher scales.

6.3 Contributions of the dissertation

In this dissertation, I have argued that green geographies are dynamic entities that are produced as a result of politics that interact across multiple scales. Across all the three case studies, the conflict and opposition against renewable energy projects, plays out across multiple scales and involves a diverse set of actors. In debates around conservation and development, scholars have begun to acknowledge the role of politics as central. This study joins the work of others in arguing for a central role of democracy (broadly defined) as the analytical category within which issues of

conservation and development are negotiated. As democracy allows for actors to stake competing claims, it also allows them to bypass certain institutions over others. Thereby, lending it a trans-local flavour that also transcends spatial scales. In the process, I highlight the territorial nature of green geographies or sustainable development as it is operationalized on the ground.

The territorial nature of these green geographies means that there are competing claims that are staked on the same landscape. These competing claims are resolved through a political process of prioritization, which essentially mandates a prioritization between conservation, development and livelihoods. The re-territorialization or the re-drawing of boundaries demarcating control over access to natural resources occurs between two spheres. These two spheres are attempts to resist increased control over nature and the process of prioritization between conservation, development and livelihoods. An analysis of the outcomes of the conflict across the three case studies shows that this prioritization is inherently political. For instance, as I show in Chapter 3 - the processes and practices of prioritizing certain technologies over others in inherently political. And the local actors in Karnataka have exploited the technological justification for the sustainable development project to their advantage. They used technocratic tools to contest the encroachment of the development project and transcended spatial scales through appealing to the international body of the United Nations Framework on Climate Change Convention.

In the three cases outlined in this dissertation, the local people protest against the project because it is a threat to their land and livelihoods or that it does not provide adequate development outcomes. Yet, they encase their arguments in the discourse of biodiversity. For the local activists, the threat to their material realities of their everyday life prompts the shift in focus from livelihoods to ecology. For actors in Karnataka and Himachal, where they have been successful in keeping the predatory development projects at bay, this shift is triggered by the influx of conservation activists that informed the resistance and the resulting landscape of struggles over natural resources.

The motivations for different actors to oppose a renewable energy project near a conservation site are manifold and depend upon the scale at which they are located. For instance, for the local actors in Karnataka and Himachal, the motivation to oppose the renewable energy project stems from the threat to their lands and livelihoods. While in Maharashtra, the motivation to oppose the wind energy project is the need to secure development outcomes such as electricity and employment for the impoverished communities that live at the margins of the Bhimashankar wildlife sanctuary. For other actors that are against the project, their motivation is conservation of biodiversity and to protect the rivers, land and forests from predatory development that threatens the ecology of the landscape. For protagonists that favour the projects, their motivation stems from local development outcomes. Supporters of the project at higher scales locate their justification on the grounds that renewable energy projects are a virtue because they are sustainable.

At the local scale the conflict is clearly a struggle between environment and development. But as we move from local to higher scales, the justification for the renewable energy project is increasingly located in the sustainability discourse. This allows the conflict to morph into an environment versus environment contest. Urban, metropolitan actors and audience give more credence to the sustainable aspect of development projects. Following from this, the constellation of actors that support local struggles is key to understanding whether conservation will trump renewable energy or vice-versa. Local activists in Karnataka and Himachal had a wider support base of the metropolitan audience, especially galvanized through the support of the Non-profit Organizations, as they deftly incorporated aspects of biodiversity conservation as opposed to Maharashtra.

Locally grounded social movements across the three case studies are nested within and influenced by the broader politics of environment versus development. The current global focus on sustainable development and resulting pressure on policy makers to incorporate environment friendly projects has led to new ways of staking claims over nature. This shift in the environment-development debate has opened up new avenues for grassroots mobilizations to strategize, network and instrumentally align themselves with broader discourses that cater to a metropolitan audience and have great currency. In sum, this has given rise to ideologically hybrid social movements that increasingly harness aspects of global discourses to negotiate contradictions between diverse groups.

6.4 Sustainable Development in Practice

The nature, benefits and operationalization of sustainable development projects are contested, particularly when these projects are a threat to local livelihoods. Under these circumstances, it is important to examine their implications for practice. Through my research, I have attempted to provide an insight into how the local movements galvanize this global discourse and re-work it to achieve their ends. What does this mean for sustainable development projects that inevitably impinge upon local livelihoods? If the best place for a renewable energy project is next to a national park, how does one decide?

I do not always find it necessary or useful to answer this question with a firm list of policy "recommendations". As a scholar who is concerned with activism as much as academic scholarship, my concern about local livelihoods and development outcomes is paramount. The resistance to renewable energy projects across my case studies however, does show that local outcomes are especially conducive to ensuring that these projects don't face opposition from local activists. Across Indian states, Maharashtra, Karnataka and Himachal have policy provisions for ensuring local development as a fringe benefit for such projects. For instance, the Maharashtra Energy Development Agency mandates that all renewable projects have to provide 1% of their total costs to the affected panchayat members to be used for Local Area development. In practice, however, this rarely happens. In my interviews with local activists that protested against the large-scale wind farms, the constant refrain was

the lack of electricity for the local villagers that live next to the Bhimashankar Wildlife Sanctuary. The local people would not have protested if the wind power project had supplied electricity to them.

For energy projects located in close proximity to conservation areas the resistance is mediated by conservation politics. For communities that have been excluded on account of conservation, it is an instrumental decision to align with conservationists. Yet, these decisions can often backfire as a result of the strengthening of the conservation agenda in these landscapes. For instance, in Himachal Pradesh the Great Himalayan National Park was nominated to become a UNESCO world heritage site shortly after the local activists won the case against the mini-hydel power projects. UNESCO mandated a merger of the wildlife sanctuaries inside the GHNP to accord the entire area a National Park status. UNESCO also wanted to remove all grazing and the presence of human pressures in the GHNP area, including the two wildlife sanctuaries. As per the Indian Wildlife Act, 1972, there can be no human presence inside a national park as opposed to a wildlife sanctuary.

The strengthening of the conservation agenda in the Tirthan valley and the resultant pressure by UNESCO to phase out human activities was a threat to local livelihoods. The local people galvanized a resistance and stressed upon their local cultural practices while contesting the UNESCO tag for GHNP that was given solely on the basis of natural heritage. In an attempt to bridge the arbitrary gap between natural and cultural heritage, the local people also forced the state authorities to make a

series of compromises in order to navigate the complex territory between local and global heritage (Chhatre et al 2017). This shows how the local communities navigate precarious positions that arise as a result of the politics between conservation and development using democracy as an analytical category.

Such conflicts go against the grain of core meaning of sustainability. As increasing number of practitioners, policy makers and countries are focused on incorporating sustainable projects; it is even more crucial to examine the complex and layered ways in which such projects are operationalized. The precarity of local populations and the multiple ways in which they navigate the onslaught of sustainable development projects is key to ensuring that such conflicts do not arise.

The geographies of a future low-carbon economy are not yet determined and in constant flux (Bridge 2013). The concept of sustainability lies at the core of the challenge of environment and development, and the way governments, business and environmental groups respond to it (Adams 2003) .An attention to the ways in which these geographies are configured, particularly the larger questions of spatiality and territoriality will help explain the future of the low-carbon transition. Through attention to such nuances, my study contributes to an explanation and understanding of low-carbon geographies.

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