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Lost in Transition?

Documenting State Narratives & Local Perceptions on the Proposed “Ultra Mega” Solar Project and the Potential Impacts on Livelihood Strategies of Changpas in Changthang, Ladakh

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Abstract:

Renewable Energy (RE) transition is not just important from the perspective of climate change mitigation but is also significant in terms of advancing economic growth and providing energy security and accessibility for a global population. With mounting international pressure to decarbonize economies and achieve clean energy targets, the renewable energy sector has observed a rapid growth over the past two decades. Although there's a lot of buzz around the renewable energy transition, it is critical to note that the so-called “green energy” projects have significant environmental and social repercussions. Empirical research on large-scale renewable energy projects indicates evidence of exploitation and commodification of critical ecosystems and resources, having severe consequences for the rural and marginalized communities dependent on it. It is in this context, the paper serves as an introductory attempt to trace the narratives surrounding the development of the solar project in Chandthang, Ladakh.

Keywords: Renewable Energy (RE) transition, critical ecosystems, solar projects, Ladakh, local communities

Introduction

The mounting international pressure to decarbonize economies and achieve clean energy targets has become a significant driving force for promoting renewable energy development. Political leaders and national governments are intensifying efforts to facilitate the transition to renewable energy sources (Gielen, D et al., 2019). Various conventions, treaties, and policy frameworks, such as the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement for Climate Change (2015), Sustainable Development Goals (2015), and the Glasgow Climate Pact (2021), actively advocate for a shift towards renewable energy.

Amidst growing concerns about climate change, there is an increasing emphasis on reducing human dependence on fossil fuels. These fuels are a major source of greenhouse gas emissions and are responsible for the global rise in temperatures. As a result, the world is now focused on transitioning to cleaner and more sustainable energy sources (Sawhney. A, 2020). Policymakers across the globe have now started to acknowledge the potential of renewable energy as a sustainable solution to meet energy needs while helping combat climate change. India, in particular, is setting a noteworthy precedent for the world to follow. The country is creating an enabling environment to attract large-scale international investments in renewable energy projects and is surpassing its voluntary emission targets, demonstrating proactive measures towards transitioning to renewable energy at an unprecedented rate (MOEFCC, 2021).

In 2014 under the Ministry of New & Renewable Energy, India launched the “Solar Parks and Ultra Mega Solar Projects” scheme to facilitate large-scale infrastructure in collaboration with the State Governments and their agencies, CPSUs, and private entrepreneurs (MNRE, 2021). Large-scale solar renewable energy infrastructure for the generation of electricity includes a solar park developed on a large parcel of land with common infrastructure for transmission, road, drainage, and communication network. All statutory clearances are provided to the developers a priori to facilitate hassle-free development of the project. The policy framework envisions providing timely clearances, facilitating land acquisitions, creating centralised infrastructure and allocating financing for rapid development and generation of electricity to help India meet its international obligations towards renewable energy transition. Under the “National Solar Mission”, one of the main strategies adopted by the Indian government is to introduce policies and incentives for developing centralised infrastructures for large-scale utility solar parks. Within the past decade, India has actively promoted the development of large-scale renewable energy projects to meet its ambitious target of achieving 475 GW of energy generation by 2030 through renewable sources.

Over the past decade, large-scale generation & utility-scale solar projects have gained significant popularity globally due to their cost efficiency and lower generation cost (Bridge. G and Gailing. L, 2020). However, developing large-scale renewable projects requires large swathes of land and resources (Baka. J, 2017). Authorities & investors increasingly recognize these as excellent sites for developing large-scale renewable projects. Recent trends show a rapid increase in renewable energy infrastructures in dry lands due to technological advancement and policy support (Bayer.

A & Wadrio. H, 2022). While, historically, these lands have been at the margins of development and perceived by the state as “idle” and “wastelands” – not to forget that for people who live in these lands, neither is it in the periphery, nor is it a “wasteland”. However, in the current context of the climate crisis and renewable energy transitions, the dry-lands are seen as the new frontiers for developing renewable energy projects. At the same time, such development investments often ignore the potential impacts of these projects on various indigenous and local communities, many of which are nomadic pastoralist communities whose access to grazing pastures and livelihoods is impacted (Dunlap. A, 2021). Empirical research on large-scale solar energy projects has shown evidence of appropriation, commodification & exploitation of critical ecosystems & resource frontiers (Vazquez B et al, 2012). Transitioning to renewable energy through the development of large-scale solar projects has led to a restructuring of property regimes & land uses. Evidence suggests severe implications for the marginalized & indigenous communities as their lives & livelihoods get severely restricted through these projects (Yenneti. K. & Day, R, 2015).

“Green grabbing”, energy dispossession, and climate injustices are some of the emerging normative concerns in the recent academic discourses around renewable energy transitions (Fairhead et al, 2012). Instances of large-scale solar projects developed without adequate consultation or prior informed and free consent of the local community violate their customary rights and practices (Singh. D, 2022).

Environment, Development and the Community: Problems and Challenges

A growing realization and recognition of the potential the dry-lands have to offer for the development of large-scale solar projects led to rapid land acquisition and changes in local land tenure systems & use patterns in recent years. In a study conducted on the land-energy nexus, Lamhamedi & de Vries (2022) highlights how the development of renewable energy projects often results in enclosures of commons, resulting in an increase in land pressure and public opposition. Wherever large-scale solar farms have been introduced, there is evidence suggesting pastoralist communities are being negatively affected by it. In most cases, such projects have led to reducing their access to grazing lands and fragmentation of migratory routes resulting in dispossession and loss of livelihoods. While there are also instances of the two being able to co-exist, however, such cases are seen as exceptions (Bayer. A & Wadrio. H, 2022). The rhetoric of solving developmental

problems through technocratic interventions often relies on the discourse of global environmental remediation which often takes precedence over human rights and local socio-ecological relations. The recent trends in the renewable energy sector signify massive growth in large-scale utility projects. While there remains little doubt regarding the need to transition towards “greener” energy sources, however, to ensure the transition happens in an equitable and just manner robust strategies and policy frameworks have to be developed to safeguard customary rights and practices of nomadic pastoralist communities. To do so, we must first understand the existing challenges faced by the nomadic pastoralist communities followed by a critical examination of how large-scale renewable projects might further exacerbate and marginalize them, inducing significant changes in their existing practices. Such challenges have the potential to negatively impact their livelihoods, leading to an increase in instances of conflicts between the state and the pastoral communities. Additionally, the implications of such projects need to be studied from the perspective of the nomadic communities and to situate them in their everyday realities. Lastly, state narratives and perceptions around the development of large-scale solar projects have to be critically examined to unpack the underlying discourses and normative concerns through the lens of sustainability and customary rights.

Changthang and its Changpas

“Chang” in Ladakhi refers to the North and “Thang” means plains, hence the literal translation of Changthang is “plains in the north” (Bhasin. V, 2012). Located at an altitude of 4500 m above sea level and spanning across the regions of Ladakh and Tibet, Changthang is home to a pastoral nomadic community known as the Changpas. Dotted by arid mountains surrounding vast Morey plains, Changthang has its own unique essence. Nevertheless, its beauty belies the challenging realities of life in this region which is characterized by a severe environment and extreme climatic conditions. The climatic conditions in Changthang are marked by prolonged and severe winters, followed by relatively short summers. Due to its location in the rain shadow region of the Himalayas, the area experiences minimal rainfall and is extremely dry (Goldstein, M. C.,1981).



Image: The pastures

Glacial streams and ice melts are the essential lifelines, which during the peak summers invigorate life back into the landscape. Additionally, the soil is nutrient-poor, rendering it unsuitable for agricultural activities. Consequently, the predominant vegetation comprises alpine grasslands, which play a vital role in supporting the nomadic pastoralism that thrives as the prevailing way of life in this region (Namgail, T. et.al, 2007). Changpas have historically inhabited the Changthang region and have adapted to harsh climatic & environmental conditions over centuries. Their primary livelihood strategy revolves around livestock rearing, a practice that enables them to harness the scarce resources of their natural environment for sustenance (Bhasin. V, 2012). This nomadic pastoralist lifestyle necessitates specialized knowledge of the landscape and is bolstered by strong social bonds within the community, empowering them to effectively navigate the opportunities and challenges inherent in surviving in the cold desert ecosystem (Hagalia, W. 2004).



Image: Glimpse into Changpas' strong community bonds.

The primary economic foundation of the Changpa community hinges upon their livestock and the rangelands, which sustain their self-reliance. Throughout history, trade has constituted a vital aspect of their way of life. Their nomadic lifestyle, coupled with surplus meat and wool available for exchange, facilitated trade with settled agrarian societies, enabling them to obtain grains and other essential resources. To manage the scarcity of resources adeptly, the Changpas have employed customary practices such as rotational grazing, and culling of excess livestock. These practices have proven instrumental in promoting efficient resource management within their socio-ecological context.

In recent decades, life among the Changpa community in Changthang has experienced significant transformations. While it is important to note that traditions are never static and are always evolving with the changing socio-economical systems, however, the rate of changes occurring in Changthang has been rapid (Chaudhuri. A, 2000). These changes have resulted from various factors, including infrastructural development in the region, enhanced road and network connectivity, a surge in tourism, escalating reliance on government subsidies, and heightened

military presence (Bhasin. V, 2012). While a detailed exploration of each trigger and consequence falls beyond the scope of this discussion, it is evident that the current trajectory within the Changpa community signifies a noticeable shift towards adopting a more modern lifestyle, departing from their customary practices.

Notably, the economic value of pashmina and government interventions have incentivized a shift towards rearing a larger number of Changra goats, supplanting the previously prevalent sheep (Bhattacharya. T, et al., 2004). Consequently, this alteration has significantly impacted herd composition, as Changra goats exhibit lower resilience to extreme winters as compared to sheep, leading to substantial mortality during extreme winter conditions and consequential losses (Sheikh et al, 2008). Moreover, this shift in herd composition has severe implications for pasture management, given the disparate feeding habits of goats and sheep. Sheep demonstrate specialized grazing behaviour, primarily focusing on grasses, while goats are more generalized, browsing on a broader range of vegetation. There is a dearth of studies specifically examining the impacts of different grazing behaviours. However, accounts from numerous Changpas assert that certain plant species that were once abundant have now vanished, potentially attributable to the grazing patterns of the goats. It is essential to highlight that further research is needed to comprehensively investigate the ecological consequences of these changes in grazing practices and their implications for the biodiversity and sustainability of the rangelands in the Changthang region.

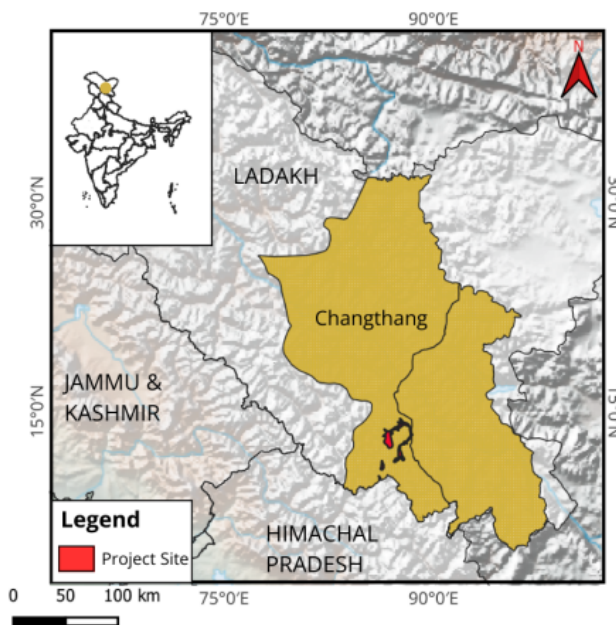
On the downside, the lack of formal land titles and rights to pastures exposes the Changpa community to increasing vulnerability, especially in light of expanding developmental activities. Heightened climate variability and unpredictability have instilled greater anxiety within the community. The growing dependence on cash-based transactions renders them more susceptible to global economic shocks and stressors. An additional pressing concern pertains to the ageing demographic of shepherds and the concurrent decline in youth interest in pursuing pastoralism as a vocation. The advancing age of many shepherds renders them physically unable to continue the traditional practice of leading their herds to pastures, compelling them to seek hired labour for this task. However, the scarcity of available labour and the escalating costs associated with hiring is significantly impacting their profit margins. Consequently, in response to this predicament and other contributory factors, a considerable number of households have gradually transitioned away from pastoralism over the past few years, opting to migrate to urban areas instead. This shift away

from traditional livelihoods further exacerbates the challenges faced by the Changpa community and necessitates a deeper examination of the ongoing socio-economic transitions.

The trend of sending their children to cities for formal education from an early age has become prevalent among the Changpas. Consequently, akin to the experiences of pastoral communities across India, the younger generation of Changpas is becoming increasingly detached from their traditional way of life, gradually transitioning away from pastoralism in pursuit of a more modern lifestyle. This shift is indicative of the ongoing tension between preserving cultural heritage and embracing the opportunities presented by broader societal changes.

Proposed 13 GW “Ultra Mega” Solar Project in Changthang

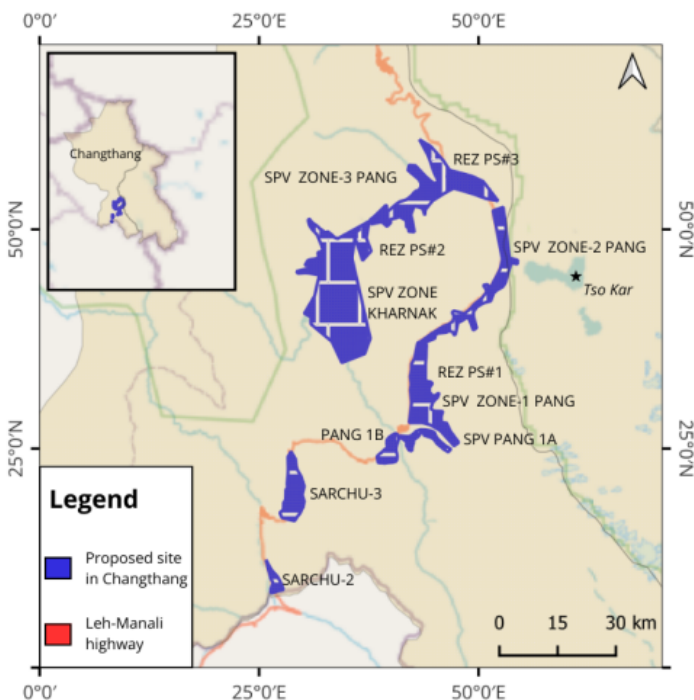
As part of the Jawaharlal Nehru National Solar Mission (JNNSM) and in alignment with the vision for a carbon-neutral Ladakh by 2030, there is a proposal to establish a 13 GW solar-wind project in the ecologically sensitive region of Changthang, Ladakh.



Map 1: Project site in Changthang.

The Solar Energy Corporation of India (SECI), a government enterprise, is designated as the nodal agency responsible for planning and executing the proposed project (MNRE, 2014). The financial backing for this ambitious endeavour is outlined in the budgetary announcement for the fiscal year 2023-24, with the central government committing ₹8,300 crores of the ₹20,700 crores required for

the project. Additionally, the Union Territory of Ladakh has been called upon to allocate 20,000 acres of land in the Pang region of Changthang to facilitate the development of this project. Notably unique in its scope, this project will incorporate an "inter-State transmission system for evacuation and grid integration" as part of the green corridor which aims at the synchronising of electricity produced by renewable sources. However, the original scope of work for the project has been bifurcated, with Power Grid now entrusted with the tasks of power evacuation, transmission, and infrastructure development. This decision was taken in light of the careful evaluation of transmission costs, which were rendering the project economically unviable. The transmission cable proposed as part of the project spans a total distance of 900 kilometres between Pang and Kaithal, Haryana. The electricity generated by this solar initiative is intended to be sold by the Union Territory of Ladakh to other states, thus creating a stable source of revenue for the region.



Map 2: Proposed site in Changthang.

Note its proximity to the Leh-Manali highway and the Tso Kar Lake.

The envisioned project area spans approximately 42,000 acres and is situated in the More Plains region of the Union Territory of Ladakh, adjacent to the Manali-Leh national highway. This designated expanse encompasses the land from the southern village of Sarchu to the areas surrounding the villages or settlements of Pang in the east, Debring in the north, and Kharnak in

the west. To the east of the study area lies the Changthang wildlife sanctuary, encompassing the Tso Kar RAMSAR wetland as well. The geographical boundaries of the proposed project area hold significance due to their ecological and geographical connections to neighbouring regions and wildlife habitats, necessitating thoughtful consideration during project planning and implementation. Its location in the fragile and environmentally sensitive Changthang area necessitates comprehensive assessments and considerations of potential environmental impacts and socio-economic implications. Proper evaluations, policy frameworks, and participatory decision-making processes are essential to ensure that the project aligns with ecological preservation, community welfare, and the overarching objectives of Ladakh's journey towards carbon neutrality.

Currently in its preliminary stages, the project's development process is yet to commence. Initially, the project site was identified across the Leh district (Hanle) and Kargil district (Zaskar). However, due to feasibility challenges and environmental considerations, the project's location was shifted to the Pang region within the Changthang area. As of now, SECI has conducted topography surveys of the proposed site and commissioned environmental and social impact assessments to establish baseline information. These assessments aim to prepare environmental management and mitigation plans to address potential adverse impacts. However, the findings from these assessments are yet to be publicly released. Following a thorough scrutiny of the reports, a detailed project report incorporating all pertinent findings will be prepared by the SECI and shared with the Ladakh Autonomous Hill Development Council (LAHDC) to facilitate land acquisition. Since its inception, the project has encountered significant obstacles and experienced delays.

Challenges have emerged concerning wildlife clearances, site selection for development, land acquisition, and emerging concerns from the local pastoral community, all of which have had substantial implications on the project's progress thus far. These complexities underscore the need for careful consideration of environmental and socio-economic factors to ensure the sustainable and responsible implementation of the solar project.

Methods & Approaches

As part of the primary objectives of the survey, research framework was developed to map various stakeholders and document their distinct perceptions pertaining to the proposed 13 GW solar-wind project in the Changthang region. The interviews of the key stakeholders were designed to elicit insights into their respective levels of engagement, roles, responsibilities, and the challenges they have encountered in relation to the project. *Both the stakeholder mapping exercise and interview questionnaire are attached in the Appendix.* The fieldwork component of this study involved a two-week immersion within the pastoralist community residing near the project site. During my stay at Samad, I documented their seasonal migration routes and camping sites through participatory mapping exercises and observations. This was done by going along with the herd to the pastures for grazing and asking the village head (the Sarpanch and the Goba) about their seasonal migration routes and camping site. Following this, I visited each camping site and mapped its exact GPS coordinate location. The information collected was then compiled and triangulated during group discussions.



Image: These tents have now replaced traditional Rebos made of yak wool.

Some of the changes have proved to be beneficial for the Changpas. For instance, infrastructural development and improved connectivity have significantly enhanced access to essential healthcare services. The rapid development of the road network and subsequent growth in tourism in the

Changthang region has ushered in new income opportunities, leading to increased cash flow and improved living standards for numerous Changpa households (Demenge, J. 2015). Government subsidies, encompassing provisions such as rations, livestock medicines, tents, solar inverters, and fodder, have collectively contributed to their socioeconomic advancement (Bhasin. V, 2012).

Notably, the economic value of pashmina and government interventions have incentivized a shift towards rearing a larger number of Changra goats, supplanting the previously prevalent sheep (Bhattacharya. T, et al., 2004). Consequently, this alteration has significantly impacted herd composition, as Changra goats exhibit lower resilience to extreme winters as compared to sheep, leading to substantial mortality during extreme winter conditions and consequential losses (Sheikh et al, 2008). Moreover, this shift in herd composition has severe implications for pasture management, given the disparate feeding habits of goats and sheep. Sheep demonstrate specialized grazing behaviour, primarily focusing on grasses, while goats are more generalized, browsing on a broader range of vegetation. There is a dearth of studies specifically examining the impacts of different grazing behaviors.

The key stakeholders representing the state's perspectives include SECI which is the implementing agency of the proposed project, the elected council members at LADHC, officials from the Power Development Department (Ladakh), Sheep and Animal Husbandry Department, the District Administrative Office, Wildlife Department, Ladakh Renewable Energy Development Department (LREDA) and the local Panchayat.

Discussions at SECI

In an interview with the top official at the SECI office, it was indicated that the project was geared towards a larger effort of achieving the 475 GW renewable energy target that India has set to reach by the year 2030 and was strategically aligned with the vision for Carbon Neutral Ladakh. Hence, it is critical to note the role of the larger global discourses around renewable energy transition in facilitating the development of large-scale solar projects in Ladakh. The official from SECI also highlighted a significant constraint for implementing large-scale solar projects, namely, the availability of land. According to estimates, generating 1 megawatt of electricity from ground-mounted solar photovoltaics necessitates approximately 5 acres of land. Consequently, to produce 1 gigawatt of electricity, a project would require a minimum of 5000 acres of land. Acquiring such extensive land areas for large-scale solar projects often poses challenges. In this context,

Changthang emerges as a suitable site for the proposed project due to the availability of vast expanses of land. Moreover, Changthang's geographical location offers favourable conditions for solar renewable projects, given its high solar irradiation and relatively clear skies, creating ideal conditions for solar energy generation.

When discussing the major challenges encountered during the project's development, the official emphasized the difficulties in site selection. Initial sites were situated within the Changthang Wildlife Sanctuary, resulting in the denial of environmental clearances for the project. As a consequence, the project site has been relocated twice, driven by feasibility concerns and environmental considerations. Additionally, the complexity of evacuating and transmitting electricity on such a grand scale presented a significant obstacle, necessitating the project's division into distinct components. A primary objective of such a large-scale endeavor is to minimize costs, which, in turn, could lead to reduced tariffs for consumers. Another salient concern arising from the conversation was the potential impact of the project on the pastoral communities residing in the region. SECI officials conveyed that the Ladakh Autonomous Hill Development Council (LAHDC) councilors have devised business models and are attentively addressing the concerns raised by the local community. SECI has already commissioned an Environmental and Social Impact Assessment (ESIA) study, presently undergoing review. Nonetheless, the official clarified that the SECI's primary responsibility is to develop the project, while land acquisition and community-related matters fall under the purview of the elected representatives of the Ladakh Hill Council. Since the hill council owns all land, the SECI exclusively liaises with them regarding the acquisition of land and related matters. Consultation meetings with local councilors and community members have already taken place, with their demands duly recorded and acknowledged. The official also pointed out the opportunities the project will provide in terms of not just electricity generation but also employment and other infrastructural development to the community which will be economically beneficial for them. Consequently, the discussion with the official at SECI conveyed a broader narrative surrounding the project's significance in alignment with India's international and national commitments towards renewable energy transition. The conversation also highlighted the notable emphasis placed on the challenges associated with developing the project in a terrain that has not been previously attempted, alongside the potential

opportunities it can create for the local community, contributing to their overall well-being and upward social mobility.

Discussions at District Administrative Office

Conversations with the senior official at the district administrative office shed light on the office's pivotal role in the project development, specifically concerning land acquisition. The primary responsibility of the office is to oversee the land acquisition process. SECI has proposed the acquisition of 48,000 acres of land for the project. According to government records, the identified parcel of land is designated as grazing pastures and is held under the ownership of the state. However, due to the lack of recognition of community rights, the local inhabitants have no legitimate legal claim of ownership over the land. The department operates without discretionary power in the decision-making process related to land acquisition, being obligated to adhere to directives issued by higher-ranking officials. Nonetheless, the official has expressed significant apprehensions regarding the development of the project in this particular region, underscoring the potential consequences of widespread dispossession and displacement of the Changpa community residing in the area. Moreover, concerns have been raised about the project's waste generation and the inadequacy of infrastructure to manage it effectively. The official also highlighted the considerable burden on natural resources, particularly water, which will be utilized for the regular cleaning of solar panels. Given the region's water scarcity and arid climate, this aspect raises profound environmental concerns. Additionally, the potential impact on local vegetation, particularly valuable medicinal and aromatic plants, was regarded as a crucial concern. The potential repercussions of the project on the region's ecological balance and biodiversity have been acknowledged, further necessitating careful examination and consideration of mitigation measures.

Discussions at Sheep and Animal Husbandry Department

During my fieldwork, I had the opportunity to engage in discussions with an official from the sheep and animal husbandry office actively involved at the community level. He emphasized the urgency of altering the prevailing perception surrounding the Changpa community, which often portrays them as living a primitive life devoid of modern amenities and comforts. Such prevailing perceptions contribute to dissuading many Changpa youth from embracing a nomadic lifestyle.

“When we conjure an image of a Changpa shepherd, an elderly, weathered man clad in rough attire tending to his flock often dominates our thoughts. However, it is imperative to reshape this perception. We must infuse the concept of modernity into the visualization of a Changpa. Why not portray them as entrepreneurs and managers, equipped with contemporary tools and access to advanced technologies? Embracing this paradigm shift becomes essential if we aim to entice the Changpa youth back to the traditional practice of pastoralism, rekindling their interest and participation in this timeless way of life.”

- Flock Officer (Samad), Sheep & Animal Husbandry Department

Drawing upon examples from livestock rearers in countries like Australia and New Zealand, who manage massive herds and have access to advanced technologies, the officer underscored the necessity to reimagine Changpas in a manner that facilitates the sustainability of their traditional way of life. Here, sustainability refers to the economic viability of being able to continue to rear livestock. This reframing process, he argued, would be instrumental in encouraging the younger generation to identify with and perpetuate their nomadic heritage.

The official also addressed the phenomenon observed in recent years, wherein numerous households have transitioned away from pastoralism and relocated to Leh city, yet continue to be included in the annual census conducted by the Sheep and Animal Husbandry Department. He introduced the concept of "Thalti," prevalent among the Changpa community. Thalti refers to individuals who no longer directly engage in pastoralism and have moved out of Changthang. Nevertheless, they retain a certain number of livestock entrusted to the care of either their relatives or neighbours, who continue to practice nomadic pastoralism. In return, Thalti either compensates them with cash or arranges specific compensation to care for their livestock. This serves as a contingency measure in case they face an economic crisis and decide to return to Changthang. Moreover, Thalti persists in making annual donations to their Gonpas (monastery) despite no longer residing there. In this regard, they argue that if they are obliged to fulfil their dues despite their absence, they should similarly be entitled to the benefits provided by the government to the Changpa community. This situation creates an illusion of increasing household numbers, even though numerous households have gradually opted to abandon pastoralism over the years. The official census carried out by the sheep and animal husbandry department, records 181 distinct

households in the Samad region. However, based on our field observations and ground truthing, we identified only 45 pastoralist households.

Discussions at the Power Development Department

In the interview with an official from the renewable energy section in the power development department of Ladakh, several key issues were raised concerning the challenges of developing a project of such an immense scale at a high altitude. Regarding their roles and responsibilities, they indicated that they were consulted during the initial phase, but their specific involvement in this project is limited. Addressing the question of whether the electricity generated through this project would be supplied to the people of Changthang or Ladakh, they mentioned that initially, there were plans to supply some electricity to Leh. However, at the current stage, no confirmations have been made, and the current plan is to evacuate and transmit the electricity generated through the project to the northern grid.

The interview also broached the subject of whether, instead of developing one large solar plant of such magnitude, it would be beneficial to establish several localized microgrids. In response, the official explained that the cost of developing several localized microgrids would present challenges in terms of land acquisition and clearances. It would also significantly increase the overall development cost, as constructing it at the current scale is more economically viable. In addition to discussing the solar project, the official also brought attention to a special package being devised for Changthang, aimed at enhancing infrastructure for electricity supply. This package constitutes a component of the special initiative directed towards the development of border villages.

Interaction with the Elected Councilor of Samad & Kharnak

Interviews and discussions were conducted with the elected council representative of the Samad and Kharnak regions, which are the primary areas proposed for the project's development. From these interactions, it emerged that consultation meetings occurred in the year 2022 when officials from the SECI visited Samad. The Councilor, along with the Sarpanch and the Goba, participated in these discussions. However, no consultations or meetings were conducted at the village level. This was triangulated through group discussions and individual interactions with the people in Samad. Presently, three towers have been constructed by the SECI for testing purposes. During our discussions, the Councilor expressed enthusiasm regarding the project's potential and

the opportunities it could provide for regional development. He also employed the rhetoric of nationalism, emphasizing how hosting a project of such vast magnitude in Changthang could become a source of pride for India and Ladakh. Nevertheless, when queried about the potential displacement and dispossession of people's land and livelihoods, the Councilor reassured that alternate pastures would be developed, and comprehensive measures would be taken to ensure that individuals benefit from the project's outcomes.

Perception of the Sarpanch and People of Samad

The engagements with the local community and the Sarpanch of Samad revealed intriguing insights and perceptions surrounding the project. Despite the absence of official meetings or interactions at the village level conducted by SECI or other project proponents, information about the project has been disseminated through word-of-mouth within the village. Consequently, feelings of uncertainty and cautious optimism pervade among the villagers of Samad due to the lack of official communication. Having been invited to a village meeting, a Focus Group Discussion was conducted to explore the extent of information the community possessed regarding the project, their concerns, and the opportunities they envisaged through its implementation. The community members were aware of the solar project's proposal for development in the region, and they knew that SECI officials had visited Samad and met the councillor and Sarpanch. However, they lacked knowledge about the specifics of the discussions held during the meeting, and while they were aware of the construction of three towers for solar-related work, they were uncertain about their exact purpose.



Image: Attending a Village meeting at Samad, Changthang.

During the interview with the Sarpanch, it was communicated that an application had been submitted to the officials, clearly outlining the community's demands. However, when questioned about whether the community was consulted before submitting the application, no definitive answers were provided. The outlined demands in the application included the provision of *pucca* houses near Leh for each household, assurance of employment opportunities related to the project for the people of Samad, development of alternate pastures for grazing land, and allocation of 50 per cent of the annual rent for the acquired land in Samad to the local residents. Nevertheless, the prevailing perception among the community conveyed a sense of powerlessness in the face of state authority. Lacking ownership rights to the land, they perceived that the government possessed significant autonomy in decision-making since the land did not belong to them. Consequently, they felt compelled to consider alternative livelihood options if they were denied access to traditional pastures. However, the community also underscored the need for village-level consultations to

gain clarity on the project's details and collectively determine their future course of action. This summary provides an overview of key reflections and lessons learned from a preliminary investigation of a large-scale solar project proposed for development in the Changthang region. The report outlines the evolution and objectives of a research project designed to conduct a preliminary investigation and gather baseline information regarding the proposed 13 GW hybrid solar-wind project in the Pang region of Changthang, Ladakh. The study also provides an overview of the significant transformations in the traditional way of life among the Changpa community in Changthang, driven by various factors such as infrastructural development, enhanced connectivity, tourism growth, government subsidies, and increased military presence. The changing trajectory within the community indicates a noticeable shift towards embracing a more modern lifestyle, departing from their traditional practices.

The survey's primary objective was to collect diverse narratives and perspectives and assess the potential impact of the project. The report highlights insights gathered from interviews with key stakeholders, including officials from the Solar Energy Corporation of India (SECI), the District Administrative Office, the Sheep and Animal Husbandry Department, and elected representatives from Ladakh Hill Council. Discussions with various stakeholders shed light on different perspectives. It also presents insights and perceptions surrounding the proposed solar project in the Samad region of Changthang, based on engagements with the local community and the Sarpanch. Overall, the preliminary investigation underscores the importance of careful consideration of environmental and social impacts, effective community engagement, and the need to align large-scale projects with sustainable development goals.

The key thematics emerging from the initial analysis of the solar projects are summarized in the table below:

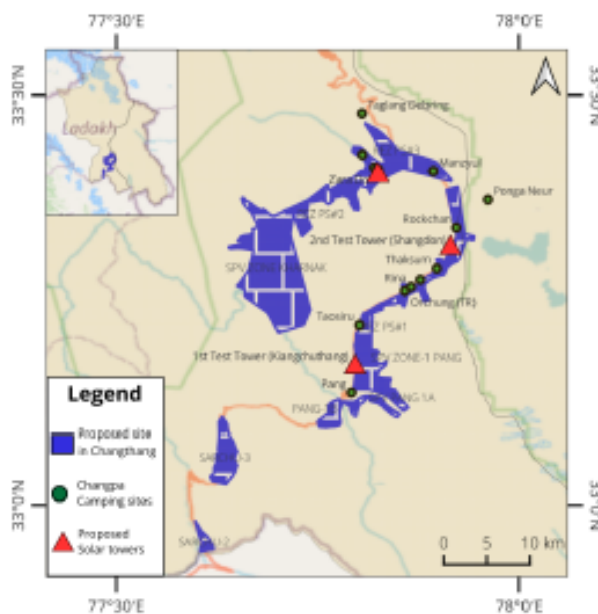
| Positive Attributes | Negative Attributes |
|----------------------------|----------------------------|
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| | |
|--|---|
| <p>I. International Commitments: A big step towards achieving a nationally set target of generating 400GW of electricity through renewable energy sources by 2030 as committed under the Paris Agreement by the Indian Govt.</p> <p>II. Global Benchmark: Sets a precedent for other nations to follow through on their commitments to mitigating climate change.</p> <p>III. Climate Action: A big step towards mitigating climate change.</p> | <p>I. Environmental Consequences: The proposed project will have a significant impact on the alpine grasslands and associated biodiversity.</p> <p>II. Disposal of E-waste: The lack of clear policies and directives on the disposal of e-waste at the national scale poses a serious threat to the fragile ecosystem of Changthang.</p> <p>III. Water Consumption: Significant impact on the available water resources is a major concern.</p> |
| <p>Safeguarding Energy Needs: Providing energy security & accessibility to the masses.</p> | <p>Local Livelihoods: Potential loss of access to grazing pastures and migratory routes will negatively affect the pastoral livelihoods of Changpas.</p> |
| <p>I. Local Development: Generating employment opportunities for the locals.</p> <p>II. Alternative Benefits: Potential allocation of land titles, <i>Puca</i> houses & monetary benefits as part of a compensation package.</p> | <p>I. Community Wellbeing: The project might potentially lead to the dispossession and reallocation of the Changpa's in Samad, which can negatively impact their social bonds and interactions.</p> <p>II. Increase in Conflicts: There is a chance of an increase in competition for pastures with the neighbouring Changpas of Kharnak, resulting in an increase in conflicts.</p> |
| <p>Technological Feat: Being the first of its kind project to be envisioned at such a scale and locale.</p> | <p>Governance: Lack of consultation with the locals in the development and planning phase.</p> |

Table 1: Summary of emerging thematics categorized as potential negative and positive attributes of the solar park proposed to be developed in Changthang.

The Power Development Department discussed the challenges of developing a project of this scale at a high altitude and clarified the plan to transmit electricity to the northern grid. The initial

assessment of the project sites shows an overlap between the proposed solar project site and the grazing pastures used by the Changpas. There's little doubt about the fact that the development of the solar project will have a significant detrimental impact on the rangelands and the livelihoods of Changpas in this region. While the SECI officials emphasized the importance of the project for achieving renewable energy targets and mentioned efforts to address community concerns through consultations and an Environmental and Social Impact Assessment study, however, the District Administrative Office expressed apprehensions about land acquisition, potential dispossession of the Changpa community, waste generation, and water usage



Map 3: Overlapping of camping sites used by Changpas of Samad with the proposed project site.

Conversations with the Sheep and Animal Husbandry Department highlighted the need to reframe the perception of the Changpa community to sustain their nomadic heritage and pastoral practices. Interviews with elected council representatives and the local community demonstrated cautious optimism about the project's potential benefits but also revealed uncertainty due to a lack of official communication.

Conclusion

Preliminary findings indicate significant impacts on expansive grazing lands and traditional migration corridors utilized by the Changpas of Samad due to the prospective implementation of a renewable energy initiative within the Changthang region. Interactions with

primary stakeholders reveal a heterogeneous range of reactions, with certain individuals expressing apprehensions, while others emphasize the project's envisaged benefits. Among the local Changpa community, a discernible degree of skepticism is apparent; nevertheless, a categorical resistance to the solar project is not evident, provided that governmental authorities adequately address their stipulated requisites. Concurrently, for some stakeholders, prevailing uncertainties surrounding the project's implications for the future.

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