

Research Article

Tunnels as Temples of 'New Green India': Dominant Narratives of Himalayan Dam Building

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Abstract: The dramatic unfolding of the Joshimath crisis in Uttarakhand, India, has brought the world's attention once again to the Himalaya. The contribution of a 520-megawatt hydropower dam to land subsidence is squarely in the spotlight. River valleys with bumper-to-bumper hydropower dam building, especially in the Northwestern Himalaya, in the past decade and a half or so, have witnessed frequent slope destabilization, landslides and seepages. Unlike the visible dispossession of rural—often Adivasi and Dalit—populations in reservoir-based dam affected areas, even establishing and 'scientifically' correlating cascading hazards with human impacts of the 'invisible' activity of run-of-the-river dams in the relatively sparsely populated regions of the Himalaya, has been an uphill battle for impacted mountain people. This article examines the conflict around hydropower development in Himachal Pradesh to understand the trajectory of State policy, dominant narratives and responses of affected communities. Tracing the history of such contestation in the 180 MW Bajoli Holi hydropower project in Chamba's tribal belt Bharmour, we illustrate the complicity of project proponents, regulatory institutions, political actors, scientists and the judiciary in transferring the project's risks to local inhabitants and the environment. The burden of building fresh evidence, staking claims and posing counter-narratives lies unfairly with the dispossessed as they struggle for safety and survival.

JOSHIMATH: THE TALE OF A SINKING TOWN

As we write this, the pilgrim town of Joshimath in the Garhwal region of North-Western Himalaya continues to slowly cave in due to the landslide and subsidence that came to light nearly six months ago. An emergency evacuation operation was underway between January and February 2023 and close to 4,000 distraught residents were temporarily relocated from their collapsing homes and 'high risk'-marked properties. It is understood that extensive and rapid land-use change due to large-scale infrastructure development¹ has contributed to existing geological conditions leading to gradual landsliding and/or subsidence.² Impacted residents, mobilised under the banner of the Joshimath Bachao Sangharsh Samiti, carried out demonstrations to pressure the administration for just rehabilitation and to bring to account the National Thermal Power Corporation (NTPC). In early January 2023 'NTPC Go Back' posters

¹ MPS Bisht and Piyooosh Rautela, 'Disaster Looms Large over Joshimath' (2010) 98(10) Current Science (Bangalore), 1271.

² Dave Petley, 'Joshimath: New InSAR Analysis Sheds Light on Active Deformation' (*The Landslide Blog*, 18 Jan 2023) <<https://blogs.agu.org/landslideblog/2023/01/18/joshimath-new-insar/>> accessed 19 January 2024.

appeared in the Joshimath market amidst widening and deepening cracks in the ground,³ as locals held the 12 km long underground tunnel constructed for the 520-megawatt Tapovan Vishnugad hydropower dam project responsible for the disaster.

Tunnel building and underground construction have been key components of Run-of-the-River (ROR) hydropower dams being built in the Himalayan region for about two and a half decades. ROR technology was central to the Government of India's Himalayan dam building agenda set in the late 1990s. The global narrative of 'sustainable development' through generation of 'renewable energy' was used to transfer climate finance to these projects. For the national and state governments, economic growth, revenue and employment generation were the prime declared intents for hydropower development projects, 75% of which were to be located in the Himalayan region. The plan was to install hydropower projects worth 150,000 MW (now reassessed to about 115,000 MW)⁴ across the three main river basins—Indus, Ganga and Brahmaputra.

Ironically, this was the time when displacement had become almost synonymous with reservoir dams in India, given the discourse generated by popular anti-dam struggles. On the other hand, ROR hydropower projects located mostly in the mid and upper reaches of the Himalaya were projected as antidotes to the problem of large-scale land submergence as they relied on the diversion of river flows into underground tunnels in high gradient zones, and using the force of these flows to produce power. In reality, over the decades, the construction of a series of bumper-to-bumper hydropower projects across river valleys has produced multiple disastrous impacts. These include the disappearance of rivers for large stretches, deforestation, fragmentation of forests, land use change and slope destabilisation—all of which have impacted the lives and livelihoods of mountain inhabitants. In the wake of global climate change and an accelerated frequency and intensity of landslides, flashfloods and erratic precipitation, the Himalayan landscape is slated to be the world's most dam-dense regions, if all proposed projects are constructed.⁵

The land subsidence in Joshimath is the third catastrophic event of its kind in a decade to have emerged from the headwaters of the Ganga River basin falling in Garhwal. The first was the Kedarnath disaster in 2013 in the Bhagirathi valley. Termed as a 'Himalayan Tsunami'⁶ this affected more than 9 million people. According to conservative government estimates, 160 people died, 4,021 were reported missing (presumed dead), 11,091 livestock was lost, and 2,513 houses were completely damaged across 4,200 affected villages. Torrential rains and a moraine dam breach triggered floods, exposing pilgrims and a high concentration of settlements and infrastructure to the hazard. Muck from dams deposited along the rivers aggravated the disaster.⁷ In February 2021, catastrophic floods rocked the Rishiganga valley when an ice avalanche and mass of rock debris came down heavily. The 13 MW Rishiganga hydroproject, 520MW NTPC Tapovan HEP and other public infrastructure in the river pathway

³ PTI, 'In Sinking Joshimath, Chorus of 'NTPC Go Back' Grows Louder' (*The Economic Times*, 17 Jan 2023) <<https://economictimes.indiatimes.com/news/india/in-sinking-joshimath-chorus-of-ntpc-go-back-grows-louder/articleshow/97060897.cms>> accessed 19 Jan 2024.

⁴ CEA, 'Preliminary Ranking Scheme of Hydro Electric Schemes' (CEA, April 2022) <https://cea.nic.in/wp-content/uploads/2020/04/gen_report.pdf> accessed 20 Jan 2024.

⁵ Edward Grumbine and Maharaj Pandit, 'Threats from India's Himalaya Dams' (2013) *Science* 36- 37.

⁶ KS Rajgopal, 'Himalayan Tsunami' Analysed' (*The Hindu*, 25 July 2013) <<https://www.thehindu.com/sci-tech/energy-and-environment/himalayan-tsunami-analysed/article4949922.ece>> accessed 17 Mar 2024.

⁷ Satendra Singh and others, 'Uttarakhand Disaster 2013' (National Institute of Disaster Management, 2015) <<https://nidm.gov.in/pdf/pubs/ukd-p1.pdf>> accessed 20 Jan 2024.

acted as force multipliers. The 204 lives that were lost included many workers on the dam sites.⁸

Each time, the conversion of a climate hazard into a disaster, and of a disaster into a mass-scale tragedy has revealed the root cause to be a combination of development activities involving excessive land use change and topographical specificities interacting with historical political and socio-cultural vulnerabilities. In all three tragedies, communities, scientists, environmental experts, and activists found a correlation between hydropower dams together with commercial tourism-led unregulated urbanisation and the unfolding of disasters in the young, seismically active and geologically complex mountainous Himalayan zones.⁹ Whenever media reports reported this discourse, government agencies and political actors would hide behind rhetorical tropes of 'climate change disaster' or 'natural calamity' in a bid to escape scrutiny, accountability and culpability.¹⁰

Reports warning of the geological unsuitability of the terrain for certain types of construction have still not brought principles of science, law and human rights to bear on dam construction policies in the Himalaya.¹¹ Ignoring the warnings of two Supreme Court-constituted committees about the impact of hydropower projects in the Ganga River basin, the Ministry of Environment pushed for clearances for the construction of seven dams in the basin—a decision backed by the apex court.¹² A few months after the flash flood in Chamoli district in 2021, five community members from the region petitioned the Nainital High Court to revoke the clearances granted for the construction of two dams in the region. Without even a hearing, the bench called the petition 'highly motivated'. The court dismissed concerns about the safety of the region while pointing to the petitioners as 'merely puppets at the hand of an unknown puppeteer' and imposed costs of Rs. 50,000 on them.¹³

HYDRO-DISASTERS IN THE HIMALAYA: NO ABERRATION

A similar judicial response was witnessed in Himachal Pradesh, when in 2012, the Shimla High Court imposed costs on petitioners from the Bharmour tribal area of Chamba. The project in question was GMR's 180 MW Bajoli-Holi hydropower dam to be built on the river Ravi. The key conflict surrounding the hydropower project was the unscientific and fallacious change in the siting of the dam (including the underground tunnel and powerhouse) from the barren and rugged right bank of Ravi to the heavily populated left bank. The affected area fell in a 'high' to 'very high' landslide susceptibility zone as identified by the Geological Survey of India (GSI).

⁸ NDMA, 'Study of Cause and Impact of the Uttarakhand Disaster on 7 February 2021 in Raunthi Gadhera, Rishiganga and Dhauliganga Valley: Measures to Reduce Disaster Risks' (NDMA Report 2022) <https://ndma.gov.in/sites/default/files/PDF/Reports/Detailed_report_UK_Disaster.pdf> accessed 20 Jan 2024.

⁹ Himdhara, 'The Hidden Cost of Hydropower' (June 2019) <http://www.himdhara.org/wp-content/uploads/2019/06/The-Hidden-Cost-of-Hydropower_2019.pdf> accessed 20 Jan 2024.

¹⁰ Kautilya Singh, 'Dhama Calls Joshimath Subsidence "Natural Disaster"' (*Times of India*, 14 January 2023) <<https://timesofindia.indiatimes.com/city/dehradun/dhama-calls-joshimath-subsidence-natural-disaster/articleshow/96980981.cms>> accessed 20 Jan 2024.

¹¹ MC Mishra and others, 'Mishra Committee Report' (Committee regarding landslides and subsidence in Joshimath town, 1976).

¹² Jay Mazoomdaar, 'Despite Supreme Court Freeze, 7 Uttarakhand Projects Get OK, 1 Flash-Flood Hit' (*Indian Express*, 27 Aug 2021) <<https://indianexpress.com/article/india/supreme-court-moratorium-hydro-electric-projects-uttarakhand-flash-floods-7472781/>> accessed 19 Jan 2024.

¹³ *Sangram Singh & others v Union of India & others* Writ Petition No. 113 of 2021 in the Hon' High Court of Uttarakhand Nainital.

The region also faced threats from higher glacial melting and subsequent lake formation due to climatic changes.¹⁴

An inspection report of the Himachal Pradesh State Electricity Board Ltd. (HPSEBL), with inputs from GSI, recommended siting the 14 km underground tunnel for the project on the right bank of the Ravi, given its barren slopes, as against the left bank, which was populated by nine villages. These included orchards, cultivated fields, a thick forest, public roads, a helipad, and a school. The report arrived at the following conclusion¹⁵:

Proposal of the company is guided by commercial advantages of the left bank option, namely, short lead time to commencement of construction and savings in infrastructure. The area around Andhrala and Dayothal villages has seen heavy landslides during 1988 due to flood caused by glacial melting. The choice is between commercial cost and saving, and, social cost and saving. The answer is obvious. Commercial disadvantage should give in to social disadvantage. It is, therefore, recommended that the alignment of the project as proposed by HPSEBL [left bank] should be retained.

Sidelineing these recommendations, and the objections raised by residents belonging to the Gaddi community (a Scheduled Tribe) during the environment clearance public hearing of the project, the Ministry of Environment's (MoEF&CC) Expert Appraisal Committee (EAC) granted clearance to the project. This was despite the fact that the Terms of Reference (TOR) issued to the GMR Environment Impact Assessment (EIA) studies pertained to the right bank of the river with 'minimal disturbance and risk' to people. RTI responses obtained in this context revealed that the EAC did not reconvene after the change in project location. MoEF&CC officials granted the 'no objection' letter to the change in TOR hastily and without following due process. When the issue came up before the EAC two years later, it saw the project as 'fait accompli' and recommended clearance for construction on the left bank.

Backed by the HPSEB report, the affected people challenged this decision. The 2012 Shimla High Court judgement, while dismissing the petition with costs, found the contention of the petitioners with regard to the lack of expert assessment before shifting the project site from the right to the left bank 'frivolous, vexatious and not substantiated from the record'.¹⁶

Meanwhile, GMR convinced influential local politicians to support the dam construction work in exchange for petty contracts and jobs. In January 2013, about 800 people of the community mobilised to halt construction activity. There was anger about the rampant felling of trees along the left bank and the grant of 'forest clearance' to the project without the mandatory consent of Gram Sabhas under the Forest Rights Act, 2006.¹⁷ This produced no results. In early 2014, women from the affected panchayats carried out a month-long sit-in demonstration near the tunnel site in Jharauta village. On 25 March 2014, 31 women protestors were arrested

¹⁴ Simon Allen and others, 'Glacial Lake Outburst Flood Risk in Himachal Pradesh, India: An Integrative and Anticipatory Approach Considering Current and Future Threats' [2016] *Natural Hazards* 1741-1763.

¹⁵ RTI response from HPSEBL dated 8 Aug 2013.

¹⁶ *Mangi Ram & others v Union of India & others* CWP No. 2083 of 2012-I in the Hon' High Court of Himachal Pradesh Shimla.

¹⁷ Manshi Asher, 'A Decade of Resisting Law That Gives Adivasis Rights Over Forests = Climate Disasters For Himachal Pradesh' (*Article 14*, 21 Sep 2022) <<https://article-14.com/post/a-decade-of-resisting-law-that-gives-adivasis-rights-over-forests-climate-disasters-for-himachal-pradesh--632a76b4c9269>> accessed 19 Jan 2024.

under false cases. As a result of this, and after being subject to intimidation by local contractors who were allied with the administration and with GMR, the women called off their protest.¹⁸

In the following years, as the project construction continued, the Himachal Pradesh State Pollution Control Board (HPSPCB) reported several instances of non-compliance with environmental regulations. Residents and activists filed numerous complaints with the HPSPCB about the drying up of water springs and the impact of muck dumping. Despite issuing multiple notices to GMR, the HPSPCB took no punitive action, and the breach of regulations continued. In order to mitigate the impacts of the drying of natural water sources, the state Irrigation and Public Health Department decided to 'monitor the impacts of the construction on the natural water sources'. However, RTI responses received from the department clarified that the data on 'discharge of sources is not available'.¹⁹ The environmental clearance conditions did not include any regulation on blasting for underground construction works, and no agency was assigned to monitor its impacts. The only mitigation measure proposed by the Ministry of Environment and Forests was self-monitored 'controlled and regulated' blasting.

During the pre-commissioning stage of the project, on 19 December 2021, the barrage was reportedly damaged in the course of tunnel testing, inducing seepage near the community forest area.²⁰ The seepage gradually spread to the Holi-Chamba Road, leading to the destabilisation of the slope on which the state highway was located. Massive cracks emerged on the land and in the walls of three houses in Jharauta village, making them vulnerable to collapse. Subsequently, the affected families were relocated to temporary quarters along with their livestock in a nearby project colony. On 31 December 2021, GMR offered to absorb the rental costs of their post-displacement accommodation and provide 'compensation for damage to [their] home[s]'. The families were asked to sign a blank piece of paper.

The stated purpose of this 'agreement' was to provide 'mental relief' to the families as they were 'feeling unsafe' and living under fear.

The true extent of the risk was confirmed by a large mudslide triggered along the Holi-Chamba Road below Jharauta village due to continuous seepage, in early January 2022.²¹ During the incident, nine families (twenty-three persons) sustained damage to their houses, cowsheds, agricultural and orchard land, besides other public land. The interim report of the damage assessment committee estimated damage worth ₹60.72 lakh (including more than 19 bighas²² of agricultural, horticultural and forest land, and a few residential buildings). The government-constituted committee recommended seeking the opinion of technical experts, including the State Geologist, to prevent future mishaps in Jharauta village.²³ At the time of writing, the State

¹⁸ Himdhara & WSS, 'All Women Fact-Finding Team Report' (June 2014) <http://www.himdhara.org/wp-content/uploads/2014/07/Holi-FF-Team-Report_Final1.pdf> accessed 20 Jan 2024.

¹⁹ Irrigation and Public Health Department in response to RTI filed by Sumit Mahar on 14 July 2018.

²⁰ RTI response from DC Chamba dated 17 July 2021.

²¹ Himdhara, 'A Fact-Finding Report on the Recent Hazards: 180MW Bajoli Holi Hydropower Project in Bharmour Tehsil, Chamba, Himachal Pradesh' (January 2022) <http://www.himdhara.org/wp-content/uploads/2022/01/Increased-risk-and-tunnel-testing-menace-by-180MW-Bajoli-Holi-HEP_Finalfinal1.pdf> accessed 16 Jan 2024.

²² 14,297.77 square metre, based on conversion metrics retrieved from https://himachal.nic.in/WriteReadData/1892s/13_1892s/1392634217.pdf

²³ RTI response from DC Chamba dated 17 July 2021.

Geologist's report is still pending.²⁴ Despite the assurances given by the district authorities, deep cracks emerged in the land close to the village.²⁵ This new development kindled the fear of a Joshimath-like crisis, putting residents on tenterhooks.

THE MAKING OF A HYDROPOWER HAZARDSCAPE

In the last two decades, a cascade of ROR dams have been constructed over the Sutlej, Beas and Ravi rivers. At the end of 2022, there were 29 large dams (above 25 MW each) with a total installed capacity of 10,263 MW operating in Himachal Pradesh, the hydropower state of India. After the completion of seven others that are under construction, the state will have realised about 70% of its hydropower potential.²⁶ Additionally, over a hundred small projects (with capacities below 25 MW) have been constructed on the tributaries of these rivers.

While nine of the large dams have been developed by private players, hydropower development in the state (like the rest of the Himalayan region) has essentially been led by central and state public sector entities like the National Hydropower Corporation, NTPC, Satluj Jal Vidyut Nigam Limited and the Himachal Hydropower Corporation Limited. Bilateral funding and loans have been extended to the public sector by World Bank and ADB²⁷ under their 'Clean Energy' programmes. On the other hand, private and some public investors (57 from May 2005 to April 2021) applied for subsidies promised by the Clean Development Mechanism (CDM) under the UNFCCC to deploy 2990.35 MW micro and large hydel projects.²⁸ Carbon credits from polluting countries of the global north are expected to provide financial subsidies for small projects. Many of the larger projects led by public sector companies have also tried their luck with CDM subsidies.

In the late 1990s and early 2000s, after the building of the first few large projects in Chamba, Kinnaur and Kullu districts, public protests around their socio-environmental impact started emerging. Issues such as land acquisition, deforestation and diversion of forest land, large-scale muck-dumping along the river, blasting for underground construction leading to cracks appearing in homes, drying up of springs and landslides were raised by the affected communities in courts and on the streets. The gravity of the matter came to the fore in late 2006 when police opened fire on the tribals of Kinnaur who were protesting against Jaypee's (later transferred to JSW) Karcham Wangtoo hydropower project.²⁹

It needs to be noted that the decision of the Shimla High Court in the Bajoli matter, outlined in the previous section, followed close to the heels of another court matter on the subject. In 2010, the High Court had appointed a one-man committee to investigate the environmental non-compliances and impacts with respect to hydropower projects in the state. The state

²⁴ RTI response from Geological Wing, Department of Industries dated 31 Oct 2022.

²⁵ Rohit Mullick, 'Leaking Tunnel Puts Lives of 200 Tribals in Danger in Himachal Pradesh' (*Times of India*, 5 January 2023) <<https://timesofindia.indiatimes.com/city/shimla/leaking-tunnel-puts-lives-of-200-tribals-in-danger-in-himachal-pradesh/articleshow/96754548.cms>> accessed 20 Jan 2024.

²⁶ CEA, 'State-wise Profiles on Hydro Power Development' (CEA, October 2022) <https://cea.nic.in/wp-content/uploads/hepr/2022/10/State_Power_10.pdf> accessed 19 Jan 2024.

²⁷ Himdhara, 'A Report on ADB Financed Hydropower Projects in Himachal Pradesh' <https://admin.indiawaterportal.org/sites/default/files/iwp2/In_the_name_of_clean_energy_ADB_financed_hydropower_projects_in_Himachal_Pradesh_Him_Dhara_2011.pdf> accessed 20 Jan 2024.

²⁸ CDM <<https://cdm.unfccc.int/Projects/projsearch.html>> accessed 17 Mar 2023.

²⁹ Sumit Mahar & Manshi Asher, 'Opinion: Himalayan Hydropower is Not a Green Alternative' (*The Third Pole*, 22 July 2020) <<https://www.thethirdpole.net/en/energy/opinion-himalayan-hydropower-is-not-a-green-alternative/>> accessed 20 Jan 2024.

Additional Chief Secretary (Forests) Avay Shukla, in a 30-page report placed before a 'green bench' of the High Court of Shimla in August 2010, recommended a review of the state's hydropower policy and an assessment of the cumulative impacts of the cascade of projects at the river basin level.³⁰

In relation to the Ravi River basin, the report asserted that of the 70 km stretch of the Ravi between Chamba town and Bajoli, only 3 km of the original river bed would remain and the rest would disappear. 'There are four hydro projects sanctioned on the 70 km stretch. When all these projects are commissioned, the entire river would meander through tunnels of the projects,' Shukla observed. The actual scale and range of the impacts of the dams warranted a bigger, multidisciplinary and independent committee. However, the Shukla committee recommendations, which the state government in its affidavit treated lightly (citing the importance of the projects as a source of revenue and development for the state), were a critical acknowledgement of the environmental malignancy of Himalayan hydropower development.

In the wake of the Shukla committee report and repeated demands by environment action groups, the MoEF&CC's Expert Committee on River Valley Projects recommended a Cumulative Impact Assessment (CIA) and River Basin Studies of major river valleys in Himachal Pradesh. Post 2013, these studies were carried out as formalities, and not in the spirit of a mandatory exercise prior to the sanctioning of environmental clearances to new projects. CIAs were made compulsory for the diversion of designated forest land to individual projects, but this decision was later diluted by the Forest Advisory Committee responsible for recommending 'Forest Clearances'. In fact, this shift came specifically to accommodate the grant of clearance for the 180 MW Bajoli Project.

On 8 July 2011, the MoEF&CC accorded in-principle (or stage I) approval to GMR for the diversion of 75 hectares of forest land on the condition that '[a] cumulative study may be carried out by the State Government on behest of all project proponents on River Ravi to assess the impact on landscape in general, wildlife and ecological aspects before final sanction is accorded.'³¹

One and a half months later, in August 2011, the MoEF&CC modified the condition to read as follows.

A cumulative study may be carried out by the State Government on behest of all project proponents of Ravi River to assess the impact on landscape in general, and wildlife and ecological aspects in specific and *the user agency shall submit an undertaking to comply with the additional conditions that the Central Government may stipulate based on outcome of the said study.*³²

The CIA results for the Sutlej Basin were presented on public platforms for consultation and detailed written and oral objections were filed. However, this process did not incorporate the concerns of affected people. In the final decision by MoEF&CC's EAC, a clean chit was given to

³⁰ Avay Shukla, 'Report of the One-Man Committee to Monitor Environmental Compliance of Hydel Projects in CWP No. 24/09' (2009) <https://hphighcourt.nic.in/pdf/Environmental_Compliance.pdf> accessed 20 Jan 2024.

³¹ In-principle forest diversion approval dated 8 July 2011. Emphasis added.

³² Ministry of Environment and Forests, Letter No. F. No. 8 43/2011 FC dated 29 Aug 2011. Emphasis added.

148 projects in the Sutlej valley in 2019. In the high-altitude tribal district of Kinnaur, where the installed capacity has crossed 3,000 MW, public engagement with regulators and courts did not result in a pause on dam building.³³ The region saw a spate of disastrous landslides in the monsoon of 2021, after which Kinnaur's youth initiated the 'No Means No' campaign, demanding a complete halt to further dam construction in the district.³⁴

'POWER' POLITICS, GREEN COLONIALISM AND RESISTANCE

The Western Himalayan region's tryst with dams is as old as the Indian nation state building project itself. The Bhakra Nangal Dam built on the Sutlej River was one of the first in the 'temples of modern India' programme meant to usher in the era of industrial modernity. All it takes is a visit to the hill town of Bilaspur to catch sight of submerged trees and temple tombs floating atop the still brown waters of the Sutlej—now a 'man-made' lake. The multiple purposes served by these projects—power production, irrigation, driving the green revolution and industrialisation—cannot hide their long-term, often irreparable, socio-economic and ecological costs. More often than not, this cost has been borne by rural Adivasi, dalit and forest-dependent communities, who have been thrown beyond the margins as a result of mass displacement. The uneven distribution of costs and benefits comes sharply into focus.

'By the 1990s, social movements against large dams in India were a powerful challenge to dominant policies of development,'³⁵ notes Baviskar, in her analysis of anti-dam movements like the Narmada Bachao Andolan.

She states that these 'grounded struggles were acclaimed for their critique of capitalist industrialization and their advocacy for an alternative model of socially just and ecologically sustainable development'. These movements drew the attention of the middle class through popular media and evidently made an international impact with the formation of the 'World Commission on Dams' which laid out a discourse on dam-related impacts and safeguards centred on displacement. The struggles over rights to resources that ensued in the post-liberalisation phase also fed into protective legislations for environment clearances, rehabilitation and recognition of rights of forest dwelling communities.

However, post 2000, the dam building juggernaut morphed itself and traversed the geopolitically fraught upper Himalaya, where India also sought to exercise control over its riparian rights as a nation with regard to its neighbours.³⁶ With new technology and relatively less densely populated locations that reduced the submergence zones and number of (directly) displaced people, this new set of dams was made to appear 'clean and green' in EIA reports and safeguard policies of international financial institutions. Official documents did not even use the term 'dams' to describe 'hydropower projects', which were no longer seen to cause visible direct displacement but carried invisible risks, hidden in the mountain's belly before breaking out into the open in the form of disasters, as evident in documentation from across the

³³ Manshi Asher and Prakash Bhandari, 'Land Use Policy Mitigation or Myth? Impacts of Hydropower Development and Compensatory Afforestation on Forest Ecosystems in the High Himalayas' (2021) *Land Use Policy* 100.

³⁴ Ashwani Sharma, "'No Means, No!' After Landslides, Kinnaur Natives On Warpath Against Hydel Projects' (*Outlook India*, 28 Aug 2021) <<https://www.outlookindia.com/website/story/india-news-no-means-no-after-landslides-kinnaur-natives-on-warpath-opposing-hydel-projects/392902>> accessed 20 Jan 2024.

³⁵ Amita Baviskar, 'Nation's Body, River's Pulse: Narratives of Anti-Dam Politics in India' (2019) Thesis Eleven, 26-41.

³⁶ Ruth Gamble, 'How Dams Climb Mountains: China and India's State-Making Hydropower Contest in the Eastern-Himalaya Watershed' (2019) Thesis Eleven, 42-67.

Himalayan region. In Subrat Sahu's documentary, *The Mountains Agonised*, a resident of Sangla in Kinnaur, summarises the conception of the long term, all-pervasive and unpredictable nature of risk associated with these dams: '*Khod khod ke paharon ko khokhla kar diya hai. Bhavishya mein kahin bhi, kabhi bhi, kuchh bhi ho sakta hai.*'³⁷ (They have dug up all the mountains and hollowed them. Anything [disaster] can happen anywhere in the future).'

The project infrastructure itself — apart from the workers on site, the villages, forest and other surrounding land — was first in line among the hazards on the landscape it rendered precarious. A landslide hazard risk assessment by the Himachal Pradesh government³⁸ found that 'a huge number of hydropower stations i.e. 67 are under threat of landslide Hazard risk'. Government data on power project delays³⁹ shows that, as of November 2020, most of the under-construction hydro projects in the country were facing time and cost over-runs amounting to over ₹30,000 crore. Technocrats used the terminology of 'geological surprises' to explain away losses, feign strategic ignorance and offer policy responses that involved 'shifting the risk away from project developers onto residents and electricity consumers'.⁴⁰ Rather than claim responsibility for wrongful siting, they blamed delays on clearance 'hassles', calling for dilutions in environmental norms and the introduction of fast-track approval mechanisms, and lending the 'renewable energy' tag to large hydropower dams to make them eligible for sops and subsidies.⁴¹

Huber addresses this in her work⁴² on the production of unequal risks in the hydro-development in the Eastern Himalaya (Sikkim). She argues how affected people 'may be aware of and challenge the technocratic gaze and the power dynamics that put them at risk; yet they fail to transform existing configurations of power and injustice due to the differentially powerful epistemic authority of popular epistemologies vis-à-vis policy and science-based knowledge claims'. This is evident in the exclusion of women and marginalised castes—who are more vulnerable to risk—from consultative processes. When 'knowledgeable' elite male members of the community, sometimes village leaders, engage in environmental regulation and decision-making spaces like public consultations and court battles, societal inequities are reinforced. Knowledge politics at various levels and the nexus of local bureaucrats, politicians and contractors play key roles in thwarting resistances.⁴³

Over time, affected residents have used different tactics based on lived experience and emerging evidence, using everyday cultural, spiritual and constitutional spaces to create

³⁷ Subrat Sahu, 'Ho Gayi Hai Pir Parvat Si: The Mountains Agonised' (2018), <<https://vimeo.com/311446243>> accessed 18 Mar 2024.

³⁸ TARU, 'Landslide Hazard Risk Assessment. Composite Final Draft Report (T6). Preparation of Hazard, Vulnerability & Risk Analysis Atlas and Report for the State of Himachal Pradesh' (2015) DM Cell, Revenue Department, Himachal Pradesh Government.

³⁹ Standing Committee on Energy 43rd Report (Sixteenth Lok Sabha) (2019) 'Hydropower' (Lok Sabha Secretariat COE No. 302).

⁴⁰ Saumya Vaishnava and Jennifer Baka, 'Unruly Mountains: Hydropower Assemblages and Geological Surprises in the Indian Himalayas' (2022) 5(3) *Environment and Planning E: Nature and Space*, 1123–45; Mabel D. Gergan, 'Geological Surprises: State Rationality and Himalayan Hydropower in India' (2019) *Roadsides*, 35–42.

⁴¹ PIB, 'Cabinet Approves Measures to Promote Hydro Power Sector' (PIB Delhi, 7 March 2019) <<https://pib.gov.in/PressReleasePage.aspx?PRID=1567817>> accessed 18 Mar 2024.

⁴² Amelie Huber, 'Hydropower in the Himalayan Hazardscape: Strategic Ignorance and the Production of Unequal Risk' (2019) *Water (Switzerland)* 414.

⁴³ Amelie Huber and Deepa Joshi, 'Hydropower, Anti-politics, and the Opening of New Political Spaces in the Eastern Himalayas' (2015) *World Development*, 13–25.

counter-narratives. In the 'No Means No' campaign, the gram sabha, mahila mandals and youth clubs of Upper Kinnaur mobilised around issues of survival, identity, security and indigenous rights.⁴⁴ The Joshimath crisis, given its nature and scale, and the ongoing popular struggle, has pushed the envelope on perspectives around dams, disasters and displacement. Disaster risk and safety issues have become the centerpiece of contestation in the case of Himalayan dams,⁴⁵ even as the question of drawing a 'scientific correlation' of risks and hazards to dam construction remains daunting and contentious. While negligence by state actors is not viewed as an offence, organised efforts of affected people to protect the environment through anti-dam agitations have been criminalised. More covert forms of this criminalisation can be seen in the instances of Joshimath and Chamba presented in this article where costs have been imposed on petitioners seeking justice, placing doubt on their intent and credibility, rather than examining the cases on substantive or procedural principles.

The blatant disregard of the 'precautionary principle' in judicial decision-making is telling. The Rio Declaration reads, 'Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' According to legal scholar Lavanya Rajamani,⁴⁶ in the stronger version of the interpretation of a principle, the burden of proof is shifted to the proponent of the 'risky' activity. Indian courts have often, in environmental jurisprudence, let principles of 'sustainable development' and 'polluter pays' override the precautionary principle, she observes. Lohman analyses this 'reorganisation of law and nature' as a critical feature of neoliberalism,⁴⁷ where the State's marketised formulations of 'mitigation' and 'offsetting' policies to 'conserve nature' in the face of extraction, further perpetuate exclusion and resource grab.

Hydropower dams, amongst other 'unquestionable infrastructures',⁴⁸ are grounded firmly within the global north's energy transition and net zero emission strategies to save the planet. As Batel and Küpers point out, this green or renewable energy colonialism is grounded not just in the global north-south divide but also within national boundaries in core-periphery or urban-rural structural power relations. Like the adivasi hinterlands, the Himalaya too are strategic resource frontiers—in this case, feeding the common good of 'green growth'.

CONCLUSION

This article was written before the heavy monsoon in 2023 that saw a spate of unprecedented disasters across Himachal Pradesh and parts of Uttarakhand. Of particular concern is the flooding of the Beas and Sutlej rivers, which has had far-reaching impacts in the downstream regions. The cascading impacts and displacement faced in Kullu and Mandi districts in July

⁴⁴ Unknown, 'Voters in 3 Panchayats in Kinnaur District Boycott Bypoll to Mandi Lok Sabha Seat' (The Tribune, 30 October 2021) <<https://www.tribuneindia.com/news/himachal/voters-in-3-panchayats-in-kinnaur-district-boycott-bypoll-to-mandi-lok-sabha-seat-332065>> accessed 17 Mar 2024.

⁴⁵ Himdhara, 'Lack of Safety Compliance in Hydro Projects Invitation to Disasters: Community Representatives, Activists to Authorities' (Memorandum to CWC Secretary, 8 May 2019) <http://www.himdhara.org/wp-content/uploads/2019/05/SafetyMemorandum_CWC.pdf> accessed 20 Jan 2024.

⁴⁶ Lavanya Rajamani, 'The Precautionary Principle' in Shibani Ghosh (eds), *Indian Environmental Law: Key Concepts and Principles* (Orient Blackswan 2019).

⁴⁷ Lohmann Larry, 'Neoliberalism, Law and Nature' in Philippe Cullet and Sujith Koonan (eds), *Research Handbook on Law, Environment and the Global South* (Edward Elgar Publishing 2019).

⁴⁸ Susana Batel and Sophia Küpers, 'Politicizing Hydroelectric Power Plants in Portugal: Spatio- Temporal Injustices and Psychosocial Impacts of Renewable Energy Colonialism in the Global North' (2022) *Globalizations*, 1-20.

2023 due to the sudden water release in the case of hydropower dams like the Parbati III, Sainj and Pandoh stand out in the larger scenario of infrastructure-led land use change that has rendered the Himalayan landscape vulnerable. In the aftermath of the destruction and evacuations caused by the sudden submergence, came the government's critical acknowledgement of the violation of dam safety norms, especially the absence of flood control, monitoring and warning by 21 of the 23 major dam operators in Himachal Pradesh.

Technocratic perspectives dominate research and knowledge production on the Himalaya and hydro-disasters. Nationalistic and green-washed growth rhetoric are used to justify accumulation by extraction and dispossession. In the neoliberal political economy, people demand distributive or procedural justice—as we see in the Bajoli case—even as environmental regulatory architectures are being increasingly compromised, financialised and managerial. The slogan of '*Himalaya ko lootna band karo*' ('Stop the plunder of the Himalaya') has not died out and neither have creative initiatives for asserting citizenship and pushing for incremental shifts in power relations. For lawyers, scholars and activists looking to lend support to these efforts for justice, it is critical to examine the historical, spatial and temporal trajectories of this slow structural violence and resource contestation, as well as to engage with diverse forms of local resistance.

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