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HYDROPOWER DEVELOPMENT IN INDIA: THE LEGAL-ECONOMIC DESIGN TO FUEL GROWTH?

ABSTRACT

Economic liberalization beginning in the early 1990s has represented a paradigm shift in policy discourse in India, from social welfare to economic growth. With its potential benefits of generating power for the growing economy and significant revenue through electricity sales and royalty payments, hydropower development has received center-stage in the hydro-rich but economically weaker Himalayan states of India. Using an institutional approach to examine the evolution of laws and policies on electricity, land, environment, and water, this article seeks to uncover how prevailing legal and economic systems prioritize hydropower generation over other water uses. It argues that federal and state governments have brought about regulatory changes that tip the allocation and distribution of resources and wealth in the favor of increasingly private sector-dominated hydropower development. This resource colonization favors maximizing returns on investment at the expense of minimizing environmental and social costs. The case of the Indian state of Uttarakhand illustrates the structural power of the state government to frame and enforce laws to protect hydropower development while forgoing considerations of environmental flows and the de facto water rights of communities. Changing this status quo will require fundamental alterations to the current institutional structures to ensure a more just and equitable hydropower development regime. These changes—which give greater consideration to socio-environmental sustainability and promote integrated water resources management—should comprise: acknowledging ecosystem and water rights; creating mechanisms where local communities can contest unfair resource allocation; delineating guidelines for states’ role as public trustees of water; promoting local participation in monitoring related to hydropower projects; and balancing economic goals with alternative water uses.

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INTRODUCTION

The growing prominence of climate change concerns, coupled with rising energy demands, has led to the resurgence of interest in hydropower development in India. With a concentration of over 80 percent of the country's hydropower potential of 150,000 megawatts (MW), the North and North-Eastern Himalayan states¹ are at center stage in hydro-development planning. In India, dam proponents have framed hydropower in purportedly win-win scenarios: it provides clean energy for the country's rapidly growing economy and accelerates development in the economically weaker North and North-Eastern Himalayan states.² For these Himalayan states, hydropower dams have been portrayed as "cash registers,"³ boosting weak economies of the host states through generous royalties from hydropower sales.⁴

Through the existing legal-economic structure, the state has promoted hydropower development and upheld the interests of increasingly private sector dominated project developers.⁵ Local communities and the environment are clear losers in this process, where weak enforcement or the absence of regulatory measures makes it difficult to contest this allocation of resource. Hydropower developers, meanwhile, gain from the resulting redistribution of power, income, and wealth.⁶

This article adopts an institutional approach⁷ to law and economics as a guiding framework. Such an approach fundamentally involves understanding the institutional structures that define rights and entitlements of individuals. Rights, as used in this article, refer to property rights. In this sense, property is not conceptualized as a "thing" but a *right* in or to things.⁸ Rights are further considered as "enforceable claims" of individuals to use or benefit from something,

1. CENT. ELEC. AUTH., HYDRO DEVELOPMENT PLAN FOR 12TH FIVE YEAR PLAN (2012–2017), http://www.indiawaterportal.org/sites/indiawaterportal.org/files/hydro_development_plan_for_12th_five_year_plan.pdf [https://perma.cc/UH8V-9V8Z].

2. Amelie Huber & Deepa Joshi, *Hydropower in Sikkim: Coercion and Emergent Socio-environmental Justice*, in WATER CONFLICTS IN NORTHEAST INDIA: A COMPENDIUM OF CASE STUDIES 102, 102 (PARTHA J. DAS ET AL., 2013).

3. MARC REISNER, *CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER* 140 (1986).

4. Sanjib Baruah, *Whose River Is It Anyway?*, 47 *ECON. POLIT. WKLY.* 41, 42 (2012). It is interesting to note that for a large number of projects, the Power Purchase Agreements are with richer states that will receive a major proportion of the power generated. In the case of Teesta V in Sikkim, for example, the power is expected to be transported all the way to the state of Maharashtra in Central India.

5. NICHOLAS MERCURO & STEVEN G. MEDEMA, *ECONOMICS AND THE LAW: FROM POSNER TO POSTMODERNISM AND BEYOND* 226 (2d ed., 2006) (noting that the state has influenced the "sphere of decision-making that reflects the working of whose interests are to count as rights, and whose values are to dominate").

6. *Id.* at 226.

7. The institutional approach has its intellectual foundations in the work of JOHN COMMONS, *THE LEGAL FOUNDATIONS OF CAPITALISM* (1924). This book emphasizes the role of law and the courts in determining the elements of economic system. Specifically, the book discusses how the economy influences law by bringing to bear pressures on the political and legal systems and how, in turn, legal changes facilitate the development of economic activities in particular directions.

8. C.B. Macpherson, *The Meaning of Property*, in *PROPERTY, MAINSTREAM AND CRITICAL POSITIONS* 2, 3 (C.B. Macpherson ed., 1978).

where at least one other person has the duty to recognize this claim.⁹ Entitlements can emerge from rights, but can also mean non-enforceable privilege, liberty, or resource use by individuals. Rights and entitlements, therefore dictate who has power, privilege, immunity, and duties, and who has no rights, and thus no power.¹⁰

In the institutional approach, the structure of rights and entitlements is considered to be shaped by the “legal-economic nexus,”¹¹ wherein legal and economic systems are “jointly produced” through interdependencies and a “feedback effect.”¹² The feedback between the two systems can both create and recreate rights and entitlements. It is in this process that political and economic power gets expressed¹³ to define working rules for going concerns¹⁴ that protect dominant interests.

Governments play a central role in this legal-economic feedback process. Governments are the primary entities that safeguard rights and entitlements. The institutional approach is therefore concerned with *whose* interests government gives effect through the legal system.¹⁵ Changes in the legal system can result in redefinition of rights and alter how people use, control, and allocate natural resources. The change in the degree of enforcement of rights can also protect dominant interests and harm others.¹⁶ The institutional approach is crucial in unpacking this “struggle over entitlements (or rights),”¹⁷ in order to understand *whose* interests dominate in the evolving legal and economic systems and,

9. Daniel H. Cole & Peter Z. Grossman, *The Meaning of Property Rights: Law vs. Economics?*, 78 LAND ECON. 317 (2002).

10. Daniel Bromley, *Resources and Economic Development: An Institutional Perspective*, 19 J. OF ECON. ISSUES 779, 781 (1985).

11. MERCURO & MEDEMA, *supra* note 5, at 222 (citing Warren, J. Samuels, Essay, *The Legal-Economic Nexus*, 57 GEO. WASH. L. REV. 1556, 1557 (1989)). Samuels considers the nexus “a continuing, explorative, and emergent process through which are worked out ongoing solutions to legal-economic problems.” Institutionalists view the legal-economic system as a system of mutual interdependence rather than atomistic independence. *Id.* at 1578.

12. MERCURO & MERCURO, *supra* note 5, at 218–19 (citing WARREN J. SAMUELS & ALLAN A. SCHMID, *LAW AND ECONOMICS: AN INSTITUTIONAL PERSPECTIVE* (1981)). Samuels and Schmid argue that the feedback effect arises as follows: legal rights govern who can access and participate in the economy and the functioning of the economy, whereas economic performance, on the other hand, can create pressures for legal change. The case of the electricity sector in the United States is illustrative: laws giving electric utilities a monopoly over power generation and distribution had to be changed due to growing concerns these utilities were inadequately considering the public interest. As part of this legal change, utilities lost their monopoly power over electricity generation.

13. Bromley, *supra* note 10, at 783.

14. *Id.* at 782 (citing JOHN R. COMMONS, *INSTITUTIONAL ECONOMICS* (1961)). Working rules, according to Commons, are those rules that define what an individual must and must not do, and thereby provide guidance and restraint in an individual’s transactions. Going concerns are the issues related to the actual process of the transaction, i.e., the production or consumption of things, including buying, selling, borrowing, and lending, etc.

15. MERCURO & MEDEMA, *supra* note 5, at 225.

16. *Id.* at 224–25.

17. Bromley, *supra* note 10, at 782.

ultimately, who gains and who loses as a function of natural resources use and policy.¹⁸

To achieve a more nuanced understanding of the legal framework of property right, analysis cannot be limited to the formal law. Beyond this “law on the books”¹⁹ approach, the analysis of this article focuses on how the law works in practice, i.e., “law in action.”²⁰ The aim of the latter type of analysis is to shed light on how politics—or economic interests—influence the interpretation, implementation, or enforcement of the law in practice.

This article begins with a brief history of the political economic as well as hydraulic reforms in India that comprise the broader context for discussion of the regulatory structures most relevant to hydropower development. Next, it discusses the evolution of the four main categories of regulations guiding hydropower development from an institutional lens. The subsequent section analyzes these regulatory changes and the enforcement system, specifically in the case of the Indian state of Uttarakhand. Finally, the article identifies lessons from Uttarakhand and discusses the broader implications of the current pattern of hydropower development on water resource management and sustainability.

I. POLITICAL ECONOMY AND THE SHIFTING HYDRAULIC MISSION

To understand how the Indian government is promoting hydropower development through the existing legal-economic structures, it is important to take a step back to understand the changes in the legal-economic structure in the country in the post-independence period (after 1947). As the legal-economic nexus is dynamic and evolves over time through feedback, tracing the political economic changes in India offers a lens to understand the broader drivers of economic and, in turn, legislative changes at the national level. The political economic history also offers a roadmap to understand the shifts in the “hydraulic mission”²¹ in India. This history contextualizes the resurgence of interest in hydropower, and provides important background for analysis of the institutional structures that govern, and arguably prioritize water use for hydropower generation.

Changes in Indian economic policy are marked by distinct transitions in the periods from 1947–1967, 1967–1984, 1984–1991, and 1991 to present times. The first three of these periods are characterized by the political power of the ruling

18. See generally Carl J. Bauer, *Dams and Markets: Rivers and Electric Power in Chile*, 49 NAT. RESOURCES J. 594 (2009) (the author explores the evolution of water and electricity laws in Chile to argue that these laws have given preference to hydropower, impacting local communities and the environment in the process).

19. CARL J. BAUER, SIREN SONG: CHILEAN WATER LAW AS A MODEL FOR INTERNATIONAL REFORM 15–16 (2004).

20. *Id.*

21. F. MOLLE, P. P. MOLLINGA & P. WESTER, HYDRAULIC BUREAUCRACIES AND THE HYDRAULIC MISSION: FLOWS OF WATER, FLOWS OF POWER 328, 333 (2009). The authors use the term “hydraulic mission” to indicate the growing endorsement of large-scale infrastructure—dams—to tame water resources for the benefit of man. This mission refers to the faith in technology and science, especially large-dam construction, as a way of controlling water for meeting irrigation and electricity needs. The hydraulic mission was touted as an essential first step in promoting food security and economic development of the newly independent countries in the post-colonial period.

Indian National Congress, with leadership represented by Prime Ministers Jawaharlal Nehru, Indira Gandhi, and Rajiv Gandhi, respectively. Coalition governments came to power after 1991. Each of these periods also indicates a marked shift in India's hydraulic mission as discussed below.

A. 1947–1967: The Rise of the Large-Dam Era

The Indian post-independence period was influenced by the political and economic ideals of Jawaharlal Nehru²² who, based on socialist ideology, considered facilitating rapid economic and social development as the central role of the federal government. Nehru set up the Planning Commission in 1950 that developed the national five-year plan framework.²³ The first three of these five-year plans (1950–1965) reflected Nehru's socialist focus. Each plan provided for significant expenditures in infrastructure development to enhance food production and to promote growth in strategic transport, as well as in industries that manufactured iron and steel.²⁴ This government-led infrastructure development gave rise to the hydraulic mission in India: the government sponsored the construction of large-scale multi-purpose dam projects.²⁵ This was the large-dam era, where these projects carried a political aura as the “temples of modern India.”²⁶ These projects served as icons of modernity and development, with structures that could allow the government to deliver the “fruits of development” to the constituencies of their newly independent country.²⁷ The purported benefits of these large dams—providing water for irrigation, industries, and electricity generation—legitimized the government's and elites' exercise of power in building these projects, as these actors were considered to have both the technical expertise and financial capabilities to execute the projects.²⁸

B. 1967–1984: From Large Dams to Growth in Groundwater Irrigation

Following Nehru's demise in 1964 and Lal Bahadur Shastri's²⁹ untimely death in 1966, Indira Gandhi rose to power in 1967 in a period marked by an agrarian crisis, high unemployment, and growing big-business-backed political

22. Jawaharlal Nehru was the first Prime Minister of India. He held office from 1947–1964. He was also the leader of the prominent and then left-leaning political party, the Indian National Congress.

23. Five-year plans are centralized and integrated national economic programs.

24. See RAJIV LALL & ANUPAM RASTOGI, *THE POLITICAL ECONOMY OF INFRASTRUCTURE DEVELOPMENT IN POST-INDEPENDENCE INDIA* 1–28 (2007).

25. See FRANÇOIS MOLLE, *PLANNING AND MANAGING WATER RESOURCES AT THE RIVER-BASIN LEVEL: EMERGENCE AND EVOLUTION OF A CONCEPT* 12 (2006) (noting the development logic in this period was heavily influenced by hydraulic development in the United States, particularly that of the New Deal period. Several projects such as the Damodar Valley Projects “explicitly” drew inspiration from the Tennessee Valley Authority).

26. J. Bandyopadhyay et al., *Dams and Development: Report on a Policy Dialogue*, 37 *ECON. & POL. WKLY.* 4108, 4108 (2002) (quoting Jawaharlal Nehru).

27. F. MOLLE ET AL., *supra* note 21, at 335.

28. *Id.* at 335; RAJEEV SIBAL, *THE UNTOLD STORY OF INDIA'S ECONOMY* 19 (2011).

29. Lal Bahadur Shastri served as the Prime Minister of India, after Jawaharlal Nehru, from 1964–1966.

opposition.³⁰ To strengthen her political creditability at a time of rising populist politics,³¹ Indira Gandhi opposed big business.³² Under this approach, which emphasized rapid rural and agrarian development, India's hydraulic mission shifted in focus from building large-scale, long-gestation multi-purpose irrigation projects to supporting groundwater irrigation through fiscal subsidies.³³

The 1970s was a period of growing political instability. This decade marked the declaration of a period of emergency between 1975 and 1977, an interim change in government from the Indian National Congress to the Bharatiya Janata Party from 1977 to 1979, and Indira Gandhi's return to power (by a slim victory) in the early 1980s. Following these political changes, Indira Gandhi's policy orientation became more conservative and pro-business. This policy shift resonated with the economic-growth ideology of agencies such as the International Monetary Fund (IMF).³⁴ Increasing social protests, meanwhile, took place against large-scale hydropower development such as the Tehri and Silent Valley Dam Projects; groundwater irrigation remained the country's hydraulic focus.³⁵

C. 1984–1991: Anti-Dam Protests and Economic Liberalization

Rajiv Gandhi's succession in 1984, after the end of his mother's tenure, strengthened India's economic liberalization prospects.³⁶ Indira Gandhi's pro-business policies had brought about a change in textile, automobile, cement, and petrochemical industries that in the short term had led to rapid growth in these industries. Bureaucrats with a past experience of working for international agencies such as the World Bank had a growing prominence in Rajiv Gandhi's government.³⁷ The experience of industrial growth, and increased sharing of World Bank and IMF perspectives towards economic development,³⁸ aided Rajiv Gandhi's pro-reform government in making a case for further liberalization.³⁹ While there was some hydropower related dam development during Rajiv Gandhi's tenure, it faced stiff opposition from civil society groups and activists.⁴⁰

The change of government in 1989, caused by Rajiv Gandhi's assassination, shifted the focus back to populist measures and increased

30. LALL & RASTOGI, *supra* note 24, at 6. Indira Gandhi, daughter of Jawaharlal Nehru, assumed office as Prime Minister of India after the demise of Lal Bahadur Shastri.

31. Stuart Corbridge, *The Political Economy of Development in India Since Independence*, in HANDBOOK OF SOUTH ASIAN POLITICS, 305, 310–11 (Paul Brass ed., 2009).

32. LALL & RASTOGI, *supra* note 24, at 6.

33. *Id.* at 7.

34. Atul Kohli, *Politics of Economic Liberalization in India*, 17 WORLD DEV. 305, 308 (1989).

35. Manju Menon & Kanchi Kohli, *Environmental Decision-Making in India: A Critique*, in WATER & THE LAWS IN INDIA, 359 (Iyer, R. R. Ed., 2009).

36. Rajiv Gandhi, son of Indira Gandhi, assumed office as Prime Minister after Indira Gandhi.

37. Kohli, *supra* note 34, at 312; Vanita Shastri, *The Politics of Economic Liberalization in India*, 6 CONTEMP. SOUTH ASIA 27, 42 (1997).

38. Shastri, *supra* note 37, at 42.

39. *Id.*

40. See generally Arun Kumar Nayak, *Big Dams and Protests in India: A Study of Hirakud Dam*, 45 ECON. & POL. WKLY. 69 (2009). One of the most celebrated and famous social protests during this period was the one led by Medha Patkar in 1988 against the "megadam" Sardar Sarovar Project, a multi-purpose dam project that included a hydropower generation function. See *id.* at 71.

international borrowing. By 1991, however, these policies had resulted in fiscal deficits of around nine percent of gross domestic product (GDP).⁴¹ The economic crisis of 1991, as well as broader international currents for “sensible” macro-economic management as envisaged by the so-called Washington Consensus, served as the final push for economic liberalization by Prime Minister Narasimha Rao.⁴² In short order, Rao proceeded to pass the “New Industrial Policy” to encourage entrepreneurship and growth in capital markets.⁴³ This policy opened up India’s economy to foreign investments in export-oriented production⁴⁴ and abolished monopolies of any sector or industrial enterprise in an effort to shore up competitiveness.⁴⁵ The policy package also envisaged running the public sector along “business lines,”⁴⁶ called for a restructuring of the regulatory system, and abolished the bureaucratic red tape—euphemized as License Raj—that had purportedly halted private sector investment in the country prior to 1991.⁴⁷ These policy changes, in line with the economic liberalization agenda, indicated the opening of the economy to private and foreign investment, with a restructured role of the government.⁴⁸ With a renewed focus on industrial development, particularly in the production of export-oriented goods, the government considered the growth of the power sector vital, a major input for industrial production.⁴⁹

D. 1991–Present: The Resurgence of Hydropower Development

While coal-fired (thermal) power generation has traditionally dominated India’s power sector,⁵⁰ growing energy needs,⁵¹ and climate change concerns have revived interest in hydropower development. Where water resources are relatively plentiful, governments of economically under-developed states have portrayed the climate change threat as an opportunity to generate revenues.⁵² Accordingly,

41. Corbridge, *supra* note 31, at 14.

42. *Id.* at 14.

43. See GOV’T OF INDIA, MINISTRY OF INDUS., STATEMENT OF INDUSTRIAL POLICY § 11 (July 24, 1991) (India), http://dipp.nic.in/English/Policies/Industrial_policy_statement.pdf [<https://perma.cc/2NL2-MZKY>].

44. *Id.* at § 13.

45. *Id.* at § 14.

46. *Id.* at § 15.

47. *Id.* at § 20–23.

48. As the government still maintained some regulatory oversight and control, the economic liberalization was pro-market but not laissez faire. *See id.*

49. See PLANNING COMM’N, 8TH FIVE YEAR PLAN (VOL I), § 1.4.26–1.4.30 (1992) (India), <http://planningcommission.nic.in/plans/planrel/fiveyr/index8.html> [<https://perma.cc/3D3K-3C5C>].

50. GOV’T OF INDIA, CENT. ELEC. AUTH., DRAFT NATIONAL ELECTRICITY PLAN (2016) (India), http://www.cea.nic.in/reports/committee/nep/nep_dec.pdf [<https://perma.cc/LSS6-4GY4>]. Coal-fired thermal power plants have traditionally contributed to the highest installed energy generating capacity in India. In March 2016, for example, Coal-fired thermal power plants constituted 61 percent of India’s total’s power generating capacity. *See id.* at 1.4.

51. See INT’L ENERGY AGENCY, INDIA ENERGY OUTLOOK 11–15 (2015), https://www.iea.org/publications/freepublications/publication/IndiaEnergyOutlook_WEO2015.pdf [<https://perma.cc/M2R6-KXJ3>].

52. For example, the 2008 Hydropower Policy for the state of Arunachal Pradesh—a remote state in the north-eastern part of India—reads as follows:

institutional and policy changes have been brought about to facilitate investment in, and growth of, hydropower development.⁵³

The change in the government's overall stance on social welfare, from Nehru's socialist ideology to Rao's focus on economic growth,⁵⁴ has been reflected in the changing value of water. As opposed to the development of multi-purpose dam projects like under Nehru's leadership, dams are now planned as single-purpose projects for hydropower generation.⁵⁵ The use of water for hydropower generation is thus portrayed as being lucrative not only as a source of revenue, but also as a source of inexpensive power input for industrial development, presenting a purportedly win-win scenario for furthering economic development. International organizations and multilateral lending organizations have also supported this renewed focus on hydropower development;⁵⁶ the World Bank has gone so far as to characterize the Indian Himalayan states as "the most socially and environmentally benign [hydropower sites] in the world."⁵⁷

[T]he growing concern over global warming due to emission of Green House Gases, particularly from coal based power plants, necessitates the development of hydropower potential. . . . [O]nce the hydropower projects are developed, they would contribute towards conservation of scarce fossils fuels and also in significantly reducing carbon emission. . . . The energy generated from hydroelectric projects will not only help in meeting the shortage of power at the national level, but will also help in creating social and development infrastructures, direct and indirect employment opportunities which would eventually result in opening up of further avenues for development in this remote and under developed State.

GOV'T OF ARUNACHAL PRADESH, DEP'T OF HYDRO POWER DEV., HYDRO POWER DEVELOPMENT POLICY (2008) (India), <http://www.indiaenvironmentportal.org.in/files/State%20Mega%20Hydro%20Electric%20Power%20Policy%202008.pdf> [https://perma.cc/P69R-GHFP].

53. See *infra* Parts II, III.

54. PAYAL BANERJEE & ATUL SOOD, *THE POLITICAL ECONOMY OF GREEN GROWTH IN INDIA* 5 (2012).

55. Baruah, *supra* note 4. "Multi-purpose projects" refers to projects that serve such multiple purposes as flood-control, irrigation, hydropower generation, and/or navigation. Newer projects tend to focus solely on hydropower generation and any associated flood control benefits arising from the constriction of numerous projects along the river channel that indirectly regulate the flow of the river. Reviewing the proposed dam projects in Arunachal Pradesh, Baruah notes that of the 147 planned dam projects, 146 projects solely focus on hydropower generation. Only one project can be categorized as multi-purpose due to its flood control function. *Id.* at 51, n.6.

In the Northwest United States, with rising energy costs, the use of water for hydropower generation became more lucrative than its use for irrigation, thus causing a shift in water allocation for power generation. See Philip R. Wandschneider, *Neoclassical and Institutionalist Explanations of Changes in Northwest Water Institutions*, 20 J. OF ECON. ISSUES 87, 92 (1986) (suggesting how change in the marginal value of water can shift allocation of water rights).

56. See, e.g., *India Hydropower Development*, THE WORLD BANK (Mar. 23, 2012), <http://www.worldbank.org/en/news/feature/2012/03/23/india-hydropower-development> [https://perma.cc/53YF-BQ8M].

57. JOHN BRISCOE & R.P.S. MALIK, THE WORLD BANK, 44376, *INDIA'S WATER ECONOMY*, 32 fig.2.24 (2006). This World Bank publication uses two measures to calculate how benign hydropower sites are: persons resettled per MW and area submerged per MW. See *id.* The Indian Himalayas are sparsely populated and have steep valleys requiring lesser submergence of land. By the logic of the metric used, the publication is right in categorizing the Indian Himalayas as the world's most environmentally and socially benign site for hydropower development. However, the catch in the logic of this metric, and associated argument, is this: it fails to take into consideration indigenous populations, few of which remain in the Indian Himalayas, and the fact that the Indian Himalayas are one of the

II. EVOLUTION OF LAWS

Proceeding from discussion of macro-level political-economic trends, associated changes in economic policy, and shifts in India's hydraulic mission, attention is now turned to changes in the legal systems that govern hydropower. Application of the institutional approach to law and economics to the Indian hydropower context, warrants tracing the evolution of laws that govern hydropower—both on the books and in practice—to understand precisely how the government is promoting hydropower development and protecting the interest of project developers.

Because hydropower is a unique physical manifestation of the water-energy nexus,⁵⁸ both electricity and water law will be addressed in the following discussion. Similarly, land is a fundamental input for the construction of dams and dams can have environmental impacts, so the discussion in this section will also focus on land and environmental laws. The evolution of these four sets of laws parallels closely, if not precisely, the broader political-economic changes in the country. However, the legal system in India was not created over a clean slate, it was developed over the colonial laws put in place during the British rule. Therefore, unlike the previous section on the political-economic changes, this section traces the changes in laws from the colonial period to help contextualize the changes in the legal system.

A. Electricity

The history of electricity regulation in India follows the shift from the Nehru's socialist ideology, where the public sector played a dominant role in electricity provision, to the growth-oriented ideology, which provides for a limited government in the post-1991 economic liberalization era. In practical terms, this meant the opening up of the electricity sector to private investment; the weakening of regulatory role of the government over the sector; the rise of project developers in decision-making regarding regulation of the sector and approval of power projects; and the consequent implication for growth in hydropower generation.

After India's independence in 1947, the government enacted the Electricity Supply Act, 1948.⁵⁹ This act created State Electricity Boards (SEBs)⁶⁰ and empowered them to supply electricity.⁶¹ The government then passed the

world's biodiversity "hotspots." It also fails to take into account the high seismicity of the Indian Himalayas, which make these mountains anything but a benign site for hydropower development.

58. This is to say, hydropower uses water as an input for production of electricity and this electricity in turn is used in the management of water resources, including, for example, water transportation. See Morgan Bazilian et al., *Considering the Energy, Water and Food Nexus: Towards an Integrated Modelling Approach*, 39 ENERGY POL'Y 7896, 7898 (2011).

59. The Electricity (Supply) Act, No. 54 of 1948, INDIA CODE (2016). It is important to note that the power to govern electricity was split between the central government and state governments by Schedule 7, List III, entry 38 of the Constitution of India. Thus, both the Central government and State governments can legislate concerning electricity. See INDIA CONST. art. 246 cl. 2.

60. The Electricity (Supply) Act, No. 54 of 1948, INDIA CODE (2016), § 5.

61. *Id.* § 19.

Industrial Policy Resolution, 1956,⁶² which explicitly recognized the socialist pattern of society as the national objective and transferred all electricity generation and distribution functions to the public sector.⁶³

While the SEBs were intended to function as for-profit enterprises, their financial performance was deplorable, owing to larger expenditure in infrastructure, transmission losses, poor tariff collection, and subsidized electricity in the agricultural sector.⁶⁴ The wave of economic liberalization in 1991 resulted in the passage of the Electricity Supply (amendment) Act in 1991⁶⁵ to attract private investment in power generation to rescue the poorly functioning SEBs.⁶⁶ The government also enacted a new policy in 1991 that permitted foreign private investment in the power sector and provided investing entities full ownership of the projects.⁶⁷ Four years later, the central government amended the 1991 policy to allow private participation in renovation and modernization of existing power stations,⁶⁸ further incentivizing private investment in this sector.

The next wave of reform in this sector arrived as a function of loan disbursement conditions by the World Bank.⁶⁹ The reforms began at the state level in 1995, starting with the state of Orissa,⁷⁰ and then expanded to other states. These reforms included unbundling the SEBs, separating the generation, transmission, and distribution functions. With this unbundling, the government passed the Electricity Regulatory Commissions Act of 1998,⁷¹ establishing the Central

62. Industrial Policy Resolution, 1956, No. 91, Acts of Parliament, 1956 (India), http://www.pib.nic.in/archive/docs/DVD_11/ACC%20NO%202019-BR/CAB-1956-04-30_113.pdf [<https://perma.cc/9ZPG-3NSR>].

63. *Id.* § 6.

64. See PLANNING COMM'N, GOV'T OF INDIA, ANNUAL REPORT 2011–2012 ON THE WORKING OF STATE POWER UTILITIES & ELECTRICITY DEPARTMENTS 9–11 (2011), http://planningcommission.gov.in/reports/genrep/arep_seb11_12.pdf [<https://perma.cc/YPR3-GE3P>]. The subsidy in electricity tariffs was a direct outcome of popular politics in that era. See *id.* at 9. With a largely rural voter base, politicians were compelled to meet demands of this voter group to stay in power. See *id.* at 10.

65. The Electricity Laws (Amendment) Act, 1991, No. 50, Acts of Parliament, 1991 (India), <http://lawmin.nic.in/legislative/textofcentralacts/1991.pdf> [<https://perma.cc/P2XB-FCMJ>].

66. See generally T.G. Arun & F.I. Nixon, *The Reform of the Power Sector in India: 1991–1997*, 10 J. INT'L DEV. 417 (1998) (discussing the reasons for and form of economic reforms in India's power sector between 1991 and 1997).

67. Press Release, Reserve Bank of India, 100% Foreign Investment in Privately Owned Power Sector (Oct. 22, 1991), <http://powermin.nic.in/en/content/foreign-equity-investment> [<https://perma.cc/R2NH-SXTX>] (“full ownership” here refers to 100 percent stake in the projects with no equity provided to the government).

68. GOV'T OF INDIA, MINISTRY OF POWER, POLICY FOR RENOVATION AND MODERNISATION OF EXISTING STATIONS (Oct. 28, 1995), <http://powermin.nic.in/en/content/policy-renovation-and-modernisation-existing-stations> [<https://perma.cc/RD8N-SBBZ>].

69. Anoop Singh, *Power Sector Reform in India: Current Issues and Prospects*, 34 ENERGY POL'Y 2480, 2482 (2006); SREEKUMAR NHALUR, WORLD BANK LED REFORMS IN THE INDIAN POWER SECTOR: A CRITIQUE 3 (2007), <http://www.worldbanktribunal.org/docs/electricity.pdf> [<https://perma.cc/4X92-QJCH>].

70. See PLANNING COMM'N, *supra* note 64; see also The Orissa Electricity Reform Act, 1995, No. 456, Acts of Orissa Legislative Assembly, 1996 (India), http://www.orissa.gov.in/law/acts/pdf_files/1995/OERA_1995.pdf [<https://perma.cc/3REA-G4UZ>] (also known as the Orissa Act 2 of 1996).

71. The Electricity Regulatory Commission Act, 1998, No. 14, Act of Parliament, 1998 (India), <http://cercind.gov.in/ElectReguCommiAct1998.pdf> [<https://perma.cc/7GPH-E3ZP>]. See also The

Electricity Regulatory Commission (CERC)⁷² and State Electricity Regulatory Commissions (SERCs),⁷³ which were responsible for determining tariffs, encouraging competition in the sector, and promoting environmentally benign policies. The liberalization agenda was pushed forward by the Electricity Act of 2003 that promoted electricity trading⁷⁴ and provided open access to distribution grids.⁷⁵

In the context of these broader changes in the electricity sector, a significant push for hydropower development (in particular, private sector-led efforts) began in 1995 and remains ongoing. It started with the central government's Mega Power Policy of 1995,⁷⁶ which not only provided 10-year tax exemptions and import duty exemptions⁷⁷ but also required the government to obtain land and requisite environmental clearances—considered major hurdles in project execution⁷⁸—to reduce expenses incurred by project developers and promote investment.⁷⁹ While this policy only applied to power plants with a capacity of 1,000 MW or higher; the central government instituted the Hydropower Policy in 1998 to ensure and encourage private participation in all projects, regardless of size.⁸⁰ In 2003, the Prime Minister also launched the 50,000 MW hydropower initiative to expedite hydropower development,⁸¹ this included “fast track” land acquisition and providing environmental clearances in a specific time frame to avoid project execution delays and associated cost overruns for the developers. This support at the central government level was followed by institutions of a number of state-level policies⁸² to promote private sector participation in hydropower development, wherein the State Electricity Boards retained authority to select developers to execute these projects.

What these trends reflect is that broader regulations in the electricity sector and specific policies that promote hydropower are geared towards protecting the interests of hydropower developers, while safeguards for local communities and the environment remain wanting. Independent studies and media reports have highlighted that State Electricity Boards and Regulatory Commissions, entrusted with providing regulation and oversight of the sector, are weak. Powerful economic

Electricity Act, 2003, No. 36, Act of Parliament, 2003 (India), <http://www.cercind.gov.in/Act-with-amendment.pdf> [<https://perma.cc/FBJ5-YLNY>].

72. *Id.* § 3.

73. *Id.* § 17.

74. *See* The Electricity Act, 2003, No. 36, Act of Parliament, 2003 (India), <http://www.cercind.gov.in/Act-with-amendment.pdf> [<https://perma.cc/FBJ5-YLNY>].

75. *Id.* § 9(2).

76. GOV'T OF INDIA, MINISTRY OF POWER, MEGA POWER PROJECTS: REVISED POLICY GUIDELINES (November, 1995), <http://www.ptcindia.com/pdf/megapower.pdf> [<https://perma.cc/Q74J-9QJW>].

77. *Id.* at Art. 5.

78. *See infra* Parts II.B, II.C.

79. *Id.* at § 3, 7.

80. GOV'T OF INDIA, MINISTRY OF POWER, POLICY ON HYDROPOWER DEVELOPMENT (1998), <http://powermin.nic.in/en/content/policy-hydro-power-development> [<https://perma.cc/33W3-L2AX>].

81. Shri Atal Bihari Vajpayee, Prime Minister of India, Address at New Delhi at 50,000 MW Hydroelectric Initiative, (May 24, 2003), <http://archivepmo.nic.in/abv/speech-details.php?nodeid=9222> [<https://perma.cc/53EK-ANWE>].

82. *See* GOV'T OF ARUNACHAL PRADESH, *supra* note 52; *infra* Part III.

interests guide decision-making of these Boards and Commissions,⁸³ illustrating how the legal-economic structure is working in the favor of hydropower development and developers.

B. Environmental Laws

Dams are not environmentally benign.⁸⁴ Environmental laws and policies can help mitigate and minimize the impacts of dams. These laws and policies, however, add to the costs incurred by project developers—i.e., transaction costs⁸⁵—as the developers have to carry out expensive impact assessment studies; bear any financial costs associated with delays in getting clearances from agencies; implement impact mitigation plans; and carry out ongoing monitoring of projects. The evolution of environmental laws in India has supported hydropower development and the interests of developers precisely by minimizing these costs.

As previously noted, the latter years of the hydraulic mission (from 1967 to 1984⁸⁶) were fraught with major anti-dam protests, such as those against Tehri Dam, Silent Valley Dam, and Sardar Sarovar Dam.⁸⁷ It was during this period, in 1978 and 1979, that the government initiated environmental impact assessments of river-valley projects.⁸⁸ This period also indicated the first ever serious attempt at environmental conservation in India with the passage of the Wildlife (Protection) Act⁸⁹ and a host of pollution prevention acts.⁹⁰ River valley projects were the first

83. See Navroz Dubash & Narasimha Rao, *Emergent Regulatory Governance in India: Comparative Case Studies of Electricity Regulation*, paper presented at FRONTIERS OF REGULATION: SCHOLARLY DEBATES AND POLICY CHALLENGES (Univ. of Bath (UK), Sept. 7–9, 2006), http://regulation.upf.edu/bath-06/10_Dubash_Rao.pdf [<https://perma.cc/QRP8-XGE5>]. See also Asif Syed, *RS 20,000 Crore Hydropower Scam in Sikkim*, CURRENT NEWS, May 21, 2012, <http://currentnews.in/rs-20000-crore-hydropower-scam-in-sikkim-state-govt-in-cahoots-with-pvt-players/> [<https://perma.cc/M4FU-74W7>]; Et Bureau, *Hydelgate: How the Allotments for Arunachal's Hydel Projects Flow Back to Political Funding*, ECONOMIC TIMES, May 6, 2013, http://articles.economicstimes.india.com/2013-04-30/news/38930146_1_national-hydro-power-corporation-laeta-umbrey-nhpc [<https://perma.cc/Z5S5-FSU2>].

84. The environmental impacts of dams have received significant scholarly attention. See, e.g., PATRICK MACCULLY, *SILENCED RIVERS: THE ECOLOGY AND POLITICS OF LARGE DAMS* (1998); Matthew McCartney, *Living with Dams: Managing the Environmental Impacts*, 11 WATER POL'Y 121, 121 (2009). With a growing concern on the environmental impacts of dams, a World Commission on Dams (WCD) was established to identify impacts and suggest guidelines for dam building that would minimize these impacts. The executive summary of the report by WCD can be found at World Commission on Dams, *Executive Summary of Dams and Development: A New Framework for Decision-Making, The Report of the World Commission of Dams*, 16 AM. U. INT'L L. REV. 1435 (2001), <http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1253&context=auilr>.

85. See Ning Wang, *Measuring Transaction Costs: An Incomplete Survey*, 2 CONF. TRANS. COSTS 16 (2003). Based on the work of de Soto, this article uses Wang's conceptualization of transaction costs as the resources spent in waiting, getting permits to do business, cutting through red tape, etc.

86. See *supra* Part I.B; text accompanying note 35.

87. See Nayak, *supra* note 40.

88. *Environmental Impact Assessment, Introduction*, GOV'T OF INDIA, MINISTRY OF ENV'T, FOREST, AND CLIMATE CHANGE, <http://envfor.nic.in/division/introduction-8> [<https://perma.cc/6BDA-M8G7>]. River valley projects include those projects that involve construction of structures in the river valley, such as dams, hydropower projects, canals, irrigation schemes; they may cause impoundment of water.

89. Wildlife (Protection) Act, No. 53 of 1972, INDIA CODE (2016).

projects that required the conduct of an environmental impact study;⁹¹ the guidelines for impact assessment for infrastructure projects were later formalized under the rules of the Environmental (Protection) Act of 1986⁹² and the Environmental Impact Assessment (EIA) Notification of 1994.⁹³ The EIA notification requirements⁹⁴ and subsequent amendments⁹⁵ remain the key piece of legislation governing environmental clearance for projects.

This period of pro-environmental law reform in the context of hydropower projects reached a turning point in 2006, when the first cost-minimizing change was established. The EIA Notification S.O. 1533 of that year did not require river valley projects with installed capacity under 25 MW to obtain an environmental clearance.⁹⁶ As a result, these so-called “small” hydro projects⁹⁷ were also exempted from having to conduct an impact assessment,⁹⁸ despite their significant environmental impacts.⁹⁹ The Central government thus diluted regulatory provisions in an attempt to push power development through private investment.¹⁰⁰

90. See, e.g., Water (Prevention and Control of Pollution) Act, No. 6 of 1974, INDIA CODE (2016); Air (Prevention and Control of Pollution) Act, No. 14 of 1981, INDIA CODE (2016); INDIA CONST. Part IVA, art. 51A(g), art. 48A (amending the Constitution to impose a duty on the State and citizens to “protect and improve” the natural environment).

91. GOV'T OF INDIA, MINISTRY OF ENV'T, FOREST, AND CLIMATE CHANGE, *supra* note 88.

92. The Environment (Protection) Act, 1986, No. 29. Act of Parliament, 1986 (India).

93. GOV'T OF INDIA, MINISTRY OF ENV'T & FORESTS, NOTIFICATION ON THE ENVIRONMENT IMPACT ASSESSMENT (1994), <http://extwprlegsl.fao.org/docs/pdf/ind4656.pdf> [<https://perma.cc/GSD3-T8FQ>].

94. *Id.* at § 2(Ia), associated schedule I (Point 2). All river valley projects, including hydropower, irrigation, and flood control projects require an environmental clearance from the Ministry of Environment and Forest before they could be built and operated.

95. *EIA Notification 2006 (Principal Rules), Compendium of Gazette Notifications, OMs Under EIA Notification 2006, Subsequently Amended Notifications*, MINISTRY OF ENV'T, FOREST, & CLIMATE CHANGE [hereinafter *Compendium of Gazette Notifications*], http://environmentclearance.nic.in/writer_eadata/EIA%20Notifications.pdf [<https://perma.cc/7E5S-6YNJ>].

96. MINISTRY OF ENV'T & FOREST, ENVIRONMENT IMPACT ASSESSMENT NOTIFICATION 2006 S.O. 1533 (Sept. 14, 2006), <http://envfor.nic.in/legis/eia/so1533.pdf> [<https://perma.cc/MR4D-KMNZ>]. If a project is not included in Schedule I, it does not require an environmental clearance, and therefore is exempted from having to conduct an environmental impact assessment.

97. It is, however, important to note that the Environment Impact Assessment Notification, 2006 S.O. 1533, did not use the term “small hydro,” but subsequent policies and the Ministry of New and Renewable Energy—the ministry that was placed in charge of hydro projects under 25 MW—explicitly categorizes projects under 25 MW as small hydro. See, e.g., *Small Hydro Power Programme*, GOV'T OF INDIA MINISTRY OF NEW AND RENEWABLE ENERGY <http://mnre.gov.in/schemes/grid-connected/small-hydro/> [<https://perma.cc/9T4R-HJBN>].

98. See MINISTRY OF ENV'T & FOREST, *supra* note 96 (projects that do not require an environmental clearance do not require an environmental impact assessment).

99. See generally Sarah Kelly-Richards et al., *Governing the Transition to Renewable Energy: A Review of Impacts and Policy Issues in the Small Hydropower Boom*, 101 ENERGY POL'Y 251, 251–64 (2017).

100. The justification often employed for exempting small hydro projects from having to obtain environmental clearances and conduct impact assessments is that

[s]mall hydel projects normally do not encounter the problems associated with large hydel projects of deforestation and resettlement. The projects have potential to meet power requirements of remote and isolated areas. These factors make small hydel as one of the most attractive renewable source [sic] of grid quality power generation. Small hydro being mostly run of river types is environmentally friendly as it has zero

A temporary shift in this pro-business regulatory regime came about with the appointment of Jairam Ramesh as the Minister of Environment and Forest in 2009. Ramesh lobbied against projects with high socio-environmental costs¹⁰¹ and pushed for identifying and protecting ecologically sensitive zones.¹⁰² These efforts resulted in clearance delays and the cordoning-off of areas for industrial activities.¹⁰³ Ramesh's views of the environmental cost of unfettered growth made him widely unpopular among the industrial lobby. In 2011, he was pushed out of the Ministry of Environment and Forest to head the Ministry of Rural Development.¹⁰⁴

The retreat to the pro-growth agenda in environmental regulations and implementation came with the appointment of Jayanti Natarajan as Ramesh's successor.¹⁰⁵ This trajectory has developed further after the election of the Modi government in 2014. Since then, the Central government has decided to amend four key pieces of environmental legislation—including the Environment Protection Act

emissions while generating electricity. There is no storage of water and no dam is constructed in these projects and hence there are no displacements of habitation.

Bhuwanesh Kumar Bhatt, *Small Hydro Programme in India*, in INTERNATIONAL CONFERENCE ON HYDROPOWER FOR SUSTAINABLE DEVELOPMENT 59, 59 (2015) (note that the two terms hydel and hydro refer to hydropower and can be used interchangeably). Without the need to obtain these clearances and the added incentives provided, the Ministry of New and Renewable Energy is aiming to increase the private sector investment in SHP development. See P. Saxena, *Small Hydro Development in India*, 6 AKSHAY URJA 24, 24–27 (2013). The Ministry of New and Renewable Energy explicitly stated that “[p]rojects [SHPs] are normally economically viable and [the] private sector is showing lot of interest in investing in SHP projects . . . [and that] [t]he SHP programme is now essentially private investment driven” on their program page for Small Hydro Power Programme. *Small Hydro Power Programme*, *supra* note 97.

101. JAIRAM RAMESH, GREEN SIGNALS: ECOLOGY, GROWTH, AND DEMOCRACY IN INDIA 414–49 (2015) (Mr. Ramesh presented excerpts of his communications with the Prime Minister, where he specifically raised socio-environmental concerns associated with energy projects). See also Chandra Bhushan, Jonas Hamberg & Abhinav Goyal, *Green Norms for Green Energy: Small Hydro Power*, CENT. SCI. ENVIRON. (2013), http://www.indiaenvironmentportal.org.in/files/file/report_small%20hydropower.pdf [<https://perma.cc/E6RJ-9A86>].

102. See MINISTRY OF ENV'T & FOREST, GUIDELINES FOR TAKING UP NON-FORESTRY ACTIVITIES IN WILDLIFE HABITATS I (2012).

103. *Id.* For projects that required an environmental clearance, this guideline mandated all such project proponents to also obtain recommendations of the National Board of Wildlife if the project was located within a 10-kilometer radius of the designated protected areas, or an explicit consideration and approval from the National Board of Wildlife if the projects were located inside the protected areas. *Id.* at 4. This effectively restricted the activities that could be carried out in and around protected areas, and added to the time required to obtain a final environmental clearance, which meant an added financial burden on the project proponent. For a list of projects requiring environmental clearance see Compendium of Gazette Notifications, *supra* note 95, at Schedule I.

104. TV Padma, *Jairam Ramesh's Legacy is an Indian Environment Ministry with an Identity*, THE GUARDIAN (July 13, 2011), <https://www.theguardian.com/environment/blog/2011/jul/13/jairam-ramesh-india-environment-ministry> [<https://perma.cc/MKP9-53AB>].

105. An example of the same was the award of an environmental clearance to a 1,750 MW hydropower project in Arunachal Pradesh by Jayanti Natarajan, an award that was marked by extensive social protests and criticized by the National Board of Wildlife for its impacts on the grounds of “potential clean energy of the project vis-à-vis relatively fewer environmental and societal impacts,” <http://economictimes.indiatimes.com/industry/energy/power/jayanthi-natarajan-gives-go-ahead-to-demwe-lower-hydroelectric-project-in-arunachal-pradesh/articleshow/11920955.cms?inttarget=no> [<https://perma.cc/3GN5-F2RV>].

of 1986, the Water Act of 1974, and the Air Act of 1981—to promote “ease of business.”¹⁰⁶ This proposed streamlining has been portrayed by the government as an attempt to remove the roadblocks for infrastructure projects—specifically, impediments to hydropower development—that have been “held up for want of [environmental] permissions,” as stated by incumbent Finance Minister Arun Jaitley.¹⁰⁷ The government has also taken steps to:

- weaken the Environment Ministry’s oversight over the clearance process;
- remove the requirement for public consultation on all projects that require an environmental clearance;¹⁰⁸
- reduce independent representation of scientists and NGOs on the National Board of Wildlife;¹⁰⁹
- curtail the power of the National Green Tribunal (NGT);¹¹⁰ and
- revoke licenses of NGOs such as Greenpeace¹¹¹ that are seen as stalling project development.

This vector of regulatory change in the environment sphere shows a shift in the legal dimension of the legal-economic nexus, matching that of “ideological change” in the Indian political-economic structure which now places a high emphasis on economic liberalization and growth.¹¹² The focus of these regulatory

106. Akash Vashishtha, *A Green PM? How Modi’s Government Changed Environmental Laws to Improve “Ease of Business,”* DAILY MAIL (May 10, 2015), <http://www.dailymail.co.uk/indiahome/india/news/article-3075916/A-green-PM-Modi-s-government-changed-environmental-laws-improve-ease-business.html>. “Ease of Doing Business” is rhetoric adopted and promoted by Narendra Modi’s incumbent government that speaks to reforming the economy and regulatory structures to make it easy for investors to set up businesses in the country. See PRESS TR. OF INDIA, *Government Places Highest Emphasis on Ease of Doing Business: Modi*, THE NEW INDIAN EXPRESS (Jan. 10, 2017), <http://www.newindianexpress.com/nation/2017/jan/10/government-places-highest-emphasis-on-ease-of-doing-business-modi-1558213.html> (showing an example of Modi’s comments).

107. Rohini Mohan, *Narendra Modi’s War on the Environment*, AL JAZEERA AMERICA (Apr. 10, 2015), <http://america.aljazeera.com/multimedia/2015/4/narendra-modis-war-on-the-indian-environment.html> [<https://perma.cc/E3T8-QQUG>].

108. K. Jayalakshmi, *India’s Environment Ministry Sending Confusing Signals as Major Laws Stand to be Amended*, INT’L BUS. TIMES (Sept. 28, 2014), <http://www.ibtimes.co.uk/indias-environment-ministry-sending-confusing-signals-major-laws-stand-be-amended-1467555> [<https://perma.cc/YMR5-9CLM>]. “Public consultation” here refers broadly to public information provision as opposed to gathering feedback. Such a consultation is required to be conducted as part of the mandatory public hearing process under the EPA 1986 and EIA Notification 2006.

109. See Wild Life (Protection) Amendment Act, 2002, Act No. 16, Act of Parliament, 2003 (India), http://envfor.nic.in/legis/wildlife/wild_act_02.pdf [<https://perma.cc/2PXJ-JY9Q>] (the National Board of Wildlife provides wildlife clearances for projects that may be located in ecologically sensitive zones, i.e., those with greater environmental impacts).

110. See Vashishtha, *supra* note 106. See The National Green Tribunal Act, § 3, 2010, Act No. 19, Acts of Parliament, 2010 (India) (the National Green Tribunal was established under the National Green Tribunal Act, 2010 to adjudicate cases related to environmental protection and providing compensation for damages caused by environmental impacts to affected parties).

111. Mohan, *supra* note 107.

112. Cf. Wandschneider, *supra* note 55, at 96 (discussing a legal shift in American jurisprudence to recognize fishery rights of Native Americans because of an “ideological change” based on justice rather than economic considerations).

changes, is to minimize costs for the hydropower developers. In the words of Additional Secretary of Power of the incumbent government, B. P. Pandey, “[h]ow do we bring down costs or tariff of hydro projects, can we overcome and remove some of the long-drawn clearance processes taking into account environmental safety as well and basin studies . . . to restore the investor confidence[?]”¹¹³

Coupled with this change in environmental regulation is the weak enforcement of existing regulations. Examples of such weakened regulation include:

- ongoing monitoring of less than ten percent of the roughly 10,000 projects cleared by the ministry;¹¹⁴
- splitting hydro-projects above 25 MW to projects under 25 MW on paper to evade the clearance process;¹¹⁵
- providing clearance to hydropower projects with grossly incorrect or inadequate environment data;¹¹⁶ and
- dismissing petitions that concerns over socio-environmental impacts of strategic projects.¹¹⁷

The weak implementation of regulations favors hydropower developers as they can outright evade clearance requirements, not comply with clearance requirements—which can be expensive—as the projects are not monitored by the government, or not worry about socio-environmental impacts altogether.

The clear losers with the changes in the law-on-the-books and weak implementation of laws-on-the-ground are the environment and local communities. Hydropower developers have fewer regulatory constraints to construct projects and limited incentive to address environmental impacts of their projects.¹¹⁸

113. PRESS TR. OF INDIA, *Government Prepares Framework to Boost Hydropower Projects in Country*, THE ECON. TIMES (July 13, 2011), <http://economictimes.indiatimes.com/industry/energy/power/government-prepares-framework-to-boost-hydropower-projects-in-country/articleshow/52092116.cms> [https://perma.cc/PQ32-L2UH].

114. NIRMALYA CHOUDHURY & ARUNABHA GHOSH, RESPONSIBLE HYDROPOWER DEVELOPMENT IN INDIA CHALLENGES FOR THE FUTURE, 7 fig.4, 8 fig.5 (Council on Energy, Env’t & Water, Working Paper No. 2013/5, 2013), <http://ceew.in/pdf/NC-AG-Responsible-Hydropower-Development-in-India-Challenges-for-future-06Dec13.pdf> [https://perma.cc/4TVF-HELK].

115. CTR. FOR SCI. & ENV’T, GREEN NORMS FOR GREEN ENERGY: SMALL HYDRO POWER 16 (Souparno Banerjee & Sheeba Madan eds., 2013), http://www.indiaenvironmentportal.org.in/files/file/report_small%20hydropower.pdf [https://perma.cc/N7E9-RLG2].

116. NEERAJ VAGHOLIKAR & PARTHA DAS, DAMMING NORTHEAST INDIA 5 (Kalpavriksh, Aaranyak & ActionAid India, 2d prtg. 2010), <http://conflicts.indiawaterportal.org/sites/conflicts.indiawaterportal.org/files/Damming%20Northeast%20India,%20Single%20page%20format.pdf> [https://perma.cc/9HRA-LCKU]. The authors provide examples of environmental impact assessment reports, such as that submitted Siyom where the report lists 5 bird species in an area which has over 300 and one of the five reported species is non-existent. *Id.*

117. *See Ne. Affected Area Dev. Soc’y v. India*, Appeal No. 8 of 2011 (National Green Tribunal Principle Bench Jan. 13, 2015) (India). The appellants argued that the project developers and government had violated provisions of the Environmental Impact Assessment Notification, 2006 as the developers had filed incorrect data in the impact assessment report. *Id.* ¶ 4. Nonetheless, the tribunal dismissed the appeal on grounds that it lacked merit. *Id.* ¶ 104.

118. *See infra* Part III (discussing hydropower development in the State of Uttarakhand).

C. Land Laws

“For over half a century, we’ve believed that Big Dams would deliver the people of India from hunger and poverty . . . The opposite has happened.”

—Arundhati Roy¹¹⁹

Arundhati Roy is widely known for her critique against displacement of communities due to land acquisition for big dams, and not without reason. The most contested project on the Narmada River, the Sardar Sarovar Project, displaced 350,000 people, leaving them without a home or means of livelihood, and also destroyed some of India’s most fertile lands, undermining food security.¹²⁰

Land is indeed an important input for hydropower projects, and often a contentious one.¹²¹ Social impacts associated with hydropower development largely stem from displacement and resettlement related issues.¹²² Proceeding, the trajectory of the development of land laws—those on ownership and land acquisition—is examined; and it is argued that, in the existing Indian legal system, rights of the government to take land are more secure than individual land rights. The result is that local communities can contest, but perhaps not resist, land acquisition for hydropower projects.

The history of right to land ownership in India started with the recognition of right to property,¹²³ as a fundamental right of all citizens in India. Article 19 of the 1950 Constitution of India gave all the citizens the right to acquire, hold, and dispose of property.¹²⁴ The Constitution also safeguarded such property against compulsory acquisition by the government except for a legitimate public purpose,

119. Michael Specter, *The Last Drop*, THE NEW YORKER, Oct. 23, 2006, at 69. Arundhati Roy is the author of the highly acclaimed novel, *The God of Small Things*, which won the 1997 Man Booker Prize for Fiction. More relevant to this article, however, Ms. Roy is also an anti-dam activist, known for her work against dams (including the Sardar Sarovar Dam) on the Narmada River. In 1999, she published an inflammatory and highly influential essay, *The Greater Common Good*, in which she argued that the most important of the Narmada dams, Sardar Sarovar, had raised doubts about the nature of Indian democracy. “Big Dams are obsolete,” she wrote. Arundhati Roy, *The Greater Common Good*, in THE COST OF LIVING 7, 14 (1999). “They’re a [g]overnment’s way of accumulating authority . . . a brazen means of taking water, land and irrigation away from the poor and gifting it to the rich.” *Id.*

120. Peter Bosshard, *Dammed, Displaced and Forgotten*, INT’L RIVERS (Mar. 27, 2015), <https://www.internationalrivers.org/blogs/227/dammed-displaced-and-forgotten> [<https://perma.cc/FZQ5-88K7>]. It is interesting to note that when World Bank approved the Sardar Sarovar Project, the estimated number of people that were going to be displaced was just 33,000. *Id.*

121. Land acquisition, resettlement, and rehabilitation are major factors that can delay large infrastructure projects in general, and power projects in particular. See ASSOCHAM, PRICEWATERHOUSECOOPERS, HYDROPOWER @ CROSSROADS 8, 10 (2016), <https://www.pwc.in/assets/pdfs/publications/2016/hydropower-at-crossroads-pwc-assochem-report.pdf> [<https://perma.cc/G4HG-HJ46>].

122. See generally MICHAEL M. CERNEA, SOCIAL IMPACTS AND SOCIAL RISKS IN HYDROPOWER PROGRAMS (Oct. 2004), http://www.un.org/esa/sustdev/sdissues/energy/op/hydro_cernea_social%20impacts_backgroundpaper.pdf [<https://perma.cc/LXC7-8SHC>].

123. “Property” here explicitly refers to land.

124. INDIA CONST. art. 19, cl. 1, subcl. f, *repealed by* The Constitution (Forty-fourth Amendment) Act, 1978.

and only when due compensation was paid.¹²⁵ Determining compensation was (and arguably still is) tricky; to prevent court cases on the grounds of inadequate payment of compensation, the Parliament enacted the 25th Amendment to the Constitution in 1971. This amendment granted state governments authority to fix a compensation amount for land takings at their discretion, and the adequacy of this amount could not be challenged in courts.¹²⁶

Losing the ability to contest the compensation amount for takings foreshadowed a much more fundamental shift in the Constitution regarding property ownership. In 1978, the fundamental right to property was repealed by the 44th Amendment of the Constitution of India.¹²⁷ Article 300A, inserted in a new chapter to the Constitution on Right to Property providing that: “no person shall be deprived of his property save by authority of law.”¹²⁸ This amendment made property ownership a legal—as opposed to a constitutional—right. As a result, an aggrieved party cannot approach the Supreme Court of India regarding a breach of her *legal* property right.

These changes had important consequences for land acquisition in India. Until 2013, land acquisition in India was carried out pursuant to the Land Acquisition Act of 1894 (LAA 1894).¹²⁹ LAA 1894 gave the government the power of eminent domain and allowed the taking of property without the consent of the owner for public uses.¹³⁰ The act required the government to pay compensation determined based on land use and location,¹³¹ but this payment did not reflect the demand-based rise in value. This section on compensation also exempted the State from providing any financial assistance to oustees for resettlement or for any loss of profits resulting from takings of productive land.¹³² With only the landowner considered as the affected entity, the act failed to consider other affected individuals such as land tenants or seasonal users¹³³. This exclusion has resulted in gross underestimation of affected families for purposes of facilitating appropriate resettlement and compensation.

In addition to lack of compensation for those without a legal title to land, land acquisition in the post-independence period in India was marred by numerous other issues. There were reports of taking of property without landowners’ consent or without the provision of adequate information on landowners’ rights.¹³⁴ In cases

125. INDIA CONST. art. 31, *repealed by* The Constitution (Forty-fourth Amendment) Act, 1978.

126. The Constitution (Twenty-Fifth) Amendment, 1971, art 2. Some scholars contend that this change was a result of fiscal constraints on the part of the government. *See, e.g.*, M.L. Singhal, *Right to Property and Compensation Under the Indian Constitution*, JUD. TRAINING & RES. INST. J., April–June 1995, at 1–3, <http://ijtr.nic.in/articles/art41.pdf> [<https://perma.cc/C3S6-UY6F>].

127. The Constitution (Forty-fourth Amendment) Act, 1978, art 2; *id.* art. 6

128. *Id.* art. 34.

129. The Land Acquisition Act, 1894, Act No. 1 of 1894, pt. 1, sec. 1, subsec. 2.

130. *Id.* §§ 6, 3(f).

131. *Id.* § 23.

132. *Id.*

133. It is important to note that communal assets of the community were also not compensated as part of the law.

134. RAVI HEMADRI, HARSH MANDER & VIJAY NAGARAJ, DAMS, DISPLACEMENT, POLICY AND LAW IN INDIA, (2000), <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN0>

where the landowner was consulted but refused to provide such consent, brute force was used by the government to take property.¹³⁵

These issues, together with the displacement of over 16.4 million people due to dams in the 50 years following India's independence, were cause for major anti-dam protests in the country.¹³⁶ To alleviate the social protests around dams, the central government implemented the National Resettlement and Rehabilitation Policy in 2007 and the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act in 2013¹³⁷ (LARR 2013). LARR 2013, which repealed LAA 1984, has been instrumental in requiring projects to:

- undertake a Social Impact Assessment (SIA) and a public hearing,¹³⁸
- obtain the consent of landowners before taking their property for the project;¹³⁹
- safeguard irrigated multi-cropped land from acquisition;¹⁴⁰ and
- provide compensation and rehabilitation assistance to non-titleholders.¹⁴¹

While passing the LARR 2013 was a progressive move on part of the then incumbent government, the election of the Modi government in 2014 has resulted in several attempts to significantly weaken the law. The Modi government proposed a bill in 2015 that attempted to exempt from those progressive clauses of LARR 2013¹⁴² projects in the following categories: “vital” national security or defense-related projects; rural infrastructure (including electrification); affordable housing; industrial corridors; and infrastructure projects including public-private partnerships (PPP).¹⁴³ Because hydropower can be categorized as supporting rural electrification—or be developed as a PPP—this could have had the effect of waiving the need to comply with the requirements under LARR 2013. While the bill is still under consideration in the Parliament, its prospective goals are to promote the incumbent government's “ease of business” rhetoric.¹⁴⁴ As land

21311.pdf [https://perma.cc/7NND-VZBQ]. This was a contributing paper to the World Commission of Dams on the impacts of land acquisition, displacement, and resettlement for dams in India.

135. *Id.* Lack of consideration for oustees is exemplified by the following statement made by Morarji Desai to the Pong Dam (an irrigation and hydroelectric dam) oustees: “We will request you to move from your houses after the dam comes up. If you move it will be good. Otherwise we shall release the waters and drown you all” in Roy, *supra* note 119, at 13.

136. Nalin Singh Negi et al., *Development Projects vs. Internally Displaced Populations in India: A Literature Based Appraisal*, in ENVIRONMENTAL DEGRADATION AND MIGRATION 6 (J. Schade & T. Faist, 2011). Note that the total number of displaced persons during this 50-year period was estimated at 21.3 million. And over half of this total displaced population was displaced by dams.

137. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, Act No. 3, Act of Parliament, 2013 (India).

138. *Id.* at § 4.

139. *Id.* at § 2(b).

140. *Id.* at § 10.

141. *Id.* at §§ 3 (c), 31 (2).

142. *Id.* at §§ 4, 2b, 10.

143. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Second Amendment) Bill, 2015 (India).

144. *See* sources cited *supra* note 106.

acquisition delays and associated costs are a major challenge identified by power sector investors in the county,¹⁴⁵ the 2015 bill is indicative of the government giving a priority to the interests of these investors.

In the current legal system then, laws give the state government the power of eminent domain which have overriding authority over an individual's *de jure*¹⁴⁶ property rights to land. As land acquisition for hydropower development comprises a public purpose, in situations where individuals wish to contest the acquisition of their land acquisition by the government, their rights will not prevail as the state government has the authority to rightfully take property for such a public purpose.

D. Water

Water fuels hydropower plants. How rights to water are defined can determine whether this fuel is made available free of charge or comes with a hefty price tag. The characteristics of water rights also dictate whether local communities that depend on this water are compensated, or not, for the modified flow regime resulting from hydropower installations on rivers. Modifying the river flow can hamper when, how, and even whether local communities can draw water from the river.

This section explores the evolution of water rights in India from the recognition of certain types of individual rights, to total control of water by the state government, as well as the implications of this evolution for hydropower development and local communities that depend on rivers where the projects are located.

Early renditions of India's water law date back to the Indus Valley Civilization in 2500 BC, with evolution of the codified versions and structures that can be traced to the changes in dominant thinking of the different Hindu and Islamic rulers over time.¹⁴⁷ During the colonial period, the Northern India Canal and Drainage Act of 1873 was the key law governing use and access to canals for large-scale irrigation works. This Act vested power in the government authority to "use and control for public purposes the water of all rivers and streams flowing in natural channels, and of all lakes and other natural collections of still water."¹⁴⁸

The power of the government to regulate water was altered through the Indian Easements Act of 1882, which vested riparian rights in owners. Specifically, the Easement Act recognized the rights of owners of waterfront property to water passing by, through, or over his land.¹⁴⁹ The Act also recognized customary

145. See ASSOCHAM, *supra* note 121, at 173.

146. Edella Schlager & Elinor Ostrom, *Property-Rights Regimes and Natural Resources: A Conceptual Analysis*, 68 LAND ECON. 249, 254 (1992) (noting that *de jure* rights are given lawful recognition by formal, legal instrumentalities and enforced by government officials; rights holders who have *de jure* rights can presume that if their rights were challenged in an administrative or judicial setting, the rights would most likely be sustained).

147. See generally Philippe Cullet & Joyeeta Gupta, *Evolution of Water Law and Policy, in INDIA, THE EVOLUTION OF WATER LAW AND POLITICS OF WATER* 159 (Joseph Dellapenna & Joyeeta Gupta eds., 2009).

148. Northern India Canal & Drainage Act, 1873, Act No. 8, Act of Parliament, 1873 (India).

149. Indian Easements Act, 1882, Act No. 5, Act of Parliament, 1882 (India). Specifically, the act provides:

easements—rights acquired through local custom, such as the right to use a communal well—and easements through long-use prescriptions, where an individual could acquire an easement if he was able to prove the use of water for a twenty-year period.¹⁵⁰ Suits for disturbance of an easement could be filed under this act,¹⁵¹ granting those with easements the power to contest any impacts on their rights to access and use water.

But, the nature of individual rights changed after India became independent. In 1950, Constitution of India split the powers to govern water between the central government and state governments. State governments had exclusive power to regulate water supplies, irrigation and canals, drainage and levees, water storage, and water-power.¹⁵² The central government could only legislate on matters connected to interstate rivers.¹⁵³ Subsequently, the state governments passed regulations that prohibited any private ownership of surface water by individuals,¹⁵⁴ and gave the government the ultimate power and right to control water resources.¹⁵⁵ Individual rights to water were recognized as use rights¹⁵⁶ and any easements held by individuals only gave them the right to use the water, not own, control, buy, sell, or modify it in any way.

The right of every owner of land that the water of every natural stream which passes by through or over his land in a defined natural channel shall be allowed by other persons to flow within such owner's limits without interruption and without material attention in quantity, direction, force or temperature; the right of every owner of land abutting on a natural lake or pond into or out of which a natural stream flows, that the water of such lake or pond shall be allowed by other persons to remain within such owner's limits without material alteration in quantity or temperature[.]

Id. § 7(j). It furthermore provides:

The right of every owner of land abutting on a natural stream, lake or pond to use and consume its water for drinking, household purpose and watering his cattle and sheep: and the right of every such owner to use and consume the water for irrigating such land, and for the purposes of any manufactory situate thereon, provided that he does not thereby cause material injury to other like owners.

Id. § 7(h).

150. *Id.* §§ 15, 18.

151. *Id.* § 33.

152. INDIA CONST., sched. 7, State List, 1950.

153. INDIA CONST. art. 262, 1950.

154. It must however be noted that India follows common law, and under common law, a landowner has the *de jure* right to water available under the land, i.e., groundwater. See generally Tony Puthucherril, *Riparianism in Indian Water Jurisprudence*, in WATER AND THE LAWS IN INDIA 97 (Ramaswamy Iyer, 2009).

155. See generally PHILIPPE CULLET, WATER LAW, POVERTY, AND DEVELOPMENT: WATER SECTOR REFORMS IN INDIA (2009); see also Videh Upadhyay, *The Ownership of Water in Indian Laws in WATER AND THE LAWS IN INDIA*, *supra* note 154, at 134. See also examples such as Madhya Pradesh Regulation of Waters Act, § 3, 1949, Act No. 37, Acts of Parliament, 1949 (India), or the more recent Bihar Irrigation Act, § 3(a), 1997.

156. A. Vaidyanathan & Bharat Jairaj, *Legal Aspects of Water Resources Management*, in WATER AND THE LAWS IN INDIA, *supra* note 154, at 3, 10. Use rights, in India are considered as usufruct rights wherein water use can be to meet basic sustenance needs of individuals. The Indian Constitution does not recognize a right to water, but the use of water for drinking purposes has been recognized as part of the “Right to Life” under Article 21 of the Constitution of India, 1950. See generally Videh, Upadhyay, *Water Rights and the ‘New’ Water Laws in India Emerging Issues and Concerns in a Rights Based Perspective*, in INDIA INFRASTRUCTURE REPORT 56–66, (2011) (highlighting court cases that established the use of water for drinking as a necessary use for protecting the Right to Life).

To limit state government abuse of power and authority to control water resources, in 1997, the Supreme Court established the public trust doctrine in India by categorizing flowing water as public trust.¹⁵⁷ While decision amounted to a progressive reform, it was an incomplete one as the Supreme Court did not provide guidance on how to define or protect the public interest. The effect was a reform without teeth: state governments could continue to define public interest at their discretion while planning water resource projects. The example of acquiring land for power projects suggests how the public interest can be so narrowly defined that the interests of local communities are not considered.¹⁵⁸ Merely establishing public trust doctrine and requiring state governments to act in public interest does not alleviate social concerns nor does it necessarily protect the interests of the wider public—a decidedly cautionary lesson.

The change in property regime surrounding water—with individual rights defined as use rights, and vesting the state government with the right to control water in the public interest, without adequately defining public interest—has been described as “legal plunder.”¹⁵⁹ Indeed, a state is not required to provide compensation to individuals in cases where proposed projects limit or impact the access to, or use of, water. This reframing of rights has the effect of vesting states with significant decision-making power¹⁶⁰ and is notable because water allocation is generally an asymmetric affair.¹⁶¹ In the case of hydropower development, states have wielded their authority and control to allow the construction of hydropower projects despite the fact that they impact the water use of local communities.¹⁶² By

157. *M.C. Mehta v. Kamal Nath and Others*, (1997) 1 SCC 388 (India). The judgment in this case adopted the public trust doctrine for the first time in the legal history of India, and required the private motel owner (represented by Kamal Nath and Others) to pay for the degradation caused by their motel development on the ecology of River Beas. The judgment cited the case of *National Audubon Society v. Superior Court* that propelled restoration of water flows to Mono Lake in California, and 1993 to support the decision.

158. See Part II.B.

159. M.S. Vani, *Community Engagement in Water Governance*, in *WATER AND THE LAWS IN INDIA*, *supra* note 154, at 167, 186.

160. BRYAN RANDOLPH BRUNS & RUTH SUSEELA MEINZEN-DICK, *NEGOTIATING WATER RIGHTS* (2000).

161. *Id.* at 32 (noting that negotiations on water allocation generally occur “among parties with very unequal power”).

162. Hydropower is portrayed as being beneficial in the State’s economic interest and thus public interest. This argument is visible in policies of the water-rich Himalayan states such as Arunachal Pradesh. See *GOV’T OF ARUNACHAL PRADESH*, *supra* note 52; *infra* Part III.B; Huber & Joshi, *supra* note 2, at 102–03. As a result, in these states, hydropower projects are being awarded to largely private sector interests or as public-private joint ventures despite the impact of these projects on water uses and access by local communities. See generally VAGHOLIKAR & DAS, *supra* note 116 (discussing impacts of hydropower on local water uses in the north-east); see, e.g., *Hydro Power Projects*, MINISTRY DEV. NORTH EAST REGION, <http://mdoner.gov.in/node/1307#Apr12> [<https://perma.cc/D4KX-PA3Q>] (indicating that 74 out of 86 hydropower schemes in Arunachal Pradesh were being privately developed). In other cases, such as Himachal Pradesh, the State has attempted to waive the grant of no-objection required by local communities before hydropower projects are built in order to expedite their development. Ashwani Sharma, *Himachal Govt’s [sic] Decision to Waive Mandatory Clearances [sic] for Hydro-Power Projects Raises Questions*, *INDIAN EXPRESS* (Sept. 20, 2014), <http://indianexpress.com/article/india/india-others/himachal-govts-decision-to-waive-mandatory-clearances-for-hydro-power-projects-raises-questions/>.

awarding and allowing the construction of hydropower projects, state governments in India have accordingly chosen to protect the economic interests of the State and project developers over those of the local water users.

III. UTTARAKHAND

In each of the four key areas of law—electricity, environment, land, and water—political-economic structural changes at the national level have upheld the interest of the hydropower sector, to the detriment of the environment and local communities. To develop a more nuanced understanding of how the law plays out on the ground, and what the consequences look like for the local communities and the environment, the case of the hydropower development in Uttarakhand, the state with 17 percent of India's hydropower potential is explored.¹⁶³

Hydropower indeed represents an important source of revenue for Uttarakhand.¹⁶⁴ To understand how Uttarakhand is furthering hydropower development and protecting the interests of project developers, the changes in water law in the state that implicitly reflect the prominence of hydropower interest are addressed. This is followed by a discussion of the State's hydropower policies, which explicitly reflects the State's preference for private-sector led hydropower development. To illustrate how law works in practice, the State's environment enforcement regime is explored. Finally, implications and impacts of the current structure and implementation of laws are discussed in terms of local communities and the environment.

A. The Evolution of Water Law in Uttarakhand

The history of water law in Uttarakhand can be traced back to the colonial period when the state was still a part of the extant Indian state of Uttar Pradesh, in the northern region bordering Nepal. The Kumaon Water Rules of 1917, the first dedicated water law in the State, regulated water mills and gave the state government the right to control water.¹⁶⁵ Akin to the easement rights under the Indian Easements Act, 1882,¹⁶⁶ these rules recognized easement rights and customary rights based on established uses prior to the enactment of the rules.¹⁶⁷

163. This figure corresponds to roughly 25,000 MW. See GOV'T OF INDIA, MINISTRY OF POWER, HYDRO POWER POLICY 2008, <http://www.ielrc.org/content/e0820.pdf> [<https://perma.cc/ND5Q-K5DK>] (the total hydropower potential in India which is ~150,000 MW); see also GOV'T. OF UTTARAKHAND, POLICY ON HYDROPOWER DEVELOPMENT BY PRIVATE SECTOR IN THE STATE OF UTTARAKHAND (25 MW to 100 MW), at 2 (2008) (noting Uttarakhand's potential of 25,000 MW).

164. In the Minutes of the Annual Meeting between the Deputy Chairman of the Planning Commission and the Chief Minister of Uttarakhand in 2012–13, the Minister stressed the fact that “power is one of our GDP drivers.” See PLANNING COMM'N, UTTARAKHAND 12TH FIVE YEAR PLAN & ANNUAL PLAN 2012–13 FINALIZATION MEETING BETWEEN HON' BLE DEPUTY CHAIRMAN, PLANNING COMMISSION & HON' BLE CHIEF MINISTER, UTTARAKHAND, http://planningcommission.nic.in/plans/stateplan/Presentations12_13/uttarakhand_2012_13.pdf [<https://perma.cc/K779-3NBF>].

165. Upadhyay, *supra* note 156, at 137 (“The beds and water of all rivers and natural streams and all lakes, natural ponds, and other collection of still water within the hill tracts of the Kumaon division are the property and subject to the control of the state”) (quoting the Kumaon Water Rules, Rule 1 (1917)).

166. See Indian Easements Act, 1882, Act No. 5, Act of Parliament, 1882 (India).

167. See Vani, *supra* note 159, at 197.

The government reaffirmed its authority to control all the surface water in the state in the Kumaon Water Rules of 1930, which broadened the rules' purview to include irrigation;¹⁶⁸ these rules remained in force until 1975.¹⁶⁹ In the case of domestic water uses, the Kumaon and Uttarakhand Zamindari Abolition and Land Reforms Act of 1960 gave landowners ownership of wells (i.e., groundwater) and ponds that fell on their property.¹⁷⁰

The regulatory framework governing water underwent significant (and drastic) change after the government enacted the Kumaon and Garhwal Water (Collection Retention and Distribution) Act in 1975.¹⁷¹ This Act empowered the state government to "regulate and control, by rules under the Act, the collection, retention and distribution of water and water resources." It also declared that "all the existing rights (whether customary or otherwise and whether vested in any individual or in village communities) of use of water, if any in the areas to which this Act extends, shall stand abolished."¹⁷² The act's avowed purpose was to "regulate and control in the public interest the water resources . . . in order to ensure a rational distribution of water for the purpose of human and animal consumption, irrigation and industrial development."¹⁷³ Yet rules on how such rational distribution was to take place—or what even counted as rational distribution—were never framed under this Act. Without a clear guiding framework to operationalize the intent of the act, the state government was left with greater authority and leeway to allocate water.

An attempt was made to reform the water law after Uttarakhand attained statehood in 2000. But, like the preceding Act of 1975, the new Uttarakhand Water Management and Regulatory Act of 2013 maintained the State's power to control and regulate water.¹⁷⁴ The act, however, was more progressive than the 1975 one as it required the creation of the Uttarakhand Water Management and Regulatory Authority (Authority).

The Authority was authorized to regulate water use granting "entitlements" for various categories of water uses, ensuring that the allocation of water for new water resource projects was "economically, hydro-geologically and environmentally viable."¹⁷⁵ This act vested power in the Authority to arbitrate in case of disputes among water users. Despite these positive steps to promote

168. *Id.*

169. *Id.* at 198. In 1975, these rules were replaced with the provisions of the Kumaon and Garhwal Water (Collection, Retention, and Distribution) Act, 1975, Act No. 46, Uttar Pradesh, 1975 (India).

170. Vani, *supra* note 159, at 197 (discussing the Kumaon and Uttarakhand Zamindari Abolition and Land Reforms Act, 1960, Act No. 17, Uttar Pradesh, 1960 (India)).

171. *Id.*; Upadhyay, *supra* note 156, at 139, 140 (discussing the Kumaon and Garhwal Water (Collection, Retention, and Distribution) Act, 1975).

172. Upadhyay, *supra* note 156, at 140 n.16 (citing the Kumaon and Garhwal Water (Collection, Retention, and Distribution) Act, 1975, § 3).

173. *Id.* at 141 n.19 (Kumaon and Garhwal Water (Collection, Retention, and Distribution) Act of 1975, pmb.).

174. Uttarakhand Water Management and Regulatory Act, 2013, Act No. 24, Uttarakhand, 2013 (India), http://www.uttarakhandirrigation.com/uploads/documents/doc_6125_water_management_and_regulatory_act-2013_uttarakhand.pdf [<https://perma.cc/T5N3-4P3N>].

175. *Id.* § 2(h), 12(b)–(d) (entitlement is defined as authorization by the Uttarakhand Water Management and Regulatory Authority to use water for a purpose specified in the act).

equitable management of water, however, the act has fallen short. Almost four years since the passage of this act, the Authority has not been created, and so no rules to implement the law been promulgated. This regulatory inaction has allowed the ad hoc granting of water use rights to continue where hydropower developers build projects even in cases where they impact local water uses.¹⁷⁶

B. Hydropower Policies in Uttarakhand

State policies on hydropower were first implemented in 2008 to provide several incentives to independent power producers. Along with providing a single window clearance system for projects,¹⁷⁷ the tripartite policies—one each for projects with generating capacities under 25 megawatts (MW), 25–100 MW, and above 100 MW—provide several incentives.¹⁷⁸ For example, the policies provide for:

- eight to fifteen-year royalty exemptions;
- tax exemptions;
- cost sharing for ancillary infrastructure construction;
- streamlining the process of obtaining clearances; and
- granting developers the right to sell power outside the state specifically in case of projects above 100 MW.¹⁷⁹

176. It is also important to note that no record exists of any of the entitlements granted pursuant to the act, calling into question the current level of enforcement of this act. During the author's field visit to Uttarakhand in May–June 2016, she noted that there was limited awareness among government agencies on the existing of this act.

177. Project developers are generally required to obtain multiple clearances before they can construct and operate a project. It requires considerable time to apply for a clearance to each individual agency, such as Ministry of Environment, Forest and Climate Change. To minimize the bureaucratic process and the associated time to obtain clearances, a single window clearance is set up wherein a developer makes a single application which is reviewed by all the pertinent agencies and a clearance is granted. *See, e.g.*, Memorandum from Gov't of India, Ministry of Environ. & Forests, on Streamlining of Process of Environment Clearance (Ec) and Forest Clearance (Fc) Cases by Expert Appraisal Committee (Eac) & Forest Advisory Committee (Fac) Respectively for Hydropower and River Valley Projects (Hep & Rvp)-Regarding (May 28, 2013), <http://envfor.nic.in/sites/default/files/ia-streamlining-order-181013.pdf> [<https://perma.cc/C846-VVHQ>].

178. *See generally* GOV. OF INDIA, MINISTRY OF POWER, HYDROPOWER POLICY (2008), <http://www.ielrc.org/content/e0820.pdf> [<https://perma.cc/8Y7B-FZ3N>] (unofficial version provided by Int'l. Env. Law Res. Ctr.); INDIAN INST. OF TECH. ROORKEE, WATER FOR WELFARE SECRETARIAT, HYDROPOWER POLICIES AND GUIDELINES (2008), <http://www.ahec.org.in/links/water4welfare/HYDRO%20POWER%20POLICIES%20AND%20GUIDELINES.pdf> [<https://perma.cc/QD8Z-P7D9>].

179. GOV'T. OF UTTARAKHAND, POLICY ON HYDROPOWER DEVELOPMENT BY PRIVATE SECTOR IN THE STATE OF UTTARAKHAND (25 MW TO 100 MW) 5–6 (2008), [http://uttarakhandjalvidyut.com/Policy%20on%20Hydropower%20Development%20by%20Private%20Sector%20in%20the%20State%20of%20Uttarakhand%20\(25%20MW%20to%20100%20MW\).pdf](http://uttarakhandjalvidyut.com/Policy%20on%20Hydropower%20Development%20by%20Private%20Sector%20in%20the%20State%20of%20Uttarakhand%20(25%20MW%20to%20100%20MW).pdf) [<https://perma.cc/VUD4-HE8L>]; GOV'T. OF UTTARAKHAND, POLICY ON PRIVATE SECTOR INVESTMENT IN HYDROPOWER PROJECT ABOVE 100 MW CAPACITY 3 (2008), [http://uttarakhandjalvidyut.com/policy%20on%20hydropower%20development%20by%20\(above%20100%20mw\).pdf](http://uttarakhandjalvidyut.com/policy%20on%20hydropower%20development%20by%20(above%20100%20mw).pdf) [<https://perma.cc/63V3-UNHM>]; GOV'T. OF UTTARAKHAND, POLICY FOR HARNESSING RENEWABLE ENERGY SOURCES IN UTTARAKHAND WITH PRIVATE SECTOR/COMMUNITY PARTICIPATION 111, 116 (2008), <http://uttarakhandjalvidyut.com/re%20policy.pdf> [<https://perma.cc/YNL8-EQ8V>]; INDIAN INST. OF TECH. ROORKEE, *supra* note 178, at 11–13.

Along with these incentives for project developers, the policies also explicitly discuss state-level benefits such as royalty payments or the provision of free power.

What is not specified in these policies is the local benefit-sharing mechanism. Benefit sharing is a systematic effort by project proponents to benefit local communities affected by hydropower investments; the benefits can be monetary and non-monetary.¹⁸⁰ This process is important generally, but especially so in the case of mountainous communities. Project construction and diversion of water for hydropower generation can impact the limited water sources available to local communities for basic sustenance and livelihood uses, such as irrigated agriculture. This mechanism, in turn, is one of the only ways local communities might directly benefit from the construction of hydropower projects. With a failure to outline this mechanism, the policies explicitly disregard the interests of local communities in Uttarakhand.

Even when the policy for under 25 MW projects was revised in January 2015, the sections that were expanded were incentives for private sector investment.¹⁸¹ For example, Section 9B of the 2–25 MW Hydropower Policy provides for:

- provision of government land for the project at a negligible price;
- exemption from permission of the state government to purchase agricultural land or convert agricultural land;
- exemption from payment of water royalty;
- irrigation clearance; as well as
- clearance from the Fisheries Department.¹⁸²

Not only does this policy not specify benefit sharing mechanisms, it explicitly disregards local interests. It waives the need to obtain any kind of permission to convert agricultural land. Nor does the policy require a clearance from the irrigation or fisheries departments, perhaps the only two departments that may have had any say over impacts to local irrigation and fishing. And the clearance exemptions and exemption from royalty payment serve to minimize project costs.

The details of incentives are as follows:

- For projects under 25 MW—single window clearance (Point 6), no royalty payment for micro and mini projects and royalty exemption for small projects for first 15 years (Point 9.10); preference to industrial units for power generation for captive use (Point 9.2).
- For projects between 25–100 MW—sharing of power evacuation and ancillary infrastructure (such as roads and bridges) costs (Points 8.2 and 8.3), assisting projects in obtaining various clearances (Point 14 (v)), tax exemption for the first 10 years (Point 10.2), exemption from royalty payments for the first 8 years (Point 11.2)
- For projects above 100 MW, all the incentives of 25–100 MW projects along with right to sell power outside the state (Point 6).

180. See generally Chaogang Wang, *A Guide for Local Benefit Sharing in Hydropower Projects*, 128 SOC. DEV. PAPERS 4 (June 2012).

181. Particularly in the case of projects between 2–25 MW, the policy has an explicit focus on the “private sector” (Point 2).

182. GOV'T OF UTTARAKHAND, POLICY FOR DEVELOPMENT OF SMALL HYDRO POWER PROJECTS BETWEEN 2–25 MW 11–14 (2015).

But most significantly, these exemptions also serve to waive the limited means of protecting local community interests through regulatory oversight.

C. Enforcement of Environmental Laws in the State

In Uttarakhand, the enforcement of environmental laws is weak when it comes to hydropower projects. In fact, none of the projects that applied for an environmental clearance between 2006 and 2012 were rejected—even where they contained inconsistent and unscientific information.¹⁸³

The State is promoting the development of run-of-river hydropower schemes which are touted as more benign than traditional dam-based projects.¹⁸⁴ In Uttarakhand, however, these schemes involve building dams and long tunnels in seismically active zones.¹⁸⁵ Undertaking blasting to build tunnels destabilizes the rock formations. In turn, this increases the risk of landslides in seismically active zones.¹⁸⁶

Such run-of-river projects are developed in cascades. Typically, water is diverted through the tunnel of, say, project A, and an inlet for project B is situated immediately downstream of the outlet of the project A tunnel. The result is that the river effectively flows from one tunnel to the next, flowing in the riverbed for only

183. Himanshu Thakkar, *Uttarakhand: Existing, Under Construction and Proposed Hydropower Projects: How Do They Add to the Disaster Potential in Uttarakhand?*, S. ASIA NETWORK DAMS RIVERS PEOPLE REP. 8–9, 12 (2013). Ideally, a clearance is only granted when all project impacts have been identified in the impact assessment based on existing available scientific information and when the impact assessment report contains consistent information as well as mitigation measures to address the impacts.

184. Run-of-river hydropower schemes, unlike traditional hydropower schemes, do not impound water behind a dam in a large reservoir. These schemes make use of the natural flow of the running water by diverting it through tunnels over a certain elevation drop to generate power. The water is then released into the river channel after power generation. Run-of-river schemes are generally argued as being more benign than traditional schemes as they do not impound large volumes of water and purportedly work with the natural flow of the river. Accordingly, these projects do not include traditional reservoir that would require displacement of local communities or impact the environment. The use of natural flow, likewise, is considered to have limited impact on the ecology of the river.

185. Dunu Roy, *Hydropower in Uttarakhand: Is “Development” the Real Objective?*, ECON. & POL. WKLY. 19–22 (2008). The author’s analysis of the environmental impact assessment studies of three run-of-river schemes notes that tunnel length for these projects ranges from 1–8 miles, and all these tunnels are located in Seismic Zone V, where even hard rocks had developed cracks and fissures. See Thakkar, *supra* note 183, at 9 (noting that tunnels for run-of-river schemes can range from 3–18 miles in length and can be wide enough to fit “three trains side by side”).

186. See GOV’T OF INDIA, MINISTRY OF ENV’T AND FOREST, ASSESSMENT OF ENVIRONMENTAL DEGRADATION AND IMPACT OF HYDROELECTRIC PROJECTS DURING THE JUNE 2013 DISASTER IN UTTARAKHAND (2014) (study conducted in the wake of the destruction caused by the June 2013 floods in the state). Chapter 2 discusses the impact caused by drilling and blasting for constructing tunnels and notes that “tunneling can trigger landslides or slope failures, damage to existing civil structures and disturbance of water sources . . . [t]unneling in the young Himalayan ranges is a difficult engineering exercise. This is particularly the case in the vicinity of regionally extensive faults like the MBF, the North Almora Thrust, or the MCT. Many major HEPs [hydroelectric power projects] in Uttarakhand are in the vicinity of the last two.”

a few stretches. In Uttarakhand, cascade schemes with long tunnels have resulted in the drying of large portions of the river bed.¹⁸⁷

Despite these visible tangible effects of developing multiple projects in a river channel, one after the other, the cumulative impacts of such development has only recently started to receive consideration, i.e., since 2012. Even so, government commissioned studies have been inadequate, both in their analysis and recommendations.¹⁸⁸ For example, the cumulative impact study in Alaknanda and Bhagirathi Basin proposed environmental flows to address the issue of dry river beds, but the flow only considered the minimum “depth required for movement of fish.”¹⁸⁹ The recommended environmental flow, however, did not include consider the water needs of other aquatic species, or the people that depended on the river.

What compounds the environmental issues of cascade hydropower development is the weak monitoring of ongoing construction and operations in Uttarakhand. Moreover, hydropower construction requires deforestation, resulting in river bank destabilization. It also produces large quantities of debris, which, if improperly disposed, add to the suspended solids in the river. State environmental agencies must ensure that project developers address these issues as required by their environmental clearance; developers, however, have not addressed these issues.

Independent studies¹⁹⁰ have reported that private developers have undertaken capacity additions of 22–329 percent to individual projects without associated justification through supporting studies.¹⁹¹ In other instances, CAG reported that developers “pegged [projects] just under the threshold of 25 MW . . . to avoid enhanced royalty payment.”¹⁹² With projects also awarded to developers with no prior experience in the power sector,¹⁹³ the CAG report forewarned disaster.

187. Rakesh Agrawal, *Hydropower Projects in Uttarakhand Displacing People and Destroying Lives*, 43 *ECON. POLIT. WKLY.* 14–16 (2013). In his paper, Agrawal presented a personal observation from his field visit where he noted that 28-mile river stretch between Maneri to Dharasu has become parched (p. 15). Likewise, in a response to a Cumulative Impact Study carried out in the in Alaknanda and Bhagirathi Basins, the 50th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects [that is a part of the Ministry of Environment, Forest, and Climate Change] noted that “there is hardly any free river stretch available between the upper most and lower most projects” in these basins. *See* Expert Appraisal Comm., Minutes of the 50th Meeting of Expert Appraisal Committee for River Valley and Hydro Electric Projects (2011), <http://studylib.net/doc/6839927/3-rd-june--2011>.

188. *See e.g.* Expert Appraisal Comm., *supra* note 187.

189. *Id.* at 3.

190. *See*, for example, studies by the Comptroller and Auditor General (CAG) of India, an authority established by the Constitution of India, which serves as external auditor of government-owned corporations or companies where the central government has an equity share of 51 percent or government subsidiaries. *See generally* The Comptroller and Auditor-General’s (Duties, Powers, and Conditions of Service) Act, No. 56 of 1971, INDIA CODE (2016).

191. COMPTROLLER AND AUDITOR GEN. OF INDIA, PERFORMANCE AUDIT OF HYDROPOWER DEVELOPMENT THROUGH PRIVATE SECTOR PARTICIPATION, VI (2009). Similar observations are made by Roy, *supra* note 185, at 19.

192. COMPTROLLER AND AUDITOR GEN. OF INDIA, PERFORMANCE AUDIT OF HYDROPOWER DEVELOPMENT THROUGH PRIVATE SECTOR PARTICIPATION, VI (2009).

193. *Id.* at 11.

Perhaps unsurprising, in June 2013, flash floods that killed more than 5,000 people in Uttarakhand and hydropower projects are reported to have aggravated the floods' effects.¹⁹⁴ Developers that flouted environmental regulations had a role to play. Improperly disposed debris by the developers added to the flood impacts.¹⁹⁵ Some reports even suggest that, in an effort to maintain water in storage to generate electricity, hydropower developers did not open their flood gates on time, as required by the safety protocol. The reservoirs behind the dams in this case were filled with boulders, causing the river to carve a new path, exacerbating the effects of the flash flood downstream of the dam.¹⁹⁶

D. Summary

In Uttarakhand, the laws and policies on the books—particularly water laws and hydropower policies—create ample incentives to promote hydropower development. Hydropower policies specifically focus on what developers can do to further their economic interests, but contain limited discussion of the responsibilities of developers towards local communities.

Likewise, the implementation of environmental laws and regulations, together with the curbing of regulatory oversight, only minimally constrains how hydropower developers build and operate projects in Uttarakhand. Limited government monitoring creates opportunities for hydropower developers to cut costs associated with meeting environmental regulations. Environmental regulations are just a bottleneck for the state that aims to maximize its revenues through construction of hydropower projects.¹⁹⁷

Changing the institutional structure or its implementation has distributional consequences.¹⁹⁸ Damming the rivers for hydropower generation not only takes the water away from local communities but, with no benefit sharing

194. See generally GOV'T OF INDIA, *supra* note 186; PRESS TR. OF INDIA, *Uttarakhand: 5,000 Feared Killed, 19,000 Still Stranded*, TIMES OF INDIA (June 23, 2013), <http://timesofindia.indiatimes.com/india/Uttarakhand-5000-feared-killed-19000-still-stranded/articleshow/20731541.cms> [<https://perma.cc/SG3Q-CFSD>].

195. See GOV'T OF INDIA, *supra* note 186, at 73 (noting that “[t]he problem of muck has never been debated so intensely as after the recent flood. One of the reasons is the greater visibility of damage in the proximity of HEPs. Although there was an increase in sediment mobilization generally during the June 2013 flood, it is also suggested that at a local scale, wherever the HEP muck was kept along the river banks without proper protection, it was a contributing factor towards aggravating the flood damage.”).

196. Sreelatha Menon, *MoEF Urged to Suspend Clearance to 6 Uttarakhand Hydel Projects*, BUS. STANDARD (July 20, 2013), http://www.business-standard.com/article/economy-policy/moef-urged-to-suspend-clearance-to-6-uttarakhand-hydel-projects-113072000588_1.html [<https://perma.cc/97WM-ERUX>].

197. PLANNING COMM'N, UTTARAKHAND 12TH FIVE YEAR PLAN & ANNUAL PLAN 2013–14 FINALIZATION MEETING BETWEEN HON' BLE DEPUTY CHAIRMAN, PLANNING COMMISSION & HON' BLE CHIEF MINISTER, UTTARAKHAND 22 (2014) http://planningcommission.nic.in/plans/stateplan/Presentations13_14/uttarakhand_2013_14.pdf [<https://perma.cc/39DC-EE6R>]. When construction of new hydropower projects was temporarily stalled after the cumulative impact study in the state and the June 2013 flash floods, the Chief Minister of the State in the 2013–14 annual meeting with the Deputy Chairman of the Planning Commission, made the following comment, “non realization of Hydro Power potential due to environmental bottlenecks [is] resulting in loss of precious revenue to the State.” *Id.* at 22.

198. See Wandschneider, *supra* note 55; Bromley, *supra* note 10.

mechanisms in place, these communities do not receive the economic gains from establishing these projects.¹⁹⁹ (One scholar notes that the mountain districts consume barely one and a half percent of the power produced in Uttarakhand.²⁰⁰) Given State's ultimate power and authority to control water, and its choosing to allow the construction of hydropower projects, local communities cannot effectively challenge the diversion of water by hydropower developers—even if the river goes dry. In this way, local communities and the environment only stand to lose in the current political-legal-economic decision-making process in Uttarakhand that serves the interests of hydropower developers.²⁰¹

IV. ANALYSIS

This article argues that hydropower developers stand to benefit from the existing legal-economic structures surrounding hydropower in India. Using an institutional approach, the preceding analysis of the evolution of laws—electricity, environment, land, and water—and their implementation, demonstrates that hydropower development enjoys a privileged position in the regulatory system with economic pre-eminence over other water uses.

In India, energy generation, particularly hydropower generation, has been a traditional function of national and state-level government agencies. The trajectory of development of electricity law and hydropower policy, however, reflects a growing focus on private sector participation in energy generation. Laws and policies provide incentives for developers to invest in hydropower generation, but regulatory oversight remains weak, thereby allowing developers to misuse the system for personal gain. The weak institutional capacity leaves room for collusive practices in project allocation.²⁰² It also leaves room for developers to flout regulations—such as royalty payments²⁰³—that add to project development costs.

199. Alluding to the case of hydropower development in the Mekong Region, Karen Bakker, *The Politics of Hydropower: Developing the Mekong*, 18 POL. GEOGR. 209, 220 (1999) makes a similar observation, noting that “[R]evenues are literally tapped and diverted away from local communities in the form of flows of water and energy.”

200. RAVI CHOPRA, OXFAM INDIA, UTTARAKHAND: DEVELOPMENT AND ECOLOGICAL SUSTAINABILITY 12 (2014).

201. MERCURO & MEDEMA, *supra* note 5, at 232.

202. Weak institutional capacity has resulted in the awarding of projects to developers with a strong political clout or limited background in hydropower development. In Sikkim, for example, hydropower projects were supposed to be awarded to private developers through competitive bidding, but were instead awarded to developers with close ties to powerful politicians. There were also instances of projects awarded to companies with no prior experience in constructing infrastructure or power generation projects, let alone hydropower projects, such as Athena Projects Pvt. Ltd. See Asif Syed, *RS 20,000 Crore Hydropower Scam in Sikkim, State Govt in Cahoots with PVT Players*, CURRENTNEWS (May 21, 2012), <https://currentnews.in/rs-20000-crore-hydropower-scam-in-sikkim-state-govt-in-cahoots-with-pvt-players/> [<https://perma.cc/8NSB-XPAG>]. In Uttarakhand, likewise, the Comptroller and Auditor General of India reported that projects were awarded to private companies with no prior experience in hydropower generation. See COMPTROLLER AND AUDITOR GEN. OF INDIA, PERFORMANCE AUDIT OF HYDROPOWER DEVELOPMENT THROUGH PRIVATE SECTOR PARTICIPATION 12 (2009).

203. COMPTROLLER AND AUDITOR GEN. OF INDIA, PERFORMANCE AUDIT OF HYDROPOWER DEVELOPMENT THROUGH PRIVATE SECTOR PARTICIPATION 14–15 (2009). Projects under 25 MW are exempt from royalty payments. The report cited the example of a private sector developer that manipulated the process of determining project capacity, to ensure that the capacity was 24.3 MW,

Hydropower developers likewise benefit from the dilution of environmental regulations, and their enforcement, that has occurred along with economic liberalization. The dominance of the pro-growth ideology in India's political-economic system since 1991 has minimized transaction costs for hydropower developers through the legal structures.²⁰⁴ Some scholars argue that minimizing transaction costs allows the movement of resources to uses with higher value, which in turn increases net social welfare. The question of who defines value and cost, however, is important. In India, the government—which largely dictates costs and defines operative value(s)—places higher value upon diverting water for hydropower development. The resulting increases in “net social welfare” benefits the developers and the government. For the local communities and environment, in contrast, this benefit is basically non-existent.

In case of land law reforms, the proposed 2015 bill to amend the LARR 2013 could create opportunities for hydropower developers to demand exemption from the conditions of obtaining public consent, and conducting social impact assessments, prior to developing hydropower projects. As a consequence, States could use the power of eminent domain to acquire land for hydropower projects without giving due consideration to social impacts or public agreement. Moreover, as the use of water for generating power comprises the characteristics of a public good,²⁰⁵ state governments can use their power—either of eminent domain or as public trustees—to justify diverting water for hydropower development to promote public interest.

Mercuro and Medema argue that “power and hence coercion . . . are a function of rights.”²⁰⁶ As seen in the case of Uttarakhand, by abolishing individual water rights altogether, the State has *re-created* its authority to control water at its own discretion. Indeed in India, the reallocation of rights to control water has given states “structural power”²⁰⁷ to influence decisions related to resource and wealth reallocation.

which was under the royalty payment threshold. The audit, however, revealed that per the stated guidelines on energy efficiency of hydropower plants, the actual capacity of the project was 25.51 MW. Royalties are normally the only benefits of a project that may accrue to the local communities, if they trickle down at all. When benefit sharing mechanisms are not specified, the only way local communities may receive any benefit, is through channeling of development funds from the State that come out of the royalty payments, or through establishing development programs that are funded by the royalty payment. See *generally* IIED, ROUTING REVENUE FROM HYDROPOWER DAMS TO DELIVER LOCAL DEVELOPMENT, BRIEFING (2015), <http://pubs.iied.org/pdfs/17285IIED.pdf> [<https://perma.cc/9D76-W7UZ>].

204. Bakker made a similar observation in case of hydropower development in Mekong, where she indicated, “minimising costs (environmental and social) . . . maximises the rate of return on investment.” See Bakker, *supra* note 199, at 218.

205. Carol Rose, *Energy and Efficiency in the Realignment of Common Law Water Rights*, in PROPERTY AND PERSUASION: ESSAYS ON THE HISTORY, THEORY, AND RHETORIC OF OWNERSHIP 167 (Carol Rose, 1994) (noting that “when water is used for power rather than consumption, it has striking public-good characteristics.”).

206. MERCURO & MEDEMA, *supra* note 5, at 224.

207. Aguilera-Klink & Sánchez-García, Federico Aguilera-Klink & Juan Sánchez-García, *Water Markets in Tenerife: the Conflict Between Instrumental and Ceremonial Functions of the Institutions*, 3 INT. J. WATER 166, 172 (2005).

Similar to the case of Chile, the resource allocation in India grants “de facto property rights to water”²⁰⁸ to hydropower developers. As water is considered as an input for economic growth in India, granting and securing de facto property rights to water has the net effect of indirect privatization of water by “enclosing the commons,”²⁰⁹ for hydropower generation. In this way, existing institutional structures give effect—through the law²¹⁰—to the interests of hydropower developers,²¹¹ who can dam, divert, and dry the river for the purpose of power generation. In contrast, the lack of effective judicial remedy for long-term water users leave these affected stakeholders vulnerable.

While diversion of water for generation of hydropower is considered efficient by the government—where efficiency is conceptualized as production of the “largest possible output of desired items,”²¹² the broader socio-environmental consequences are inequitable. The case of Uttarakhand illustrates this dynamic, where the environment and local communities bear the costs of, but do not receive the benefits from, diverting water for hydropower development.²¹³ The example of hydropower development in Uttarakhand represents what Rob Nixon calls the “resource law of inverse proximity.” According to this rule, water-using entities (including people and the environment) located closer to the resource are less likely to benefit from development of the resource.²¹⁴

The current pattern of single-purpose hydropower development also has negative consequences for achieving in India integrated water resource management, a water governance perspective that recognizes the “full range of social, economic, and ecological uses of water.”²¹⁵ Unlike hydraulic development

208. Bauer, *supra* note 18, at 647.

209. David Harvey, *The “New” Imperialism: Accumulation by Dispossession*, 40 *SOCIALIST REG.* 63, 75 (2004). Harvey discusses how the power of the state is used to dispossess access to the hitherto public assets such as public utilities and universities as part of the new wave of corporatization and privatization. In this context, enclosing the commons in this article is understood as cordoning off stretches of the river—which were erstwhile accessed by local communities—for hydropower generation.

210. MERCURO & MEDEMA, *supra* note 5, 225.

211. While small-scale hydropower development is largely private-sector driven, large scale hydropower generation is showing a growing dominance of private developers as well. In the 12th Five-year Plan (2012–2017), for example, 39 percent of the planned hydropower projects were to be developed through the private sector, as opposed to 37 percent and 24 percent by the national-level and state-level governments, respectively. This indicates a higher than normal rate of private sector participation. See CENT. ELEC. AUTH., *HYDRO DEVELOPMENT PLAN FOR 12TH FIVE YEAR PLAN iii* (2012–2017).

212. See Bromley, *supra* note 10, 785. *But see* MERCURO & MEDEMA, *supra* note 5, at 6, 228 (noting that an institutional perspective recognizes the availability of “multiplicity of efficient solutions”). In India, of available water uses, hydropower is considered more efficient given the economic benefits of such a diversion.

213. In addition to the examples already stated in the article, another observation by Bhushan et al., *supra* note 101, at 15, is that villages whose land was acquired for the project did not receive any electricity from the project, and had electricity for only five or six hours a day.

214. See Baruah, *supra* note 4, at 49, *citing* Rob Nixon, *Unimagined Communities: Developmental Refugees, Megadams and Monumental Modernity*, 69 *NEW FORMATIONS* 62–80 (2010).

215. KEN CONCA, *GOVERNING WATER: CONTENTIOUS TRANSNATIONAL POLITICS AND GLOBAL INSTITUTION BUILDING 124* (2006). While undertaking fieldwork in Uttarakhand in the summer of 2016, the author conducted interviews with several communities located near small-scale hydropower

in the period immediately following independence where dams were built with the intention of meeting multiple and broadly social uses of water, the current pattern of development has failed to adequately consider social and ecological water needs. This current governance regime has detrimental ramifications with respect to sustainable development. Indeed, while India has a National Water Policy that provides a (fleeting) mention of integrated water resource management,²¹⁶ the fragmented regulatory and institutional system obviates opportunities for serious efforts to promote integrated water resource planning. As the article has shown, India focuses on electricity, water, and environment separately in its misguided approach to governing hydropower development, which presents complex cross-cutting issues.

CONCLUSION

Going forward, achieving sound hydropower development that goes beyond a narrow economic focus will need to account for equity considerations and resource sustainability. This will require a fundamental shift in institutional structures that recognize and protect the water needs (and rights) of local communities and the environment. The Ministry of Power announced in 2016 that it intends to create a framework for boosting hydropower development in the country.²¹⁷ This presents an opportunity, where the framework can incorporate mechanisms where local communities can voice their grievances or contest unfair resource reallocation.

In addition, strict guidelines should be established by the courts to give state governments clear directions on how they ought to carry out their obligations as public trustees.²¹⁸ In light of weak enforcement of environmental regulations and heretofore limited attention paid to the concerns and suggestions of local communities, formal mechanisms should also be created—such as citizen monitoring groups that report to the government—that allow and empower local communities to monitor project development and report malpractices by developers.

projects. These projects solely divert water for hydropower generation and by and large do not consider water needs of communities downstream of the dams. As a consequence, irrigation, which in fact was one of the key beneficiaries in the multi-purpose dam development era, is significantly impacted. This is due to the fact that the peak season for hydropower generation coincides with the planting seasons, thereby creating acute water shortages for downstream farmers.

216. GOV'T OF INDIA, MINISTRY OF WATER RES., NATIONAL WATER POLICY at Point 9.2 (2012), <http://wrmin.nic.in/writereaddata/NationalWaterPolicy/NWP2012Eng6495132651.pdf> [<https://perma.cc/PFE2-SMZU>].

217. See PRESS TR. OF INDIA, *supra* note 113.

218. While conducting fieldwork in Uttarakhand in the summer of 2016, the author came across a few instances where villages near small-scale hydropower projects formed informal agreements with the power developer to release a certain quantity of water for irrigation during the planting season. (The local villagers either had a project office where they could meet the developer, or had a representative that was in touch with the developer.) The presence of these agreements indicates that in cases where villagers can discuss their water needs with power developers, and where power developers are open to forging creative solutions for balancing water needs, the trade-offs between water needs for local use and power development can be minimized without recourse to litigation and formal rulemaking.

Finally, the government will need to balance economic benefits of hydropower development with the benefits associated with other existing water uses, in order to minimize social-environmental impacts of diverting water solely for hydropower generation. One mechanism to undertake such a balancing act is to require hydropower developers to obtain consent from government agencies that oversee water use for irrigation, fisheries, etc., as well as local communities prior to commencing a hydropower development project.²¹⁹ Another mechanism is to create venues where local communities and project developers can meet, as required, to forge temporary agreements for water-sharing, without recourse to litigation or formal rulemaking.

Hydropower undoubtedly has the potential to alleviate India's growing energy needs and dependence on coal. But to avoid the disastrous consequences that the current pattern of hydropower development portends, government agencies must keep broader sustainability considerations in mind.

219. These mechanisms have existed in the past but were later abolished, as they were considered bureaucratic "red tape." In the case of small-scale hydropower, for example, developers did need clearances from the state Irrigation Department.