DAMNESIA: AN EXAMINATION OF PUBLIC PARTICIPATION AND EVOLVING APPROACHES TO HYDROPOWER DEVELOPMENT IN THE UNITED STATES AND BRAZIL

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THESIS

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ABSTRACT

Large hydropower projects have long been political flashpoints where environmental, economic and social considerations have vied for priority. Historically, economic benefits of large hydropower projects have been assumed to outweigh the costs, a rationale which catalyzed the construction of large hydropower dams around the world with little regard for their socio-environmental externalities.

Brazil is still in a semi-developmental stage and accordingly perceives a higher demand for large hydropower projects and infrastructure. While hydropower can bring immense benefits to Brazil's energy infrastructure, Belo Monte's location in the Amazon presents serious socio-environmental concerns that are straining Brazil's legal and regulatory regimes. After a period of explosive growth in dam construction, the United States is now shifting into a period of dam removal and decommission. This is partly due to increased awareness regarding the environmental and social impacts of dams, but made possible by the well-established cadre of statues, regulatory agencies, and advocacy groups with the power to drive meaningful change. The accountability and flexibility built into legal and regulatory frameworks in the United States have enabled the law to adapt and overcome deficiencies in addressing externalities surrounding hydropower development.

Public participation has evolved into a key element underlying any policy-based approach to conservation, natural resources management, or application of modern environmental law. The distinction between public participation that is "meaningful" as opposed to public participation that is merely "due" under the law will only become more relevant as the social, environmental and economic externalities imposed by hydropower projects become a larger consideration in regulatory law and policy. Examining this distinction through case studies in the United States and Brazil offers an increasingly relevant perspective on public participation's role in addressing hydropower externalities.

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INTRODUCTION

Throughout history, the hydrologic characteristics of water have been key drivers in shaping not only ecological and geographic landscapes, but the social and cultural bedrock of civilizations. Dams represent an extension of human influence over the environment; molding natural resources into drivers of economic growth and prosperity. Large hydropower projects have long been political flashpoints where environmental, economic and social considerations have vied for priority. [1] Water management has been a key factor behind the socio-economic and political pressures surrounding dam construction in both developed and developing nations.

Brazil is a nexus for examining policy implications of dams in both developed and developing contexts. With its extensive network of rivers, Brazil has one of the greatest hydropower potentials on the planet; it comes as no surprise that hydroelectric power is the country's main electricity production asset, making up more than 75% of the country's electric power.[2] The Amazon region has been described as the final frontier for Brazilian hydropower development, playing a central role in hydropower efforts and their associated externalities.[3] Belo Monte, located on the Xingu River in the Amazon Rainforest, is the third largest hydroelectric dam in the world.[4] Brazil is still in a semi-developmental stage and accordingly perceives a higher demand for large hydropower projects and infrastructure.[5] While hydropower can bring immense benefits to Brazil's energy infrastructure, Belo Monte's location in the Amazon presents serious socio-environmental concerns that are straining Brazil's legal and regulatory regimes. Brazil's legal structures, enforcement mechanisms, and avenues for public participation differ greatly from the United States – these differences and the impact they have

[1] The Aswan High Dam in Egypt, the Three Gorges dam in China and the Grand Coulee Dam are among the largest and most contentious hydropower projects in the world.

[2] Jaichand & Sampaio, *Dam and Be Damned* at 410 (2013); *See also* U.S. Energy Information Administration, *Hydropower supplies more than three quarters of Brazil's electric power*, (2014) *available at* www.eia.gov/todayinenergy/detail.php?id=16731

[3] Wilson Cabral de Sousa Júnior and John Reid, *Uncertainties in Amazon Hydropower Development: Risk Scenarios and Environmental Issues around the Belo Monte Dam*, WATER ALTERNATIVES 3(2), 249-268 (2010)

[4] Interamerican Association for Environmental Defense (hereafter AIDA), Belo Monte Fact Sheet (Feb. 14, 2012) *available at* http://www.aida-americas.org/sites/default/files/Belo%20Monte%20Fact%20Sheet%20ENG%2014-02-12.pdf

[5] *Id.*

on addressing hydropower externalities are crucial given the socio-economic benefits at stake in the Amazon.

After a period of explosive growth in dam construction, the United States is now shifting into a period of dam removal and decommission.[6] This is partly due to increased awareness regarding the environmental and social impacts of dams, but made possible by the well-established cadre of statues, regulatory agencies, and advocacy groups with the power to drive meaningful change.[7] The accountability and flexibility built into legal and regulatory frameworks in the United States have enabled the law to adapt and overcome deficiencies in addressing externalities surrounding hydropower development. The procedural requirements of the National Environmental Policy Act (NEPA) act as a check against agency action through public comment periods and the option for legal challenges in federal court. These requirements also allow agencies to hold each other accountable when proposing major agency actions. When procedural process is not enough, substantive statutes such as the Endangered Species Act (ESA) and regulatory frameworks such as the Federal Energy Regulatory Commission's (FERC) relicensing protocols provide regulatory teeth mandating consideration of environmental impacts stemming from hydropower projects.[8] Stakeholder pressure can push Congress to update antiquated laws with fresh amendments, opening previously unavailable avenues for addressing externalities. The importance of public participation and effective dispute resolution mechanisms cannot be understated; these have and continue to play an integral role in helping the law adapt to meet its intended goals.

Fundamental drivers behind large hydropower projects reflect a nation's prevailing attitude regarding the perceived social, environmental and economic costs and benefits of a

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[6] *See generally* Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* (2012); Michael C. Blumm & Viki A. Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing*, 26 COLUM. J. ENVTL. L. 81-130 (2001) (hereafter Blumm & Nadol, *The Decline of the Hydropower Czar*); Michael C. Blumm, Erica J. Thorson, & Joshua D. Smith, *Practiced at the Art of Deception: The Failure of Columbia Basin Salmon Recovery Under the Endangered Species Act*, ENVIRONMENTAL LAW, Vol. 36, 709, 721 (2006) (hereafter Blumm, et al., *Practiced at the Art of Deception*).

[7] *Id.*

[8] *See generally* Blumm & Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing* (2001); Michael C. Blumm & Aurora Paulsen, *The Role of the Judge in ESA Implementation: District Judge James Redden and the Columbia Basin Salmon Saga*, 32 STAN. ENVTL. L. J. 87, 144 (2013) (hereafter Blumm & Paulsen, *The Role of the Judge in ESA Implementation*)

project.[9] A country's level of economic development dictates the governance mechanisms and policies used in mitigating the socio-environmental costs of hydropower projects.[10] While the United States and Brazil both have well-established environmental regulatory frameworks in place for developing and managing hydropower projects, there are stark differences in how stakeholders can participate in the regulatory process. This Comment argues that public participation in the regulatory process and effective dispute resolution mechanisms are critical in addressing the socio-environmental externalities stemming from hydropower and ensuring that the law is capable of fulfilling its intended goals.

In Part II, this Comment explores the role of public participation in addressing hydropower externalities and introduces core components that make participation mechanisms "meaningful." Part II also discusses the benefits and detriments of hydropower and international sustainable development initiatives aimed at addressing hydropower externalities.

Part III examines the legal and regulatory frameworks surrounding hydropower in the United States and Brazil, emphasizing the role of public participation in governance structures unique to each country and setting the stage for comparing case studies between the two regimes.

Part IV analyzes meaningful public participation through case studies in the United States and Brazil, comparing how public participation mechanisms interact between the regimes. The legal and political firestorm surrounding Belo Monte provides a unique comparison to case studies in the United States, where participation evolved from near non-existence to playing a major role in the evolution of modern environmental law and its struggles in addressing hydropower externalities.

This Comment concludes with a synopsis of the case studies, with emphasis on public participation's role in dictating a result. Legal regimes, governance structures and challenges surrounding hydropower projects are diverse; exploring economic, environmental and social issues though case studies in the United States and Brazil will highlight these unique challenges and provide context in analyzing public participation's role in addressing hydropower externalities.

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[9] Beck et al., *Environmental and Livelihood Impacts of Dams* at 13 (2012); Jonathan Rigg, *Thailand Nam-Choan-Dam Project: a case study in the greening of Southeast Asia*, GLOBAL ECOLOGY AND BIOGEOGRAPHY LETTERS, 1(2), 42-54 (1991); Sara E. Johnson and Brian E. Graber, *Enlisting the social sciences in decisions about dam removal*, BIOSCIENCE, 52(8), 731-738 (2002)

[10] *Id.* at 11 (emphasizing that "sufficient policies and governance mechanisms for environmental protection are often not implemented until after a country is developed."

BACKGROUND

Hydropower Benefits and Detriments

Ubiquitous with industry and development, more than 45,000 large dams (dams greater than 15m in height) have been built worldwide, providing benefits across a variety of scales.[11] As water scarcity and drought become pressing global issues, dams have become valuable water storage mechanisms for industrial, municipal and agricultural use.[12] Dam projects often provide an influx of corporate financial investment and capital in developing nations, benefitting human health and infrastructure.[13] Perhaps most importantly, dams provide flood control measures while simultaneously generating clean hydropower energy for local communities.[14]

Hydropower projects can produce a slew of negative environmental impacts. Dam construction inherently submerges tracts of land, destroying local wildlife, habitats, and ecosystems; loss of ecosystem services such as subsistence farmland and clean water has a direct and tangible impact on the livelihoods and cultures of local communities.[15] Habitat degradation or destruction in the inundated zone is only part of the problem – dams also act as sediment barriers, blocking natural riverine flows of water, sediment and critical nutrients that in turn impacts fish and other aquatic organisms.[16] Decreased occurrence of natural flooding

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[11] World Commission on Dams, *Dams and Development: A New Framework for Decision-Making*, Earthscan Publications Ltd. (2000). *See also* Beck et al., *Environmental and Livelihood Impacts of Dams* at 1-2 (2012).

[12] Dan Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States*, 65 VAND. L. REV. 1723 (2012) (hereafter Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States*)

[13] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR (2008).

[14] Beck et al., *Environmental and Livelihood Impacts of Dams* at 1-2 (2012); William L. Graf, *Dam Removal: Science and Decision Making*, Washington, D.C.: The H. John Heinz III Center for Science, Economics and the Environment (2002)

[15] *See generally* Sousa Júnior & Reid, *Uncertainties in Amazon Hydropower Development* at 249 (2010)

[16] Marcia S. Meisler, Mark B. Bain, M. Todd Walter, *Predicting barrier passage and habitat suitability for migratory fish species*, ECOLOGICAL MODELING 220, at 2782 (2009)

mechanisms has a stark impact on fertility restoration in riparian areas.[17] ish and riverine resources are critical facets to the livelihoods of many indigenous peoples, providing both financial security and food, and these communities are often the most heavily impacted by hydropower developments.[18] Dams could even be pegged as point-source polluters; warming water and lowering oxygen content can lead to algal blooms, blocking and killing native species both up and downstream.[19]

International Sustainable Development Initiatives

Soft law[20] incentives such as those outlined in the hallmark report by the World Commission on Dams (WCD) have a mutualistic relationship with public participation – meaningful implementation of one element will inherently benefit the other, making both valuable tools for targeting hydropower externalities.[21] After a two year study, the WCD recognized that large dams were often riddled with steep social and environmental costs borne by displaced peoples, downstream communities, taxpayers, and the environment itself that were

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[17] Bruce P. Shoemaker, Ian G. Baird, Kanokwan Manorum *The people and their river: a survey of river-based livelihoods in the Xe Bang Fai River Basin in central Lao PDR. Vientiane*, LAO PDR: CANADA FUND FOR LOCAL INITIATIVES (2001).

[18] Beck et al., *Environmental and livelihood impacts of dams* (2012); *See also* Shoemaker et al. (2001); Patrick McCully, *Silenced rivers: the ecology and politics of large dams.* London: Zed Books (2001) (discussing wide-ranging ecological and human impacts of large dams, including indigenous and subsistence-based communities).

[19] James G. Workman, *How to Fix Our Dam Problems,* Issues in Science and Technology 24, No. 1 (2007); *See also* Michael R. Enion*, The Case for NPDES Regulation of Dam Discharge,* 38 ECOLOGY L. Q. 797 (2011) (Discussing National Wildlife Federation v. Gorsuch, 530 F.Supp 1291, 1295 (D.D.C. 1982), a key case supporting the argument that dam discharges should be subject to NPDES permitting. In *Gorsuch*, the D.C. District Court conducted a comprehensive review of water quality impacts from dam discharges, holding that they met the CWA's standard for "discharge of a pollutant" and therefore should be subject to NPDES permitting. The D.C. Circuit reversed on *Chevron* grounds, holding that the district court gave improper deference to EPA's interpretation of the statutory requirements at issue. However, the D.C. Circuit did not address the district court's substantive analysis, and both the Second and Seventh Circuits have refused to defer to similar arguments. While this is an evolving area of statutory interpretation, most discharges from hydroelectric dams have continued to escape regulation under the NPDES program.)

[20] Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, INTERNATIONAL ORGANIZATION 54(3), 421, 422 (2000) (Describing "soft law" as a body of law with no general enforcement power, "where legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation").

[21] World Commission on Dams, *Dams and Development: A New Framework for Decision-Making*, Earthscan Publications Ltd. at 2 (2000)

outweighed by proposed social benefits.[22] The study emphasized that "the 'end' that any project achieves must be the sustainable improvement of human welfare, [meaning] a significant advance of human development on a basis that is economically viable, socially equitable and environmentally sustainable."[23] Failures during the planning process included issues with participation and transparency, alternatives assessments, environmental impact statements (EIS) and social impact statements being undertaken late in the process, and monitoring and licensing measures being inconsistent or non-existent.[24]

The WCD suggested a number of guidelines to help balance equities within large dam projects, such as engaging in participatory and multi-criteria analysis of development needs, options and impacts, conducting regular monitoring and periodic review, ensuring displaced people's livelihoods are improved and creating enforcement mechanisms and incentives in the area of social and environmental performance.[25] Unfortunately, these types of soft law incentives look good on paper but are difficult to implement on hydropower projects like Belo Monte. Powerful political and economic interests can push development forward, skirting laws and regulations and ignoring public participation, socio-economic impacts and environmental degradation.[26] Developing nations like Brazil often place a higher value on economic development at the cost of the environment, a relationship that is exacerbated by inefficient accountability and enforcement mechanisms throughout the regulatory process.[27] Sustainable development initiatives like those proposed by the WCD have catalyzed research efforts and increased awareness surrounding the impacts of hydropower, particularly regarding the role of public participation.[28] However, most of these initiatives have not had the stopping power or support to have a tangible impact on hydropower projects and their associated externalities.[29]

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[22] *Id.* at xxxi
[23] *Id.* at 2
[24] *Id.*
[25] *Id.* at 285
[26] Simone Athayde, *Introduction: Indigenous Peoples, Dams and Resistance*, Tipití: Journal of the Society for the Anthropology of Lowland South America, 12(2), Article 1, 80-92, at 82 (2014)
[27] Beck et al., *Environmental and livelihood impacts of dams* at 12 (2012)
[28] *Id.*
[29] *Id.*

Intermediaries, or third-party financial and governance institutions, can play an important role in helping curb the social and environmental externalities of hydropower developments.[30] While much of Belo Monte's funding is national[31], intermediaries like the World Bank can often use their financial power over developing nations to break through the politics surrounding development projects. Uganda's Bujagali Dam exemplifies this practice in action. Much of the project's funding came from intermediaries, including the World Bank and European Investment Bank (EIB).[32] The EIB conditioned its $130 million funding on completion of a satisfactory environmental and social analysis.[33] Intermediaries and non-governmental organizations (NGO) worked together in developing external accountability frameworks and targeting social and environmental impacts stemming from the Bujagali project, ultimately delaying its construction until the government conducted further consultation with impacted parties.[34] Intermediaries can help introduce accountability and participation mechanisms into the development process by holding the borrowing nation accountable for their actions and to higher social or environmental standards.[35]

[30] *See generally* World Commission on Dams, *Dams and Development: A New Framework for Decision-Making* (2000)

[31] *See* International Rivers, Amazon Watch, AIDA, "BNDES Approves Unprecedented Loan for Controversial Amazon Dam" (2012) *available at* https://www.internationalrivers.org/resources/bndes-approves-unprecedented-loan-for-controversial-amazon-dam-7749 (Belo Monte's funding is primarily allocated through the Brazilian National Development Bank, which limits financial pressures that intermediaries like the World Bank can exert over the project itself.

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[33] European Investment Bank*, Bujagali Hydroelectric Project, Uganda*, (July 2, 2007) *available at http://www.eib.org/infocentre/press/news/topical_briefs/2007-july-01/bujagali-hydroelectric-project-uganda.htm*

[34] David Ross Olanya, *Land and Hydropolitics in the Nile River Basin: Challenges and New Investments*, EARTHSCAN, at 156-157 (2016)

[35] *Id.*

Public Participation

Foundations and Importance

Public participation is an important element of good governance in environmental decision-making.[36] Defined as the involvement of stakeholders in administrative functions and decision-making,[37] promoting public participation fosters transparency and accountability in government, whereby a wider base of knowledge and opinions can interact to make informed and inclusive decisions.[38] Participation helps decision-makers understand the nature of public opinion, improving decisions by providing relevant and accurate information and evidence related to a proposed action.[39] Public participation aids in highlighting the true substance and significance underlying the politics of stakeholder concerns about a government action, thereby providing a more meaningful instrument for advancing policy on substantive environmental issues.[40] Participation fosters transparency and accountability in government, simultaneously conferring legitimacy upon governmental process and helping counter corruption.[41] Timing can be critical when examining public participation, as the participation mechanism must be able to affect the process and in turn, the outcome, in order to deliver meaningful social benefits.[42]

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[36] Nancy Perkins Spyke, *Public Participation in Environmental Decisionmaking at the New Millennium: Structuring New Spheres of Public Influence*, 26 B.C. ENVTL. AFF. L. REV. 263, 266 (1999)

[37] XiaoHu Wang & Montgomery van Wart, *When Public Participation in Administration leads to Trust: An Empirical Assessment of Managers' Perceptions*, PUBLIC ADMINISTRATION REVIEW 67(2), 265-278, at 271 (2007) (hereafter Wang & van Wart, *When Public Participation in Administration leads to Trust*).

[38] Jesse L. Moorman and Zhang Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process: Comparing China's EIA Law and U.S. NEPA*, VERMONT J. OF ENVTL. LAW, Vol. 8, 281, 286 (2007); *See also* Wang & van Wart, *When Public Participation in Administration leads to Trust* at 271 (2007).

[39] Marc B. Mihaly, *Citizen Participation in the Making of Environmental Decisions: Evolving Obstacles and Potential Solutions rough Partnership with Experts and Agents*, 27 Pace Envtl. L. Rev. 151, 165 (2009) (hereafter, Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009); *See also* Renée A. Irvin & John Stansbury, *Citizen Participation in Decision Making: Is It Worth the Effort?*, PUBLIC ADMINISTRATION REVIEW, 64(1) 55-65, at 56 (2004)

[40] *Id.*

[41] *Id.;* Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 287 (2007).

[42] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 164-165 (2009)

Critics argue that public participation gets in the way of good science and is an ineffective time and resource sink.[43] Others have characterized public participation as a tool to "channel and contain citizen demands, delay difficult decisions, or build support for agency plans".[44] However, oftentimes experts and officials need citizen input to illuminate the facets of a given impact or problem that may not be obvious from an external perspective.[45] Strong partnerships between citizens, experts and advocates provide valuable data and opportunities for collaborative analysis on a given project.[46] This is particularly true in ideologically charged or possibly corrupt regimes where the government, its agencies, or elected officials value economically dominant stakeholders over sound science and good governance.[47] Brazil fits this mold, and many state and local governments in the United States still struggle here as well.[48]

Numerous empirical studies have attested to public participation's impact on government decision-making.[49] One study highlights a relationship between public participation mechanisms and trust in government decision-making, finding that increased participation mechanisms improve public trust when producing high-quality services that the public desires and enhancing ethical behavior of government administrations.[50] This study also concluded that there was a strong positive association between participation and government accountability, emphasizing public participation's value as a mechanism promoting accountability.[51]

Public meetings have been shown to help citizens provide more constructive feedback in the decision-making process, in turn enhancing and the responsiveness and accountability of

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[43] Stephen Breyer, *Breaking the Vicious Circle Toward Effective Risk Regulation*, Harvard University Press, 33-39 (1993); Mark Squillace, *Embracing a Civic Republican Tradition in Natural Resources Decision-Making*, Univ. of Colorado Law School, Legal Research Paper Series at 6-7 (2008)
[44] Caron Chess & Kristen Purcell, *Public Participation and the Environment: Do We Know What Works?* American Chemical Society, Environmental Science and Technology, 33(16), 2685 (1999) (quoting B.J. Chekoway, *The Politics of Public Hearings*, J. OF APPL. BEHAV. SCI., 17(4), 566-81 (1981).
[45] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 160 (2009)
[46] *Id.*
[47] *Id.*
[48] *Id.*
[49] *See* Chess & Purcell, *Public Participation and the Environment: Do We Know What Works?* at 2685, 2691 (1999); Brian Adams, *Public Meetings and the Democratic Process*, PUBLIC ADMINISTRATION REVIEW, 64(1), 43-54 (2004); Irvin & Stansbury, *Citizen Participation in Decision Making: Is It Worth the Effort?* at 56 (2004); Wang & van Wart, *When Public Participation in Administration leads to Trust* (2007).
[50] Wang & van Wart, *When Public Participation in Administration leads to Trust* at 274, 276 (2007).
[51] *Id.* at 275

government.[52] Implementing additional deliberation structures within public meetings allows citizens to lobby government officials, increasing citizen's political power and incentivizing government responsiveness to their concerns.[53] Open forums for citizen participation enhance the legitimacy of the political process and the government's decision-making authority.[54]

Chess and Purcell evaluated 12 preceding studies on the effectiveness of public meetings. The evaluation concluded that a majority of studies found that public meetings influenced government decision-making.[55] Further, public participation impacted not only decisions specific to the meetings, but also subsequent institutional changes influencing other participation mechanisms.[56] The study synthesized empirical evidence into a number of "rules of thumb" for successful public participation mechanisms, including clarification of goals, advanced planning early in the regulatory process, varying forms of participation and collecting feedback on participation efforts.[57]

Public participation in governance can be a transformative force, whereby individuals participating in governmental decision-making experience permanent changes in their outlook and lives – meaningful public participation in regulatory regimes can shift societal perspectives.[58] Entrenched stakeholders often instigate environmental externalities through a dominant influence over the legal or regulatory process.[59] Meaningful public participation can provide mechanisms for impacted groups to break the status quo and advocate for a common good (i.e. addressing a hydropower externality) that is not adequately represented amongst current organized interests. [60] Open and meaningful participation mechanisms in the environmental decision making process help foster an informed citizenry, a transparent and

[52] Adams, *Public Meetings and the Democratic Process*, at 52 (2004)
[53] *Id.*
[54] *Id.*
[55] Chess & Purcell, *Public Participation and the Environment: Do We Know What Works?* at 2686 (1999)
[56] *Id. at 2687*
[57] *Id.* at 2691.
[58] Naho Mirumachi & Jacopo Torriti, *The use of public participation and economic appraisal for public involvement in large-scale hydropower projects: Case study of the Nam Theun 2 Hydropower Project,* ELSEVIER, Energy Policy 47, 125-132 (2012)
[59] Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009)
[60] *Id.*

accountable government, and overall higher quality decision making related to the environment.[61]

Making Public Participation "Meaningful"

Public participation has inherent value in environmental decision-making, but there is a stark contrast between participation that is "meaningful" relative to participation that is merely "due" under the law. Oftentimes all that is guaranteed under the law is the opportunity to be heard, not a result.[62] Finding ways for regulators and lawmakers to make participation mechanisms meaningful is crucial in addressing hydropower externalities. This section will focus on three key mechanisms for making public participation more meaningful: (1) Access to and quality of information, (2) timing within the regulatory process, and (3) accountability in the regulatory and legal process.[63]

Increasing access to and quality of information related to a project is one mechanism for achieving more meaningful public participation.[64] Obtaining information from the government subject to a request enables the public to examine the data underlying the government's decision-making process.[65] Access to information is a necessary element in allowing stakeholders to be informed about the nature of the government's action, which is critical in mounting potential legal challenges.[66] Understanding and accommodating barriers to information distribution and formulating more effective means of access to information promotes more effective and meaningful participation.[67] As examined later with indigenous peoples impacted by Belo Monte, failing to account for cultural and language barriers can reduce a public participation effort to a

[61] Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 286 (2007).
[62] Neil A.F. Popovic, *The Right to Participate in Decisions That Affect the Environment*, 10 PACE ENVTL. L. REV. 683, 691 (1993)
[63] This list is non-exhaustive. There are a multitude of important considerations in making public participation more meaningful. This paper is focusing on the listed three given their heightened relevance and importance in the examined case studies and the hydropower context generally.
[64] Neil A.F. Popovic, *The Right to Participate in Decisions That Affect the Environment* at 691 (1993)
[65] *See generally* Christopher M. Johnson, *Defining the Content of the Right to Information,* Sierra Club Legal Defense Fund (1992).
[66] Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009)
[67] *Panel on Public Participation in Environmental Assessment and Decision Making*, National Research Council (Thomas Dietz & Paul C. Stern eds., 2008) *available at* http://nap.edu/12434 (hereafter *Panel on Public Participation in Environmental Assessment and Decision Making* (2008))

mere box on a project's regulatory checklist. Meaningful public participation needs to be inclusive, encompassing the full spectrum of impacted interested and represented parties related to the decision.[68] Participation mechanisms are ineffective when the underlying information is not comprehensive enough for the public to make meaningful determinations and comments about the government's proposed actions.[69] Information should be available at a low cost, at accessible locations and in electronic form.

Timing is another critical mechanism for facilitating meaningful public participation. Public participation itself must be able to affect the process and outcome, ultimately delivering a benefit to the impacted party.[70] Impacting the underlying process is critical in changing the eventual outcome.[71] Participation needs to be conducted at a stage in the regulatory process where meaningful interaction on a project's merits can still occur. Process that fails to impact an outcome epitomizes public participation that is merely "due" rather than participation that is meaningful and effective. Jumping through regulatory hoops may fulfill a statutory requirement, but is ultimately relegating the participation mechanism to a formality as opposed to a meaningful opportunity for the public to participate in environmental decision-making. Public comments on a proposed hydropower license, for example, are meaningless if the agency in question has already granted access rights to a developer in order to start construction. Participation that is not meaningful is largely ineffective and fails to meet its core functions.[72] It does not advance the interests of stakeholders or impacted parties, nor provide useful evidence to the decision-makers who are seeking the public interest.[73] It does not legitimize the concerns of impacted parties nor create significant avenues for fostering civic values and addressing environmental externalities.[74] Meaningful and effective public participation must be conducted at a time where change to the underlying action is still possible and where there are enforceable legal rights in play. The timing component emphasizes a core reason underlying public

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[68] *See generally* Nancy Perkins Spyke, *Public Participation in Environmental Decisionmaking at the New Millennium: Structuring New Spheres of Public Influence* (1999)
[69] *Id.*
[70] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 262 (2009); *See also* & Purcell, *Public Participation and the Environment: Do We Know What Works?* at 2685, 2691 (1999)
[71] *See generally,* Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009); *Panel on Public Participation in Environmental Assessment and Decision Making* (2008).
[72] *Id.*
[73] *Id.*
[74] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 166 (2009)

participation's importance in environmental decision-making – the reason public participation is important to begin with is because it helps regulatory decision makers achieve better results.

The final mechanism discussed in this paper is accountability. Meaningful public participation requires statutory underpinnings that facilitate interaction with regulatory decision makers throughout the regulatory process, along with legal enforcement mechanisms when the process is inadequate.[75] Accountability has significant value in the hydropower context, where development projects often have far reaching social, economic and environmental impacts. Honing in on environmental impact assessments (EIAs) such as those mandated by NEPA provide a specific example of why public participation is important. NEPA puts a limitation on the government's discretion in environmental decision-making. An agency's requirement to take a "hard look" at environmental impacts from a planned action and to consider alternatives provides a statutory hook for enforcing government accountability while simultaneously placing a check on agency capture by industry or political majority.[76] Greater involvement in the EIA process helps educate and inform the public while simultaneously providing an outlet to discuss controversial elements of a project early on in its development. EIAs are, in a broad sense, an attempt to examine and document impacts from a proposed project and its alternatives for the purpose of increasing the quality of human life.[77] Adjudicatory mechanisms in bodies of environmental law facilitate meaningful participation by allowing both the general public and experts to interact with regulatory decision makers, the development project, and ultimately the project's impacts and externalities. The importance of public participation and effective dispute resolution mechanisms cannot be overstated; these have and continue to play an integral role in helping the law adapt to meet its intended goals.

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[75] *Id.*

[76] *See generally* J. William Futrell, *Environmental Assessment: The Necessary First Step in Successful Environemntal Strategies*, 10 UCLA PAC. BASIN L.J. 234, 237 (1991); Neil A.F. Popovic, *The Right to Participate in Decisions That Affect the Environment* at 701-702 (1993)

[77] Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 286 (2007).

LEGAL FRAMEWORKS IN THE UNITED STATES AND BRAZIL

The United States

After a period of explosive growth in dam construction, the United States is now shifting into a period of dam removal and decommission.[78] This is partly due to increased awareness regarding the environmental and social impacts of dams, made possible by the well-established cadre of statues, regulatory agencies, and advocacy groups with the power to drive meaningful change.[79]

The National Environmental Policy Act (NEPA) outlines mandatory environmental considerations that federal agencies must observe, including the Environmental Impact Statement and mandatory public comment periods for examining proposed agency actions. NEPA has been an invaluable tool for increasing transparency, accountability and public participation in agency actions impacting the environment.[80]

While sharing similar EIS requirements with NEPA, the Endangered Species Act is not solely procedural and provides more enforcement mechanisms against violators. Although often politicized, the ESA has a unique potential to protect endangered and threatened species and their ecosystems.

The Federal Power Act (FPA) and its licensing protocols have become increasingly relevant in the age of dam decommission, specifically in protecting riverine ecosystems like the Columbia River Basin in the pacific northwest.[81] Historic tribal rights and regulatory authority

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[78] *See generally* Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* (2012); Michael C. Blumm & Viki A. Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing*, 26 COLUM. J. ENVTL. L. 81-130 (2001) (hereafter Blumm & Nadol, *The Decline of the Hydropower Czar*); Michael C. Blumm, Erica J. Thorson, & Joshua D. Smith, *Practiced at the Art of Deception: The Failure of Columbia Basin Salmon Recovery Under the Endangered Species Act*, ENVIRONMENTAL LAW, Vol. 36, 709, 721 (2006) (hereafter Blumm, et al., *Practiced at the Art of Deception*).

[79] *Id.*

[80] *See generally* Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 286 (2007)

[81] *See generally* Blumm & Nadol, *The Decline of the Hydropower Czar*, 81-130 (2001).

have also played an integral role in shaping the way regulatory and legal regimes in the United States interact with impacted peoples and address hydropower externalities.[82]

Part III (A) will examine how these unique regulatory structures provide accountability, enforcement, and licensing measures to address historic issues with dams, albeit with their own set of roadblocks and challenges.

The National Environmental Policy Act

Environmental Impact Assessments are a nexus between social, environmental and economic values both for the government and the public.[83] EIAs were first implemented in the United States in 1969 through the National Environmental Policy Act.[84] Touted as "the national charter for protection of the environment,"[85] NEPA seeks to balance environmental concerns in policymaking by mandating all federal agencies "create and maintain conditions under which man and nature can exist in productive harmony."[86] Unlike substantive statutes such as the Clean Water Act, NEPA's requirements are purely procedural, designed to insure a "fully informed and well-considered decision", but not necessarily a decision the court would have reached.[87] "Once an agency has made a decision subject to NEPA's procedural requirements, the only role for the court is to insure the agency considered the environmental consequences," not to interject itself within the area of discretion reserved for the executive.[88] NEPA's goal is not to prevent an agency from taking a proposed action, but rather to force federal agencies to contemplate the environmental impacts of their actions before they are implemented.

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[82] *See generally* Mason Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing: Using the licensing process to address tribal concerns*, The Water Report, No. 92, pp. 1-6 (2011) (hereafter Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing*); Rebecca Cruz Guiao, *How Tribal Waters Rights are Won in the West: Three Case Studies from the Northwest*, Univ. of Oklahoma College of Law, AMERICAN INDIAN LAW REVIEW, Vol. 37, No. 1 (2012-2013), pp. 283-322 (hereafter Guiao, *How Tribal Waters Rights are Won in the West*).

[83] *See generally* Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment* Process at 286 (2007)

[84] 42 U.S.C. § 4332(2)(C) (2000) [as amended].

[85] 40 C.F.R. § 1500.1(a) (2017)

[86] 42 U.S.C. §4331

[87] Stryker's Bay Neighborhood Council v. Karlan, 444 U.S. 223, 228 (1980)

[88] *Id.*

NEPA's keystone requirement is the Environmental Impact Statement (EIS). An EIS is required when a proposed major federal action will significantly affect the quality of the human environment.[89] Agencies must conduct an Environmental Assessment (EA) to determine the nature and impact of the proposed action and whether or not it will require an EIS.[90] The EA must include the reason for the proposed action, its environmental impacts, and alternatives to taking the action.[91] If the EA determines that there will be "no significant impact", then the agency issues a Finding of No Significant Impact (FONSI) and an EIS is not required.[92] If the EA determines that an EIS is required through finding of a significant impact, the agency must publish a notice of intent (NOI) to prepare an EIS in the Federal Register.[93]

Pursuant to NEPA, federal actions that will have a significant impact on the environment must undergo the EIS, or "detailed statement."[94] The EIS has a variety of specific requirements, notable ones being: (1) the purpose and need for the proposed action, (2) alternatives including the proposed action, (3) the affected environment, and (4) the environmental consequences of the proposed action.[95] Public participation is an integral part of NEPA and the EIS procedure; an agency preparing the EIS must submit the draft statement for a public comment period.[96] Public comment periods in particular are crucial in bridging the gap between a mere recitation of scientific studies or results and meaningful participation related to on-the-ground concerns of stakeholders.[97] After the comment period closes, the agency must address any and all substantive comments in its final EIS, either by amending the agency action to reflect public comments or explaining why the comment does not warrant agency response.[98]

One double-edged aspect of the NEPA framework is that agencies retain autonomy in promulgating regulations. The public comment period gives citizens, stakeholders and industry

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[89] Sierra Club v. Peterson, 717 F.2d 1409 (D.C. Cir. 1983)
[90] 42 U.S.C. §4332(C)
[91] 40 C.F.R. §§ 1501.3, 1508.9(a)(1) (2018)
[92] 40 C.F.R. § 1501.3 (2018)
[93] 40 C.F.R. § 1501.7 (2018)
[94] 40 C.F.R. § 1508.11 (2018)
[95] 40 C.F.R. § 1502.10 (2018)
[96] 40 C.F.R. § 1502.19 (2018)
[97] *See* Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 295 (2007); Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009); *See generally* Neil A.F. Popovic, *The Right to Participate in Decisions That Affect the Environment*, 10 PACE ENVTL. L. REV. 683 (1993)
[98] *Id.*

groups a chance to weigh in on the proposed action. While the agency does have to address all significant comments, it is not forced to accept them and can still proceed with its proposed action if it so chooses. This opens up an avenue for citizens to challenge the agency action in federal court, where the judiciary makes a determination about whether or not the rule was just and reasonable in light of the factual record. NEPA's procedural nature often puts meaningful participation into question, as stakeholders can lose the ability to directly influence the political or environmental impacts of the project in question when procedure itself is the focus rather than public concerns about the legal and cultural disputes surrounding environmental issues.[99] In other words, the government is obligated to engage in public participation, but all the law provides is a right to be heard, not a result.

Maintaining public scrutiny as a core component to NEPA's implementation ensures that the public is receiving high quality information in a timely manner while simultaneously providing them with a forum to interact with agency lawmakers and the proposed action itself.[100] The ability to interact with the decision-making process at significant regulatory junctures helps create meaningful participation with the potential to dictate a result in the process or outcome.[101] NEPA's notice requirements enable the public to interact with a proposed federal action regardless of whether an EIS is needed, giving citizens groups' alternative avenues for targeting a development project by forcing agencies to take a hard look at the potential for environmental impacts in addition to existing statutory requirements.[102] Ensuring this level of transparency is critical in maintaining effective dispute resolution frameworks, particularly when it comes to environmental externalities. Dams often require resettlement of peoples, making their participation in decisions highly relevant.

The administrative system is a careful framework of checks and balances; NEPA and the EIS fit well within this structure, allowing agencies to take beneficial actions and citizens to get

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[99] *See* Kelsey Kahn, *NEPA's fatal flaw, an Impediment to Collaboration*, University of Utah College of Law, Environmental Dispute Resolution Blog (Sep. 2015), *available at* https://www.law.utah.edu/nepas-fatal-flaw-an-impediment-to-collaboration; *See also* Doremus & Tarlock, *Fish, Farms and the Clash of Cultures in the Klamath Basin* at 280 (2003)

[100] Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009); *See generally* Neil A.F. Popovic, *The Right to Participate in Decisions That Affect the Environment*, 10 PACE ENVTL. L. REV. 683 (1993)

[101] *Id.*

[102] *See* Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1749 (2012); *See also* Envtl. Def. Fund, Inc. v. Froehlke, 473 F.2d 346, 356 (8th Cir. 1972) (holding that good faith NEPA compliance involves consideration of all factors under the Fish and Wildlife Act).

the information they need to provide meaningful input and legal challenges. As exemplified below,[103] the opacity of Brazil's EIA process has led to a host of accountability issues surrounding both EIA requirements and socio-environmental impacts stemming from Belo Monte.

The Endangered Species Act

Managed by the U.S. Fish and Wildlife Service (FWS), and, in some cases, the National Oceanic and Atmospheric Administration (NOAA), the primary goal of the ESA is to protect the ecosystem and habitats in which an endangered species lives. Section 4 of the ESA outlines the listing process by which a species becomes protected by the ESA. Species meeting one of five criteria is eligible for listing.[104] The decision to list is based solely on scientific data; economic, social and political effects are not considered in the listing process. Once a species is listed, the FWS must designate critical habitat.[105] Unlike the listing process, the critical habitat designation considers the best available science and any other relevant impacts, including economic, social and political.[106]

Section 7 of the ESA establishes procedures for interagency cooperation and consultation. The federal government is prohibited from jeopardizing the continued existence of a species and from adversely modifying its designated critical habitat.[107] Any agency action that will jeopardize a species or its critical habitat must undergo an EIS procedure similar to NEPA, requiring further information disclosures and public comment periods and creating additional layers of accountability within the regulatory framework.[108] The EIS requires considering alternatives to the project and examination of how the environment will be affected. If an impact

[103] *See infra* Part IV(B)(1): "Licensing and Litigation within IBAMA"
[104] 16 U.S.C. § 1533(a)(1) (To be considered for listing, the species must meet one of five criteria: (1) There is the present or threatened destruction, modification, or curtailment of its habitat or range. (2) An overutilization for commercial, recreational, scientific, or educational purposes. (3) The species is declining due to disease or predation? (4) There is an inadequacy of existing regulatory mechanisms. (5) There are other natural or manmade factors affecting its continued existence.).
[105] 16 U.S.C. § 1533(b)(1)(A)
[106] 16 U.S.C. § 1533(b)(2)
[107] 16 U.S.C. § 1536(a)
[108] *Id.*

is potentially significant, the agency must conduct a Biological Assessment to determine whether there will be jeopardy or adverse modification to the species.

Tribal Regulatory Authority, FERC and the Federal Power Act

Tribal regulatory authority and reserved rights stem primarily from the 1908 reserved rights doctrine, established by the United States Supreme Court in *Winters v. United States*.[109] In effect, the reserved rights doctrine states that, when granting reservation lands to Tribes, the federal government impliedly grants access to water reserves adequate to support the purpose of the reservation.[110] Additional tribal authority originates from the Supreme Court's 1905 decision in *United States v. Winans*, where the Yakima Tribe's "right of taking fish at all usual and accustomed places" impliedly reserved the right of access to fishing grounds through private property.[111] Pursuant to *Winans*, tribally reserved rights are "necessarily and impliedly reserved by the tribes in order to give effect to their treaty rights."[112] While related, *Winters* and *Winans* rights are distinct. *Winters* rights are primarily reserved waters rights created when the federal government creates an Indian reservation.[113] *Winans* rights are broader in scope, encompassing rights that are impliedly reserved by tribes through continued exercise of their treaty rights.[114]

The Federal Power Act of 1935 governs the construction and operations of all non-federal hydroelectric projects in the United States.[115] Under the FPA, the Federal Energy Regulatory Commission has the power to license all non-federal hydropower operations on navigable waters of the United States.[116] All non-federal dams require a license to operate with a term of fifty years or less.[117] The FPA offers little guidance on actions surrounding dam decommission, reflecting the past belief that operating a dam would always be in the public's

[109] Winters v. United States, 207 U.S. 564 (1908)
[110] *Colorado v. Arizona,* 373 U.S. 546, 600 (1963) (interpreting Winters v. United States, 207 U.S. 564 (1908)); *See also* Guiao, *How Tribal Waters Rights are Won in the West* 283-322 (2013)
[111] United States v. Winans, 198 U.S. 371 (1905)
[112] *Id.*
[113] Guiao, *How Tribal Waters Rights are Won in the West* at 289 (2013).
[114] *Id.* (citing Bonnie G. Colby et al., *Negotiating Tribal Water Rights: Fulfilling Promises in the Arid West* at 126 (2005)).
[115] 16 U.S.C. §§ 791-825 (1994)
[116] 16 U.S.C. § 797(e) (2000)
[117] *Id.*

best interest.[118] Recent amendments to the FPA have created new opportunities for addressing hydropower externalities. The Electric Consumers Protection Act of 1986 (ECPA) amended the FPA and mandated that FERC weigh the benefits of relicensing a project against "the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat)."[119] Unlike the ESA, the ECPA provisions apply regardless of whether the FERC-licensed project will jeopardize a listed species.

Tribal regulatory authority surrounding hydropower often interacts with FERC's licensure procedures, the Federal Power Act, and numerous other federal statutes such as the Clean Water Act and ESA.[120] Pursuant to the Federal Power Act, when issuing a hydropower license, FERC is required to include permit conditions "to adequately, and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" impacted by the hydropower project.[121] These conditions must be based on federal and state fish and wildlife agency recommendations submitted pursuant to the Fish and Wildlife Coordination Act,[122] and Tribes with natural resources interests can also utilize these statutes.[123] FERC must also require the construction, operation, and maintenance of any federally mandated fishways on licensed dams, the basis of which is subject to public comment.[124] FERC's obligations surrounding fishways have provided statutory hooks for legal challenges to dam licensure and relicensure under both NEPA and the ESA.[125] Perhaps most importantly, FERC can only issue a hydropower project license on a federal reservation if the agency finds that the license will not be inconsistent with or otherwise interfere with the purpose for which the reservation was created or acquired.[126] FERC's prominent role in dam licensing presents a

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[118] Martin W. Doyle, Emily H. Stanley, Jon M. Harbor and Gordon S. Grant, *Dam Removal in the United States: Emerging Needs for Science and Policy*, EOS, Vol. 84 No. 4, 29-32 (2003).
[119] Electric Consumers Protection Act of 1986, 16 U.S.C. § 797(e) (2006).
[120] *See generally* Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing* at 1-6 (2011)
[121] 16 U.S.C. § 803(j)(1) (2006)
[122] 16 U.S.C. § 661 et seq. (2006)
[123] Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing* at 2 (2011).
[124] 16 U.S.C. § 811 (2006) (Generally, the U.S. Secretary of the Interior and/or the Secretary of Commerce can both prescribe the use of fishways on a hydropower project.)
[125] *See generally,* Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing* (2011); Blumm & Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing* (2001)
[126] 16 U.S.C. § 797(e) (2018); *See also* Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing* at 2 (2011).

number of unique opportunities to utilize the licensing process to mitigate environmental externalities stemming from non-federal hydropower projects.[127]

The flexibility built into legal and regulatory regimes in the United States has allowed them to adapt to address complex environmental problems over time. Public participation has evolved into crucial component in the core environmental statues surrounding hydropower development. Access to information underlying the government's decisions, the ability to intervene at critical junctures in the regulatory process, and effective accountability mechanisms for when process fails have together enabled participation mechanisms in the United States to be meaningful in addressing hydropower externalities.

Brazil

On paper, Brazilian regulatory regimes have many similar elements to their U.S. counterparts such as frameworks for licensing, EIAs, and public comment periods. In practice, however, Brazil's legal structures, enforcement mechanisms and avenues for public participation differ vastly in depth, function and accountability from those in the United States. These differences and the impact they have on addressing hydropower externalities are crucial given the socio-economic benefits at stake in the Amazon. This section will examine core components of the Brazilian legal and regulatory system relating to hydropower development, their associated impacts and various elements of public participation within the system.

Many relevant environmental provisions and protections are included in the Brazilian Constitution, including a specific right to an environment that is "an asset of common use and essential to a healthy quality of life,"[128] along with a right to take legal action to nullify acts harmful to the environment.[129] Publicly available environmental impact assessments are also

[127] *See generally* Blumm & Nadol, *The Decline of the Hydropower Czar* (2001)
[128] CONSTITUIÇÃO FEDERAL, Art. 225 ("all have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations.")
[129] CONSTITUIÇÃO FEDERAL, Art. 5, LXXIII ("any citizen is a legitimate party to a people's legal action with a view to nullifying an act injurious to . . . the environment.")

codified in Brazilian Constitution.[130] The National Environmental Policy establishes a host of agencies and regulatory bodies with the power to enforce regulations and promulgate rules regarding the environment.

Brazil's environmental laws were largely created through the 1981 National Environmental Policy (NEP), with the goal of "preserving, improving and recovering the environmental quality conducive of a healthy life, with a view to ensuring socio-economic development, the interests of national security and the protection of human life."[131] The NEP specified twelve instruments for accomplishing its goals, including defining environmental quality standards, zoning, licensing, conducting environmental impact assessments, and establishing areas for conservation and preservation.[132] The NEP also established the National Environment System (SISNAMA), a collective body that brings together all environmental agencies in the Union to carry out the norms of the Brazilian Federal Constitution.[133] The leading administrative body under SISNAMA is the National Government Council, which reports to the Brazilian President and is responsible for developing guidelines and environmental policies.[134] Next came the National Environment Council (CONAMA), the Ministry of the Environment (MMA), and lastly, the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA).[135]

Many of the environmental and administrative concerns surrounding Belo Monte have centered on the actions of IBAMA, specifically IBAMA's licensing process for hydropower projects.[136] The Federal Constitution mandates an Environmental Impact Assessment (EIA) followed by a corresponding Environmental Impact Report (RIMA) for any projects or activities with the potential to cause significant environmental harm.[137] The EIA, which is conducted by the

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[130] CONSTITUIÇÃO FEDERAL, Art. 225, Paragraph 1, IV ("demand, in the manner prescribed by law, for the installation of works and activities which may potentially cause significant degradation of the environment, a prior environmental impact study, which shall be made public.")
[131] National Environment Policy, Act No. 6.938 (1981)
[132] *Id.*
[133] *Id.*; *See also* Decreto No. 99274 (1990)
[134] *Id.*
[135] *Id.*
[136] Kathyrn Hochstetler, *The Politics of Environmental Licensing: Energy Projects of the Past and Future in Brazil. Studies in Comparative International Development*, Springer Science + Business Media at 356 (2011).
[137] National Environment Policy, Act No. 6.938 (1981); Decreto No. 99274 (1990)

company proposing the development and then analyzed by IBAMA,[138] includes an environmental diagnosis, analysis of environmental impacts, mitigation measures for addressing negative impacts, and monitoring protocols for supervising impacts.[139] The RIMA reflects the conclusions from the EIA and addresses specifics of the development project, including its justification, potential alternatives, and probable environmental impacts.[140]

Brazil's EIA requirements differ greatly from those outlined in NEPA. The fact that the developer conducts the EIA calls into question the accuracy, impartiality and transparency of data underlying proposed projects, which in turn can limit the value of the EIA's participation mechanisms. Further, having the regulated party conduct the requisite EIA puts the government one step further away from true accountability, making legal challenges more convoluted. While IBAMA's EIAs are subject to legal challenge and publically available pursuant to the Brazilian Constitution,[141] ineffective dispute resolution mechanisms in conjunction with anemic regulatory accountability mechanisms have trivialized public participation mechanisms surrounding Belo Monte's EIA.[142]

IBAMA implements a three-stage process for licensing development projects.[143] The first stage is a Preliminary License, granted for a maximum of five years during the planning stages;[144] IBAMA analyzes the EIA and RIMA at this stage to evaluate the environmental feasibility of the project and whether the application is in accordance with existing environmental legislation.[145] Next, the project must receive an Installation License authorizing development in accordance with

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[138] Hochstetler, *The Politics of Environmental Licensing: Energy Projects of the Past and Future in Brazil* at 356 (2011)

[139] Thaíla de Mello Florencio & Geoffroy R.P. Malpass*, A Brief Explanation about Environmental License in Brazil,* American Chemical Society*,* available at https://www.acs.org/content/dam/acsorg/greenchemistry/news/environmental-licenses-in-brazil.pdf

[140] *Id.*

[141] CONSTITUIÇÃO FEDERAL, Art. 225, Paragraph 1, IV

[142] *See generally* 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR at 19 (2008); Timothy J. Power & Matthew M. Taylor, *Corruption and Democracy in Brazil: The Struggle for Accountability*, University of Notre Dame Press at 187 (2011); Simone Athayde, *Introduction: Indigenous Peoples, Dams and Resistance*, Tipití: Journal of the Society for the Anthropology of Lowland South America, 12(2), Article 1, 80-92, at 82 (2014)

[143] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR at 19 (2008).

[144] *Id.*

[145] *See generally* Florencio & Malpass*, A Brief Explanation about Environmental License in Brazil,* American Chemical Society.

specifications in the approved plans, including reduction of negative impacts stated in the EIA.[146] Lastly, the project receives an Operating License authorizing operation of the development project after confirmation that previous licensing conditions have been met.[147]

Notably, none of these licensure stages offers an opportunity for the public to comment or interact with the government's decision-making process. The mere existence of these regulations shows that social and environmental externalities are being considered to some extent, but the lack of meaningful mechanisms to participate throughout the development life-cycle and licensing process limits impacted parties' ability to effect real change.[148] There are also serious concerns about transparency within the regulatory process given that Belo Monte's Preliminary License was granted in the face of more than 40 serious socio-environmental concerns identified during the EIA and licensure process.[149] The World Bank published a three-volume study on environmental licensing projects in Brazil, highlighting a number of changes that could be made to improve the process.[150] The study recognized that many EIAs submitted as part of IBAMA's licensing procedures were poor quality and evaluated unevenly.[151] Increased public participation at these early stages of development could, over time, aid in forming a more predictable and transparent framework for licensing and EIA protocols.[152] More effective dispute resolution mechanisms within the EIA and licensing process could also help incentivize more meaningful public participation.[153] While U.S. statutes like NEPA and the ESA are not panaceas for addressing environmental concerns, they provide valuable frameworks for meaningful and comprehensive dispute resolution mechanisms that provide more than a mere right to be heard. Robust dispute resolution mechanisms can increase avenues for government accountability and meaningful public participation within the legal and regulatory system, ultimately mitigating more environmental impacts.[154] As discussed below, legal challenges can be mounted at various stages

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[146] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR at 19 (2008).
[147] *Id.*
[148] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 164-165 (2009)
[149] Hochstetler, *The Politics of Environmental Licensing* at 356 (2011)
[150] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR (2008).
[151] *Id.* at 9.
[152] *Id.*
[153] *See generally* Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* (2007)
[154] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 164-165 (2009)

of the Brazilian regulatory process, but these opportunities are hardly meaningful or relevant in the face of the overwhelming political support driving Belo Monte's construction.

The Federal Public Prosecutor's (MP) office plays a key role in Brazil's environmental regulatory system. According to a World Bank study on environmental licensing in Brazil, the MP "possesses the best educated staff, significant resources and a broad mandate"[155] to influence issues that do not fall explicitly within their legal jurisdiction, such as defining the national energy matrix and establishing economic and environmental priorities.[156] Some elements of the MP's broad, autonomous powers extend beyond those of the Brazilian Judiciary.[157] The MP has been described as a "fourth branch" of Brazilian government tasked with increasing government accountability in a sluggish and overwhelmed judicial system.[158] The Brazilian Judiciary itself plays an important role in the Belo Monte conflict, having both issued and revoked crucial injunctions on the development project. Most of the Belo Monte litigation has been filed in the judicial system as Direct Actions of Unconstitutionality (ADIN). ADINs receive priority and are sent directly to the Supreme Federal Tribunal (STF), the highest level of the Brazilian judiciary.[159] The MP is one of a limited pool of state and professional institutions allowed to file ADINs, accounting for approximately 15% of total ADINs filed.[160]

Indigenous peoples have a variety of protections recognized under Brazilian law. Article 5 of the Brazilian Constitution, promulgated in 1988, specifies, "[a]ll people are equal before the law, without any distinction whatsoever."[161] Article 231, paragraph three recognizes specific indigenous rights related to hydropower activities through a mandatory public consultation process between Brazil's National Congress and communities involved or affected by developmental activities.[162]

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[155] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR at 21 (2008).
[156] *Id.*
[157] *Id.*
[158] Timothy J. Power & Matthew M. Taylor, *Corruption and Democracy in Brazil: The Struggle for Accountability*, University of Notre Dame Press at 187 (2011).
[159] Matthew M. Taylor, *Judging policy: Courts and Policy Reform in Democratic Brazil*, Stanford University Press, at 20 (2008).
[160] *Id.* at 81
[161] CONSTITUIÇÃO FEDERAL, Art. 5 ("All persons are equal before the law, without any distinction whatsoever, Brazilians and foreigners residing in the country being ensured of inviolability of the right to life, to liberty, to equality, to security and to property.")
[162] CONSTITUIÇÃO FEDERAL, Art. 231, § 3 ("Hydric resources, including energetic potentials, may only be exploited, and mineral riches in Indian land may only be prospected and mined with the authorization of the

Established in 1967, the National Indian Foundation (FUNAI) is the Brazilian government body tasked with developing and implementing policies related to indigenous peoples, including public participation mechanisms.[163] FUNAI was responsible for conducting a study on the social and environmental impacts of the Belo Monte development projects.[164] While not formally part of Brazil's legal system, Brazil is also subject to jurisdiction of the Inter-American Commission on Human Rights (IACHR).[165] As discussed below, the IACHR has played an important role in lending a voice to indigenous peoples' impacted by Belo Monte as they struggle to exercise their rights to participate and be heard under Brazilian law.[166]

Brazil has also ratified the Convention Concerning Indigenous and Tribal Peoples in Independent Countries in 2002 (ILO Convention 169).[167] Brazil's ratification of ILO Convention 169 is notable; it mandates a consultation process with indigenous communities regarding activities or legal measures that directly impact their lives or livelihoods.[168] While agreement does not need to be reached, it must be "undertaken, in good faith and in a form appropriate to the circumstances, with the objective of achieving agreement or consent to the proposed measures."[169] As discussed above, international legal bodies and development initiatives have been inconsistent in their ability to meaningfully address hydropower externalities.

National Congress, after hearing the communities involved, and the participation in the results of such mining shall be ensured to them, as set forth by law.")

[163] James Anaya, Special Reporter on the Situation of Human Rights and Fundamental Freedoms of Indigenous People, *Addendum: Report on the Situation of Human Rights of Indigenous Peoples in Brazil*, GAOR, Hum. Rts. Council, ¶ 154, U.N. Doc. A/HRC/12/34/Add.2 (2009).

[164] *Id.*

[165] *See* AIDA, Belo Monte Fact Sheet; Jaichand & Sampaio, *Dam and Be Damned* at 415-416 (2013).

[166] *See infra* Part IV(A)(2): "Indigenous Peoples and the IACHR" (As an international adjudicatory body, the IACHR does not have formal enforcement authority over the Brazilian government, but they have nonetheless attempted to instill accountability and promote meaningful public participation mechanisms for indigenous peoples impacted by Belo Monte.)

[167] *Id.*

[168] ILO Convention No. 169 (Article 6 states that the Brazilian government shall: "(a) consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly; (b) establish means by which these peoples can freely participate, to at least the same extent as other sectors of the population, at all levels of decision-making in elective institutions and administrative and other bodies responsible for policies and programmes which concern them; (c) establish means for the full development of these peoples' own institutions and initiatives, and in appropriate cases provide the resources necessary for this purpose."

[169] *Id.*

APPLICATION AND ANALYSIS OF PROCESS-BASED RIGHTS AND PUBLIC PARTICIPATION

Brazil

Despite having well-established regulatory regimes and a judiciary capable of enforcing them, Brazilian law has struggled to cope with the vast externalities imposed by the Belo Monte dam. As noted, Brazilian law has many similar elements to its U.S. counterparts. Actions impacting the environment are required to undergo an EIA, whose results must be made publicly available. Agency actions can be challenged in courts, but the judiciary itself has been inconsistent in applying and enforcing regulatory requirements on Belo Monte. With domestic legal challenges failing to address the serious socio-environmental impacts with Belo Monte, impacted peoples have turned to international law. Unfortunately third-party actors have limited influence over the Brazilian government, particularly when Belo Monte itself is nationally funded. Despite being available under Brazilian law, accountability, public participation and dispute resolution mechanisms are failing to force the law to meet its stated purpose. This section will examine public participation mechanisms in the context of IBAMA's EIA and licensure process and indigenous peoples' struggle to be heard under Brazilian and International law.

Licensing and Litigation within IBAMA

The Belo Monte development officially began moving forward in July of 2005, with the Brazilian Congress passing a decree authorizing the project to move into indigenous areas contingent upon completion of an anthropological study of the project's impact.[170] Licensing programs formally began in 2006, continuing through 2011, but notably stopping in March 2006 and starting again in February 2007 due to legal challenges in the courts.[171] EIAs were first presented to IBAMA in July of 2008, although consultation with indigenous groups did not

[170] Georgia O. Carvalho, *Environmental Resistance and the Politics of Energy Development in the Brazilian Amazon*, J ENV. & DEV.15(3), 245-68 (2006).
[171] Hochstetler, *The Politics of Environmental Licensing* at 356 (2011)

occur until after the EIAs had been completed.[172] Three separate injunctions were ordered and subsequently overturned between 2008 and 2009, the main concerns being issues with the EIA and lack of consultation with local communities.[173] IBAMA granted Belo Monte's Preliminary License in February 2010, despite acknowledging more than 40 serious socio-environmental concerns identified with the project.[174] Two senior IBAMA officials resigned in 2009 and two IBAMA Presidents resigned in 2010 and 2011, respectively.[175] Each of these individuals cited high-level political pressure as the reason for their resignation.[176] The Brazilian Federal Court again halted work on the dam in August 2012 on the grounds that indigenous peoples had not been consulted – the Supreme Federal Court overturned the decision a mere two weeks later.[177]

Despite having a seemingly well-established environmental regulatory regime and judicial system, there is little accountability throughout the process. Transparency and accountability are critical in supporting effective dispute resolution frameworks and giving the public avenues for challenging and evaluating government actions.[178] Project injunctions have been ordered and dismissed in two-week time frames, a feat unheard of in the U.S. court system. While the EIA was completed, there was incomplete information regarding potential impacts and mitigation measures, both of which are a required aspect of the EIA.[179] International organizations such as the World Bank have described Brazilian EIAs as poor in quality, with uneven evaluation by the government.[180] Belo Monte's license was approved by IBAMA despite a cadre of serious environmental and human rights concerns, and existing dispute resolution mechanisms are unable to effect meaningful change. While there are some avenues for challenging administrative decisions and public participation in the EIA process, it is not recognized or enforced to the same extent as, for example, NEPA provisions in the United States.

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[172] *Id.*
[173] *Id.*
[174] *Id.*
[175] *The Tug of War Over Brazil's Belo Monte Dam*, Knowledge@Wharton, University of Pennsylvania (Jan. 26, 2011) *available at* http://knowledge.wharton.upenn.edu/article/the-tug-of-war-over-brazils-belo-monte-dam/
[176] *Id.*
[177] *Id.*
[178] Moorman & Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 286 (2007)
[179] Hochstetler, *The Politics of Environmental Licensing* at 356 (2011)
[180] 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR at 9 (2008)

As discussed below, NEPA and the ESA enjoined the operation and final development of a major hydropower project over a species of perch;[181] Belo Monte has emerged from a firestorm of legal challenges and public disputes unscathed.

Perhaps most importantly, the EIA only looks at the impacts of Belo Monte and its immediate inundated zone.[182] Belo Monte is a gateway dam – its construction will pave the way for as many as six other dam projects in the surrounding area, including the controversial Altamira Dam.[183] Many experts believe that Belo Monte cannot function at peak capacity and provide the benefits alleged in the EIS and planning documents without the construction of subsequent dams.[184] This fact is illuminating when comparing Belo Monte to large hydropower projects in the United States, particularly in the context of EIAs and public participation. After a series of cases surrounding NEPA requirements, the Ninth Circuit held in *Thomas v. Peterson* that a federal agency must prepare a single EIS for "connected" and "cumulative" actions to determine whether the proposed action will significantly affect the quality of the human environment.[185] In functioning as a gateway dam, Belo Monte is "connected" as the cornerstone dam in the government's aggregate hydropower plan for the Amazon. Belo Monte's impacts are also "cumulative," in that they will compound significant socio-environmental impacts stemming from all of the proposed dams. Under U.S. law, citizens would at the very least be able to bring suit against IBAMA's EIA protocol, as it does not adequately meet the cumulative impacts doctrine.

The Brazilian legal and regulatory regime has some semblance of data available that the public can use to examine the government's proposed action, but there is a sharp disparity in the accountability measures citizens can use to challenge government action. Despite glaring faults

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[181] Tennessee Valley Authority v. Hill, 437 U.S. 153 (1973)

[182] Phillip M. Fearnside, *Dams in the Amazon: Belo Monte and Brazil's Hydroelectric Development of the Xingu River Basin*, 38 ENVIRON. MGMT. 16, 19 (2006).

[183] *Id.*; *See also* AIDA, Belo Monte Fact Sheet (Feb. 14, 2012)

[184] Fearnside, *Dams in the Amazon: Belo Monte and Brazil's Hydroelectric Development of the Xingu River Basin* at 19 (2006); *See also* Sousa Júnior and Reid, *Uncertainties in Amazon Hydropower Development* at 249 (2010) (outlining other concerns underlying the Belo Monte debate, including substantial construction costs, nature of the proposed mitigation measures in the feasibility report, and accuracy of power-generation estimates given the highly season flow of the river).

[185] Thomas v. Peterson, 753 F.3d 754 (9th Cir. 1985); 40 C.F.R. § 1508(a)(1) (Generally speaking, "connected" actions are those that must occur together in order to achieve a particular goal. "Cumulative" actions are actions which, when viewed alongside other proposed actions, have cumulatively significant impacts).

with the government's EIA, citizens are unable to meaningfully impact the underlying action.[186] Comparing accountability and dispute resolution mechanisms within the EIA process demonstrates the importance of meaningful public participation in addressing hydropower externalities as opposed to a mere right to be heard under the law.

It should also be noted that United States is not beholden to hydropower as an energy source, whereas 75% of Brazil's electricity comes from hydropower.[187] There is immense controversy over the true energy benefits that Belo Monte will bring to Brazil and the Amazon region; specifically regarding proposed mitigation measures and the dam's true hydroelectric potential.[188] More transparency and access to information within the EIA process would enable stakeholders to examine the underlying data the government is relying on in its analysis of Belo Monte. Access to high quality data is crucial in allowing the public to make informed comments on the development and in holding the government accountable under the law.[189] More effective dispute resolution mechanisms within Brazil's regulatory process would allow citizens to challenge Belo Monte's feasibility relative both to its socio-environmental impacts and to proposed alternatives, similar to challenging an agency action under NEPA.[190] The EIA's failure to consider the immense impact that subsequent dam projects will have both on the environment and on indigenous peoples is tantamount to the government ignoring any and all potential future impacts in favor of securing project approval.[191] This tunnel-vision approach to dam construction

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[186] *See generally* Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009); *Panel on Public Participation in Environmental Assessment and Decision Making* (2008)

[187] U.S. Energy Information Administration, *Hydropower supplies more than three quarters of Brazil's electric power*, (2014)

[188] *See* Jaichand & Sampaio, *Dam and Be Damned* at 433 (2013) (citing Felício Pontes Jr., *O custo de Belo Monte*, JORNAL O GLOBO (2011) (arguing that solar energy solutions could compete with Belo Monte at a fraction of the cost and socio-environmental impact); Sousa Júnior & Reid, *Uncertainties in Amazon Hydropower Development* at 248-249 (2010) (discussing controversy over Belo Monte's environmental impacts and energy generation potential); *See also* Fearnside; Sousa Júnior and Reid, *supra* n. 156

[189] *See generally Panel on Public Participation in Environmental Assessment and Decision Making* (2008)

[190] Moorman & Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 287 (2007).

[191] Fearnside, *Dams in the Amazon: Belo Monte and Brazil's Hydroelectric Development of the Xingu River Basin* at 19 (2006); *See also* Richter et al., *Lost in Development's Shadow: The Downstream Human Consequences of Dams*, WATER ALTERNATIVES 3(2) at 14-42 (2010); Georgia O. Carvalho, *Environmental Resistance and the Politics of Energy Development in the Brazilian Amazon*, J ENV. & DEV. 15(3), 245, 257 (2006).

echoes early hydropower developments in the United States, where serious concerns for Native Americans were simply ignored in favor of development.

Indigenous Peoples and the IACHR

Indigenous peoples and local communities have not been granted the full scope of their legal rights nor an adequate opportunity for meaningful participation in the regulatory and legal proceedings surrounding Belo Monte's construction.[192] As noted above, provisions in ILO Convention 169 and the Brazilian Constitution recognize an independent right to open and meaningful consultation with indigenous peoples on decisions affecting their wellbeing.[193] Four public hearings were organized for local communities, however no translators were provided for those indigenous peoples who managed to attend and the vast majority of the approximately 40,000 peoples adversely impacted by Belo Monte were unable to have their questions answered.[194] FUNAI also conducted meetings to allegedly consult with indigenous peoples. Neither these meetings nor the public hearings were conducted in a free, prior and informed manner.[195] Regardless, Article 231 Paragraph 3 of the Brazilian Constitution stipulates that the National Congress, not FUNAI, must conduct the indigenous people's consultation process. As such, the meetings themselves were not fulfilling the government's constitutional obligations to consult with affected indigenous peoples.

Left with effectively no recourse within the Brazilian legal system and administrative agencies, local communities and NGOs pleaded their case to the IACHR.[196] The IACHR granted precautionary measures to the indigenous communities in the Xingu River Basin, requesting that the Brazilian government "immediately suspend the licensing process for the Belo Monte Hydroelectric Plant project and stop any construction work from moving forward until certain minimum conditions are met."[197] The IACHR Response mandated a fulfillment of free,

[192] *See generally* Jaichand & Sampaio, *Dam and Be Damned* (2013); ILO Convention No. 169
[193] *See* ILO Convention No. 169
[194] Jaichand & Sampaio, *Dam and Be Damned* (2013)
[195] *Id.*
[196] *Id.*
[197] Response from the State of Brazil, Indigenous Communities of the Xingu River Basin v. Brazil, Inter-Am. Comm'n H.R., PM 382/10, at 25 (2011) [hereafter IACHR Response] *available at* www.oas.org/en/iachr/indigenous/protection/precautionary.asp

informed, and good faith consultations and a guarantee that the indigenous communities receive translated copies of the Social and Environmental Impact Statements beforehand, information the government had neglected to provide in the initial consultations.[198] Lastly, the IACHR ordered the government to "adopt measures to protect the life and physical integrity of the members of the indigenous peoples in voluntary isolation of the Xingu Basin."[199]

Rather than acknowledge and comply with the IACHR recommendations, the Brazilian government opted to suspend its annual contribution to the Commission and conduct a Senate vote for a censure against the recommendations.[200] The government also threatened to cut funding to the IACHR and to withdraw from the organization.[201] Two months later, IBAMA issued Belo Monte's final construction permit, incorporating new socio-environmental reasons for approval and stating that no indigenous peoples would be directly affected.[202] This cuts directly against the previous meetings organized by FUNAI – if indigenous peoples were not going to be affected then there would be no reason to engage in a consultation process to begin with.[203] The Brazilian government has disregarded the IACHR's determination that Belo Monte would have a major impact on the land and livelihood of indigenous peoples along with constitutional protections put in place for indigenous peoples. Construction on Belo Monte began in June 2011, despite a legal challenge filed by the MP in Brazil's eleventh court and the staggering array of socio-environmental issues identified during the EIA process.[204]

The Belo Monte saga highlights that merely having a right to public participation is not enough in itself to combat hydropower externalities. Public participation is not meaningful when access to the legal and regulatory system is provided at a stage where no true impact can be made on the development, or when participation mechanisms fail to provide basic translation services allowing indigenous peoples to interact with the process and information the government is relying upon.[205] Government agencies need to engage in the public participation process with proper planning and timing, adequate resources and an overall commitment to using the public

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[198] *Id.*
[199] *Id.*
[200] Hochstetler, *The Politics of Environmental Licensing* at 360 (2011)
[201] *See generally* Jaichand & Sampaio, *Dam and Be Damned* (2013)
[202] *Id.* at 443; Hochstetler, *The Politics of Environmental Licensing* at 360-61 (2011)
[203] *Id.*
[204] Hochstetler, *The Politics of Environmental Licensing* at 361 (2011)
[205] Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009).

process to inform their actions.[206] Anything less risks public participation mechanisms not being meaningful, or otherwise falling short of their intended goals.[207] Looking at these difficulties and failures highlights a unique facet in the early development of environmental and social issues stemming from large dams: Once a project gets through its preliminarily technical and economical feasibility procedures, interest from government, industry or other powerful interest groups can generate immense momentum, thereby steamrolling over further assessments.[208] This has been particularly evident with the events surrounding Belo Monte. As discussed in the next section, even the extensive public participation and accountability frameworks seen in the United States can fall short in addressing externalities when the development is supported by strong political interest from governments or industry groups.

The United States

The accountability and flexibility built into legal and regulatory frameworks in the United States have enabled the law to adapt and overcome deficiencies in addressing externalities surrounding hydropower development. The procedural requirements of NEPA act as a check against agency action through public comment periods and the option for legal challenges in federal court. These requirements also allow agencies to hold each other accountable when proposing major agency actions. When procedural process is not enough, substantive statutes such as the ESA and regulatory frameworks such as FERC's relicensing protocols provide regulatory teeth mandating consideration of environmental impacts stemming from hydropower projects.[209] Stakeholder pressure can push Congress to update antiquated laws with fresh amendments, opening previously unavailable avenues for addressing externalities. The importance of public participation and effective dispute resolution mechanisms cannot be

[206] *Panel on Public Participation in Environmental Assessment and Decision Making* (2008).
[207] *Id.*
[208] *See generally* Beck, *Environmental and livelihood impacts of dams* (2012); Fearnside, *Dams in the Amazon: Belo Monte and Brazil's Hydroelectric Development of the Xingu River Basin* (2006); 1 World Bank, *Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the* Debate, Report No. 40995-BR (2008).
[209] *See generally* Michael C. Blumm & Viki A. Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing*, 26 COLUM. J. ENVTL. L. 81-130 (2001); Michael C. Blumm & Aurora Paulsen, *The Role of the Judge in ESA Implementation: District Judge James Redden and the Columbia Basin Salmon Saga*, 32 STAN. ENVTL. L. J. 87, 144 (2013) (hereafter Blumm & Paulsen, *The Role of the Judge in ESA Implementation*)

understated; these have and continue to play an integral role in helping the law adapt to meet its intended goals. This section will analyze public participation's role in addressing hydropower externalities across a variety of case studies. Beginning with a historical period lacking meaningful public participation for Native Americans, transitioning into historic evolutions in the United States' environmental legal and regulatory regimes, and culminating in the creation of created new mechanisms for public participation, litigation, and environmental management surrounding hydropower projects.

Native Americans and the historic struggle to address hydropower externalities in the United States

Throughout the 1800s, Native American tribes ceded millions of acres of land to the U.S. government through treaties.[210] These land cessations and treaties laid the groundwork for decades of conflict over reserved rights, particularly those related to water usage for hunting and fishing.[211] Land cessation also paved the way for many of the large hydropower projects that are the focus of this paper.

In an 1864 treaty, the Klamath Tribes ceded 90% of their lands, more than 23 million acres, to the United States, retaining hunting, fishing and gathering rights.[212] This land cessation was the foundation for the Klamath Project. Authorized in 1905, shortly after Congress passed the Reclamation Act,[213] the Klamath Project was a large-scale water reclamation initiative designed to allocate irrigation water throughout the historically arid region.[214] The Klamath Project drained numerous lakes designated as National Wildlife Refuges and is closely intertwined with seven large dam development projects constructed between 1902 and 1967.[215] In 1954, Congress

[210] *See generally* Guiao, *How Tribal Waters Rights are Won in the West* (2013)
[211] *Id.*
[212] *Id.* at 302
[213] Holly Doremus & Dan Tarlock, *Fish, Farms and the Clash of Cultures in the Klamath Basin*, 30 ECOLOGY L.Q. 279, 289 (2003).
[214] *Id.*
[215] Seven dams exist in the Klamath Basin: The Fall Creek Dam (completed in 1903), Copco Dams #1 and 2 (completed in 1916 and 1925), the Link River Dam (completed in 1921), the John C. Boyle Dam (completed in 1958 for hydropower generation), and the Iron Gate Dam (completed in 1964 for flood control and hydropower), and the non-generating Keno Dam (completed in 1967). The Link River and Iron Gate Dams have seen heightened controversy throughout the Klamath Basin Restoration Agreement

terminated the Klamath Tribes' federal recognition via the Termination Act, leading to the sale of valuable forestland on the reservation, but specifically not abrogating any water rights of these tribes.[216] Federal recognition was restored in 1986, but no lands were returned to the tribes.[217]

The Warm Springs and Wasco tribes ceded over 10 million acres of traditional reservation land in Oregon to the United States government through an 1855 treaty. Again, these tribes reserved "the exclusive right of taking fish in the streams running through and bordering said reservation . . . and at all other usual and accustomed stations."[218] The 1941 Grand Coulee Dam devastated salmon runs in the Upper Columbia River, creating a barrier to nearly fifty percent of historic salmon spawning grounds.[219] Lower Columbia River runs were similarly impacted, with listed species sustaining losses of thirty-five to forty percent of historic habitat due to hydropower impasse.[220]

Prior to the evolution of modern environmental law in the 1970s, Native American tribes had little to no participation in the legal and regulatory process surrounding hydropower outside the reserved rights established in treaties and the *Winters* and *Winans* decisions.[221] This lack of participation was a component in many hydropower projects impacting tribal lands, where tribes with little representation were forced to bear the social, environmental and economic costs of

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negotiations; *See also* Doremus & Tarlock, *Fish, Farms and the Clash of Cultures in the Klamath Basin* at 298 (2003).

[216] Guiao, *How Tribal Waters Rights are Won in the West* at 292 (2013)

[217] *Id.*

[218] *Id.* (citing Treaty Between the United States and the Confederated Tribes and Bands of Indians in Middle Oregon, June 25, 1855, 12 State. 963, 964 (1889)).

[219] Blumm et al., *Practiced at the Art of Deception*, at 721(2006) (citing NAT'L OCEAN & ATMOSPHERE ADMIN., DIV. OF FISHERIES, ENDANGERED SPECIES ACT – SECTION 7 CONSULTATION BIOLOGICAL OPINION: CONSULTATION ON REMAND FOR OPERATION OF THE COLUMBIA RIVER POWER SYSTEM AND 19 BUREAU OF RECLAMATION PROJECTS IN THE COLUMBIA BASIN 4-1 TO 4-2 (Nov. 30, 2004).

[220] Blumm et al., *Practiced at the Art of Deception* at 722 (2006) (listed salmon species in the Lower Columbia Basin include chinook, steelhead and coho).

[221] This is an ongoing struggle today. The Executive Order on environmental justice provides another example of how the law can fall short of meeting its intended goals. EO 12898 directs federal agencies to incorporate environmental justice issues into law and public policy. Unfortunately, key agencies like FERC are often exempt from abiding by the Order in carrying out their other statutory obligations. The Order itself has limited applicability and offers no enforceable rights, similar to the international bodies of law indigenous peoples attempted to use in combatting Belo Monte. *See* EO 12898, FR 7629 (Feb. 16, 1994); Catherine O'Neill, Panelist, *Global Perspectives on Large Dams: Evaluating the State of Large Dam Construction and Decommissioning Across the World*, Report on Conference held at Yale School of Forestry & Environmental Studies. (November 3-5, 2006)

development with little to no benefit.[222] Hydropower projects in the United States have historically been conducted with disregard for the vast environmental externalities inherent with dams. Lack of meaningful public participation mechanisms such as access to information and regulatory enforcement mechanisms like those found in NEPA made it onerous for tribal groups to fight hydropower developments impacting riverine resources and leaving many tribes unable to exercise their reserved rights.

Tribal groups in the United States have experienced many of the same social, economic and environmental externalities that indigenous peoples currently face with Belo Monte in Brazil. Lack of meaningful public participation mechanisms is only one facet of the problem – generally speaking, the law was unequipped or governing bodies were simply unwilling to address the complex and far-reaching externalities inherent with hydropower development. As examined in the next section, it took decades for United States law to begin addressing hydropower's many externalities. However, evolving bodies of law is only part of the solution. A commonality between early hydropower in the United States and Belo Monte in Brazil is the government's focus on development at the cost of externalities imposed on impacted peoples. Economic and political interests in large hydropower projects continue to limit the power, impact and effectiveness of modern environmental procedures.[223]

Modern environmental law brings new mechanisms to the fight

Modern environmental statutes such as NEPA and the ESA heralded in a new age for public participation in the hydropower regulatory process.[224] While these initial environmental laws did not directly target dams and hydropower, the environmental and regulatory constraints these statutes imposed made new hydropower developments an onerous process.[225] This section examines how policy changes in the late 20th century gradually shifted the emphasis of public debate to the negative impact of dams, whereby public participation mechanisms began playing a

[222] *Id.*
[223] Sousa Júnior and Reid, *Uncertainties in Amazon Hydropower Development* at 249 (2010)
[224] Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1750 (2012)
[225] *Id.*

larger role in combatting hydropower externalities through the growth of some of the world's most powerful and comprehensive environmental laws.[226]

Collaborative Approaches to Addressing Hydropower Externalities

Bringing public participation mechanisms to the forefront of hydropower developments was an invaluable step towards meaningful negotiations and collaborative approaches to addressing the environmental externalities of dams, particularly for Native American tribes impacted by hydropower projects. In 1982, the Reagan administration, in response to frustration with the "glacial" progress in Indian water rights cases, announced a new policy focused on negotiating tribal water rights.[227] The administration encouraged tribes to resolve existing water disputes through negotiation, and the Warm Springs tribe was an ideal candidate.[228] Fifteen formal negotiations took place between three parties, most of which centered on quantifying the Warm Springs tribe's reserved water rights.[229] The Confederated Tribes of the Warm Springs Reservation Water Rights Settlement Agreement was signed in November 1997, establishing the scope and priority of the Warm Springs tribe's reserved water rights.[230]

Solidifying the tribe's reserved water right through a final decree gave the tribe firm legal footing for protecting their water rights against environmental externalities. The Reagan administration's shift towards negotiating with the Warm Springs tribe is symptomatic of the larger shifts in United States regarding environmental law and the externalities the law sought to combat.[231] Nevertheless, these good faith negotiations initiated by the government allowed the Warm Springs tribe to meaningfully participate in the regulatory system at a point in time when the eventual outcome could still be altered, and in a manner that held the government accountable for both the actions it was taking and the tribal rights it was acknowledging. The ability to impact the underlying regulatory process and to hold governments accountable for their

[226] Beck et al., *Environmental and Livelihood Impacts of Dams* at 4 (2012)
[227] Daniel McCool, *Native Waters: Contemporary Indian Water Settlements and the Second Treaty Era*, 46 (2002)
[228] *Id.* at 47
[229] Guiao, *How Tribal Waters Rights are Won in the West* at 295-296 (2013)
[230] *Id.*
[231] Beck et al., *Environmental and Livelihood Impacts of Dams* at 4 (2012)

actions (or lack thereof) has continued to be a core element of meaningful participation in the hydropower context.[232]

Meanwhile, demands for water in the Upper Klamath Basin had been increasing for nearly a hundred years since the Klamath Project's authorization in 1905.[233] Competing demands from irrigators, the Klamath River tribes, hydropower projects and the Endangered Species Act came to a head during a drought in the summer of 2001 one of the driest years on record.[234] The Bureau of Reclamation closed the Klamath Project's headgates and halted irrigation deliveries to protect endangered fish that were jeopardized by the Klamath Project.[235] This marked the first time that the ESA had restricted a large-scale water delivery for a federal project.[236] The Klamath Basin controversy employed numerous methods in attempting to find a solution, including litigation and the political process, but a collaborative process and negotiation between stakeholders ultimately dictated the most effective result.[237] Using FERC's relicensing framework and the Klamath Hydroelectric Project's March 2006 relicensing deadline as an anchor, a group of Klamath Basin stakeholders[238] came together and developed two companion agreements as an alternative to FERC's relicensing of the dams.[239]

The Klamath Basin Restoration Agreement (KHBA) and the Klamath Hydroelectric Settlement Agreement (KHSA) provide a comprehensive plan to remove four large dams, balance water use in the Basin and provide more economic stability for all of the Klamath's rural

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[232] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 166 (2009)
[233] Guiao, *How Tribal Waters Rights are Won in the West* at 302 (2013)
[234] *Id.*
[235] Kandra v. United States, 145 F. Supp. 2d 1192, 1198 (9th Cir. 2001) (upholding Fish and Wildlife Service and National Marine Fisheries Service draft Biological Opinions concluding that shortnose suckers and Coho salmon were at risk under the ESA, and that the proposed "Reasonable Prudent Alternatives" would not be sufficient to protect the salmon species and subsequently denying irrigators and farmers requires for injunctive relief following the Klamath Project's headgate closures)
[236] Doremus & Tarlock, *Fish, Farms and the Clash of Cultures in the Klamath Basin* at 279, 316-317 (2003).
[237] Guiao, *How Tribal Waters Rights are Won in the West* at 306-307 (2013)
[238] *Id.*; *See also The Struggle to Restore the Klamath,* KLAMATH RESTORATION AGREEMENTS, http://www.klamathriverrestoration.org/; (The Klamath Basin stakeholders included the Klamath Basin tribes of the Yurok, Karuk, and Klamath, irrigators, commercial and sport fisherman, and state and local governments.)
[239] *Id.*; *See also* Doremus & Tarlock, *Fish, Farms and the Clash of Cultures in the Klamath Basin* at 239 (2003)

economies.[240] The agreements were signed by forty-five organizations of federal agencies, tribes, counties, irrigators, conservationists, and fishing groups.[241] Meaningful public participation mechanisms within the ESA, FPA and FERC's regulatory procedures enabled Klamath Basin stakeholders to find to a collaborative solution to hydropower externalities in the Basin. Access to high quality information regarding the Klamath Hydroelectric Project and the ability to challenge FERC's relicensure of the dams before an agency decision highlight the importance of meaningful participation and effective dispute resolution mechanisms in addressing hydropower externalities.

Successful negotiations in the Klamath Basin and Columbia River provide a stark contrast with the negotiations and public participation mechanisms observed with indigenous peoples in Brazil. The Brazilian government's entrenched support of the Belo Monte dam has trivialized the public participation process. One key element underlying the successful negotiations in the United States cases studies was the government's commitment to using the public process to inform its actions, specifically with a focus on finding a collaborative and synergistic outcome.[242] Public participation is not meaningful when the government is merely jumping through regulatory hoops. The organizational commitment to addressing hydropower externalities in these case studies was a critical factor in why the public participation mechanisms were both meaningful and successful in dictating a result.[243]

Public Participation via Litigation

Litigation has been a powerful instrument for addressing hydropower externalities and in expanding the reach and power of modern environmental law. Public participation through litigation has been a hallmark dimension of modern environmental law, with most of the major environmental statues allowing citizen suits to challenge agency action.[244] This section will discuss hydropower litigation from a variety of angles to illustrate how United States law has

[240] *The Struggle to Restore the Klamath,* KLAMATH RESTORATION AGREEMENTS, http://www.klamathriverrestoration.org/
[241] Klamath Basin Coordinating Council, Second Annual Report: Klamath Basin Settlement Agreements 7 (Mar. 30, 2012), *available at* http://216.119.96.156/Klamath/2012/2ndAnnualReport.pdf
[242] *Panel on Public Participation in Environmental Assessment and Decision Making* (2008).
[243] *Id.; See also* Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009).
[244] *See, e.g.* ESA Citizen suit provision, 16 U.S.C. § 1540(g) (2018)

evolved to more effectively address hydropower externalities, while also highlighting areas where the law has struggled to meet its intended goals.

The Tellico Dam

The Endangered Species Act has been a recurrent tool in battling the negative externalities surrounding hydropower, though with varying results. Often politicized as a draconian statute, the ESA has been versatile in addressing hydropower externalities.[245] Litigation surrounding Tennessee's Tellico Dam is an infamous example of the ESA's ability to impede dam construction. In *Tennessee Valley Authority v. Hill*, a dam project was successfully enjoined due to the discovery and subsequent ESA listing of the snail darter, a previously unknown species of perch.[246] Construction on the dam began before the ESA was enacted. By the time the darter was listed under the ESA, hundreds of millions of dollars had been spent on the project and it was near completion. Nonetheless, the Secretary of the Interior determined that the darter's "critical habitat" was in a portion of the lower Tennessee River, which would be completely inundated by the dam.[247] Pursuant to Section 7 of the ESA, the Secretary ordered all federal agencies to take action as necessary "to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence" of the species,[248] effectively enjoining the dam for the time being.

The ESA's ability to forestall a project that was virtually completed is not to be understated. The language of the ESA, and in turn, the intent of Congress, places an incalculable value on endangered and threatened species. While *Tellico* illustrates the ESA dictating a positive result, the case simultaneously demonstrates how public participation in the regulatory process can only take you so far when powerful interests are adamant on a development project. The Tellico Dam was eventually completed in 1980 through an unrelated congressional appropriations rider, virtually nullifying the entire legal saga. While the ESA's teeth make it a valuable tool for combating externalities associated with hydropower projects, *Tellico*'s end result exemplifies that even one of the nation's most comprehensive and far-reaching regulatory

[245] Blumm, *Practiced at the Art of Deception* at 722 (2006)
[246] Tennessee Valley Authority v. Hill, 437 U.S. 153 (1973)
[247] *Id.*
[248] *Id.; See also* 16 U.S.C. 1536 (2018)

schemes is unable to fully combat hydropower externalities. *Tellico* has striking parallels to the controversy surrounding Belo Monte – a congressional appropriations rider pushed through the Tellico Dam over litigation and public outcry, demonstrating that rights given by the legislature can be taken away, subject to takings limitations. Public participation is a versatile and valuable mechanism for combatting hydropower externalities, but it is not without limits.

The Columbia River Salmon Saga

Home to one of the world's largest hydroelectric systems, the Columbia River and its salmon runs have been one of the most prominent restoration efforts in United States history and a lightning rod for ESA litigation.[249] Despite a 1980 Congressional declaration that salmon and hydropower were "co-equals" in the Columbia Basin system, most of the Columbia's salmon species have been listed under the ESA.[250] Charged with implementing the ESA in the Columbia Basin, NOAA has consistently used its administrative discretion to preserve hydropower interests in the region, spurring two decades of legal challenges to NOAA's ESA implementation.[251] A number of watershed moments have occurred throughout this saga. In 2005, Judge Redden, presiding over the U.S. District Court for the District of Oregon, authored a scathing remand of NOAA's 2004 Biological Opinion (BiOp) in which the court threatened to step in and "run the river" from the bench should NOAA fail to follow the terms of his order.[252] Judge Redden urged cooperation between the parties through regular reporting of meetings and progress to the court.[253] These reports were an innovative mechanism for interjecting more meaningful public participation into the legal proceedings, reflecting the court's view that public

[249] Blumm, et al., *Practiced at the Art of Deception* at 709 (2006); *See also* John Harrison, *Endangered Species Act and the Columbia River Salmon and Steelhead*, Northwest Power and Conservation Council, Columbia River history Project (2011) (updated May 4, 2016), *available at https://www.nwcouncil.org/history/EndangeredSpeciesAct*

[250] *Id.*

[251] *Id.* (Legal and regulatory battles over recover plans, BiOps, and proposed actions to avoid further jeopardizing species have been raging for over a decade and are intimately linked with hydropower projects in the area.)

[252] National Wildlife Federation v. National Marine Fisheries Service*, Remand Order*, 2005 WL 24888447, at *3 (Oct. 7, 2005) (Judge Redden emphasized that the court "running the river" was a result that would be "abhorred" by all three branches of government) (hereafter NWF v. NMFS)

[253] Michael C. Blumm & Aurora Paulsen, *The Role of the Judge in ESA Implementation: District Judge James Redden and the Columbia Basin Salmon Saga*, 32 STAN. ENVTL. L. J. 87, 144 (2013) (hereafter Blumm & Paulsen, *The Role of the Judge in ESA Implementation*).

participation in agency decision-making is critical to striking an equitable balance of interests.[254] The ESA does not provide a right to public comment on Section 7 consultation procedures; Judge Redden's mandate for quarterly reports from NOAA was a subtle means of creating a limited form of public participation where there would otherwise be none.[255] The Ninth Circuit Court of Appeals upheld Judge Redden's landmark remand in April 2007, emphasizing agreement that the 2004 BiOp "contained structural flaws that rendered it incompatible with the ESA."[256]

Litigation had been ongoing for six more years when the National Wildlife Federation (NWF) – in its seventh amended complaints since 2001 – challenged not only the current 2014 BiOp, but also argued that the government needed to prepare an EIS for each of the 73 actions underlying the BiOp.[257] In May 2016, the U.S. District Court of Oregon issued an opinion siding with NWF on almost every argument.[258] The court emphasized the importance of public participation in the context of NEPA's EIS, stating "Congress enacted [NEPA] to ensure a process in which all reasonable alternatives are given a 'hard look' and all necessary information is provided to the public."[259] The battle to protect salmon in the Columbia River Basin is ongoing, and meaningful public participation continues to play an integral role. Transparent and open access to information underlying the government's decision has been crucial in challenging the government's implementation of the NEPA and the ESA. These legal challenges are complex and not always successful, but the ability for stakeholders to interact with government action and have a meaningful impact on the underlying process and result is crucial.[260] The Columbia River saga's long history of litigation and recalcitrant agency action echoes the symptoms plaguing Belo Monte, where a comparative lack of legal and regulatory accountability has left

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[254] *Id.* ("Even though agency decision making theoretically is a product of considering the perspectives and interests of all affected participants, interest-group pressure may cause agencies to discount the weight of certain interests – like those concerned about restoration of Columbia Basin salon runs – relative to others, such as the economic power of the Columbia Basin hydroelectric operations.")
[255] *Id.*
[256] NWF v. NMFS, 481 F.3d 1224, 1233 (9th Cir. 2007)
[257] John Harrison, *Endangered Species Act and the Columbia River Salmon and Steelhead*, Northwest Power and Conservation Council, Columbia River history Project (2011) (updated May 4, 2016), *available at* https://www.nwcouncil.org/history/EndangeredSpeciesAct
[258] NWF v. NMFS, 184 F.Supp.3d 861 (D. Oregon, 2016)
[259] *Id.* at 875
[260] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 166 (2009); Nancy Perkins Spyke, *Public Participation in Environmental Decisionmaking at the New Millennium: Structuring New Spheres of Public Influence* (1999)

comprehensive legal challenges to the government's licensing and development stranded or buried. The importance of public participation and effective dispute resolution mechanisms cannot be overstated; these have and continue to play an integral role in helping the law meet its intended goals.

FERC, the FPA, and Tribal Rights Litigation

The Federal Power Act has developed into an effective mechanism for addressing environmental issues with dams through restricting stream flows and novel interpretations of FERC's licensing powers.[261] The FPA has a significant impact on many activities and hydropower externalities, such as recreation, water quality, and fish and wildlife habitat. The relicensing protocols, specifically the 1986 Electric Consumers Protection Act amendments, demand a reexamination of the project based on present day values.[262] The ECPA amendments attempted to safeguard fish and wildlife interests in the relicensing process by imposing substantive and procedural requirements on FERC such as notice provisions, public comment periods, and inter-agency consultation.[263] Unlike the ESA, the ECPA requirements apply regardless of whether a project will jeopardize a listed species or not.[264] This offers more consistent and reaching protection than the ESA; not all FERC-licensed projects are jeopardizing a listed species, but the ECPA mandates that FERC consider impacts on wildlife and the environment during its relicensing process.[265] It is important to note that the ECPA does not prevent relicensing. Rather, the ECPA simultaneously acknowledges hydropower's benefits and its environmental externalities, mandating that FERC weigh them accordingly in its decision-making process.[266] Much like NEPA, FERC is not prevented from relicensing a dam so long as it jumps through the regulatory hoops, and its determinations are subject to challenge in federal

[261] Blumm & Nadol, *The Decline of the Hydropower Czar* at 83 (2001)
[262] 5 H.R. REP. NO. 99-934 at 22 (1986) ("Projects must undergo the scrutiny of today's values.")
[263] *See* Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1752-53 (2012)
[264] *Id.*
[265] *Id.*
[266] Blumm & Nadol, *The Decline of the Hydropower Czar* at 84 (2001); *See also* Lydia T. Grimm, *Fishery Protection and FERC Hydropower Relicensing under ECPA: Maintaining a Deadly Status Quo*, 20 ENVTL, L. 189, 930 (1990)).

court. This mitigation and rehabilitation strategy seems even more promising given that several hundred dams will require relicensing from FERC in the coming decades.[267]

As discussed above, many tribal reserved rights are closely tied to environments and activities falling within FERC's jurisdiction. Accountability and enforcement mechanisms built into many of today's environmental laws have allowed Native American tribes to constrain hydropower development and operation through litigation.[268] FERC's seemingly autonomous power was dealt a blow in *Escondido Mutual Water Company v. La Jolla Band of Mission Indians*, holding that the Secretary of the Interior could impose license conditions on FERC for projects benefitting Indian reservations under the Department of Interior's (DOI) supervision.[269] In *PUD No.1 of Jefferson County v. Washington Department of Ecology*, the Supreme Court held that section 401 of the Clean Water Act gives states the power to impose minimum flows for fish protection and aesthetic enhancement in accordance with state water quality standards.[270] *PUD No. 1's* requirement that FERC accept section 401 conditions imposed by states has created a legal hook for environmental groups seeking to impose minimum flow or environmental release conditions on FERC licenses, further demonstrating the power of meaningful public participation in a transparent and accountable regulatory regime.[271]

More recently, the D.C. Circuit Court of Appeals held in *City of Tacoma v. Fed. Energy Regulatory Comm'n* that FERC's licensure of any project located partially on an Indian reservation must "not interfere or be inconsistent with the purpose for which the reservation was created or acquired."[272] *City of Tacoma* also established that the FPA gives FERC the authority to deny relicensing of a project and order that the dam be decommissioned if it has become uneconomic.[273] Typically Congress must make major dam removal decisions, but this construction of the FPA makes it clear that FERC has the power to decommission certain

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[267] *Id.*
[268] Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1745 (2012); *See generally* Morisset, *Tribal Interests, Instream Flows & Hydropower Licensing* (2011)
[269] Escondido Mut. Water Co. v. La Jolla Board of Mission Indians, 466 U.S. 765, 777-79 (1984).
[270] PUD No. 1 of Jefferson Cnty. v. Wash. Dep't of Ecology, 511 U.S. 700, 710–11 (1994)
[271] *Id.*
[272] City of Tacoma v. Fed. Energy Regulatory Comm'n, 460 F.3d 53, 73 (D.C. Cir. 2006); 16 U.S.C. § 797(e) (2018);
[273] *See* Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1758; City of Tacoma v. Fed. Energy Regulatory Comm'n, 460 F.3d 53, 73 (D.C. Cir. 2006) (holding that approval of uneconomic licenses would be unreasonable).

licensed dams.[274] Increasing FERC's flexibility regarding relicensing has given stakeholders new legal footholds for challenging hydropower externalities through relicensing, a critical time juncture with a unique ability to impact agency actions. NEPA's required EIS for major federal actions combined with FERC's mandated feasibility studies has provided a wealth of valuable information the public can analyze in examining (and potentially challenging) the basis for the government's proposed action.

Many studies and scholars in the hydropower arena have argued that small-scale hydropower projects are the future of the resource, in contrast with the typical federally funded FERC-licensed projects that have been so controversial in the last few decades.[275] Public policy debates on the social, environmental and economic benefits of hydropower projects will continue to shape the resource's future.[276] Examining the litigation surrounding FERC, the ESA and the FPA exemplifies how the structure of U.S. regulatory regimes can both help and harm efforts to address dam externalities. The ECPA amendments created a unique avenue for effecting meaningful change through relicensing, but the structure of the licensing regulations allowed FERC to unilaterally ignore this opportunity until litigation forced the agency's hand. FERC and the FPA highlight the importance of being able to challenge agency action at key points in the regulatory process, allowing stakeholders to pressure agencies and bend regulatory regimes towards beneficial uses in changing times.

Dam Removal and Decommission

As discussed above, the 1920 Federal Power Act streamlined the hydropower development processes and laid the groundwork for FERC's historic support of large hydropower developments in the United States.[277] Responding to significant shifts in public perception and changes in hydropower's economic benefits, Congress adapted the FPA's

[274] *Id.*
[275] Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* at 1759-1760 (2012); *See also* Douglas G. Hall et al., IDAHO NAT'L ENG'G & ENVTL. LAB., WATER ENERGY RESOURCES OF THE UNITED STATES WITH EMPHASIS ON LOW HEAD/LOW POWER RESOURCES, 38-43 (2004), *available at* http://www1.eere.energy.gov/water/pdfs/doewater-11111.pdf
[276] *Id.*
[277] Beck et al., *Environmental and Livelihood Impacts of Dams* at 4 (2012);

regulatory structure to prevent and even rectify environmental degradation.[278] This section will examine the Edwards Dam Project, where litigation, negotiation, public participation, and innovative interpretations of regulatory frameworks came together to address hydropower externalities through dam decommission.

The Edwards Dam was constructed on Maine's Kennebec River in 1837.[279] State, federal and private interests sought removal of the dam to combat longstanding negative impacts on fishery resources, along with environmental degradation and impaired recreational activities.[280] In a landmark decision, FERC denied the dam's relicensing request, ruling that the public interest required removal of the Edwards Dam.[281] This was the first time the federal government had mandated decommission over a dam owner's objection.[282] FERC relied on the EIS prepared under NEPA in concluding that the public interest would be best serviced by dam removal, determining that removal was the only option for mitigating the dam's adverse environmental impacts.[283] FERC also conducted extensive economic evaluations of the Project and its alternatives, finding that decommission made the most financial sense given the extensive costs associated with relicensing.[284]

While complex in nature, dam decommissioning procedures requiring involvement of citizens and federal, state, and local governments inherently promote core tenants of meaningful

[278] Blumm & Nadol, *The Decline of the Hydropower Czar* at 117 (2001) (the evolution of modern environmental law through statues like the ESA, CWA and NEPA created new regulatory avenues for interacting with hydropower projects, reflecting a societal shift towards environmental preservation.)
[279] See generally *Edwards*, 81 F.E.R.C. ¶ 61,255 (1997); Charlton H. Bonham, *The Condit Dam Removal and Section 18 of the Federal Power Act: A Coerced Settlement*, 14 ENVTL. L. & LITIG. 97, 107-10 (2000)
[280] *Edwards*, 81 F.E.R.C. ¶ 61,255; Blumm & Nadol, *The Decline of the Hydropower Czar* at 118, n. 235 (2001) ("State advocates of dam removal included the governor, the Maine Department of Marine Resources, the Maine Department of Inland Fisheries and Wildlife, and the State Planning Office. The federal advocates were comprised of NMFS, DOI, and EPA. A public interest group, the Kennebec Coalition, also sought removal of the dam. *Id.* Maine's Governor King called for removal of the Edwards Dam as early as 1990 in his inaugural speech. *Id.* at 62,208.")
[281] *Id.* at 62,210
[282] Blumm & Nadol, *The Decline of the Hydropower Czar* at 118 (2001) (citing Christine A. Klein, *On Dams and Democracy*, 78 OR. L. REV. 641 (1999)
[283] *Edwards*, 81 F.E.R.C. ¶ 61,255; Blumm & Nadol, *The Decline of the Hydropower Czar* at 118, n. 247 (2001) (FERC also determined that alternate power sources in the region could replace hydropower generated at the Edwards dam).
[284] Blumm & Nadol, *The Decline of the Hydropower Czar* at 119 (2001)

participation.[285] In the Edwards Project, the EIS conducted pursuant to NEPA[286] and FERC's own requirement to issue licenses only for plans "best adapted to serve the public interest"[287] provided an abundance of accessible information that stakeholders could utilize in evaluating the government's decision on the project. Stakeholders' ability to participate in FERC's evaluation of the Edwards dam's relicensing application satisfies the timing component for making public participation meaningful. The relicensing stage is an excellent example of participating in the regulatory process at a stage with critical bearing on the proposed action's eventual outcome.[288] FERC's decision with the Edwards dam was successful in addressing hydropower externalities, but accountability measures and dispute resolution mechanisms built into NEPA, the ESA and the FPA were available should FERC have come to a conclusion at odds with the underlying data or statutory requirements.

Fundamental drivers behind large dam projects reflect a nation's prevailing attitude regarding the perceived social, environmental and economic costs and benefits of a project, regardless of whether there is actual empirical evidence for or against a project.[289] Beck, et al. posit that there is an inverse relationship between environmental capital and policy effectiveness, "such that as economic development increases, environmental capital is diminished whereas policy effectiveness becomes maximized."[290] This analysis highlights a temporal component of economic development dictating the governance mechanisms and policies used in mitigating the

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[285] David H. Becker, *Challenges of Dam Removal: The history and Lessons of the Condit Dam and Potential Threats from the 2005 Federal Power Act Amendments*, ENVIRONMENTAL LAW 36(3), 811 (2006)

[286] NEPA requires an EIS for all "major federal actions significantly affecting the quality of the human environment" 42 U.S.C. § 4332(c) (2018)

[287] 16 U.S.C. § 808(a)(2) (2018)

[288] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 262 (2009);

[289] Beck et al., *Environmental and Livelihood Impacts of Dams* at 13 (2012); Jonathan Rigg, *Thailand Nam-Choan-Dam Project: a case study in the greening of Southeast Asia*, GLOBAL ECOLOGY AND BIOGEOGRAPHY LETTERS, 1(2), 42-54 (1991); Sara E. Johnson and Brian E. Graber, *Enlisting the social sciences in decisions about dam removal*, BIOSCIENCE, 52(8), 731-738 (2002)

[290] Beck et al., *Environmental and Livelihood Impacts of Dams* at 12 (2012) (Beck's framework for development gradients in relation to large dam projects was developed using a conventional environmental Kuznets curve, whereby "environmental degradation increases with economic growth until a maximum point is reached, after which degradation decreases with further growth as substantial institutions for environmental protection are established." This framework lines up well with the evolution of environmental law in the United States, along with the contentious relationship legal and regulatory regimes in Brazil have with the government's desire to pursue large scale hydropower projects.)

socio-environmental costs of hydropower projects.[291] Working under this framework, it follows that lack of environmental capital and benefits from resource acquisition in U.S. hydropower projects has contributed to the nation's shift toward dam removal and decommission.[292] Brazil is less economically developed than the U.S. and accordingly derives a higher relative benefit from environmental capital, hence the overwhelming political support for Belo Monte.

Proponents of dam projects often have a substantially disproportionate impact on the decision-making process relative to critics, particularly in developing nations where legal and regulatory regimes are not as developed and where there is a higher perceived benefit for environmental capital.[293] The shift away from dam construction in the United States exemplifies that common benefits in support of hydropower projects (electricity generation, flood control, etc.) are no longer sufficient to justify the continued existence and associated impacts of such projects.[294] As depicted with the Edwards Dam removal, meaningful public participation is crucial in addressing hydropower externalities at junctures where hydropower projects are being considered for construction, relicensing, or removal. Public participation mechanisms in the United States have historically struggled to impede dam construction, but the evolution of environmental law and installation of more meaningful participation mechanisms has been integral to addressing hydropower externalities through dam decommission and deconstruction.[295]

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[291] *Id.* at 11 (emphasizing that "sufficient policies and governance mechanisms for environmental protection are often not implemented until after a country is developed."

[292] *Id.* at 13

[293] Beck et al., *Environmental and Livelihood Impacts of Dams* at 13 (2012); Carl Middleton, Jelson Garcia, & Tira Foran, *Old and New Hydropower Players in the Mekong Region: Agendas and Strategies*, published in CONTESTED WATERSCAPES IN THE MEKONG REGION, 23-54 (2009)

[294] Beck et al., *Environmental and Livelihood Impacts of Dams* at 13 (2012)

[295] *See generally* Blumm & Nadol, *The Decline of the Hydropower Czar* (2001); Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States* (2012)

CONCLUSION

Public participation in the regulatory process and effective dispute resolution mechanisms are critical in addressing the socio-environmental externalities stemming from hydropower and ensuring that the law is capable of fulfilling its intended goals. This Comment discussed three key mechanisms for making public participation more meaningful through case studies and comparisons between the United States and Brazil.

Access to the information underlying the government's decision-making process for a proposed action is crucial for establishing meaningful participation. Indigenous peoples impacted by Belo Monte have not had meaningful access to information as demonstrated by the government's failure to translate and distribute Belo Monte's EIA, along with its opacity in addressing socio-environmental concerns brought up during the EIA and licensure process. These shortcomings echo those faced by Native Americans with early hydropower developments in the United States.[296] Access to information is a necessary element in allowing stakeholders to be informed about the nature of the government's action, which is critical in mounting potential legal challenges.[297]

To be meaningful, public participation must also be conducted at a time in regulatory process where the underlying action and eventual result can still be influenced.[298] Achieving better results is in itself a core component underlying why public participation is important to environmental decision-making. While stakeholders impacted by Belo Monte have exercised their right to be heard, participation and dispute resolution mechanisms have not been able to impact the underlying process nor the eventual result. This is in stark contrast to dam decommission and deconstruction in the United States, where stakeholders have been able to intervene at crucial junctures in the dam licensure process to drive meaningful results.[299]

Lastly, meaningful public participation requires statutory underpinnings that facilitate interaction with lawmakers throughout the regulatory process along with legal enforcement

[296] *See generally,* Guiao, *How Tribal Waters Rights are Won in the West* (2013)
[297] Mihaly, *Citizen Participation in the Making of Environmental Decisions* (2009)
[298] *Id.*
[299] *See generally,* Blumm & Nadol, *The Decline of the Hydropower Czar* (2001);

mechanisms when the process itself is inadequate.[300] Accountability has significant value in the hydropower context, where development projects often have far reaching social, economic and environmental impacts. Adjudicatory mechanisms facilitate meaningful participation by allowing both the general public and experts to interact with regulators, the development project, and ultimately the project's impacts and externalities. Litigation in the United States has dictated a number of results, ranging from the expansion of tribal reserved rights related to hydropower[301] to a court threatening to "run the river" should regulatory decision makers fail to uphold their statutory obligations to both the public and the environment.[302]

Open and meaningful participation mechanisms in the environmental decision making process help foster an informed citizenry, a transparent and accountable government, and overall higher quality decision making related to the environment.[303] The distinction between public participation that is "meaningful" as opposed to public participation that is merely "due" under the law will only become more relevant as the social, environmental and economic externalities imposed by hydropower projects become a larger consideration in regulatory law and policy.

[300] Mihaly, *Citizen Participation in the Making of Environmental Decisions* at 166 (2009)
[301] *See generally,* Guiao, *How Tribal Waters Rights are Won in the West* (2013)
[302] *See* Blumm & Paulsen, *The Role of the Judge in ESA Implementation* at 144 (2013)
[303] Moorman and Ge, *Promoting and Strengthening Public Participation in China's Environmental Impact Assessment Process* at 286 (2007).