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Environmental Justice in Hydropower Development: Voices of the Marginalized in Nepal

Samjhana Rawat Sharma[1*], Manan Sharma[2]

[1]School of Public Administration, Hohai University, Nanjing, China
[2]College of Water Conservancy and Hydropower Engineering, Hohai University, Nanjing, China
Email: *samjhanasharma@hhu.edu.cn, manansharma@hhu.edu.cn

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Abstract

This study critically examines the intersection of environmental justice and hydropower development in Nepal, a country rapidly expanding its hydropower sector under the banner of clean energy and sustainable growth. While large-scale hydropower projects are positioned as solutions to energy scarcity and climate change, they often impose disproportionate costs on marginalized communities, including Indigenous groups, Dalits, and rural households. Using the frameworks of distributive, procedural, and recognition justice, this paper analyzes three major hydropower projects—Upper Karnali, Arun III, and Budhi Gandaki—to explore patterns of displacement, cultural erasure, inadequate compensation, and exclusion from decision-making. Drawing on policy reviews and field narratives, particularly the voices of women and Indigenous people, the study reveals how dominant development narratives obscure deep-seated inequalities and perpetuate structural injustice. The findings call for a rights-based, inclusive, and accountable approach to hydropower planning in Nepal, grounded in the principle of Free, Prior, and Informed Consent (FPIC) and meaningful benefit-sharing. The paper contributes to the global discourse on energy justice by centering the lived experiences of those most affected and often least heard.

Keywords

Environmental Justice, Hydropower Development, Indigenous Rights, Displacement, Free, Prior and Informed Consent (FPIC), Energy Justice, Recognition Justice, Infrastructure and Inequality, Sustainable Development

1. Introduction

1.1. Background

Nepal, a country with the richest water resources in the Himalayan region, has gradually developed hydropower as one of the most important sectors in the country's energy and development plan. Hydropower development has been seen as a potential solution to the chronic electricity shortage in Nepal and a means for exporting electricity to its neighboring countries, India and China with over 6,000 rivers and estimated hydropower potential of about 83,000 MW of which 42,000 MW deemed technically and economically viable. Nepal has embraced hydropower as the key to development claiming that hydropower is clean renewable source of energy which can help in bringing economic revolution, employment opportunities, fastest rural electrification and energy security (Chaulagain et al., 2020).

Strengthened by the global climate and national goals of net-zero emissions, hydropower projects have been sold as a 'clean' source of electricity that supports the attainment of the SDGs including SDG 7—Affordable and Clean Energy and SDG 13—Climate Action (UNDP, 2022). International donor agencies, multilateral banks, and foreign investors have eagerly responded to such a trajectory, financing massive infrastructures in the Nepalese riverscape. Nevertheless, this apparent hegemonic narrative tends to obscure highly unfair effects of hydropower generation, especially for the disadvantaged. This shows that the work often prioritizes technical and economic considerations rather than addressing issues of fairness, equality, or respect for the environment and cultures.

Ironically, large-scale hydroelectric power has had negative impacts such as environmental degradation of large mainland rivers, disruption of the riverine ecosystems, including displacement of some rural and indigenous populations. These communities whose very existence and source of revenue depends on land and water resources are not included in decision making and often not paid fairly in case of project implementation (Devkota & Neupane, 2021). Such issues help raise important ethical and policy questions about the community's benefit in hydropower projects in Nepal as it scales up its hydropower ambitions.

1.2. Problem Statement

While hydropower has often been promoted as an environmentally friendly form of development in the Nepali context, the actual consequence of this industry has long been accused of entrenching old-power structures and alienating those who cannot afford to accommodate both the social and the cultural costs of hydropower projects. Indigenous nationalities (Janajatis), Dalit communities, and sustainably practicing tribes and farmers are evicted from their homelands without even FPIC, which is the core of indigenous people's rights protected under ILO Convention no. 169 to which Nepal is a party (International Labour Organization, 2020).

It is not only the cases of people being turned into refugees in their own land

but also the instance when their culture, knowledge, relationships, and even language are threatened (Tamang, 2021). Moreover, the costs of the hydropower projects seem to be unequally distributed while the benefits in terms of finance and development are enjoyed mostly by another party. People are told of development and promise of electricity supply, job opportunities which they never get to harvest or which do not compensate them enough for the loss of their sources of income and land (Bhandari & Grant, 2019).

However, policy and institutional supports enabling hydropower development in Nepal are still patchy and incongruous. Environmental Impact Assessments (EIAs) and Social Impact Assessments (SIAs) are often carried out in a reseal form and communities usually do not have full access to them. Thus, these processes are less likely to capture the essence of resilient communities and are rarely used to address practical intervention or compensation policies.

1.3. Purpose of the Study

The purpose of this Paper is to critically discuss the issues of environmental justice and hydroelectricity development in Nepal. In particular, it addresses how distributive justice, procedural justice, and recognition justice frameworks are integrated in the development, implementation, and management of hydropower projects. Three such hydroelectricity projects are the Upper Karnali, Arun III and the Budhi Gandaki which all signify both development and struggle.

Therefore, the overall purpose of this study is to raise the visibility of the concerns and daily realities of people who are most impacted by hydropower generation displacement and disruption. Based on theories of environmental justice and ethnographic stories from the field, this paper will explicate how power, rights, and visibility are enacted geographically in hydropower development in Nepal.

Thus, the study further enriches the existing literature on the organizing principles of sustainable development and energy justice and indicates how the Nepalese state and other developing countries in the global South can address the trade-offs between the developmental imperatives of infrastructural investments and the need to mitigate climate change and promote social justice. In the long term, the study aims at contributing towards enhancing people-centered and rights-based approaches to energy planning, and ensuring the inclusion of the often unheard and excluded minorities.

2. Theoretical and Conceptual Framework

2.1. Environmental Justice: Definitions and Global Evolution

Environmental Justice (EJ) as a discourse was developed as a framework in the 1980 in the United States as African American, Latinx, and working-class neighborhoods were subjected to having toxic waste facilities sited in their communities (Bullard, 1993). It has since grown into a comprehensive multilateral system focused not only on the environment but also on equality, people's rights, and even the right to vote. Environmental justice challenges mainstream environmentalism

as it essentially focuses on preserving stretches of 'wilderness' without perceiving how such environmental harm affects low-income and people of color (Pellow, 2000).

Today, EJ is defined as a policy or practice that is broader and encompasses three components all over the world. First, distributive justice relates to rights and wrongs of granting benefits and imposing costs of hydropower, such as who gains electricity from it and who is impacted by the establishment of the dams. Third, procedural justice refers to the fairness and who gets involved when determining the environment policies in a specific country. Third, recognition justice insists on the affirmation of the existential worth, culture, and knowledge of the diverse indigenous communities for marginalization of their outlooks or dismissal in development processes (Schlosberg, 2007; Walker, 2009).

Because cases of environmental injustices transcended national boundaries, the definition broadened with regards to power disparity across the globe as well as governing and climate hazard vulnerability. As with most of the Global South countries, or categorically Third World countries similarly Nepal remains exposed to environmental injustice where development projects merely reflect geopolitical or commercial ends over consideration of ecological balance and rights of people (Temper et al., 2015). Therefore, environmental justice also offers more than simply a frame through which to assess normative issues; it also offers a method for understanding the ways systemic injustice is built into environmental decision-making.

2.2. Environmental Justice in the Context of Hydropower Development

In the hydropower sector a number of concerns related to environmental justice emerge due to multifaceted socio-environmental impacts introduced by dams. Impacts of large-scale hydropower projects include displacement, modification of water systems and possibilities of losing sources of resources such as fish, timber and arable land as pointed out by Scudder (2005). However, these costs are not shared proportionately by both parties in most cases. In many cases, the direct beneficiaries, which include urban consumers, private investors and government departments to which the biofuel policies benefit, are separated in space and time from the victims, who are the rural people and indigenous groups (Baviskar, 2007).

Likewise, the development of hydropower in Nepal also exhibits such a global trend. Some of the impacts that directly affect the affected communities include loss of land for compensation, poor or late compensation and the cut off from the source of spirituality and culture associated with the water source. On the other hand, the gains accruing from electricity access, revenue mobilization, and regional power sales are mainstreamed in favor of the state elites and urban areas. These biases reveal that the use of a justice-oriented lens is useful when analyzing the effects of hydropower development.

In addition, the understanding and measurement of procedural justice are often

violated within hydropower planning and construction. A common problem that has been observed in relation to many projects in the context of Nepal is that they lack credibility in conducting the Environmental and Social Impact Assessments (ESIAs). Commonly, targeted communities receive little or not timely and easily accessible information on projects that affect their lives or are given limited chances to influence the projects' decisions (Gyawali, 2001). However, decision-making processes are often bureaucratic, top-bottom approaches that are informed by a country's development plan or international funding priorities, hence excluding the community. Such exclusion disregards human rights principles such as FPIC and concerns can be raised regarding the hydropower projects that start with little or no regard to the rights of locals (Larsen et al., 2016).

It is also important to mention recognition of justice in these circumstances. Most of the affected population of Nepal is indigenous people who rely on the association with water, forest, and mountain for their cultural and religious values. In the development discourses, these identities are often unheard of with the land being regarded as a mere economic entity rather than holding cultural relationships with the land. Thus, the state that does not accept these values contributes to the indigenous communities' sense of alienation and exclusion, thus prolonging other forms of discrimination (Upreti & Bhattarai, 2011).

2.3. Environmentalism of the Poor: A Lens for Nepal's Rural Resistance

One approach that may be particularly helpful in thinking through the issues of environmental justice in Nepali context is the ideas of the "environmentalism of the poor" proposed by Joan Martínez-Alier (2002). The assumption of this view is that environmental conflicts in the Global South are not necessarily a fight for nature but for resources that are vital for sustainability. Unlike those of mainstream environmentalism that may be referenced to species, carbon footprint among others, the environmentalism of the poor people of Uganda is grounded in socio-material value of surroundings.

In the context of Nepal this structure is seen in the opposition by the indigenous and rural communities to the developments in hydropower that will harm their land, rivers and forests. It cannot, therefore, be observed simply as counter-development or as a process that poses a resistance to the Ethiopian state's mode and vision of progress. Campaigns surrounding dispossessive development such as Arun III and Upper Karnali shed light on respecting indigenous homelands, natural environments and Autonomy (Paudel & Khatri, 2019). These struggles represent a more general criticism of current development frameworks that rely on resource-extractive infrastructures at the expense of people's rights and the planet.

Thus, the poor also present culture, identity, and emotion as a way to understand environmental justice that is not just contained in policy or economics. Floods also mean that people uprooted from a river valley carry with them not just a logistical loss, but stories, ceremonies, and forms of perceiving the world.

That there could be such a profound intertwining of these two phenomena is something that remains often under-acknowledged when formulating better strategies for development.

In conclusion, the theoretical and conceptual frameworks of environmental justice and environmentalism of the poor offered the necessary theoretical framework to understand the inequalities inherent with the development of hydropower in Nepal. Through the lens of distributive, procedural, and recognition justice, and also providing a substantive understanding of local Resistance movements in Nepal, this study aims to analyze if the Nepalese Government's move towards green energy is compliant with the ideas of justice, equity and sustainability.

3. Hydropower Development in Nepal: Context and Trends

3.1. Current Status of Hydropower Development in Nepal

Hydropower development has emerged as one of the power development strategies in Nepal in the 21st century due to its ample hydropower resource and a perpetual energy crisis. Nepal provides some 6,000 actual and potential rivers, streams, and tributaries originating from the Himalayan range and as per the World Bank data, the cumulative hydropower potential of Nepal is more than 83,000 MW out of which around 43,000 MW is feasible. Government and policymakers have emphasized the importance of developing this potential within the past two decades especially after the electricity crisis of 2015 and consecutive policy shifts to emerge energy secure Nepal.

There are several big projects to tap the hydropower today that are developed in Nepal. The most significant one is the Upper Karnali Hydropower Project, 900 MW that is in Karnali and was given to the Indian GMR Group. This project has also been a subject of controversy regarding its potential impacts on indigenous peoples and its exportation disposition where most of the generated power is expected to be supplied to India (Lama, 2018). Likewise, the Arun III is a 900 MW project, under construction in the Sankhuwasabha district and is owned by India's SJVN. Despite the commitments on local employment and the positive impact on communities, Arun III drew criticisms on its lack of transparency of the planning process and the neocolonial nature of foreign-led infrastructure project (Adhikari 2021).

Another project is the Budhi Gandaki Hydropower Project, has a proposed capacity of 1,200MW and is a designated National Project by the Government of Nepal. This kind of storage is going to inundate hundreds of hectares of farmland and potentially affect more than fifty thousand people in different districts (Dhungel & Adhikari, 2020). Public opposition to the project has been immense because of its land acquisition controversy, poor involuntary resettlement, and overestimated compensation estimates.

Nonetheless, the actual installed hydropower capacity in Nepal is not significantly high, with about 2,200 MW in 2023, though well below the potential. How-

ever, many of the existing operational projects are run-of-the-river schemes where the plant has no storage capacity for water, which makes it sensitive to the fluctuations of river flows, especially during the dry season (Rana, 2022). Such constraints in combination with the aging facilities and instabilities of the grid have proven that hydropower is not as rosy as it is painted to be on theory.

3.2. Policy Environment: Hydropower, Displacement, and Compensation

Nepal's hydropower development is regulated by laws, national policies, and treaties that include provisions and rules that primarily focus more on investment promotion and energy generation than social requirements. The key governing policy document is the Electricity Act 1992, which is under review; it brings private participation through a liberal licensing and tariff structure, but few provisions for social and environmental justice, as elaborated by Khadka (2021).

The Hydropower Development Policy 2001 laid the initial framework for liberalizing the power sector in Nepal along with the BOOT model to encourage FDI. However, the policy that was developed in this regard was quite incomplete as it could not meet the need for displacement, resettlement, and rights of local people. Therefore, development-induced displacement persists where compensation regimes are weak, and frequently without the FPIC of the affected people (Baral & Subedi, 2020).

Furthermore, the existing environmental policy structure in Nepal, consisting of the EPA 2019 and its various sets of regulations and procedures, require EIAs on hydropower projects, for instance, section 51. In this respect, progressive has been more of a theory that has not had a very good implementation. Research has indicated that EIAs are often viewed more as checklist exercises than as potential vehicles for citizen engagement and materially improved planning. Public hearings may be sparse or be done in a language that the public cannot understand which degrades procedural justice as noted by Paudel & Khatri (2019).

In terms of compensation, the government has used a rather flexible, and sometimes unpredictable system of compensation. Compensation rates often reflect the long-gone rates of land appraisal, while strategies for relocation have no specific guidelines or monitoring of outcome. Most of the affected households state to have received either minimal or delayed cash, inadequate settlement on new agricultural land, and disruption of social capital, which are key assets that help households recover and rebuild their livelihoods, especially in rural areas of Nepal (Bhattarai, 2019).

3.3. Stakeholder Landscape: Government, Communities, Developers, and Donors

The social landscape of the sector is highly fragmented and shaped by various actors at different scales and with various interests and power dynamics. At the center is the Government of Nepal that equally considers hydropower both as a de-

velopment imperative and instrument of geopolitical diplomacy to bring about regional integration. Agencies such as the Ministry of Energy, Water Resources and Irrigation (MoEWRI) and the Nepal Electricity Authority (NEA) play key roles in policy formulation and project execution. However, bureaucratic entanglements, political instability, and corruption has at times impeded the efficacy and responsibility of these organizations (Tiwari, 2020).

Among the most directly affected but least empowered stakeholders are the local communities, especially indigenous people and households engaging in subsistence farming within project-affected areas. It goes further to state that the affected people frequently do not have the opportunity to meaningfully engage in project planning, negotiation, or sharing of benefits. Some such communities do not know their legal rights or cannot seek legal aid and protection; therefore, they can easily fall victim to developers or local authorities.

The involvement of the private sector both domestic and international have gained more and more importance in the hydropower sector of Nepal. These originate from India and China in particular, as these investors seek large scale projects and sign contracts with the Nepalese state. These rushing can neglect public participation entirely, which further increases the democratic loss or shortfall in hydropower decision-making.

Other players in the industry include but not limited to; World Bank, Asian Development Bank (ADB), and the International Finance Corporation (IFC). As for these institutions, major criticisms can be stated on their weak implementing power and common bias to financial profitability rather than the stability of local democracy. Furthermore, the bilateral concept of aid from India and China tends to infuse additional political objectives affecting the selection, design, and implementation of projects, overriding the country's priorities and ethical principles.

In conclusion, the hydropower sector in Nepal can be understood as a site of contestation of and between global capital, state, and local communities. Hailed as the 'green economy' for enabling a sustainable green economy for the country's development, it became apparent how the process of implementing the hydropower project was one of inequality, power politics, and policy disparities. These dynamics require a closer look at how the planned energy transition in Nepal may or may not factor in environmental justice.

4. Case Studies from Nepal

Hydropower Development in Nepal is characterized by a number of Mega Organizations that are indicative of its commitment to develop the country's Natural resources for economic upliftment. However, there is a development façade where people are displaced and dispossessed producing various contests and resistances. This section focuses on three hydropower projects—Upper Karnali, Arun-III, and Budhi Gandaki, to identify how environmental justice principles have been incorporated, excluded or even opposed.

4.1. Upper Karnali Hydropower Project

One of the country's most significant and controversial hydroelectric projects is the Upper Karnali Hydroelectric Project, the planned capacity of which is 900 MW. Implemented in the fiscal 2008, the project has been developed in the far-western districts of Surkhet, Dailekh, and Achham—districts inhabited by some of the most vulnerable populations in terms of social exclusion of Tharu indigenous people, Dalits and other poor rural households (Rai, 2016).

Since the initial stages of the project, there are many factors that were associated with environmental justice issues. Among the most worrisome concerns is the lack of FPI in the implementation of the Act and in general, FPIC is a fundamental right guaranteed by the international law including ILO 169 Convention. Documents and records also show that indigenous communities have recorded dissatisfaction and cases of non-conservation, non-participation and non-consultation in the design as well as implementation of the project (Ghale, 2017). As adequately conducted ESIA documents, they included concerns raised among the following criticisms in that they did not adequately capture the concerns of the people as well as being written in very professional languages hence hardly comprehensible by many of the stakeholders.

Reward structures have also been a point of debate. A lot of times, land was overvalued or valued based on other unrelated methods, hence explaining why many households received little insurance pay. In several cases, compensation was made in a delayed manner, a partial manner or failed to include non-titled land users, although this is a major issue given that most of the indigenous community's own land for long durations but they do not have title deeds (Bhujel, 2020).

Thus, the political, socio-cultural, and spiritual impacts of displacement have not been given much attention. Karnali River is a free-flowing river considered to be of spiritual significance for many numbers of groups and is involved in festival activities, local rites and ceremonies, and rituals. It is not just a physical loss and submergence for the project but certainly a break in culture (Basnet, 2020).

These misdeeds have generated local opposition in the long-run. These collective actors including the Upper Karnali Concerned Struggle Committee have protested, filed legal cases and petitions, and sought redress from the Special UN Special Rapporteur on the Situation of Human Rights of Indigenous people. Several civil society groups have urged that the project be halted until proper consultations with the affected people are made and justice-centered policies enacted (Manandhar & Prasai, 2018).

4.2. Arun III Hydropower Project

Another important case of such development is the Arun III Hydropower Project situated in the Sankhuwasabha district of southeastern Nepal. Similar to the Jaisalmer project, with a targeted nominal generated capacity of 900 MW, the project is currently being undertaken by the Indian state company Satluj Jal Vidyut Nigam (SJVN). Similar to the Upper Karnali, Arun III power project is imple-

mented under BOOT model in which a significant part of the electricity generated will be exported to India; this has been a concern to the distribution of benefit within Nepal.

The following are some of the concerns raised by the communities inhabiting along the Arun River concerning the implementation of the project. The most apparent one is the comparatively low level of local participation. While public hearings were conducted, some residents stated that adequate information on the environmental, economic and cultural impacts of the project was never provided. Based on surveys which were carried out by other stakeholders then it is evident that many consultations were window dressing practices and mostly, the decisions were already pre-made with the public having no much say in the matter.

This has also given rise to debate on the issue of benefit sharing. As the project works to provide electricity accessibility, local employment, and infrastructure development, the fulfillment of such commitments is still sporadic. Households who have been impacted have complained of no direct benefits from the project which has instead led to denial of farmlands, disruption of water sources, and degradation of community forests (Banskota & Sharma, 2020).

As mentioned earlier, there is a lack of recognition of justice in the development of the Arun III Project. Sankhuwasabha region lies in the eastern part of Nepal and it is an inhabitant of the Yakkha, Sherpa, and Rai, who are native people with a tradition of living close to the river and other geographical features. These are as captured by the contextual relations such as past aims at attaining oral and other spiritual objectives in relation to natural endowments, customary resource utilization techniques. However, these cultural and social sub-identities have been poorly discussed in the planning phases of the project and its countermeasures (Subba, 2022).

Non-governmental organizations in the Nepalese civil society are not pleased with the Government of Nepal for prioritizing political stability with other countries rather than with welfare within the country. This project has been branded as an Indo-Nepal bilateral investment project, has only contributed to the neocolonial development narrative that undermines the nation state and encourages them to offer sovereignty in exchange for investments (Jha, 2020). While the project still remains an ongoing process for many, it has become an object of struggle over who and what is included, who is sovereign, and who is recognized.

4.3. Budhi Gandaki Hydropower Project

The Budhi Gandaki Hydropower Project which is a proposed venture is possibly the largest and controversial hydropower project in Nepal today. A trip with a proposed installed capacity of 1,200 MW and reservoir type, it is stated to inundate a part of Gorkha and Dhading districts this peoples' homes this, at least displacing some 50,000 peoples (Pokharel, 2021). These issues include environmental management, rights to use arable land, and compensation which have surfaced due to the grand scale of this project.

The issue of land acquisition paints the picture, which forms the basis of the controversy. Some residents have complained of unfair categorization and mapping of the land as well as its valuation which has caused many differences in the remunerations. Residential and agricultural fields have for many times been under compensated by local land assessment agents which has brought a lot of financial strain to many families. It has also been accused that political influence has been used to affect the level of compensation being received by the people in the resettlement process (Karki, 2019).

However, there is a clear separation between what the officials have been saying and what is actually happening on the ground. Whereas state authorities provide the Budhi Gandaki project as necessary for the nation's advancement and independence on energy, the people affected by the project regard it as a threat rather than an opportunity to their existence and survival. Farmers also lose not only the land they have been cultivating but also what is tied to it—the bonds with people, the faith, and the indigenous knowledge, too (Gurung, 2020).

To calm the opposition, the government has assured it will provide the "model or standard chemical resettlements with proper infrastructure, schools and healthcare facilities. But all these promises have been made in previous projects and were hardly realized to the later stage, thus resulting in high levels of skepticism and mistrust. Also, the Third-Party Evaluation has noted that no long-term livelihood planning has been incorporated into the Resettlement Action Plan, which raises the possibility that displaced people will become welfare recipients of the state (Chhetri & Kharel, 2022).

Different dimensions of opposition to the project have been observed based on activities such as village protests and installation of barriers on the main routes, legal action, and petitions from the internationals. Local activists have also initiated the efforts to record the social effect of floods resulting from the reservoir, apart from demonstrating possible species extinction, the reservoir water bodies in seismically active areas pose more threat (Acharya, 2019).

Altogether these examples signify that while the new hydropower programme of Nepal has made tremendous economic gain, social and environmental costs are far from being as innocent. Hence, each project resonates with wider systemic issues of governance, planning, and recognition of local rights that must be redressed if hydropower is to be sustainable and just in Nepal in the future.

4.4. Comparative Synthesis of Case Findings

A comparison of the Upper Karnali, Arun III, and Budhi Gandaki projects reveals consistent patterns of environmental injustice across all three projects, particularly in the neglect of procedural and recognition justice. Distributive inequities were evident in all cases, with communities facing displacement and limited access to benefits. Upper Karnali showed the most pronounced spiritual and cultural alienation due to the damming of a sacred river (Basnet, 2020). Arun III was emblematic of geopolitical pressures leading to top-down implementation (Adhikari,

2021). Budhi Gandaki, as the largest and most impactful in scale, exhibited significant land acquisition controversies and a near-complete lack of long-term livelihood planning (Chhetri & Kharel, 2022). Across all projects, affected populations had minimal decision-making power, and mitigation measures—especially for women—were inadequately addressed (Maharjan & Adhikari, 2019; Ramesh, 2021).

5. Environmental Justice Analysis

Hydropower development in Nepal is a multifaceted process with significant environmental justice (EJ) implications. Grounded in principles of justice, equality and social justice, EJ aims to redress those social injuries wherein the distribution of harms and benefits in the environment is unequal, where marginalized communities are excluded from decision-making processes and where culture and other marginalized forms of identity are erased or suppressed. Since the Nepali government is aspiring to make hydropower as one of the key sources of power and energy for the country's development, it is becoming more important to determine the conformity of such projects to the principles of environmental justice. This section examines how distributive, procedural and recognition justice have been utilized in the hydro power projects of Nepal.

5.1. Distributive Justice: Unequal Burdens and Unequal Benefits

Distributive justice refers to the equitable allocation of environmental goods and harms among various social groups. The following discussion evidences that for hydropower development in Nepal, the benefits and costs are distributed unevenly between those who are displaced or who are losing ecological capital and those who are reaping the profits along with the energy generated.

Hydropower development has in many times led to displacement of people, their homes, and their sources of income in Nepal and while the economic benefits are reaped mainly in the hands of state actors, business tycoons, and outside investors. Sapkota and Basnet (2021) have found that most of the displaced people are resettled in areas that produce lower crop yields, limited market access, and fewer social connections. These communities suffer not merely from being politically and economically excluded from mainstream economy but are socially excluded from the cultural and psychological benefits associated with the freedom of their ancestral homeland's geography.

The impacts of hydropower mainly in terms of additional electricity generation, employment opportunities, and regional energy import/export are mainly affirmative for the urban and industrial areas. For instance, the Kathmandu valley section has almost complete electrification, yet many of the districts, which have hydropower projects, face power shortage and inadequate and unstable electricity supply (Bajracharya, 2018). This geographical distribution establishes the fact that the state has not done enough to promote equitable distribution of benefits.

In addition, most foreign direct investors operating in Nepal's hydropower sec-

tor, mainly from India and China, usually enter into bilateral arrangements that ensure the guarantee of long-term capital repatriation. Such arrangements cause a" resource grabbing" phenomenon meaning that the sovereignty of host communities is undermined through elite bargains and neoliberal development paradigm (Dahal, 2020). Thus, hydropower development serves only to propagate rather than redress internal socio-economic disparities.

5.2. Procedural Justice: Exclusion from Decision-Making

Procedural justice is the concept which deals with justice that is done towards the process of decision making. It focuses on who gets to know all the information between employees, who is involved in the decision-making procedure, and who has the right to make decisions within an organization. Therefore, procedural justice still remains severely marginalized in Nepal's hydropower planning and implementation process.

In many cases, such legal provisions including the Environmental Protection Act and other legislative instruments are left without practice. Residents' consultations are often brief, official, and conducted at district level while most of the AC details the impact of hydropower construction impacts, are in distant villages (Panta, 2021). Often it is reported that the relevant documents in Nepali or English are provided to the communities when a large number can only understand indigenous or local dialects.

Moreover, there is ignorance of Free, Prior and Informed Consent (FPIC), which is central to indigenous people's rights as enshrined in international instruments. Luintel (2019) also discussed that in the case of hydropower-related EIAs, the consent is given through the influence of elites or influential political actors and, therefore, may not be genuine. Therefore, it reduces consent to the level of performance rather than a core element.

Again legal redress remains virtually out of reach for those displaced and or otherwise affected. The judicial structure of Nepal is centralized, and, as a result, many people of the remote areas are deprived of the opportunity to approach the court, as they can undergo significant difficulties dealing with language, logistics, and costs. There is very little legal aid available for the communities, and the cases, most of the time, either take a very long time to be heard or get dismissed because of lack of political will (Khanal, 2020). Despite protesters or civil liberties suits, they are often suppressed by the police or face bureaucratic barriers, diminishing public confidence in state apparatus.

Furthermore, the development of the HPPs involving private sector partners means that many of the projects involve non-transparent PPAs. Project agreements have been concealed from the public domain citing national security and foreign relations legal concerns thereby limiting civil society lobby to check on developers (Aryal, 2022). This methodological unfairness effectively removes all subject populations' ability to influence further alteration of their environment on the following scale.

5.3. Recognition Justice: Cultural Erasure and Epistemic Injustice

Recognition justice refers to the process of recognizing and legitimizing the identities, epistemologies and ontologies of the people of color. Often in these culturally and ecologically diverse contexts, such as in the ethnically diverse country of Nepal, hydropower development has had the effect of ethnic exclusion and symbolic erasure.

Different ethnic groups of Nepal: Tharu, Magar, Tamang, and Rai people are culturally and religiously connected with rivers, forests and mountains. These aspects refer to the belief systems, ritual practices, oral traditions, and customary governance systems that underpinned their values of belonging and social cohesiveness (Sharma & Maharjan, 2019). However, as it will be seen later, hydropower projects often depersonalize land and water as sources of income. For this reason, development processes are conditioned to disregard the cultural-religious and identity factors of place and heritage.

Some of them include the diversion or damming of seriously considered to be sacred rivers, including the Ganges in India. Settlements, ritual bathing sites, graves, and other communal areas to use water sources are submerged or washed away by the construction of hydropower projects, and little to no cultural assessment is done (Adhikari, 2020). This exclusion can be seen as an epistemic injustice in which First Nations' knowledge concerning the land and its use is dismissed in favor of a Western technocratic vision and the extractive industry.

Furthermore, displacement results in the breakdown of cultures or deconstruction of cultures as well. Immigrants, for example, when relocated to a new place, experience a disconnect from their culture through social structures like foundations in informal networks that are imperative for their survival. This dislocation is not only a physical one but a seam one that takes place at the existential level of being and remembrance (Devkota & Neupane, 2021).

This lack is worsened by the fact that indigenous people have no representation in planning for justice or in any hydropower planning. Although there has been advancement in the inclusion of indigenous leaders in consultative capacities, these are largely tokenistic and consultative, with indigenous voices not carried through in decision-making (Tamang, 2021). Thus, recognition of justice means not only being seen but also being able to name, to author, and to frame what is known, whose lives count, and what might be assembled in the process of world-making.

According to the analysis of hydropower development in Nepal where environmental justice is considered, it is clear that Nepal has failed to achieve any of the three objectives. Distributive justice has been negatively affected by disproportionate risks and rewards; procedural justice has been threatened by exclusion and unfair processes; and recognition justice has been violated through marginalized practice of indigenous people's culture and their belief systems.

Hydropower needs to be always sustainable, which means going well beyond engineering defaults and financial returns to organizational vistas, cultural sensitivity to other people, and lower organizational power. Environmental justice is

not an add-on or an afterthought for developmental justice but the driver for sustainable and equitable growth of the hydropower sector in Nepal.

6. Voices from the Ground

Although hydropower development in Nepal has been assessed in terms of policies, technical possibilities, and cost-effectiveness, the consequences for the subjects are usually presented from the perspective of policymakers, economists, and engineers, often excluding the real actors and subjects, such as rural people, indigenous populations, women, and those without land. Essential evidence from the ground level lays down complex and at times painful narratives of fear, loss, cultural dislocation and organized repression. Through inclusion of such voices, one gets to understand that hydropower development is not perceived as a symbol of development but rather a complex process of change of people's relations to land and other people.

6.1. Perceptions of Development and Displacement

The life histories and perceptions from the hydropower-affected regions of Gorkha, Dailekh, Sankhuwasabha, and Rasuwa reveals the communities' experiences and grievances on state-sanctioned development initiatives. For many villagers, "development" is a paradoxical term—one that promises modernity and infrastructure but delivers dispossession and uncertainty. As rightly summarized by Rai (2020) development is a word that communities relate to as bikas, a concept that holds a positive connotation and pain. Where there may be some perceived advantages in terms of better road networks and electricity, often people are displaced, their economy is subjected to uncertainty and they lose cultural connection to their territory.

For instance, when faced by a Tamang elder living in Rasuwa regarding the effects of Chilime Hydropower Project he said: They said light will come to the whole country, but for us, darkness came. On this account, we were conquered, and we lost all fields and dwelling places, as well as gods living in the forest" (Shahi, 2021: p. 91, quoting field report). This testimony raises an issue that is common both within and between the national and global contexts: there is a huge gap between the new narrative of prosperity and enhanced social opportunity, on one hand, and the local experience of social exclusion, on the other. Displacement is not only physical, but it is social and cultural, considering that they lost their ground, their knowledge, and their community.

6.2. Gendered Impacts and the Marginalization of Women

The effects of the hydropower development also vary and do not positively affect every village and people within their jurisdictions. Indigenous and Dalit women are known to be subjected to even more challenges than men and women in general. Women are the main victims because they are farmers and family nurturers most affected by the loss of farmland and increased responsibilities in family sub-

sistence with no stable income and supporting structure.

Some of the works like Maharjan and Adhikari (2019) have explained how women or the displaced persons generally struggle to access compensation because of the imposition of patriarchal systems of land ownership. Women, whose efforts in terms of work and land are not part of the official records have been left out from employment compensation schemes/programs. Besides, through this process women lose social contacts, traditions, and functions associated with community leadership, hence adding to their vulnerability.

Our study participants reported, for example, that one woman from a displaced household in a newly resettlement site in Dhading said this as a testimony: "In my old village, I used to be part of the women's group in charge of festivals." Here, I would have met my neighbors. The sense of losing one's identity is evident in the following statement: "I feel like I have become no one" (Maharjan & Adhikari, 2019: p. 109). This narrative outlines the cultural and psychological imprints felt primarily by women, imprints that are not reflected in any cost-benefit analysis or policy-making over the effectiveness and efficiency of a project.

6.3. The Emotional Geography of Displacement

Beyond physical destruction, the members of the community suffer deep emotional and indeed spiritual pain associated with the transformation of territories that have cultural-historical significance. According to (Baral & Subedi, 2020) in his ethnographic studies, the river is not simply an object of use for many indigenous populations in Nepal; they consider the river a living being and a mother figure and reaffirms its sacredness. When applied to damming, diversion, or submersion, the break up of these natural relations is more ontological and thus cannot be measured in monetary terms.

This affective dimension was brought out closely by a Magar youth activist from the Upper Seti region saying: 'The river is not just water.' It sings to us. The river stands still when the moments when the machines were brought into the society came into mind. And in that silence, we lost something we can never explain" (Baral & Subedi, 2020). Such reflections leave a heavy question mark to the mainstream development paradigm that measures rivers in terms of mega watt and cost benefit analysis rather than the soul searching.

6.4. Resistance, Solidarity, and the Call for Fairness

Despite the common perception of hydro displaced people as helpless and powerless victims of state-induced displacement this paper's ethnographic studies suggest otherwise. Through protest demonstrations, hunger strikes, road jamming, and petitions, the affected populations have been demonstrating how best they can vent their grievances and seek justice. These are not just acts of defiance in the face of opposition; they are proactively conveyed statements of equality that cannot be ignored.

The formation of advocacy groups to fight unwanted development such as the

Budhi Gandaki Concerned Citizens Committee or Arun Valley Struggle Network indicates that resistance to such projects is gradually assuming more organized structures across place. Hence, they garner support from NGOs, diaspora and trans-nationalisms solidarity networks, which re-interpret localized grievances within the prism of human rights (Bhatt & Gurung, 2021).

In addition, these manifestations often refer to matters of equity and justice. Protest banners with slogans such as "No Development Without Our Consent" and "Respect Our Ancestors' Land" signify a moral and cultural claim to recognition, not just compensation. Such movements, according to Khadka (2022) are recapturing the idea of development no longer in terms of the elite's imposition of physical infrastructure, but in terms of people's rights.

The four main themes that are present in the 'Life Itself' are the fear of death, loss and grief, change or crisis of identity, and hope.

There are several pervasive patterns identifiable through many voices of the witnesses and several ethnographies. 1 Uncertainty of the future is always a factor especially in view of elderly people who feel they cannot rebuild their lives for the rest of their days. Displacement from homes, lands, and other culturally significant aspects of the community. Resistance is not only in the form of opposition but it also represents the ability to take back power and freedom from a system that has silenced them. And in the midst of all this, there has been one unchanging idea of the right kind of development, which aims towards fulfilling people's aspirations, helping them to claim their agency and gain back their humanity.

This is perhaps indicated by the following account from a displaced teacher from the Arun III project area: "We are not against electricity. It is quite vehemently against the idea of being treated like shadows. We also wanted to be part of the light too" (Rijal, 2021: p. 217). His words perfectly reflect the desire to be let in into the benefits of this progress without having to contribute to the price that someone else owns heavily.

In the end, the people's voices captured here are not just sacrificial anecdotes in the history of hydropower developments in Nepal. They are the fundamentals that should guide any fair, viable, and democratic concept of energy development in the United States.

7. Policy Gaps and Governance Challenges

While Nepal has been keen on developing more hydropower to meet energy demands and regional integration, issues of sound policy and governance structures have raised doubts. Some of the complexities arising from large-scale hydropower development projects include the effects on those residents in the vicinity and most affected are indigenous and marginalized individuals and groups due to the scale of infrastructural projects in addition to flawed systems of environmental regulation, failure to recognize property rights, and weak benefit-sharing mechanisms. These challenges raise issues as to the gap between the pronouncement of policy and underlying practices in the fields, and the emerging multifaceted dis-

parities belie the architecture of contemporary governance.

7.1. Weak Enforcement of EIA, SIA, and Resettlement Policies

Among these, one of the most noticeable and frequently repeated governance issues of Nepal's hydropower sector is the lack of implementation of EIAs and SIAs. Although EIAs and SIAs are required by the Environmental Protection Act and its related executive and ministerial directives for every large-scale project, they are often quite minimalistic in practice. This is due to the fact that these assessments are often done hastily, poorly researched, and do not involve the community in a meaningful way (Guragain & Pant, 2020). Being mostly contracted out to private consultants, often with only minimal supervision from the responsible organization, EIAs are inclined to focus on the project need for approval more than its actual risks or even potential solutions to such risks.

Koirala's review of 94 EIAs on hydropower projects from the past decade shows that approximately 48% of them were either inadequately disclosed or had widely insufficient public consultations. Most of the public hearings are conducted in the district centers which are many kilometers away from the affected villages Majority of the technical documents used in the assessment are prepared in languages that do not understand many of the communities, especially those from the indigenous background or those with low literacy levels. Moreover, there is either weak or virtually no monitoring after the EIA has been prepared and this means the developers of the projects go scot-free and continue to cause more harm to the environment and displace societies.

Another area that is poor in protocol is the implementation of the resettlement policies. Despite several published displacement guidelines like the National Resettlement Policy Act that was fashioned in 2013 but to this date was not implemented, the practical implementation of resettlement is thus a haphazard affair. Such communities receive meager or delayed compensation, have restricted access to new Agricultural land and poor living shelters (Lama, 2019). Moreover, government resettlement policies and strategies do not meet social related factors like, political relation links, religious territories, or organizational frameworks that are useful in rebuilding the livelihood of the affected and uniting them in the new resettlement areas.

7.2. Lack of Legal Protection for Indigenous Land Rights

There are more than a hundred ethnic and indigenous communities within the borders of Nepal with diverse spiritual and sustainable associations with ancestral homelands. Nevertheless, the legal context of the country is quite restrictive concerning the recognition or protection of indigenous people's property rights. Nepal has ratified the International Labour Organization Convention No. 169 regarding rights over the land and resources and the indigenous people's self-determination rights in 2007; however, Nepal's domestic laws, policies, and practices still do not fully adhere to these conventional standards and principles (Tamang

& Rai, 2020).

It is important to note that, the Land Act of 1964 and the later amendment do not distinguish between communal and individual portions of the lands or permit traditional or customary ownership of the land. This legal lacuna becomes most apparent in hydropower development because it involves acquisition of vast tracts of forests, riverine lands and communal areas for reservoirs, access corridors and transmission lines respectively. In the absence of formal land titles, many indigenous communities are categorized as "squatters" or "encroachers" despite generations of continuous occupation (Khadka, 2021). They are therefore left out common benefits like compensation and relocations among other aspects.

Also, the Forest Act passed in 2016 and amended in 2019 provides the government broad powers to demolish community forests for the purpose of national development. This provision has been abused to undermine local approval in several hydropower projects, thus adding further disempowerment of the community forest user groups, many of which are led by indigenous and Dalit women (Raut & Joshi, 2022). This absence of judicial processes through which to sort out land disputes or define indigenous people's property rights results in many groups having no means to seek justice if their rights are violated.

Lack of indigenous people's land rights cannot be dismissed as mere procedural erasure but stems from structural injustice in Nepal's state-making project. It reveals a mode of thinking and practice that places extractive over Indigenous existence and state-led progress over Indigenous agency.

7.3. Absence of Robust Benefit-Sharing Frameworks

Another critical issue of governance is inadequate and ineffective systems of benefit-sharing with the affected communities in hydropower projects. Benefit-sharing is the process of availing of the economic, social, or infrastructural gains accruing from the resource-based development to the local population. In the case of hydropower, these may include electricity for domestic, industrial or commercial use, employment and income generated from project related jobs, funds to finance community projects and direct money transfer to government coffers. However, in Nepal, such arrangements are either scarce or sporadic or such practices are highly political.

Both the Electricity Regulatory Commission Act (2017) and Hydropower Development Policy (2018) (Hydropower DP) contain words like 'benefit-sharing'; however, these policies include provisions that are implemented selectively and on an ad hoc basis. This is because in many cases incentives like refurbishment of school facilities or temporary employment is provided while excluding structural forms of rights (Dhakal, 2019). This is evidenced by the fact that residents of local areas state that electrification or infrastructure improvement pledges stay unrealized for years after the project is implemented. When it is required that benefit sharing is done, it is normally done through secretariats, thereby triggering issues of elite capture and corruption.

The lack of coordination between national provincial and local governments makes up the institutional void of benefit sharing further. Since Nepal is in the early stages of the federal system, there are more often questions about jurisdiction and problems with limited financing, which complicates the issue of benefits (Shrestha & Paudel, 2021). Thirdly, people in the community are often not involved in the developmental process of the benefit-sharing framework, and hence the created interventions are not adapted to fit the needs of the community members.

Public comparative analysis by different Latin American and African authors indicates that identification of substantial benefits requires clear community, legal, and outside actors' involvement (Yami, 2020). The Nepali approach to its growing hydropower sector, on the other hand, lacks any involvement of the host communities in decisions affecting their resources, portraying benefit-sharing as an altruistic gesture that the developed world should extend to the less fortunate ones rather than as a applicable principle of dealership with the natural environment.

This paper identifies conflicting issues and institutions in the governance and policy of hydropower in Nepal. In comparison to the ENCM, legal provisions for environmental assessments, indigenous people's rights, and benefit-sharing are to some extent contained in the laws of Papua New Guinea but are poorly enforceable, and their compliance with international standards is still inadequate. These policy holes are detrimental in the sense that besides denying the rights and well-being of affected populations, question the sustainability and credibility of hydropower as a development paradigm in the long-term.

In order to implement just and inclusive energy transition in Nepal, it would need to become a think-shift that puts governance priorities of enabling communities, respecting indigenous people's rights, and establishing an acceptable reproductive system of sharing benefits. Without these reforms, the prospect of utilizing hydropower will remain a dream to be captured by a handful of elites with the costs being shifted to the vulnerable groups of the society.

8. Toward a JUST Hydropower Future

While hydropower offers significant opportunities for energy security and regional integration in Nepal, the findings from this study underline the urgent need for a transformative rethinking of how such projects are developed and governed. The comparative analysis of the three case studies—Upper Karnali, Arun III, and Budhi Gandaki—demonstrates a systemic failure to incorporate the principles of environmental justice.

Distributive justice was undermined in each case, with affected groups—especially Indigenous peoples and Dalits—bearing the social and environmental costs while receiving minimal benefits (Bhattarai, 2019; Sapkota & Basnet, 2021). Procedural justice was consistently neglected, as project decisions were made through top-down, technocratic processes, often excluding local voices or reducing con-

sultation to tokenistic exercises (Luintel, 2019; Panta, 2021). Recognition justice suffered from the erasure of cultural, spiritual, and gendered dimensions of displacement, particularly impacting women whose livelihoods, social networks, and identities were disrupted without meaningful redress (Maharjan & Adhikari, 2019; Ramesh, 2021).

However, better models do exist. The Middle Modi Hydropower Project offers an example where relatively inclusive benefit-sharing and participatory mechanisms were more effectively implemented (Shrestha & Adhikari, 2021). Likewise, small-scale community-managed hydropower projects in Bhutan demonstrate that equitable energy transitions are feasible when communities are empowered (Middleton & Allouche, 2016).

Moving forward, Nepal must institutionalize Free, Prior, and Informed Consent (FPIC) not just as a formal procedure but as a core democratic value guiding hydropower development. Robust post-resettlement frameworks should address the multifaceted nature of displacement—social, economic, and cultural. Gender-sensitive planning must go beyond rhetoric and ensure that women are not just visible but central in decision-making processes (Ramesh, 2021).

The pathway to a just hydropower future requires a fundamental shift in development priorities—from maximizing megawatt output to maximizing equity and inclusion. Environmental justice must be embedded from the planning stage through implementation and monitoring, ensuring that affected populations are not simply passive recipients but active participants in shaping their futures.

9. Conclusion

Nepal's hydropower future can change the country's energy scenario, diversify energy resources and make it a hydroelectricity export hub in the South Asian region. However, based on findings presented in this research, sustainable hydropower must also mean the elimination of harm that it has and continues to cause to people and the environment. Lack of consent in displacement, inability to benefit from development, power production mechanisms that negate the existence of cultural practices all depict a system that puts profits and state-constructed discourses first rather than human and environmental value.

Environmental justice draws awareness to the described inequalities and provides a framework through which Nepal can address such issues. It requires distributive justice on resources, decision-making process, and accreditation of multiple perspectives of Nepali culture. These are not some lofty concepts but real and concrete ideas that should help in designing, implementing, and regulating new hydroelectric power projects.

The core of a just energy transition is the recognition of the need to ensure voice and agency to those who have remained marginalized or disregarded, indigenous peoples, women, farmers, rural people. These are not just individual cases of loss, defiance, and survival, but are the real-life narratives that hold the key to understanding the price paid for development and that can show the way towards a

better and more egalitarian world.

As Nepal lays the ground for the hydropower era, it needs to avoid repeating the mistakes of extractivist development paradigms. Instead, it should take the chance to redefine hydroelectricity as the tool for equality, fairness and inclusion. As Nepal aims to place Environmental justice on the strategy for its energy issue, the country has the potential to pave the way toward change and interpret that development does not mean the infringement of human rights but, the development means the betterment which counts for everyone.

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The authors declare no conflicts of interest regarding the publication of this paper.

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