



Ilia State University
Faculty of Arts and Sciences
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“An unjust transition is not sustainable”¹
Climate Justice and the Effects of Hydropower Expansion
in Georgia under Georgian Dream

CEERES Master’s Thesis

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Abstract

This research examines the prevalence of climate justice in Georgia's hydropower sector under the current Georgian Dream government. Georgia is a country highly dependent on its hydropower resources in efforts to increase its energy security, but how this energy policy affects people and planet is not widely examined.

A discourse analysis of existing literature was incorporated into data from reports and interviews. This research finds that there has been a significant improvement in the legislation which exists around climate and hydropower issues in Georgia in recent years to facilitate a more just energy system, but the implementation of this legislation is severely lacking. As such, there are limited signs of climate justice in the hydropower sector in Georgia.

By applying the three tenets of climate justice; distributive, recognitional, and procedural, this research explores how both people and planet are affected by hydropower expansion, as well as alternative renewable energies which could be included in Georgia's electricity balance.

Keywords: hydropower, climate justice, biodiversity, energy, community engagement

Abbreviations

AA	Association Agreement
EIA(s)	Environmental Impact Assessment(s)
ESCO	Electricity Market Operator (of Georgia)
ESIA	Environmental & Social Impact Assessment
GA	Green Alternative
GD	Georgian Dream
GEDF	Georgian Energy Development Fund
HPP(s)	Hydropower Plant(s)
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LT LEDS	Long-Term Low Emission Development Strategy
MEPA	Ministry of Environmental Protection & Agriculture
MoESD	Ministry of Economy & Sustainable Development
MoF	Ministry of Finance
NCG	Nature Conservation Georgia
PPA(s)	Power Purchase Agreement(s)
SJC	Social Justice Center
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

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Introduction

Georgia is marketed by its ruling party as a particularly water-rich state, with 26,000 rivers across the country (Kvira, 2015). It has a long history of hydropower usage as a result, with the first hydropower plant (HPP) constructed in 1898. During the Soviet period, as part of a united South Caucasus power grid, Georgian hydropower was balanced alongside Azerbaijani fossil fuels, with electricity stability met by Armenian nuclear energy (Opitz, 2018). After the collapse of the USSR, economic instability largely halted the expansion of hydropower in Georgia throughout the 1990s. This was remedied by a drastic expansion of hydropower projects under the governance of the United National Movement, a trend which has not diminished since. As of 2020, the Georgian government had around 150 HPP projects in various stages of construction (IEA: 12). Hydropower expansion has provided electricity stability which was non-existent in the 1990s, when Georgians experienced electricity cuts for days at a time. Whilst most of the country has consistent access to electricity today, the cost of this is not merely financial. Over the past decades, numerous rural communities have been affected by the construction of dams and HPPs, triggering nationwide protests on multiple occasions, whilst the damage to biodiversity is currently undefinable due to the inability of the government to track biodiversity loss.

Hydropower expansion predates Georgia's international commitments to climate action, as well as the worsening effects of climate change, and thus cannot be considered as a primary motivator for renewable energy expansion. As a historic client of Russian energy, Georgia has long been aware of the petro-power wielded by its neighbour (Newnham, 2011: 138). Thus, the motivation to expand its hydropower capacity is driven primarily by a desire for energy independence, rather than environmental concerns.² The fact that successive Georgian governments over the past two decades have continued to endorse hydropower regardless of ideological differences highlights the importance of availing themselves of Russian petro-power. However, the consequences of relying solely on hydropower, rather than a balance of different renewable energies that Georgia's natural climate lends itself to have not been adequately explored in political science literature. This makes Georgia an interesting case study, as despite significant progress in the expansion of hydropower, concerns for the climate have not been at the forefront of this process.

² Margalita Arabidze, interview with author, Tbilisi, 12 July 2023.

From a climate justice perspective, all discussions and analyses of energy policy should account for the impact that these policies will have on the human and natural environment, with recognitional justice ensuring that due value and consideration is given to the effects of energy policies on both people and planet. Ignoring the ramifications of these policies on local communities and habitats will prove disastrous if similar policies are applied on an international level. Very few countries source such a substantial proportion of their electricity from hydropower, allowing for the impacts of Georgia's energy policy to be more clearly observed and analysed. As Bréchet & Tulkens note, both the costs and benefits of renewable energy differ on a local and national level (2015: 163). Thus, this research seeks to examine the effects at a local and national level from a climate justice perspective, before moving to consider whether alternative electricity policies could mitigate the negative effects of continued hydropower expansion.

The central question that this research seeks to answer is to what degree is climate justice visible in the Georgian hydropower sector? Furthermore, can Georgia utilise other renewable energy sources to achieve energy independence in a more sustainable and just way? Ultimately, this research not only seeks to explore a topic that has been overlooked within political science academia, but combine it with research in other fields to present a comprehensive picture of Georgia's hydropower sector and renewable electricity potential.

The concept of climate justice is one of many variants which explore the importance of respecting the needs and rights of both people and planet in the transition from fossil fuels to renewable energy. Core conceptualisations recognise that the climate crisis is not only an environmental issue, but a political, economic, and social one as well (UNEP). As Williams and Doyon note, climate justice is essential because political support for climate policies will decline over time if justice is not considered within legislation (2019: 143). The ramifications of the deficit of climate justice in Georgia's hydropower sector is clear today, as hydropower is an increasingly contentious political issue, due primarily to the injustices experienced by those affected by it. The concept of climate justice provides a progressive framework within which to place Georgia's electricity production. This is important to do, particularly in the context of distinctly unjust transitions being observed in industries like coal mining, highlighting the importance of learning from these mistakes when transitioning to renewable energies (ibid.: 152).

Climate justice is a relevant issue of examination for multiple reasons. First, whilst countries in the Global North are historically responsible for the majority of carbon emissions, and should thus bear the greatest burden in the transition to a fossil fuel free system, all countries will have to decarbonise their economies and energies completely in the coming decades. Georgia, despite not being historically or contemporarily responsible for disproportionate carbon emissions, has made more progress towards a renewable electricity balance than many of the countries which bear more responsibility than it. Brechin acknowledges that countries such as Georgia reducing their greenhouse gas (GHG) emissions will not make a substantive difference to combatting climate change (2016: 859). Nevertheless, as a country with a small territory and population, examining trends in Georgia can be used to act as an indicator of the effects of similar transitions in other countries should they opt to rely on hydropower in the way which Georgia has done.

One reason that this research is necessary is the dearth of English language literature on the consequences of hydropower expansion in Georgia. Academic focus centres on the mobilisation of civil society against construction of new HPPs, which, whilst also important, will thus not be included in the scope of this research (Dundua & Karaia, 2019). Furthermore, there is limited raw data which exists, in any language, on certain aspects of this topic. If governments and NGOs are both unable, or unwilling, to monitor biodiversity loss in Georgia, then the true scale of the damage cannot accurately be stated. The reasons behind this, and their consequences, will be discussed in greater depth in the coming chapters.

Due to the limited public information on the national hydropower sector, two specific HPPs will primarily be used to explore the effects of hydropower on both people and planet. Khudoni HPP, which was halted in 2013, and Namakhvani HPP which was halted in 2021. Namakhvani HPP Cascade consisted of Upper and Lower Namakhvani HPP, with both HPPs having a combined capacity of 433 MW and was expected to produce 1514 GWh of electricity per year. Khudoni HPP would have an installed capacity of 638 MW, with expected generation to be 1445 TWh annually.

Both projects are large HPPs, and their construction would have significant consequences on the surrounding regions. The nationwide attention of both projects, as well as the concerns around their viability, led to construction being halted on both projects. However, the Georgian government still intends to construct both projects. Thus, evaluating the potential

consequences of these specific, as well as for small and medium HPPs, is beneficial to combine multiple fields of research on the effects that their implementation would have.

The Methodology of this research will be detailed in the following chapter, followed by a Literature Review of relevant research conducted on the topics related to hydropower in Georgia. An exploration of the political aspects of hydropower will provide context for the injustices which are chronic not only in hydropower, but across the Georgian economy. This will be followed by an analysis of the effects of hydropower expansion, first exploring the direct and indirect consequences for local communities, then the consequences for biodiversity. A subsequent examination of other renewable energies, primarily wind and solar, will be conducted, to establish whether there are indeed alternative renewable energy balances available to Georgia.

Chapter 1: Methodology

The primary purpose of this research is to examine to what degree climate justice is present in the Georgian hydropower sector. Bringing the environmental concept of climate justice into political science discussions of energy policy is an essential addition to existing literature in these fields. This research will focus on the political, social, and environmental impacts of hydropower expansion. An interpretivist approach will be utilised, by conducting discourse analysis of existing literature on hydropower in Georgia, reports on the effects of climate change in Georgia, and linking this to existing literature on the effects of hydropower expansion in other countries, to provide a foundation for analysis. This will be supplemented by semi-structured interviews with Georgia-based academics and NGOs whose research and expertise focuses on topics related to this research.

This approach allows for multiple fields of research to be brought together within the Georgian context. This will contribute to the English language research in the Georgian energy sector, as well literature which applies the concept of climate justice to the analysis of hydropower.

This research facilitates a long-term evaluation of the hydropower sector, as with only one government in power since 2012, there have been no opportunities for ideological shifts in energy policy that would be more likely with changing ruling parties. The principal priority for the current government is not decarbonisation, but energy security,³ and this is essential to understanding how the hydropower sector has become as damaging as it is. Achieving both in tandem is possible, but when the latter is pursued at the expense of climate justice, the consequences could be catastrophic.

Georgia is an interesting case study for multiple reasons. It is a relatively small state, and highlighting the consequences of hydropower use on this scale emphasises the danger that ignoring the tenets of climate justice can hold if similar energy policies are adapted on a global scale. Despite its small size, hydropower accounts for such a substantial proportion of Georgia's electricity supply that it can, and should, be evaluated within the context of climate change. Hydropower is one of the main sources of renewable energy, and is expanding globally (IEA, 2021: 8). Yet, the full scale of its impacts are not widely discussed, nor truly

³ Margalita Arabidze, interview with author, Tbilisi, 12 July 2023.

understood on an international level. There is an increasing body of literature which focuses on the negative impacts of hydropower, and important discussions on the degree to which hydropower can be considered a sustainable energy source are beginning to take place, particularly when applied to the Global South.

From an energy policy perspective, Georgia is a useful case study as the ruling government under the Georgian Dream (GD) party has been in power since 2012. With over a decade in office, this case offers a sufficient time scale for an energy strategy to be formed and implemented, as well as identify patterns in the processes and problems which emerge within the sector as a result. The majority of the international climate legislation has also been signed by GD, most notably the Paris Agreement (2015), and the legislative commitments which accompany Georgia's Association Agreement with the European Union (AA). As such, evaluating the hydropower sector from the beginning of the GD government is a logical and achievable time frame to analyse this issue.

To conduct this research, academic research on the hydropower sector in Georgia was conducted, supplemented by specific research around the consequences of hydropower for communities and biodiversity in other countries due to lack of research conducted in English on this issue in Georgia specifically (Bogner et. al., 2009; Sheppard, 2020). Particular efforts were made to consult theoretical literature written by scholars from the Global South, so as to not provide an overly Western perspective of energy transitions. Reports from Georgian-based NGOs were also consulted, as they are one of the principal sources on climate change in Georgia available in English, to evaluate the progress being made on mitigation and adaptation strategies in Georgia. Reports were selected from reputable Georgia-based NGOs, focusing on specific HPP projects or themes within the hydropower sector. An evaluation of this is detailed in the Literature Review. Project documentation was also consulted where available, including Environmental Impact Assessment documents for HPPs which have been translated into English. Following this, interviews were conducted with Georgia-based academics and NGOs who have expertise in hydropower in Georgia, government energy policy, and justice-related issues, to gain an in-depth understanding of the context in which energy policy is decided and how those consequences are felt. Interviewees were given the option to be named, either with or without the organisation they were connected to, or to remain anonymous. The majority of interviewees agreed to be named alongside the

organisation they work for, but a small number preferred to remain anonymous or be referred to only by their name.

Interviews have been selected as the primary method of data collection as there is limited existing data available in English, and discussing these issues with people who have a scientific, or sector-specific understanding of hydropower will increase the validity of this research's findings. Interviews began with a set of introductory questions which focused on Georgia's hydropower sector more broadly. These were followed by specific questions focusing on areas which the interviewees specialised in, such as biodiversity preservation or the structural risks of hydropower.

This is the most practical method of conducting this research for multiple reasons. Taking Georgia as a single-case study allows for a greater degree of depth into an issue which is severely under-examined in English language academia. As mentioned, there is simply not enough research on the consequences of hydropower in Georgia beyond examinations of the protests against hydropower, so other case studies are the best way of establishing whether patterns exist within hydropower states, and if this can also be applied to Georgia. This method also allows for multiple fields to be directly interlinked in a comprehensive manner. The fields of energy policy, biodiversity, climate science, and social justice, have rarely, if ever, been brought together in a study of this kind. Evaluating climate change through one or some of these lenses does not create a comprehensive image of the issue.

This research does not seek to criticise the use of hydropower, nor of the Georgian government's pursuit of energy security, but to highlight the issues which arise when climate justice is not considered and implemented within the transition from fossil fuels to renewables. By highlighting negative consequences of ongoing transitions, they can be mitigated in future, both in Georgia's continued divestment from fossil fuels, and for other countries which have not made as much progress in expanding their renewable energy generation as Georgia has.

By conducting interviews with a range of NGOs, the knowledge of individual aspects of hydropower expansion in Georgia was collated into a cohesive study which highlights the consequences of the absence of climate justice in the renewable energy sector. Some NGOs focus on a variety of environmental issues, others focus on preservation of wildlife, and others focus on the legal aspect of hydropower development. Specific efforts were made to

ensure a gender balanced group of interviewees within the expertise of organisations, with recognition that climate change has different consequences for different genders.

Interview participants were recruited through NGO and university websites. A total of 12 people were interviewed in person in Tbilisi, with an even split between men and women. Five interviewees were affiliated with NGOs, three were from governmental ministries, and four were from academic or research institutes. Participants were approached via email, which was either listed on the respective NGO or academic website, or was passed on by another interviewee, where the aim and focus of this research was explained, and a formal request for an interview was extended. Having received ethical approval from the University of Glasgow to conduct these interviews, a consent form, privacy notice, and plain language statement were sent upon respondents' agreeing to participate in the research. A small number of interviewees also requested interview questions to be sent in advance. Interviews were limited to NGO staff, academics or researchers, and government ministerial staff, all of whom were over the age of 18, with competence to provide their consent. They were all professionals with multiple years of experience in their respective fields who were able to discuss the key themes of my research. As such, the risks involved in this research were low. Interviews were conducted in English. All academics and NGO staff contacted have published works in English, or work for an organisation in which English is a working language, so had sufficient proficiency to conduct the interviews without the need of a translator.

There is a growing body of literature on the effects of climate change in Georgia which is written in Georgian. However, very little of this has been translated into other languages. As the researcher does not have a comprehensive enough knowledge of Georgian language to translate academic literature, this has limited the scope of research to works which were written or have been translated into English. Similarly, fieldwork capacity was limited due to the linguistic and financial obstacles to conducting interviews with members of local communities in Georgia who are most immediately affected by hydropower expansion. Being able to visit and interview members of affected communities would have added a greater depth of analysis around how communities are affected, but as this research was not funded, paying for an interpreter was not feasible. Instead, interview participants who have spoken to communities near proposed HPPs as part of their own work or research were interviewed to bridge this gap. Interview participants who were comfortable speaking in English were

approached, and participants were offered the opportunity to provide written responses if they felt more comfortable writing in English rather than speaking.

As will be elaborated upon in Chapter 4, a consistent lack of reliable data has presented difficulties in establishing the scope of biodiversity loss in Georgia as a result of hydropower expansion. Without the necessary fieldwork conducted either by academics, NGOs, or government bodies, conclusions in this research will be based on data which is available. Regarding climate studies more broadly, this research seeks to address the local, national, and international ramifications of hydropower reliance. As Bréchet & Tulkens note, considering an international issue such as climate change only on a national level, overlooks important aspects of this issue (2015: 156). However, due to the lack of existing research on this specific topic, the depth with which this can be achieved within the parameters of this research is limited.

As the Literature Review will expand upon, examining only one aspect of this issue will result in overlooking other key elements. Climate change is an intersectional issue, as it compounds existing socio-economic and political inequalities, and thus requires responses which address these issues collectively as well. Similarly, its consequences should be considered in the same manner. Whilst climate change is, and will continue to, affect Georgia in a multitude of ways, beginning with energy policy is a logical starting point as decarbonisation is the most urgent step to reducing global GHG emissions. Examining multiple elements of hydropower in Georgia presents a significant challenge, but this research is nonetheless necessary to produce a foundation for further development. This case study could be compared to other countries with similar levels of hydropower usage to identify common issues and provide solutions for other countries to implement. Existing research, which will be discussed in the Literature Review, provides a basis for this comparison, whilst also highlighting why climate justice is an essential conceptual framework for issues of this nature.

Chapter 2: Literature Review

Existing research on hydropower in Georgia which has been written in English is incredibly limited. Of the existing literature, focus is largely given to the mobilisation of civil society and protest movements against HPPs (Dundua & Karaia, 2019; Antadze & Gujaraidze, 2021), and thus largely overlooks the human cost of hydroelectric expansion, the damage to biodiversity, and the alternative energy options Georgia possesses. There are multiple reasons for this, primarily the lack of reliable data on the extent of the damage caused by hydropower reliance. Biodiversity loss and community resettlement are not monitored, yet hydropower is assumed to be the most stable and viable renewable electricity source by the Georgian government. This chapter will first consider different conceptualisations of justice in relation to environmental issues, before turning to existing literature which has applied different justice frameworks to hydropower expansion in other countries.

2.1 Climate Justice

Climate justice emerged in the 1990s, and has gained traction as technological innovation has proven insufficient to prevent the devastating effects of climate change (Jafry et al., 2019: 2-3). There are two main aspects to climate justice: a grassroots social movement which demands policy makers integrate justice into their legislation; and a normative inquiry which is embedded into a practice of norms and principles for analysing climate change (Boran, 2019: 27). As a theoretical framework, this research will take the three-tenet approach to justice as the basis of analysis within climate justice. Distributive justice refers to the equitable sharing of positive and negative effects of climate change. Focusing on hydropower, this can be perceived in the affordability of electricity and water and who has access to it, as well as the balance between communities who lose resources in favour of hydropower expansion, and what they gain in return for bearing this burden. Recognition justice focuses on who and what is valued and respected within a system, and who is not. In the hydropower sector, this is central to analysis of the lack of consideration for biodiversity, for the concerns of civil society, and the prioritisation of attracting investment in the sector over ensuring the viability of HPPs. Finally, procedural justice is centred around the ways in which decisions are made, who can participate in the decision-making process and who cannot, and who has access to the formal justice system. This is visible in analysis of who is able to participate in the hydropower development process and how transparent that process is. These elements are intrinsically linked: those who are subject to distributional injustice

will thus have the fewest resources to access recognitional or procedural justice. Similarly, procedural injustice sustains recognitional injustice (Wood, 2023: 3). As von Lucke et. al., recognise, taking abstract principles and turning them into policy is a very complex process, and assigning responsibility is easy in principle but significantly more complex in practice (2021: 15). In this regard, climate justice is the most politically and socially progressive framework, but addressing these elements of climate justice in parallel requires such action.

2.2 Energy Justice

Core energy justice literature uses the same three concepts of justice as climate justice, and has been the conceptual framework preferred by academics for analysis of energy systems across the world. Energy justice is conceptualised by Sovacool et. al. as 'a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making' (2017: 677). By seeking to apply social justice concepts to energy systems, energy justice seeks to explore how justice can inform climate and energy policies. Justice and energy are indeed closely linked, as the costs of climate change will disproportionately affect communities who are the least economically developed, whilst the benefits will be reaped by those who are already affluent. As a framework, energy justice highlights injustices, identifies who is affected, and what systems function to remedy those injustices. Crucially, it does so separately, where climate justice recognises these as processes that are intertwined. This framework also disproportionately focuses on the human world, and overlooks the effects of biodiversity, a crucial element of the Georgian hydropower case.

Furthermore, as Sovacool et. al. note, energy justice literature is dominated by Western scholars, with an understanding that energy systems should serve humans, whilst failing to account for how this view will affect non-human life (2017: 678). The majority of academic literature on energy systems and their environmental issues use energy justice as a conceptual framework, so it is important to highlight where it differs from the framework used in this research.

Climate justice is intersectional in a way in which energy justice falls short. It acknowledges that climate change affects people differently based on their age, race, class, or gender (Tokar, 2019: 16). As a social movement, 'for people and planet' is the central goal of activists. This informs the key difference between climate justice and energy justice. For energy justice, analysis of energy systems only considers the effects on biodiversity to be of

conditional importance, and is not usually referred to within academic literature. When considering the justice of an electricity system which is reliant on water, overlooking the consequences this has on biodiversity is nonsensical.

2.3 Environmental Justice

Climate justice and environmental justice have developed alongside each other over the past decades. Environmental justice is centred on the idea that those who are already disadvantaged, whether it be because of their race, nationality or income, should not suffer disproportionately from negative environmental impacts associated with transitions (Williams & Doyon, 2019: 146). Environmental justice focuses on the procedural aspect of justice, and refers to the fair distribution of burdens and gains of climate change in a system. However, because of the Western-centric scholarship on this issue, these conceptions are also based on the assumption that the system in question is a liberal democracy (Giacomini, 2022: 36). As Sayan also highlights, ‘justice’ broadly refers to marginalised peoples, but rural communities are not included in these definitions (2017: 1511). This is particularly important for this case study, as rural communities often face the most direct impacts of hydropower expansion. Environmental justice and climate justice are similar when considering them as social movements, but they diverge in academic understanding of who and what justice applies to.

2.4 Justice? According to whom?

Understanding of justice in relation to environmental issues has evolved significantly over the last few decades. Early liberal justice theories conceptualised justice as the fair distribution of goods and benefits within a system (Rawls, 1977). This was advanced by Schlosberg, who took inspiration from the environmental justice activist movement, expanded this understanding of justice, defining it as the ‘equity in the distribution of environmental risk, recognition of the diversity of the participants and experiences in affected communities, and participation in the political processes which create and manage environmental policy’ (2004: 517). He argued that this expansion was necessary as Rawls’ interpretation only focused on the sharing or distribution of goods and ills, but did not examine why people were unequal to cause such redistributions to be necessary.

Schlosberg was, and is still, an environmental justice scholar, but his understanding of the trivalent nature of justice aligns reasonably well with social and academic understandings of climate justice today. Somewhat ironically, Schlosberg’s work also laid the foundation for the three-tenet approach of energy justice, conceptualised by McCauley et. al., (2013) as detailed

above. Energy justice scholars based their core theories on the importance of the interconnectedness of procedural, recognitional, and distributive justice, but as the field has expanded and developed over the last decade, the understandings of these three tenets have strayed from this considerably. More recent literature on energy justice (Zhao et. al., 2020; Jenkins, 2018) considers these tenets as separate entities within energy justice, straying entirely from the activist-based conceptualisations that they originate from. As Wood emphasises, understanding the scale and scope of (in)justice requires being aware of how these aspects of (in)justice are intertwined (2023: 4). This complexity is inherent in discussions of climate change and climate justice: the severity, scale, asymmetric vulnerabilities, dispersion of causes and effects, and uncertainties, are not uniformly developing on a local, national, or international scale (Luzzatto, 2022: 56). Just as understanding of justice has evolved, so too has the scope of climate justice expanded, to account for the growing number of environmental issues faced across the globe.

2.5 Intergenerational Justice

The temporal element of climate justice cannot be overlooked. Climate change has different effects on specific groups now, and will continue to do so in the future. Core conceptualisations of climate justice include the acknowledgement that there is a spatial injustice in the distribution of resources and of wealth between the Global North and South, but the temporal differences are also key (Tamoudi & Reder, 2019: 58). There are some scholars who argue that intergenerational climate justice cannot be applied to groups who cannot be identified and people who do not yet exist, as the kind of lives and challenges that future generations will face cannot be predicted (Luzzatto, 2022: 3, 6). However, not only does this reflect an advocacy for slower and less radical, albeit cheaper, climate action strategies from opponents of intergenerational climate justice, it is also not entirely true. Georgia faces the very real possibility that continuing glacial melt and global temperature increases will result in finite water resources being required for irrigation and agriculture, consumption, and electricity. To wait and see if this becomes a reality before responding is dangerously negligent, and entirely unjust for those who will be responsible for making those decisions in the future.

In more literal terms, the time at which policy makers and construction companies choose to engage with civil society and local communities is also incredibly important from a recognitional justice perspective, as in Georgia and internationally, communities are not engaged with at an early enough stage of the project development process to affect how HPPs

are implemented. This was an issue highlighted in research from Lord et. al., on proposed hydropower expansion in the Himalayas, where over 400 large HPPs are planned, yet are facing opposition in part due to the poor timing of both formal and informal communication between developers and locals (2020: 6).

The timeline policymakers choose for their climate policies is also essential in determining the pace at which reforms need to be implemented and how radical the transition to a sustainable society will be (Williams & Doyon, 2019: 146). Delina & Sovacool note the importance of academic discussions of this issue to also account for the urgency with which climate related policies need to be implemented (2018: 2). These decisions will undoubtedly affect current generations' way of living, but also the quality of life that future generations will be able to enjoy. In Georgia, implementing policies which allow the country to meet its climate targets and ensure long-term energy stability will rely on having sufficient data to inform policymaking. Data gathering is time-sensitive, particularly as additional time is needed to draw trends from the data once it is gathered consistently. This is a long-term process, but it is essential for the preservation of biodiversity.

2.6 Gender Equality

Gender equality cannot be overlooked here either. Just as there is a clear gendered aspect to the ways in which people experience and adapt to climate change, these patterns are also visible in the responses to climate change (Simcock & Mullen, 2016: 2). Across the world, women are still disproportionately burdened by household management and caring responsibilities (UNFCCC, 2023). Thus, they are impacted by climate change more acutely as they are less likely to be employed and ergo, at greater risk of climate change induced poverty. This, coupled with hydropower induced resettlement, results in women often being more adversely affected by this displacement. Limited research has been conducted on the gendered effects of hydropower expansion in Georgia specifically, and it is outwith the scope of this research to fill that gap. Nonetheless, gender equality is an important element to consider within the process of hydropower expansion and energy transitions.

2.7 Non-Western Scholarship

Contemporary expansion of hydropower is driven by the Global South, as hydropower does offer economic and developmental benefits. As such, focusing solely on Western academic research does not provide a comprehensive understanding of the effects of hydropower expansion. One aspect of this topic to consider is that theories and conceptualisations of

justice cannot be universally applied, as they have been predominantly developed by Western thought systems (Giacomini, 2022: 27). In examining the relationship between Indigenous peoples and climate justice, Giacomini highlights multiple key discourses, specifically utilising non-Western theories of justice to do so.

This is particularly relevant for the Svans in Georgia, whose culture, history, and traditions have been tied to Svaneti for over a millennia. One of the key aspects of climate injustice for indigenous people is the inability of current and future generations to live in the way their ancestors did (Giacomini, 2022: 30). As will be discussed in Chapter 5, the ways in which hydropower expansion is intended in Svaneti poses a serious threat to the ability of future generations to do this.

2.8 International Trends

As previously stated, the majority of literature on the effects of hydropower focus on the socio-economic consequences for people, in part due to the use of energy justice as a theoretic framework. As such, the main point of comparison between Georgia and other cases is in the ways that communities are affected by hydropower expansion. Hydropower is growing rapidly across the globe to meet increased electricity demand, with this trend driven by countries in the Global South (Mayer et. al., 2021: 1).

Zhao et. al. (2020) conducted a study of the socio-economic consequences of hydropower expansion in China using an energy justice framework. They examined how local governments were broadly unequipped to plan long-term resettlements, that the land of those displaced was undervalued, that rural communities who were resettled to urban regions were ill-equipped for urban employment, and that the loss of social wealth was not appreciated or accounted for in the resettlement process (ibid.: 2). Most of these aspects are also prevalent in Georgia, as will be discussed in greater detail in Chapter 5, but the undervaluing of land in particular is generally a point of divergence.

Mayer et. al. (2022) conducted similar research which focused on the Jirau and Santo Antonio dams in the Brazilian Amazon. They concluded that hydropower-induced resettlement was a key factor in economic losses for local communities, and that those who lived near dam construction and were indirectly affected were not compensated at all (ibid.: 1). Whilst there is limited information on the former point in Georgia, the latter is a key issue for locals who are affected by hydropower construction, but are not compensated because their homes are not within construction sites. Locals who were interviewed in Mayer et. al's., research also recalled that they were promised job opportunities, increased incomes and

regional economic development from the construction of these HPPs, but none of this materialised. The same is broadly true in the Georgian case.

Sayan's analysis (2017) of how modernisation and urbanisation has created political grounds to justify hydropower expansion at the expense of rural communities displays multiple parallels with the Georgian case. They concluded that being unable to participate in the decision-making process was key to the prevalence of grassroots opposition to hydropower expansion in Türkiye (ibid.: 1516). Again, like the Georgian case, the government portrays rural communities who oppose hydropower as being 'misguided' or 'illiterate' and simply not understanding the importance of the projects in question, whilst ignoring the concerns that said communities were voicing against the HPPs (ibid.: 1520).

One study by Marques et. al., (2015) focused on procedural justice in hydropower expansion, and the positive and negative role it played in their opinions of hydropower policies more broadly. Looking at two HPPs in Portugal, the study highlighted that procedural justice was essential for those who have a strong connection to their home, or share a common identity with their community (ibid.: 65). Parallels here can be drawn with the Khudoni HPP in Svaneti, where concerns cited from interviews included what would happen to the identity of the Svans if HPPs spread across the region and community resettlement destroyed the identity of their people.⁴

There is significant work still to be done to integrate theoretical understandings of climate justice into existing energy policies. This research seeks to begin to fill this gap, but it is an expansive field and academic research continues to defer to energy justice as a framework, despite its limitations. Climate justice is critiqued as being too expansive or naïve in its attempt to address many elements of an issue simultaneously (Jenkins: 2018: 118). However, as the gap between climate rhetoric and climate action grows wider, or in Georgia's case, climate legislation and its implementation, a radical framework is required to halt the damage to the ecosystem, and to ensure that those who are already disadvantaged by the current socio-economic system do not suffer even more. Environmental academics agree on the importance of justice in energy transitions. As Williams and Doyan note, 'an unjust transition is not sustainable' (2019: 143).

The scope of who, and what, this justice can be applied to, is where this research departs from the majority of research on renewable energy and justice frameworks. In the following

⁴ Anonymous interview with author, Tbilisi, 10 July 2023.

chapters, the prevalence of climate justice in policy, biodiversity, and community engagement, will be explored, before moving to consider whether the Georgian government's intention to prioritise expanding hydropower over other renewables is just from a climate perspective.

Chapter 3: Hydropower Policy Problems

The Georgian government has been very successful in branding the country as a water-rich state which is ideal for hydropower expansion (Kvira, 2015). This narrative has reaped consistent hydropower investment from foreign investors, and consolidated the national understanding that hydropower is essential to achieving energy security (Opitz, 2018). However, the processes in which this expansion occurs, as well as the systemic issues in the sector, result in a lack of climate justice despite the vast amount of electricity sourced from renewable sources. This chapter will explore the Soviet legacies which have become entrenched in the current Georgian system, the changing demands on electricity and unchanging seasonality of Georgian water supply, the lack of expertise and transparency in policymaking, and the effects of international bodies in the Georgian hydropower sector.

3.1 Soviet Inheritance, Georgian Problems

Georgia's electricity preferences originate from the large-scale Soviet expansion of the hydropower sector. Projects like Namakhvani HPP, Nenskra HPP, and Khudoni HPP date back to the USSR, and despite the entirely different political and economic system, these projects are still attractive to the Georgian government today. Giorgi Tsintsadze, a researcher at the Institute for Social and Cultural Research, who is currently researching the similarities between the Soviet and Georgian versions of these HPPs, reviewed the planning documentation for both sets of projects, as well as archival material, to compare the projects. He found that Khudoni HPP is very similar to the initial Soviet design; Nenskra HPP was also similar, with the location of the plant changing as geological research highlighted changes in the landscape; whilst multiple versions of the Namakhvani HPP existed even in the Soviet period, and have evolved more than the other two projects.⁵

What is particularly interesting from his research, is that the Soviet planning documents indicate a greater degree of rigour regarding hydrology, meteorology, and geology, when evaluating the environmental risks of these projects, than the current Georgian government implement. This, Tsintdadze attributes to the Soviets' absence of the need to construct projects at the lowest cost.

The Soviets did however, show a similar lack of regard for the communities who would be displaced by these projects, and as Tsintsadze noted, Soviet projects did not have to engage

⁵ Interview with author, Tbilisi, 18 July 2023.

with the views of local communities because opposing the government freely was not possible. Multiple interviewees also suggested that had these projects not been a continuation of their Soviet-era counterparts, entirely different HPPs could have been designed instead, which may not have triggered the same negative responses from civil society and local communities.

Whilst very similar HPPs have been repackaged for a neo-liberal, export driven government, the three decades since the collapse of the USSR has provided ample time and opportunity to address the problems with the Soviet system of hydropower expansion. Instead, those problems became entrenched, and these issues have been compounded by independent Georgia lacking the experience for delivering these infrastructural projects, and the expertise to do so safely.

3.2 Supply and Demand of Electricity

The core motivator of Georgia's hydropower expansion is the state's need to become energy independent from Russia. The problem, however, is that expanding hydropower as the government currently plans will not solve this problem. In 2022, electricity imports totalled 1.26 thousand GWh from Russia. However, 0.89 thousand GWh of this was supplied directly to Abkhazia via the Enguri power station (ESCO, 2022). Abkhazia's electricity consumption, totalling 2.94 thousand GWh in 2022, is driven by illegal crypto mining, with companies drawn in by low electricity prices (Sputnik, 2023). The Abkhaz population (around 250,000) meanwhile, still endure rolling blackouts.

Removing Abkhazia's disproportionate energy consumption, though, presents an alternative picture from the one of the Georgian government of hydropower being essential to mitigate the country's increasing electricity consumption and imports (Civil.ge, 2022). Energy consumption in January-April 2023 compared to the same period in 2022 shows a 10% decrease in electricity consumption (Cactus, 2023). In simple terms, Georgian controlled territory does not currently need more hydropower. Planning for future electricity stability is nonetheless important, which is why the Ministry of Economy and Sustainable Development (MoESD) seeks to expand the country's hydropower capacity by 1200 MW by constructing the large HPPs which they intend to use to address the seasonality of the country's current hydropower resources.

One of the primary concerns with expansion of hydropower, both in Georgia and internationally, is its seasonality. River flows are larger in the spring and summer months, but

shrink in winter. With 80% of Georgian hydropower produced by run-of-river HPPs, there is limited sustainability or stability in supply of electricity.⁶ As a result, surplus electricity is exported in summer, but winter deficits of electricity production result in the importation of energy. According to interviews with representatives of the MoESD, electricity imports have increased over the last 5-10 years, but hydropower is still central to the future of electricity development and energy security.⁷

‘They [the Georgian government] are recognizing the fact that Georgia faces seasonal deficits due to this, our river specifics. They’re saying that they have winter deficits and hydros cannot do much there during the winter deficit times. But they still want hydros.’⁸

The seasonality of Georgia’s water supplies will become a more critical issue, particularly for its run-of-river HPPs, as the effects of climate change become more pronounced.⁹ The government’s intention to build large HPPs with water storage capacity, would, according to them, provide a stable electricity supply through the winter. Whilst multiple interviewees acknowledged that there is viability in this plan, the ways in which this has been attempted is where conflicts between the government and civil society have emerged.¹⁰

3.3 Lack of Expertise

One of the critical obstacles to implementing a just transition for the hydropower sector, is the chronic lack of expertise to inform policymaking. Whilst there was a large network of reputable energy institutions in Soviet-era Georgia, these organisations collapsed along with the USSR. Since the revival of hydropower in the mid-2000s, successive governments have failed to reestablish this scientific landscape. This, according to Tsintsadze, ‘cripples any efforts at articulating or pursuing a consistent policy in hydropower.’¹¹ These sentiments were shared by one hydrologist who questioned how the government could consider their hydropower expansion to be a strategy when there are not enough meteorologists, geologists,

⁶ Run-of-river HPPs do not have dams or reservoirs to store water, and are thus reliant on natural river flow to supply electricity. They are considered to be less environmentally damaging because of this.

⁷ Margalita Arabidze, interview with author, Tbilisi, 12 July 2023.

⁸ Dato Chipashvili, interview with author, Tbilisi, 23 June 2023.

⁹ Glacial run-off, one of the major sources of rivers in the country, is discussed in the next chapter in greater detail.

¹⁰ This will be discussed in chapter 5.

¹¹ Interview with author, Tbilisi, 26 July 2023.

hydrologists, or ecologists working for the government or independently elsewhere in the country to safely implement the hydropower expansion they are seeking.¹²

The Georgian government lacks the expertise and the competence to pursue socially just policies, because they have not made sufficient efforts to restore and bolster the institutions that can conduct and analyse relevant data to ensure safe and coherent electricity policies. This lack of expertise has expensive consequences. The 185 MW Shuakhevi HPP was operational for mere weeks before its tunnel collapsed in eight places in 2017. Although the official justification for the disaster was ‘unpredictable geological processes,’ it was later discovered that this could have been easily avoided if appropriate geological studies had taken place, except geologists were conducting analysis as the tunnel was being dug (GA/CEE Bankwatch, 2018).¹³ Entirely preventable incidents like these will continue to occur so long as there is insufficient expertise and recognitional justice within the state institutions who oversee the hydropower sector.

In parallel with the lack of expertise is the lack of capacity of the current government to actually deliver the legislation that they have to ensure a more just expansion of hydropower. The Ministry of Energy, which existed until 2017 when it was merged with the MoESD, had a staff of 140 people. According to Nikoloz Kholodov, Chief Specialist of the Energy Efficiency and Renewable Energy Implementation and Promotion Division within the MoESD, their staff is now 27, with the Ministry of Environmental Protection and Agriculture (MEPA) experiencing similar understaffing issues.¹⁴ There simply is not enough capacity within these ministries to plan and execute HPPs without cutting corners; one of which is climate justice.

The political reality of the case cannot be overlooked. Even though there is a severe lack of capacity within the government ministries who are primarily responsible for delivering hydropower expansion, this reflects a lack of political will to ensure that decision-making is not rushed, or stalled, by a lack of ministerial capacity. Procedural justice is crucial in this regard to ensure that decisions are made with full consideration of the consequences, which cannot be done if there is not enough capacity to fully examine and monitor each HPP proposal, to conduct regular HPP site checks, or to investigate complaints of HPPs being

¹² Anonymous interview with author, Tbilisi, 13 July 2023.

¹³ 40% shares of the Shuakhevi HPP are held by Norway’s Clean Energy Invest, which also held a 10% share in the Namakhvani HPP Cascade.

¹⁴ Interview with author, Tbilisi, 12 July 2023.

constructed poorly. Understaffing in the MEPA results in this simply not being possible. Multiple interviewees recognised that this was an issue both for HPPs and for infrastructural projects across the country. Ultimately, climate justice in the hydropower sector will only be implemented if there is the political will to do so, and so long as that is not in the interest of the ruling government, it is unlikely to be integrated into its energy policy.

3.4 Lack of Transparency

From interviews conducted throughout this research, one recurring element of the hydropower sector decision-making process was the lack of sense it made. Questions surrounding the transparency in decision making and the level of independence between construction companies and the Georgian government predate GD coming to power. A report from Green Alternative (2013) examines the involvement of construction company Peri Ltd. and the connections between it, its affiliated organisations, and members of the government. The report highlights that when the process for conducting agreements between the government and companies is not done publicly, and when law enforcement and legislation is weak, conditions for elite level corruption are ideal (ibid.:2).

Whilst the quality of legislation has substantially improved in the past decade, HPP contracts are still conducted in private, and the enforcement of legislation relating to hydropower is particularly weak.

The ruling party has changed since this report, but the concerns of Green Alternative, and other NGOs who were interviewed, have not. On Namakhvani HPP specifically, the lack of transparency was prevalent throughout the process. Despite the contract between ENKA and the government being signed in 2019, it was not made public until 2021 thanks to public pressure and the investigation of journalists. Aside from the multiple legal violations committed throughout the Namakhvani project, the Ministry of Finance (MoF) refused to grant a positive opinion of the project due to the fiscal risks it carried.¹⁵ Without positive opinion from the MoF, the project should have been halted before the contract was signed. The Ministry of Justice also criticised the contract, and recommended that the contract be amended, but this was ignored. This, in combination with the fact that there is no evidence that a cost-benefit analysis document was ever produced for the project, raises questions over who was to benefit from the project, if not the local people or the country. One interviewee

¹⁵ One interviewee noted that after the IMF had specifically criticised the reliance of the Georgian government on granting PPA for its infrastructure, the Ministry of Finance may have been influenced by this in their negative views on Namakhvani HPP, which also had a PPA.

referred to the European Energy Community's concerns that corruption was prevalent in the Namakhvani HPP, highlighting that ENKA were to be paid for the estimated installed capacity, even if the real generation was less.¹⁶ Questions around the transparency of decisions made in the hydropower sector raise concerns about the procedural justice present in the fairness and legality of the process, as well as the lack of recognitional justice in the ignorance of civil society in the decision-making process.

3.5 Energy Security

With an average of 85% electricity in Georgia sourced from hydropower, examination of why the government is committed to expanding even further is particularly important. According to Margalita Arabize, Head of Energy Efficiency and Renewable Energy Policy and Sustainable Development Department in the Ministry of Economy and Sustainable Development of Georgia, 'our key policy in Georgia is the maximum transition of the local renewable energy.'¹⁷ As to why energy security is such a high priority for the government, Arabidze pointed to the political situation within Georgia's neighbours, which she described as 'not fine.' Thus, Georgia's inability to rely on its neighbours has made securing a reliable domestic supply all the more important to Georgia's energy security.

The critical lack of data in the sector proves a key obstacle to achieving this security in a just manner. Georgia's Ten-Year Network Development Plan 2023-33 indicates that 169 HPPs will be built in the next decade, increasing the installed capacity of the country by 3858.6 MW (2023: 26). However, there is no publicly available data on the prioritisation of construction for these HPPs over the coming years, and thus no ability to predict what Georgia's domestic electricity generation will be and how much will have to be imported. According to Salome Shubladze, Director of the Social Policy Programme at Tbilisi based NGO the Social Justice Centre, 'that is why it is really difficult to engage in a conversation on energy security [...] because we don't know how much we need and we don't know how much we will have.'¹⁸ She also added that there is no data on how much domestic electricity supply is driven by crypto mining, and how much is from general population consumption, another critical issue which the government does not seem to account for within its energy policy.

¹⁶ Anonymous interview with author, Tbilisi, 26 April 2023.

¹⁷ Interview with author, Tbilisi, 12 July 2023.

¹⁸ Interview with author, Tbilisi, 17 July 2023.

Energy security is essential for the lives and livelihoods of the Georgian people, but the way in which it is achieved must consider distributive and recognitional justice in the protection of those lives and livelihoods as well. Georgia is a water rich country, but in the endeavour to ensure Georgia does not need to rely on electricity imports from its neighbours, the government has instead outsourced the expansion of the hydropower sector to other countries through Build, Own, Operate (BOO) agreements. This paradox of Georgia's energy sovereignty sees the development of hydropower reliant on foreign companies and investors. A Build, Own, Transfer (BOT) model, has been used by other countries such as Turkmenistan and Malaysia which also lacks the financial and technical expertise that Georgia has, to utilise FDI to finance infrastructure projects and after a period of time, transfer ownership of the project to the government (Durdyev & Ismail, 2017; Hensley & White, 1993). A BOO model has no conditionality in its agreements or assurance of public interests, meaning that the government increases hydropower capacity through FDI, but the economic benefits are predominantly reaped by the foreign investors. By using the BOO model, rather than the BOT model, the government has privatised much of the hydropower sector in a manner which is risky both for the fiscal and environmental health of the country.

3.6 Risk Assessment

Beginning with the risk assessment process for HPPs, there was a clear oversight of the environmental implications of these projects. Namakhvani HPP Cascade, consisting of two HPPs, Upper (Tvishi HPP) and Lower (Namakhvani-Zhoneti HPP) Namakhvani, was founded in 2009, but it was after the BOO was signed between the Georgian government and Turkish construction company ENKA (90% share) and Norwegian company Clean Energy Invest (10%), in 2019 when mass protests against the project developed. ENKA made amendments to the technical characteristics of Namakhvani HPP, thus requiring new permits to begin construction on the project. However, the ownership of 576 hectares was transferred from the Georgian government to ENKA months before either the environmental or construction permits were granted in 2020 (SJC, 2019: 7). These permits were also granted to Lower Namakhvani, and not Upper Namakhvani, before 'crucially important' reports were conducted by ENKA to evaluate the ecological and environmental effects of the project. Thus, it is clear that the Georgian government had decided that ENKA would construct Namakhvani HPP whether it was environmentally safe to do so or not. Whilst the permits were granted on the condition that ENKA produced these reports, the company was fined in January 2021 for still not having done so. There is a clear absence of recognitional justice in

these developments, as the risks were not given the due consideration that they should have if legislation was properly followed, and the transparency in the process was essentially non-existent. Nor was there procedural justice as the contract was concluded without the opportunity for any other stakeholders to participate in the decision-making process. Not only are these developments ecologically irresponsible; they are also illegal. Georgian legislation prohibits interconnected HPP cascade permits to be split as occurred in Namakhvani (ibid.: 39). The granting of the permits for the construction of Lower Namakhvani HPP and not of Upper Namakhvani HPP should not have been possible. The cumulative effects should have been analysed due to multiple projects being constructed on the same river, as well as the three existing HPPs on the Rioni. Not only is there insufficient data on the environmental impact of Upper Namakhvani HPP specifically, but the assessment of Lower Namakhvani does not account for the effect of the other HPP which was still to be built.

3.7 International Outlook

Georgia has set particularly ambitious climate targets, including reaching carbon neutrality by 2050 and a 27.4% share of the whole energy balance to be sourced from renewables by 2030.¹⁹ According to Nikoloz Kholodov from the MoESD, they are ‘working very well with the Ministry of Environmental Protection and Agriculture’ on the implementation of their Climate Change Strategy and Action Plan.²⁰ Given that countries are connected not just by their economies, but by their climate risks, international cooperation is key to delivering international climate justice (Davis, Benzie & Barrott, 2016: 3).

The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention, 1998), of which Georgia is a signatory, commits all parties to engage with the public on environmental issues as early as possible (Article 8). Importantly, options must still be open for the projects in question, including cancelling the project. As will be discussed in Chapter 5, this is not the case.²¹ Multiple interviewees concurred that public hearings and engagement are held merely as a formality, and the spirit of the Aarhus Convention to facilitate *meaningful* engagement with communities is ignored.

¹⁹ In 2023, the share of renewables in Georgia’s energy balance is around 15% according to the MoESD.

²⁰ Interview with author, Tbilisi, 12 July 2023.

²¹ Only rarely is a HPP cancelled after the contract is signed.

The role of the EU is also important in the pursuit of more just climate policies, both in hydropower and other sectors. According to one interviewee, the EU Association Agreement with Georgia (2014), laid the groundwork for the legislative improvements which were needed in the country. Not only has EU support bolstered civil society organisations, including those working on environmental issues, but specific Directives such as the EU Water Framework, EU Habitat & Birds Directive, and the EU Environmental Impact Assessment Directive, should also be implemented in Georgia, setting a higher standard for the government to attain. Most interviewees reflected that the standards which these Directives have set have resulted in significantly improved environmental legislation in the country, although the quality of its implementation, as will be discussed in future chapters, has seen much less success. The rhetoric from representatives from the MoESD may have been particularly positive, but there are still significant disparities between the rhetoric and the reporting from the government.²²

One of the next steps of energy integration between the EU and Georgia seeks to connect the South Caucasus electricity with the EU, through the construction of an underwater cable between Georgia and Romania. One interviewee noted that this may be used to bolster the government's rhetoric around needing to expand electricity production, which the EU may not oppose as there is no consensus on the environmental cost-benefit balance of large hydropower projects within the EU. One hydrologist interviewed noted that the electricity loss along the cable, which could be between 20-30%, may make the whole project economically unviable. When interviewed, MoESD representatives stated that the feasibility study would be completed by November 2023, but they were optimistic about the prospects of the link.²³ Whilst there is concern from NGOs interviewed about the unrestrained expansion of hydropower, it is unlikely that the EU will see this as an obstacle to increased cooperation. Whilst EU conditionality has significantly improved the quality of legislation that exists to support climate justice in the hydropower sector, it seems less likely that further integration will be contingent upon implementing existing legislation.²⁴

One aspect of hydropower expansion which has faced international scrutiny is the prevalence of Power Purchase Agreements (PPAs). PPAs between construction

²² Nikoloz Kholodov, interview with author, 12 July 2023.

²³ Nikoloz Kholodov, interview with author, Tbilisi, 12 July 2023.

²⁴ Whilst interviewees broadly reflected positively on the role of EU conditionality in Georgia, EU climate legislation is not perfect, nor are its Member States meeting all of their climate obligations.

companies and the Georgian government agree a fixed price which the government will pay a construction company for electricity their HPP produces for 10-15 years. These agreements are very beneficial for investors, as it removes much of the risk around large infrastructural projects by guaranteeing a customer, which in turn makes it easier to get credit from banks to fund construction.²⁵ This is common practice in Georgia, but has come under criticism from the IMF because electricity prices could change significantly over a decade so they deem it to be fiscally risky. This also poses an obstacle to distributive justice, as committing to a fixed price for over a decade risks making electricity unaffordable for less affluent households if cheaper electricity sources expand over that period. The Georgian MoF noted that fiscal risks could emerge when the price in the PPA ‘significantly exceeds’ the price of imported electricity (2019: 81). Forecasting electricity prices is difficult in both the short and long-term, as demand is so variable. This, in combination with the falling prices of alternative renewable electricity sources, highlights the issue that the Georgian government could commit itself to pay more for electricity than is necessary given the extended period of PPAs. This cost, once passed on to customers, exacerbates distributional injustice, as some will be able to afford higher electricity prices, whilst others will not.

There have been clear improvements to electricity supply across the country, since the resurgence of hydropower in the past two decades, as well as attracting foreign investment to assist in the economic development in Georgia. With the consolidation of the importance of hydropower to the country’s energy security, the way in which it is implemented from a policy perspective is critical to achieving climate justice. However, the legacies of the USSR which have entrenched poor environmental practices, the lack of expertise and transparency across the sector, as well as the policy commitment to hydropower despite its seasonality, raise multiple concerns for the capacity for climate justice to be included in the current electricity system.

²⁵ The process behind how these PPAs are secured have also raised concerns about corruption and malfeasance within the hydropower sector (Antadze & Gujaraidze, 2021: 6).

Chapter 4: Biodiversity

Healthy ecosystems are vital to all life on Earth. From having access to water for drinking and agriculture, to preserving the forests, flora, and fauna which maintain stable climatic zones, protecting biodiversity is crucial to human and non-human lives alike. However, one of the greatest threats to this conservation is hydropower. In a global context, this can be seen as the natural world being turned into a resource specifically for human consumption, with little regard for how this attitude is affecting non-human life (Sovacool et. al., 2017: 681). For Georgia, this can be observed in the careless expansion of hydropower without meaningful consideration of the damage this policy has done, and will continue to do, to its surroundings. Any measures to mitigate this damage and ensure some degree of climate justice for non-human life seems to only exist on paper. Identifying areas of injustice is more complex when considering non-human life, as biodiversity cannot articulate when injustice is occurring. Analysis of climate justice regarding biodiversity cannot be entirely objective, but when it is an area of energy policy that is consistently overlooked by political science academia, not including it in this study would be ignoring a crucial part of the development of the hydropower sector.

Hydropower relies on a healthy ecosystem, yet its implementation in Georgia is causing damage, both avoidable and unavoidable. It is important to note that no renewable energy has zero effect on the environment around it, but hydropower is proving to have disastrous effects on all forms of biodiversity in Georgia.

One key aspect of climate adaptation policies is the efficient use of water, yet Georgia is in a geographical region which is at risk of desertification (UNDP, 2021: 41). Renewable energy may be a key mitigation strategy, but this should not be at the expense of adaptation, particularly water conservation.²⁶ Energy production meanwhile, has an enormous effect on the non-human world, and has been broadly overlooked by Western scholars thus far (Sovacool et. al., 2017: 681). This chapter will explore the ways in which biodiversity is affected by hydropower expansion specifically, the areas in which climate injustice is visible, and the ways in which this damage could be reduced.

²⁶ Climate mitigation refers to strategies to prevent or reduce the damage caused to the environment. Climate adaptation refers to strategies which adjust to the current and future impacts of climate change.

4.1 Poor Data

The Georgian government has been very successful in marketing the country as being particularly water-rich, which thus makes it perfect for pursuing hydroelectric power (Kvira, 2015). However, just how water rich Georgia is, is a question nobody has an accurate answer to. Whilst the government is consistent in their statement that Georgia contains over 26,000 rivers, when considering the hydroelectric potential of these rivers, only around 300 could actually be used for significant hydropower generation (IEA, 2020: 131). This overestimation of Georgia's water resources manifests in its HPPs consistently failing to meet its projected electricity output. Georgia's largest HPP, Enguri, had a projected output of 5.5 TWh, yet it has only produced over 4 TWh of electricity once in the last decade, with annual generation around 3.5 TWh (ESCO, 2018).

The source of this problem is the substandard water flow statistics utilised. The most recent national level water flow monitoring was completed in 1986 by Soviet hydrologists (Vladimirov et. al., 1991). There were no water monitoring stations at all on some rivers, with estimates being used to produce a measurement of the water resources there instead. As a result, all nationwide data regarding Georgia's water resources, and by extension its hydropower capacity, is either nearly 40 years out of date, inaccurate, or both. A dearth of recognitional justice can be seen in the lack of commitment to ensuring and maintaining data on these critical issues, reflecting a lack of regard for the importance of this work. This can lead to HPPs being built where there is not enough water to meet electricity and existing human demands, a clear indication of distributional injustice.

Today, this practice prevails. For a potential HPP which has no specific river flow data, companies would take the available, but not necessarily accurate, data for a neighbouring river, which would not have anything to do with the HPP in question, to derive the potential capacity and electricity generation of the prospective HPP. According to one hydrologist, water resources are overestimated by 25-30% in some regions of the country.²⁷ As a result, dozens of HPPs do not produce the electricity that they were projected to, because only after the project is completed do the construction company discover how much water is actually in the river. Policies which entrench climate justice for biodiversity cannot be implemented if the scale of the damage that must be addressed is unknown. The lack of recognitional justice is clear, as the preservation of biodiversity is not valued enough to measure what the scale of the damage is in order to address it.

²⁷ Anonymous interview with author, Tbilisi, 26 April 2023.

Melting glaciers have compounded this issue, as between 30-40% of Georgia's glaciated areas have disappeared in the last 50 years due to global warming and reduced snowfall (UNDP, 2021: 36). Glaciers in the Greater Caucasus have shrunk at double the speed between 2000-2020 than they did between 1986-2000 (Tielidze et. al., 2022: 497). This is particularly concerning for Georgia as glacial melt and snowfall contribute significantly to rivers across the country, including those which supply HPPs (ibid.: 490). It is also one of the reasons for the vast difference in river flow between summer when the glaciers are melting, and winter when they are frozen. In the short-term, this would produce an increase in water availability, but it presents a long-term risk that distributional justice will become unattainable due to competing demands for the limited water resources in the country, either for drinking, irrigation, or electricity. If Georgia's water supply shrinks to the point that it is impossible to support the degree of hydropower expected alongside the other demands on the country's water resources, meeting the demands for water resources and implementing climate justice will be impossible, as biodiversity will have been irreparably damaged.

Currently, the lack of accurate data of water flow magnifies the issue of poor environmental flow.²⁸ Again dating back to the Soviet period, HPPs were required to allow 10% of each river to flow past the HPP. However, this 10% environmental flow became the post-Soviet status quo for the Georgian government to apply, although there is no legal requirement to implement it. An assessment of the environmental flows for the rivers of Georgia was conducted by U.S Agency for International Development (USAID), whereby they provided a new methodology for the government to implement to evaluate what percentage of environmental flow was necessary for each river (2017). The report emphasises that it is impossible to provide a single percentage to be applied all year which would maintain the health of the ecosystem (ibid.: 8). As river flow alters within and between years, so too the environmental flow should be applied with corresponding flexibility. This would facilitate more distributive justice, as a stable amount of water would remain in the country's rivers, allowing water resources to be utilised in a more equitable way. However, this has not been implemented, and 10% environmental flow is still applied indiscriminately to all rivers containing HPP. From a climate justice perspective, this can be interpreted as a lack of

²⁸ Environmental flow is 'the quantity, timing, and quality of water flows and levels required to sustain freshwater ecosystems and the human livelihoods and well-being that depend on these ecosystems.' (USAID, 2017: 7)

recognitional justice, as the need for biodiversity to survive is overlooked in favour of expanding electricity generation.

This is something that the Ministry of Economy & Sustainable Development (MoESD) and the Ministry of Environmental Protection & Agriculture (MEPA) are in the preliminary stages of addressing. According to interviews with members of the MoESD, new legislation will be brought to parliament in late 2023/early 2024, to re-measure the water flow across the country, At least 150 gauging stations will be used to take both hourly and daily measurements at multiple points along each river, which will provide data to be extrapolated and provide the basis for a new environmental flow percentage to be calculated. This new percentage will be re-evaluated every 4-5 years, to ensure that the appropriate percentage is still being used to protect the local ecosystem. A new database of water flow for the whole country should be completed by 2030.²⁹ Considering that 90% of Georgia's rivers are currently considered to be ungauged basins, this could be a significant improvement.³⁰ Updated information on the water resources in the country could facilitate more procedural justice, as better-informed decisions on the viability and environmental safety of projects will be possible.

However, the feasibility of this must be considered, given both the small number of trained hydrologists working within the MoESD and MEPA, and that according to one hydrologist, at least 300 people would be required to maintain the 150 stations that the MoESD confirmed would be installed.³¹ ³² They also noted the importance of differentiating between measuring water level and water flow, requiring a cross-section of each river to achieve the latter. If there is any hope of replacing outdated and inaccurate statistics, with new and accurate ones, qualified individuals who can conduct this work will be key.

Even if this is achieved, the government's intention to implement one single percentage of environmental flow ignores the recommendations of the USAID reports, and the clear seasonal differences in water flow. Maintaining the additional burden on rivers in winter when environmentally unsustainable amounts of water are used for hydropower generation, would be a clear sign of continued distributive and recognitional injustice. Instead, a separate

²⁹ Interview with author, Tbilisi, 12 July 2023.

³⁰ Ungauged basin: lacking in both quantity and quality of data.

³¹ Anonymous interview with author, Tbilisi, 13 July 2023.

³² Further correspondence with Nikoloz Kholodoz (MoESD) clarified that there will actually be over 350 water sensors operating throughout the year, and over 500 seasonal water sensors. The concerns surrounding the capacity to monitor these stations properly remain.

summer and winter environmental flow percentage would be a significant step towards a more just and environmentally considerate hydropower sector. However, the MoESD seems to be willing to sacrifice the Sustainable Development for the sake of the Economy.

4.2 Environmental Impact Assessments

Environmental Impact Assessments (EIAs) are the primary method of analysing the potential damage and risks that large infrastructure, including HPPs, could cause. EIAs also include the mitigation strategies which will be implemented by the construction companies to limit or resolve this damage. The MEPA are responsible for ensuring that these mitigation strategies are implemented with regular site visits during construction as well as requiring reports from construction companies throughout the process. The MoESD representatives interviewed were clear that 'they [construction companies] are doing it [EIA] very carefully,' and that there were high fines and penalties for any company which failed to comply with construction regulations, or for constructing without permission.³³

The NGOs and academics interviewed have a differing interpretation of 'very carefully.' The EIAs generally overlook the socio-economic impacts for people, as well as how biodiversity will be affected, due in part to the lack of sufficient data on what flora and fauna are located in different regions in the country.³⁴ Furthermore, because the EIA is conducted based on 10% environmental flow being an adequate amount of water to remain in the natural riverbed, due consideration is not given to the impact of diverting 90% of the water from a river to a HPP. The EIA process displays a clear lack of recognitional justice, as the value of protecting the ecosystem is overlooked across the entire hydropower sector through the insufficient research conducted during environmental assessments. On the whole, the EIA system is not in accordance with the precautionary principle; that if a policy or action may cause harm to the environment or public with no scientific agreement, it should not be implemented.

Currently, this is due to the fact that since 2018, an EIA is only required *after* the government has granted a company permission to construct a project (Tsintsadze, 2022: 2, 4). In essence, a HPP is commissioned before its safety is adequately investigated. As a result, there is no procedural justice in this process, as biodiversity risks are not considered until after a project

³³ Nikoloz Kholodov, interview with author, Tbilisi, 12 July 2023.

³⁴ Maka Bitsadze, interview with author, Tbilisi, 21 July 2023; Lika Jalagania, interview with author, Tbilisi, 4 July 2023.

is confirmed, by which time the ability of these potential risks to affect the hydropower development process is essentially non-existent. When these safety checks do not include biodiversity risks, the distributional injustice does not become clear until after the HPP has been built, by which time there are limited measures to reverse the damage. If sufficient research is not conducted to establish the scope of how a HPP will affect its environment before the project is commissioned, then no adequate steps can be taken to mitigate these effects.

One issue which exacerbates the injustice of biodiversity preservation is visible in the requirements for environmental review of potential hydropower projects. If a proposed HPP has an installed capacity of less than 2 MW, no safety or environmental assessments are required from the government (Law of Georgia, 2017). When asked how many HPPs had been installed with a lower capacity than 2 MW since GD came to power, the MEPA's response was 'more than 28 HPPs' (Nikoloz Kholodov, personal correspondence, 22 August 2023). There are also no measures to prevent companies or individuals from constructing a HPP that has an installed capacity of 1.99 MW, regardless of the ecological damage it could cause. There are also no legislative measures to prevent a company from submitting a proposal for a HPP with estimated installed capacity of 1.99 MW, then later informing the MEPA that the actual installed capacity will be 4.5 MW. Multiple interview respondents commented on the commonality of this practice. There is no recognitional justice in this system, as no value is given to the biodiversity which will be affected by constructing a HPP. From a hydrological perspective, this policy is senseless. An EIA should be based on the watershed and the geographical area that the HPP will be installed on, not the installed capacity of the HPP. As will be discussed in the next chapter, even small HPPs can be incredibly detrimental to biodiversity, and the lack of oversight exacerbates this problem.

The consequences of insufficient EIAs can be clearly observed in Georgia. Namakhvani HPP is in a seismically active zone, and any accidents at the HPP would almost certainly flood the Rioni gorge, which would endanger the local population as well as Georgia's second largest city, Kutaisi (SJC, 2019: 49-50). Construction of Upper Namakhvani would also include deepening the Rioni riverbed, which would increase the risk of landslides in the area (ibid.: 38). In addition, the Social Justice Centre noted that 'the Rioni is a habitat of high conservation value and has special national, regional and global significance for the survival of sturgeons and the restoration of their viable populations.' (ibid.: 51). This highlights the

need for robust environmental assessments to be conducted prior to construction of large HPP like Namakhvani, yet the government only requires these assessments after the contracts are signed and the projects are, in essence, confirmed. There is a visible absence of procedural justice in this regard, as the interests of the government and construction companies are prioritised over the value of preserving the country's ecosystem. So too is the distributional injustice clear in the ignorance of the burden placed on sturgeon and other endangered wildlife in the region.

The MEPA requested additional assessments on the ecological costs for HPPs on the Rioni river to be conducted by ENKA, but this information was never provided, and as the company had already been granted an environmental permit, the government had opted not to utilise its opportunity to implement the ecological standards it is beholden to both nationally and internationally. Here the lack of recognitional justice is clear, as Lower Namakhvani HPP was given permission to be constructed despite the clear environmental risks that the government was fully aware of, displaying a clear lack of regard for the importance of preserving the regional environment. Even if properly investigated and assessed, the expansion of hydropower directly conflicts with the protection and sustainable use of biodiversity (WWF, 2015: 7). Careful consideration of the costs and benefits of each HPP is the best way to minimise the damage to biodiversity and ensure climate justice is also applied to non-human life. However, there are no signs that this is happening under the current government.

The lack of foresight of potential biodiversity damage is an issue which exists across the sector. Considering biodiversity issues as well as HPPs broadly, NGOs and academics interviewed only see the MEPA taking responsibility for the issues with projects after locals have raised the issues with the NGOs. Once NGOs or the media become aware of issues in a HPP, the MEPA finds the political will to address them, despite the fact that a properly conducted and implemented EIA should have prevented the issues from arising in the first place. Due to this, the government usually takes greater care to comply with their own legislation for larger HPPs which are more likely to experience public scrutiny.³⁵ Measures to monitor and mitigate biodiversity risks in smaller HPPs are implemented even more poorly, with cases of some environmental reports simply never being produced. Gamma Consulting, the company employed to independently conduct EIA of the majority of HPPs in Georgia,

³⁵ Salome Shubladze, interview with author, Tbilisi, 17 July 2023.

have been caught by NGOs copying and pasting EIA results, after not changing the name of the HPP they were supposed to be assessing (SJC, 2019). The aforementioned lack of capacity and expertise within the government bears some responsibility for this, but the lack of political will to ensure the legislation that they have put on paper also exists in reality is clearly recognitional injustice. In the Georgian case, there is little evidence to suggest that the expansion of hydropower and its effect on biodiversity is properly assessed or valued, nor that the results of the assessments are fully implemented.

4.3 Natural Disaster Risks

Climate change is a threat multiplier. Already located in a moderately seismic region, hydropower expansion compounds the natural disaster risk in Georgia. Seismic activity increases the risk of landslides, which could damage HPP infrastructure and risk the lives and livelihoods of nearby communities. Whilst one researcher on hydropower expansion's effect on communities argued that this risk was actually very low in Georgia's case, they recognised that it is also difficult to argue against such statements.³⁶ According to the preliminary Environmental & Social Impact Assessment (ESIA), Namakhvani HPP could withstand an earthquake of Mw=7, yet there was not due consideration given to the damage to HPP infrastructure from an earthquake of similar magnitude, nor the landslides that an earthquake could trigger (GA/CEE Bankwatch, 2011: 7).

Dam failures have increased globally since 2005, and maintenance of older dams become essential due to the deteriorating quality and productivity (Patarkalashvili, 2021: 961; Dundua et. al., 2019: 45). Whilst the flood risk may be very low, the overarching concerns surrounding the lack of validity in the safety evaluations for HPP has not assuaged the public of their concerns. If the Lower Namakhvani HPP dam was damaged, a 30m high wall of water would reach Kutaisi in less than 20 minutes (Patarkalashvili, 2021: 961). Not only was this risk not adequately mitigated, but the people of Kutaisi did not have access to procedural justice as they were not engaged in this process, despite the project also having potential consequences for the city too.

Hydropower expansion is also increasing the risk of natural disasters. Rock analysis for the construction of Khudoni HPP dates back to the Soviet period, where it was doctored so that construction could continue. Multiple foreign investors visited the project site and concluded that the rocks were too fragile to drill through safely, yet that did not stop construction for

³⁶ Anonymous interview with author, Tbilisi, 10 July 2023.

TransElectrica (GA/CEE Bankwatch, 2007: 11). Nor did the repeated landslides throughout construction.

There have been very few cases internationally of hydropower related natural disasters, but cases like Italy (1963) have left a lasting apprehension among many scientists and ecologists regarding the effects of natural disasters on hydropower infrastructure (Noniev et. al., 2020: 472).³⁷ Future large HPPs in Georgia will also likely be faced with the concern of infrastructure posing a security risk, particularly following the explosion of the 357 MW Kakhovka Dam in southern Ukraine in June 2023, the full scale of the damage from which is still unclear. Large HPPs can be both essential energy sources and notable military targets. Convincing people of the distributive justice of these projects - that the benefits and the harms will be shared equally - requires procedural justice to be implemented in tandem, facilitating meaningful and well-intentioned collaboration between the government, construction companies, and relevant stakeholders.

Whilst clearly less damaging than continuing to exploit fossil fuels, in many cases hydropower is a renewable, but not sustainable, electricity source. The Georgian government needs to regain the support of the population for hydropower expansion if it hopes to construct these large HPPs, which requires ensuring that HPPs won't accidentally flood the second largest city in the country because appropriate assessments were not conducted properly.

Increases in extreme weather events will cause greater infrastructural damage, human fatalities, population displacement, and increased recovery costs, if measures are not taken to adapt and mitigate these risks. Georgia has spent \$1.2 billion since 1999 on disaster rehabilitation, with the UNDP predicting that without adequate mitigation measures, disaster rehabilitation could cost \$12 billion between 2021-2031 (2021: 52). This issue cannot be considered in isolation. If global efforts to ensure temperature rises below 1.5 degrees fail, then Georgia will undoubtedly experience a further increase in natural disasters and extreme weather events. Not only will this be detrimental to human and non-human health, but it will add additional strain to the hydropower system in the country. Climate justice activists emphasise that those who are already vulnerable within society will be the worst affected by

³⁷ In 1963, a landslide flooded the reservoir in the Vajont River, triggering a megatsunami which killed up to 2,500 people and destroyed multiple villages.

climate change. The scale of biodiversity damage is currently unknown in Georgia,³⁸ but will only worsen as long as decision makers in the hydropower sector continue to place a disproportionate burden on the land and the waters that the country is so reliant on.

4.4 Water

The most visible effects of hydropower on biodiversity are in the waters of the country. As one of 36 biodiversity hotspots, a geographical region of high conservation value, protecting Georgia's biodiversity is of great importance (WWF, 2015: 2). However, Georgian water use standards date back to the Soviet era, and successive Georgian governments have failed to modernise them, resulting in there being no freshwater ecosystem management implemented across the country (WWF, 2015: 42). In addition, the Georgian Red List of endangered species has not been updated since 1982 (Japoshvili et. al., 2021: 9). As the WWF South Caucasus note, if there is no accurate data on where endangered species are located, it is impossible for construction companies to mitigate the risks to their habitats during HPP environmental assessments (2015: 1). Ekaterine Mikadze noted that work was being done by Iliia State University to digitise information on endangered species in Georgia, which would make information more accessible.³⁹ Research like this requires funding however, and co-ordination between the Georgian government and research institutions is a long-standing concern. Whilst there is very limited biodiversity research conducted in Georgia, what does exist provides a sufficiently concerning image.

There are six native species of sturgeon in Georgia, all of which are on Georgia's Red List as well as the International Union for Conservation of Nature (IUCN) Red List of Critically Endangered species globally (GA/CEE Bankwatch/Nature Conservation Georgia, 2021: 2). As freshwater species are more acutely affected by habitat alterations, the risks of hydropower expansion are particularly concerning. Non-human life cannot demand its own recognitional justice and that its life be given the value that it is due, so it is left to humans to recognise the dangers which hydropower poses to flora and fauna instead. Environmental reviews are key to mitigating these risks, and should be encompassed on a project level by EIA. The WWF South Caucasus also note the importance of this happening at a system level, as project level environmental assessments are occurring after significant

³⁸ Maka Bitsadze, interview with author, Tbilisi, 21 July 2023.

³⁹ Interview with author, Tbilisi, 8 May 2023.

investments have already been made, and environmental assessors are expected to approve of the project (2015: 25). A hydrologist who was interviewed corroborated this, noting that a fraction of a HPP budget is spent on environmental assessments as it is assumed that it will be approved.⁴⁰ This entrenches recognitional injustice, as stakeholders who attempt to highlight the necessity of protecting the country's biodiversity, cannot do so until after crucial decisions regarding HPPs have already been made.

The Rioni river is an area of key importance to sturgeon conservation, as one of only five rivers in Europe which are native to sturgeon. The existing run-of-river HPPs along the Rioni have been particularly damaging to sturgeon habitats (GA/CEE Bankwatch/NCG, 2021: 1). To construct a dam wall of over 100m for the Lower Namakhvani HPP would both exacerbate damage to sturgeon's habitats as well as hinder their reproductive abilities. Consequently, building the Namakhvani HPP Cascade would violate multiple international agreements that Georgia is a signatory of relating to the protection of sturgeon, including the Bucharest Convention and the EU Habitat and Bird Directives (Green Alternative, CEE Bankwatch/NCG, 2021: 3). This is just one instance of Georgia's international climate commitments, which facilitate climate justice strategies, improving legislation on paper, but failing to translate into higher environmental standards across the country.

One supposed solution to the effects of hydropower infrastructure on sturgeon, and ichthyofauna more broadly, are fish passes. Fish move up and down rivers for safety, shelter, spawning, or feeding. Fish passes, in theory, allow fish to move around the man-made barriers created by hydropower infrastructure, to continue along the river. However, in the past they have often not been constructed at all within hydropower infrastructure, leaving fish with no way to pass safely up and down the river. The MoESD however, are adamant that accessible fish passes are mandatory for all HPPs, noting that one construction company was fined more than \$100,000 for installing a fish pass which was over 2.5m above the ground.⁴¹ The critical issues are that the environmental flow is so minimal in many rivers that fish cannot swim downriver, and that many HPPs do not actually leave 10% environmental flow anyway, exacerbating the problem. In both cases, there simply is not enough water allowed to pass from the HPPs along the river for fish to survive. According to the WWF, there is not a

⁴⁰ Anonymous interview with author, Tbilisi, 26 April 2023.

⁴¹ Zurabi Arveladze, interview with author, Tbilisi, 12 July 2023.

single dam in the South Caucasus which has a functioning fish pass, so it is an entirely ineffective tool to mitigate the risk to marine life (2015: 7). In an interview with Maka Bitsadze, she stated that she had never seen a HPP with a fish pass which functioned properly.⁴² This claim was denied by the MoESD, yet there is extensive documentation of ineffective fish passes that are either too high from the riverbed, or the water is too shallow for fish to swim (Cactus, 2023). The issue is twofold: one, that the current environmental flow standard is not sufficient, and two, that the environmental flow regulations are not followed by HPP companies. Ichthyofauna are disproportionately burdened by hydropower expansion, a clear feature of distributive injustice, as fish simply cannot survive in such conditions. Nevertheless, fish passes are considered to be the solution to the issue, despite there being no mechanism to ensure fish can actually use the passes, or that they make it that far without unintentionally swimming into turbines instead.

One explanation for how the MEPA and MoESD are unaware of the scale of this issue, is the ways in which HPPs are monitored. Every three months, reporting of environmental flow, for example, should occur between construction companies and the government, yet multiple interview respondents contested the validity and accuracy of the data companies provide. There is nothing, in reality, which prohibits companies from copying false data every three months and sending it to the MEPA, who in turn assumes that the statistics are accurate. A further issue is that site visits require advanced warning by MEPA, allowing HPP companies to release the regulated 10% in advance of the visit, whereby the MEPA assumes that this is the norm. When environmental NGOs visit these sites, however, their observations entirely contradict those of the government.⁴³ If the MEPA does not have knowledge of the scale of the damage being done by the poor regulation of the hydropower sector, it cannot begin to address it. In the meantime, further damage is done to biodiversity by the drastic and intermittent changes in environmental flow when official visits are conducted. This is another consequence of the lack of political will to implement distributive justice policies, and ensure that the burdens of hydropower expansion are shared equitably, which is currently not the case.

⁴² Interview with author, Tbilisi, 21 July 2023.

⁴³ This interviewee opted to remain anonymous.

As the river basins most affected by hydropower expansion are also the ones with their richest diversity in species of fish, their protection is even more critical (Japoshvili et. al., 2021: 9). Progress on increasing water efficiency is slow, due in part to the centralisation of river basin management, and would be improved by decentralising control. Better planning of HPPs and which river basins they are constructed on would improve the preservation of areas that are critical to freshwater biodiversity and facilitate a greater degree of distributive justice (WWF, 2015: 1). However, the lack of awareness of the importance of this work is an enduring problem in the sector.

4.5 Land

The same lack of awareness is visible in the protection of terrain and flora in Georgia. Constructing large HPPs is generally associated with the destruction of local wildlife, river species, and sub-alpine forests, in which Georgia is no exception. If the Namakhvani HPP Cascade is constructed in its current form, 400 hectares of natural forests will be impacted, as well as an additional 100 hectares of coastal habitats (GA/CEE Bankwatch/NCG, 2021: 1). Whilst there are multiple relict and endemic species of flora and fauna located in the vicinity of Namakhvani, EIA claims that the project will have no impact on biodiversity (GA/CEE Bankwatch/NCG, 2011: 7). This is an obvious sign of recognitional injustice, as 500 hectares of land cannot be impacted in a way which will not affect its biodiversity.

In Svaneti, deforestation has increased in order to construct Khudoni HPP, which, when compounded by the illegal logging by locals and overgrazing of livestock due to the general lack of economic development in the region, increases the risk of landslides and further land degradation in the area (GA/CEE Bankwatch, 2007: 15). As will be discussed further in the next chapter, the climate injustice which affects local communities in Svaneti also affects biodiversity, as even the intention to construct Khudoni HPP in the future places undue burdens on the local ecosystem.

From the local to the international level, a healthy ecosystem is essential to the safety and stability of both human and non-human life. Georgia's status as a biodiversity hotspot entrenches the necessity for robust environmental protection and mitigation measures to limit the damage that hydropower causes to its local flora and fauna. However, a systemic lack of data, poor implementation of mitigation strategies noted in EIAs, as well as the poor quality of the EIAs themselves, present major challenges to implementing climate justice in the biodiversity sector. The damage to biodiversity caused by hydropower is not unique to

Georgia, nor is the lack of consideration given to this by policy makers and construction companies. However, the lack of recognitional justice in particular is clear when considering the effects of hydropower on biodiversity.

Chapter 5: Community Consequences

Whilst the effects of hydropower on biodiversity are often overlooked and broadly underacknowledged, greater focus within academia and in protest movements is given to how people are affected by hydropower expansion. In the Georgian case, many, but not all, trends within the international hydropower sector can be observed. By examining the lack of public involvement, the unclear benefits for the communities affected, the instability these communities currently live in, the resettlement planning process, the ways in which people are indirectly affected by hydropower expansion, the unique elements of protests, as well as the importance of the perceptions of HPP, the scope of community consequences will highlight the clear lack of climate justice present in the implementation of renewable electricity projects from the community perspective in Georgia.

Two of the most prominent HPP protests since GD came to power took place against the construction of Namakhvani HPP Cascade in Western Georgia (2019-21) and Khudoni HPP in Svaneti (2013). Exploring the nature of social exclusion from the processes of the expansion of hydropower highlights the ramifications of the lack of centralised procedure on the communities who are directly affected.

5.1 Public Involvement

The public engagement process is one of the primary areas where climate injustice is prevalent, as the views and perspectives of communities who are most directly affected by hydropower expansion are continually ignored. The lack of public involvement in the process of both Khudoni and Namakhvani HPPs proved to be particularly detrimental to gaining the support of those set to be most acutely affected by it. From speaking with protesters and leaders of the opposition against Namakhvani, one interviewee highlighted that many were not protesting the construction of a HPP, but against the lack of consideration of, and consultation with, the local communities who would be affected both directly and indirectly.⁴⁴

Communities felt excluded from decision making, because they were. Whilst two public hearings on the Namakhvani project did take place, fair access to them was not provided. Four days before the meeting on the Namakhvani HPP Scoping Report on September 6th

⁴⁴ Lika Jalagania, interview with author, Tbilisi, 4 July 2023.

2019, the time of the meeting was changed from 14:00 to 10:00. Many locals' ability to attend was impeded by the location of the meeting being the town of Tskaltubo, around a 50km journey away from the construction site, as well as the short notice of the change in time of the meeting. Those who did manage to attend, despite the 2-3 hour commute, found their questions were not given answers, nor were they provided with comprehensive information regarding the research conducted by ENKA, or how they would be impacted by the project. The public meeting on the final EIA was held in the same location on December 20th, 2019 (SJC, 2019: 43-44). The absence of procedural justice in the locals' inability to access this limited engagement process is clear, alongside the lack of interest on the part of construction companies and the government to allow for locals to contribute constructively to the development of the project. From having attended meetings like these, Tsintsadze described the public meetings as: 'very condescending to the local population and any concerns they might have', with the format of the meetings being 'designed to exclude people' due to the overly technical and unnecessarily complex language used to describe projects.⁴⁵ Multiple interview respondents also noted that neither the government nor construction companies seemed to understand that communities needed to be engaged beyond the letter of the law, and that public meetings were not simply a 'tick box' exercise. As communities could not express their concerns fairly, their response to this perceived injustice was clear in the scale of the protests which developed against these projects. This is a reflection of a long-standing issue in the hydropower sector of not considering the will or the opinions of those who are set to be most directly affected. The same patterns were observed by GA/CEE Bankwatch during their evaluation of the ESIA report in 2009 on an earlier version of the Namakhvani HPP project, as they concluded that they could not see how the meetings met either national or international standards of holding public meetings. Moreover, they noted that local populations in Namakhvani, Mekvena, and Mamatsminda did not have any knowledge of these meetings until the day before they took place (2011: 11). This practice is common both in Georgia and internationally, and is both unjust and exclusionary.

As a result of the lack of meaningful engagement with communities from construction companies, local communities are often only informed of decisions once they have already been made, leaving them no room to engage positively in the project. From interviews

⁴⁵ Interview with author, Tbilisi, 18 July 2023.

conducted with protesters against Namakhvani HPP, human rights researcher Lika Jalagania noted that there were still those who would oppose the project even if there had been adequate engagement with locals, as people felt they were being asked to sacrifice their land and their homes for the sake of the country.⁴⁶ Thus, considering ‘local communities’ as a homogenous group who all oppose hydropower expansion is too simplistic. Nonetheless, the inadequacy of procedural justice displayed in the lack of cooperation with these communities played a decisive role in the scale of opposition to the project.

The lack of information distribution was also seen in the case of the Khudoni HPP, where decisions made regarding the lives and livelihoods of the people of Svaneti were made without their involvement. Similarly to Namakhvani HPP, from interviews conducted by Jijeleva & Vanclay in Svaneti, locals felt that public consultations were not conducted with the intention of engaging with them, but to tell them what had already been decided (2018: 37). As discussed in Chapter 3, as a signatory of the Aarhus Convention, Georgia is obligated to ensure public participation in projects which affect them from the earliest available stage of the decision-making process. In reality, public participation only begins after the major decisions have been made.

The lack of procedural justice is particularly prevalent here. In Georgia, due to loopholes in the EIA code (2018), communities can wake up to news that a HPP is being built in their village without receiving prior notice or consultation. Specifically, decree 515 allows construction companies to consult communities after they have signed a contract with the government (SJC, 2022: 2). This practice brings communities into the HPP process only after a contract has been signed, by which point institutional opportunities for public engagement have already largely become inapplicable. Legitimate concerns that locals have surrounding the safety or viability of projects can only have limited influence on the project as it has been committed to and invested in already by the government and construction company in question. As Tsintsadze acknowledged, ‘people have to protest because institutional channels of participation aren’t available.’⁴⁷ The lack of procedural justice, specifically the inability of affected communities to voice their concerns at an early enough stage of hydropower development to affect the way plants are constructed, is one of the core issues in the hydropower sector. Public resistance to this unjust system will likely continue so long as the

⁴⁶ Interview with author, Tbilisi, 4 July 2023.

⁴⁷ Interview with author, Tbilisi, 18 July 2023.

lack of serious engagement from the government persists, and legal alternatives to seeking justice remain unfruitful.

5.2 No Justice from the Judiciary

In most countries with effective rule of law, citizens can turn to the judicial system to seek justice when they feel their rights have been violated. In Georgia, when the government fails in its legal obligations to include local populations at the earliest opportunity, affected communities can take their cases to court. However, the justice system proves to be just as inaccessible and exclusionary as the executive.

Despite the constitutional rights to a healthy environment, for locals to engage in natural resource management when it affects their locality, this does not translate into successful litigation in court. On Namakhvani HPP in particular, lawyers across Georgia prepared cases from multiple perspectives and specific issues surrounding the project, but progress was incredibly slow despite the nationwide attention the project was receiving. According to Tsintsadze, 'almost no environmental conflicts are actually resolved through courts in Georgia.'⁴⁸ According to him, courts at all levels are unreceptive to environmental cases, creating a situation in which the executive is excluding people from processes they have a legal right to engage in, and the judiciary stands by the executive. This lack of access to recognition justice allows the procedural injustices committed by the government and construction companies to continue unimpeded.

5.3 Benefits for People?

Not only were locals prevented from engaging with the decision-making process, but they failed to receive an answer as to how they would benefit from these projects. Whilst the Namakhvani HPP Screening Report claimed that people would benefit economically and physically from their relocation, the majority of people in those communities disagreed (2018: 19). Distributional justice is crucial as it highlights how the costs and the benefits should be shared among all involved. In hydropower expansion across the country however, many communities feel that they are disproportionately burdened by the costs, and do not receive a fair share of the benefits. Salome Shubludze from the Social Justice Centre noted that opposition to hydropower expansion reaches beyond a simple cost-benefit analysis for

⁴⁸ Interview with author, Tbilisi, 18 July 2023.

communities who will be affected most immediately, and that the importance of the emotional and historical ties between people and their land cannot be overstated.

'When people are displaced, when they have to leave their homes and when they have to abandon the cemeteries of their fathers and grandparents, then those are the people who should be able to say that we will do this willingly, or don't do it.'⁴⁹

One similarity between the Khudoni and Namakhvani HPP cases specifically is the perceived lack of economic legitimacy. Whilst the primary argument of the Georgian government for the expansion of large hydropower is their commitment to achieving energy independence, both projects intended to export varying amounts of electricity, rather than use it for domestic consumption. In Namakhvani, multiple clauses in the PPA between the Georgian government and ENKA made clear that ENKA intended to export electricity to Türkiye (SJC, 2019: 24). Consequently, the core of the Namakhvani HPP protests was the lack of distributional justice for both the locals and the region.

Electricity generated from Khudoni HPP was also intended to be exported to Türkiye, with the government later u-turning and claiming that only surplus electricity produced in summer would be exported (Jijeleva & Vanclay, 2018: 36). Not only were locals unconvinced by this, but it also contradicts the government's own justification for constructing these large HPPs. If hydropower is to be Georgia's source of energy security, then signing contracts which commit the Georgian government to exporting that electricity rather than securing its domestic supply is nonsensical.

Rural communities across the country still have irregular access to electricity, and hydropower can be utilised as a solution to this issue. Many locals understand this, and do not oppose HPPs in principle (Pankisi.ge, 2019). However, there is no perceived justice in the way that locals are engaged with or the disproportionate burdens that are placed on them in order to construct plants. In interviews conducted during and after protests in Svaneti, many expressed that they feel that they are being sacrificed for the benefit of the government (Jijeleva & Vanclay, 2018: 37). In both cases, multiple interviewees reflected that locals and protesters across the country were unconvinced of the distributive justice of the project and the benefits that it would bring to any of the Georgian population.

⁴⁹ Interview with author, 17 July 2023.

The Khudoni HPP case is particularly important, as not only would its construction see the displacement of 2,000 people, but the Svans who live there have their own language, culture, and traditions which are separate to that of the majority of the Georgian population. Whilst classifying them as indigenous people is complicated by their history and their connection with the Georgian people, they do share a deep connection to their land. Multiple researchers, NGOs, and journalists who spoke with residents highlighted the lack of benefits they would receive from being resettled (Dundua & Karaia, 2019; Antadze & Gujaraidze, 2021; Jijeleva & Vanclay, 2018). The residents spoke of the importance of the cultural ties between them and their land, and that their inability to see any benefits from the project or their impending displacement was a key motivator in their protest against Khudoni HPP (Jijeleva & Vanclay, 2018: 36).

Whilst TransElectrica Ltd, the company intending to construct Khudoni HPP when GD first came to power, planned to resettle these families in a new village that they committed to building, there is no evidence that this ever took place, nor were the people who were set to be displaced consulted appropriately beforehand (Chanturia, 2014: 3).

The consequences of not engaging with the local population was clear in the lack of justice either economically, socially, or environmentally. Employment opportunities were limited to manual labour, which was unstable and low paying. Providing more indirect benefits, such as training engineers to operate HPPs would incorporate a greater degree of justice into these projects for locals, but there is usually no onus on a construction company to employ locals. From interviews conducted with representatives of the MoESD, their interpretation was that so long as people were paid appropriately to be resettled, neither they nor the construction companies bore any additional responsibility to do more.⁵⁰ Climate justice, however, emphasises that nobody should be sacrificed for the need to transition to a more sustainable energy system. As is experienced in other cases discussed in the Literature Review, this is generally not the reality experienced by communities affected by hydropower.

5.4 Resettlement Planning

From roads and railways to energy expansion, resettlement is often an unavoidable element of large infrastructure projects. With no viable alternatives to displacement, a just transition

⁵⁰ Interview with author, Tbilisi, 12 July 2023.

requires appropriate measures to be implemented to ensure those resettled maintain their previous standard of living. When financial compensation is given generously, and social support mechanisms are implemented to assist in societal reintegration, there can be opportunities for people's lives to improve. However, the NGOs and academics who were interviewed, and have worked with communities who face resettlement, have continually raised concerns over how this is carried out.

'When resettlements must be carried out, it is important to fully respect residents' rights, improve or at least restore their former living standards and earning capacity, encourage their participation in planning the resettlement and, if possible, give them the opportunity to share some of the project's benefits.' - (IEA Georgia Energy Policy Review, 2020: 92).

As with many other elements of hydropower in Georgia, a lack of accurate data impedes the scope of understanding for this aspect of the sector. There is no data publicly available on either the number of people displaced in Georgia, by hydropower specifically or infrastructural projects as a whole, nor on the socio-economic changes of those who were resettled. As a result, no conclusions can be made as to whether the generally high financial compensation is enough to mitigate the decline in standards of living observed in many other hydropower dependent countries.

Information regarding compensation from construction companies is confidential, but according to the MoESD, ENKA spent \$30 million on land resettlement payments, having offered residents at least 50% over the market value for their properties and land.⁵¹ This, as was also noted by another interviewee, was due to a recognition that it was more logical for ENKA to pay people well, so that they were willing to move. For Namakhvani HPP, most of the locals who were to be displaced by construction took the financial compensation offered to them to leave, and the protests against the project were led by those who refused to move. Whilst one of the criticisms of TransElectrica was their lower rate of land compensation, other interviewees noted that although some people were paid very well in resettlement compensation, others were not.⁵² Tsintsadze argued that some companies weaponise the

⁵¹ Zurabi Arveladze, interview with author, Tbilisi, 12 July 2023.

⁵² Salome Shubladze, interview with author, Tbilisi, 17 July 2023.

poverty of the region of construction, knowing locals have very little bargaining power, particularly in smaller HPPs, so are not always well compensated. He also highlighted that construction companies are aware that litigation will take years for communities who oppose their construction, thus giving them the opportunity to provide a quicker solution in the form of financial compensation.⁵³ The recognitional injustice which is prevalent in many other hydropower reliant states, when considering how displaced people are treated, is not as clearly present in Georgia. There may be differing degrees of generosity implemented in the allocation of resettlement funding, but the overall consensus among those interviewed was that the amount of compensation itself was not a critical issue in the sector.

A more just compensation system at the national level would address these differences in generosity with a standardised compensation mechanism integrated into Georgian legislation, thus preventing construction companies from choosing the resettlement payment offered to residents on a case-by-case basis. As it is not in the interests of the construction companies, it has not happened. Currently, there is no legislation which sets a minimum compensation rate, nor for companies to compensate the restorative value of households who are displaced by infrastructure projects, as is the international standard of financial institutions. This often exacerbates the socio-economic injustice of resettlement, as there is no legal framework to protect citizens from being exploited, and their land undervalued. There is not a high degree of perceived injustice in how displaced communities are compensated in Georgia, but there is a lack of legal justice in the absence of a minimum threshold for companies to compensate people who are resettled by hydropower construction.

This is certainly not the only experience of resettlement of communities by hydropower. One interviewee recalled that some people are happy to move to a city and find that they can increase their economic prospects from living in urban areas.⁵⁴ Salome Shubladze also noted in an interview that there was a small counter-protest in support of Namakhvani HPP by people who had received payments for their land and left their homes willingly.

Not all who are resettled are unwilling, but academic and NGO research cohesively identifies large scale community displacement as an area of concern. Establishing networks and connections in a new settlement, be it urban or rural, is incredibly difficult, and, according to one researcher, is ‘usually neglected in this resettlement project.’⁵⁵ This is one reason that

⁵³ Interview with author, Tbilisi, 18 July 2023.

⁵⁴ Anonymous interview with author, Tbilisi, 10 July 2023.

⁵⁵ Anonymous interview with author, Tbilisi, 10 July 2023.

displaced people are likely to see a decline in their standards of living. As this is something that is not monitored in Georgia, no conclusions can be made regarding if and how people benefit once they have been relocated.⁵⁶ Residents are broadly better compensated than is experienced internationally, but it cannot be said whether this also translates into increased standards of living.

Implementing the aforementioned elements of community displacement is crucial to ensuring a just transition for people affected by renewable energy expansion. However, there is no onus for HPP developers to create a resettlement action plan, nor a guide to implementing resettlement for displaced peoples, resulting in there being no uniform approach to resettlement in Georgia (IEA, 2020: 104). This is an important area where distributive justice should be ensured, but it cannot be identified if it is not monitored.

5.5 Life in Limbo

One critical aspect of the indirect injustices communities face, is in the instability of their fate whilst HPPs are in various stages of non-progress. Both the Khudoni and Namakhvani protests were successful in halting construction, yet when interviewing members of the MoESD, they clearly expressed their desire to build both HPPs, as well as Nenskra HPP, leaving the communities in a permanent state of uncertainty.⁵⁷ In Namakhvani, some households who received payments to resettle elsewhere returned to their homes and have yet to be asked for the return of their compensation. Interviewees who have spoken with residents recalled the fears of locals that eventually they will be asked to pay this money back, or they will not have enough to buy a new home if they are forced to resettle again.^{58 59} Despite officially terminating their agreement with the Georgian government to construct Namakhvani HPP, ENKA also still own the land that these villagers live on. Speaking with Namakhvani protesters, researcher Lika Jalagania noted that the leaders of the 2019-21 protest have made clear their will to remain in their homes if Namakhvani HPP one day is approved again, with one leader discussing her anxiety around the prospect of having to rebuild her life somewhere new:

⁵⁶ Salome Shubladze, interview with author, Tbilisi, 17 July 2023.

⁵⁷ Nenskra HPP is a 280MW HPP which the Georgian government intends to construct on the Enguri river alongside Khudoni HPP.

⁵⁸ Litigation between ENKA and the Georgian government is ongoing as of July 2023. One of the issues to be decided is who should be ultimately responsible for paying the resettlement fees.

⁵⁹ Lika Jalagania, interview with author, Tbilisi, 4 July 2023.

‘They’re expecting renewal (of Namakhvani HPPs) all the time [...] It’s very debilitating. You don’t know what to do, to do something or not to do something, to work on your land, not to work on your land, because you don’t know if it’s yours in the end or not, so it’s a very horrible feeling.’⁶⁰

In Khudoni, 80 households from Khaishi were resettled to New Khaishi in the 1980s by the Soviet Union, an unfinished town 500km away from their historic territory. When the USSR collapsed, and the construction of Khudoni HPP with it, the majority of those families returned back to Khaishi. They now face the threat of a second displacement in their lifetime. Khaishi and three other surrounding villages would be forcibly resettled with the construction of Khudoni HPP, and the consequences of their potential impending displacement has ramifications even now. The distributional injustice is evident in the lack of infrastructure development in the area, and an unwillingness from external investors and residents alike to renovate or modernise due to concerns that the financing would be wasted if Khudoni HPP was built. Whilst the sum of resettlement payments does reflect a greater degree of justice for those who are resettled, those who know that the government wants to construct a HPP on their land at some undetermined point in the future, cannot even receive that.

5.6 Beyond Large HPPs

It is undeniable that organisations who have concerns with HPPs gravitate to the views of locals who also have concerns, but local opposition to hydropower expansion exists in projects of both 400 MW and 4 MW. There is certainly more scrutiny of larger HPPs, which brings public attention to aspects which are interpreted as unjust, but these issues are chronic in the hydropower sector.

Whilst Namakhvani and Khudoni HPPs both became nationwide issues, the construction of small and medium sized HPP can be just as contentious for communities. Local protests to the Pankisi HPP Cascade began in 2018, with an open letter to the government citing the ‘irreparable damage’ caused to the Pankisi valley by the two HPPs already on the Alazani river, with the construction of a further three HPPs risking the destruction of the regional ecosystem (Pankisi.ge, July 2018).⁶¹ The letter includes a clear understanding that

⁶⁰ Interview with author, Tbilisi, 4 July 2023.

⁶¹ One of these existing HPPs, Khadori-2 was constructed by Peri Ltd. in 2009, whose EIA was of such poor quality that the Ministry of Environment & Natural Resources Protection (MENRP) rejected their application to

hydropower is necessary for Georgia's energy independence, but that the people of the Pankisi gorge felt that there was no justice in building these HPPs when the socio-economic damage to their community was greater than the small amount of electricity produced by the project. These concerns were echoed by environmental NGOs, with particular focus given to the poor quality of the EIA which did not provide sufficient detail on the ecological risks of the project, as well as multiple parts of the EIA being copied and pasted directly from other HPPs' (SJC, 2018).

Instead of listening and engaging with the concerns of the community, riot police were brought to the project site in April 2019 to pre-emptively ensure that the locals could not halt construction. Police used tear gas and rubber bullets in the ensuing clashes, to which protesters in turn began to destroy construction equipment (OC Media, 2019). Khadori-3 HPP would have an installed capacity of only 5.4 MW, but as Tsintsadze noted, 'the problems of participation, environmental sustainability, social sustainability, these are replicated on a different scale.'⁶² All three tenets of climate justice are just as prevalent in smaller hydropower projects as in the large projects which gain more social and political attention. In some situations, smaller HPPs experience even larger problems. From the work of the Social Justice Centre, Shubladze discussed how in many cases the quality of EIAs are worse for small and medium HPPs because there is less external scrutiny.⁶³ State security, who are more active in rural areas, regularly intimidate, bribe, and blackmail residents into not opposing HPPs; public consultations are even more poorly carried out; and mandatory documents are consistently written poorly or missing entirely. If there is no perceived justice for the people for whom hydropower expansion will affect, then the scale of the project is not important; a smaller HPP does not mean less opposition to it.

5.7 Direct vs Indirect Consequences

One important distinction to make is between communities who are directly affected by hydropower expansion, most notably those who are displaced due to the flooding of their homes, and those who are indirectly affected.⁶⁴ Dato Chipashvili, International Financial

construct the plant. Instead of improving the quality of the EIA, three weeks after their rejection, Peri Ltd. applied to MENRP for an exemption from the requirement of an EIA, which was granted.

⁶² Interview with author, Tbilisi, 18 July 2023.

⁶³ Interview with author, Tbilisi, 17 July 2023.

⁶⁴ This takes the construction companies' perception of how people are affected, reflected in who they offer compensation to. Those who are displaced are given money to start a new life elsewhere, those whose homes are not destroyed but are impacted by construction in other ways are indirectly impacted, but not offered compensation.

Institutions Monitoring Program Manager of Green Alternative, highlighted this difference when reviewing the Namakhvani HPP Cascade proposed in 2009. Whilst the villagers whose homes were to be flooded were compensated by the construction company, they were the only people to be compensated in any way for the adverse effects of hydropower construction. This remained the case when ENKA came into the project a decade later. Whilst one researcher on how communities are affected by hydropower noted that it is ‘not that clear cut’ regarding the financial evaluation of people who are affected by hydropower, but do not *have* to be resettled, it is still an issue that must be addressed.⁶⁵

Situated in a unique microzone, the MEPA have been allocating grants to residents of Tvishi to encourage wine making, leading people to return to the area to enjoy the economic benefits of producing high quality wine. This in turn has increased tourism in the region, with new hotels and tours of the area providing a further boost to the regional economy. The same ministry, however, also provided the construction permits for the construction of the Namakhvani HPP, which multiple NGOs state would destroy this microzone, and with it, the profitability of the wine produced there (GA/CEE Bankwatch, 2011: 9). Recognition of injustice is also apparent when considering those who are indirectly affected by hydropower expansion, as they are neither considered, nor compensated for how these projects affect their lives and livelihoods.

In Svaneti, whilst four villages would be resettled by the construction of Khudoni HPP, over a dozen other villages would have been significantly impacted as well, with no consideration given to them during the planning of the HPP.⁶⁶ Khaishi is the regional centre of the villages in the area, with the Church, cemetery, hospital, and other administrative facilities located there. Flooding Khaishi would have a significantly detrimental effect on the ability of the neighbouring villages to function, likely forcing them to resettle as well, except they would receive no compensation to do so (GA/CEE Bankwatch, 2007: 10).

Any large infrastructural undertakings cause major and unavoidable disruptions to social and economic life for local communities. Construction of HPPs generally use the same public infrastructure as locals do, such as roads, properties, or water, which puts additional pressure on these resources. As has been examined in this chapter, some consequences are unavoidable, but others can be mitigated, and would be if existing legislation was

⁶⁵ Anonymous interview with author, Tbilisi, 10 July 2023.

⁶⁶ There are conflicting estimates on how many villages would be affected indirectly, partly due to TransElectrica providing differing numbers between reports.

implemented fully. The IEA recommended the creation of a regulatory framework to analyse the social impacts of proposed HPPs, which is consistent with the views of NGOs who were interviewed, who concurred that the social impacts are not properly considered when planning new HPPs (IEA, 2020: 91). If procedural justice was implemented, then communities who would be directly or indirectly affected by hydropower expansion would be able to participate in the decision-making process and highlight issues that could be mitigated at an early stage of development. Similarly, if the government followed its own legislation, many of these issues could be remedied. Instead, it has consistently shown preference towards ignoring its own mechanisms which could provide a more just transition for communities affected by their energy policy.

It is undeniable that local communities are the most immediately affected by hydropower expansion, and are also the most vocally opposed to it. Largely, this is not an opposition to hydropower expansion as part of the Georgian government's energy policy, but in the way in which it is implemented. Despite comprehensive legal protections for affected peoples, public consultation between companies and local communities is half-hearted at best, and intentionally lacklustre at worst. Financial compensation is reportedly generous, but the consideration of how communities are to be affected, both directly and indirectly, by HPPs is clearly insufficient and fails to meet national and international standards of community engagement. According to interviews with members of the MoESD, government ministries are working alongside each other to 'raise awareness' of the importance of the construction of these projects in the communities who are to be affected.⁶⁷ This will prove meaningless if construction companies continue to disregard the concerns of the communities that their projects will affect, and the government continues to allow their legislation which should ensure that communities are respected, to exist solely on paper. Indicators of climate injustice are unmistakable when considering how people are affected by these projects, a significant amount of which could be avoided. Increased hydropower may broadly be in the public interest, but when the rights of those who are most affected by this energy strategy are overlooked or ignored when discussing how these projects are designed and implemented, there is no perceivable justice, both in, and from, the system.

⁶⁷ Nikoloz Kholodov, interview with author, Tbilisi, 12 July 2023.

Chapter 6: Energy Alternatives

Despite hopes that the election of Georgian Dream in 2012 would mark a change in energy policy away from unrestrained hydropower expansion, the status quo has been resolutely defended. As of 2020, around 150 HP projects were in varying stages of development across the country (IEA, 2020: 12). This research has highlighted many of the issues surrounding the nature of hydropower expansion in Georgia, and the consequences of them for both people and planet. The ardent commitment to hydropower at the expense of investments in other renewable energies is an important element of this issue to consider.

The most recent Intergovernmental Panel on Climate Change report (2023) has clearly concluded that wind and solar energy are the cheapest and quickest methods of transitioning to decarbonised economies. However, there is no legal obligation that this transition has to be a just one. Time is essential in this issue specifically, particularly as the gap between international climate positive rhetoric and real action grows larger by the year, but this does not mean that a just transition cannot be integrated into this process.

Having considered the consequences of hydropower expansion in Georgia, the question of whether this could be avoided is essential. Some mitigation strategies have been discussed in earlier chapters, so this chapter will focus on the role which Georgia's energy policy can play in navigating the risks of hydropower and the necessity of its prevalence in the country's electricity balance. In Georgia, this involves considering alternative renewable energies which could be utilised, including wind, solar, thermal, and nuclear electricity. Climate justice in the electricity sector does not solely apply to how hydropower is developed, but also to how much of it makes up the Georgian electricity balance.

6.1 Why is there so much Hydropower?

Georgian hydropower currently produces around 85% of electricity, with other renewables only amounting to 1% (IEA, 2020: 32). Whilst hydropower is seen as an opportunity for economic development in the country, there is substantially less private sector interest in tackling climate change in Georgia (Khardiani, 2023: 19). As Georgia is reliant on foreign investments or loans to expand its hydropower projects, it is also currently reliant on external organisations to expand alternative renewables. When asked about the slow pace of investment in other renewables, Nikoloz Kholodov from the MoESD noted that after the IMF stopped multiple support schemes, including its support of PPAs, which Georgia used regularly to support renewable expansion, it has become much more difficult for the

government to find investors in renewables.⁶⁸ As the current state investment in renewables is minimal, financing all renewable expansion, not simply hydropower, is reliant on external bodies. This will not be a sustainable model for energy transition, and mechanisms for financing climate action will need to be implemented if the country is to meet its decarbonisation targets (Khardziani, 2023: 32).

6.2 Changing Winds

Georgia is located in a particularly mountainous region, making it ideal for wind energy production. When defending Khudoni HPP, Chanturia cited the Ministry of Energy's claim that Georgia's wind potential was 'dwarfed' by its hydropower potential (2014: 3). However, when speaking to the MoESD, they claimed that Georgia's wind capacity is actually around 4TW, similar to its hydropower potential. Of this potential, only Gori has seen the construction of a wind farm. Consisting of only six turbines, the Qartli wind farm not only meets, but exceeds its expected electricity outputs year on year. Furthermore, from calculations by Green Alternative, in January 2023, those six wind turbines produced the same amount of electricity as sixteen small or medium sized HPPs.⁶⁹

The shares for the Gori wind farm were initially going to be sold publicly, with the potential to be the first community owned renewable energy project in the country. Proponents of energy democracy, which is endorsed by climate justice scholarship, highlight the benefits of these projects as the benefits and burdens of electricity are shared equally (Tokar, 2019: 16). Ultimately, all shares were sold to the Bank of Georgia. Energy democracy could be a viable long-term approach for Georgia, but cannot be considered realistic in the current political climate.

The Qartli wind farm demonstrates that wind power can provide an essential bridge for the Georgian energy sector to balance hydropower's incapacity in the winter months. However, this is a policy avenue that is only in the early stages of exploration by the Georgian government. According to the Georgian Energy Development Fund (GEDF), there are four further wind farms in development, yet despite plans being initiated in 2016/7, none have begun construction as of July 2023 (GEDF, 2023). According to the Global Energy Monitor, all four farms are still in pre-construction (2023). If constructed, this would be a substantial increase from the 88 million kWh which the Qartli wind farm produces each year.

⁶⁸ Interview with author, Tbilisi, 12 July 2023.

⁶⁹ Dato Chipashvili, interview with author, Tbilisi, 23 June 2023.

Whilst representatives of the MoESD have acknowledged that the lack of social opposition to windfarms is a positive sign for the expansion of wind power, only one wind farm has been constructed thus far due to the inability of the government to find investors for other projects.⁷⁰ The government plans to expand the wind sector to 700-900 MW capacity by 2030, although multiple interviewees responded with scepticism to this time frame. Expanding wind power at such a rapid pace requires consideration of its own climate risks. Primarily, wind power poses a threat to birds and bats, both in their habitats and flight paths. The Society for Nature Conservation (SABUKO), a birdlife conservation NGO, have consistently highlighted these risks, with particular criticism of the construction companies' awareness of biodiversity risks, and proceeding to not mitigate them (SABUKO, 2021).⁷¹ This raises concerns that the current practices which are pervasive in hydropower may also be developing in wind. There is a need to balance different environmental risks, but doing so whilst implementing recognitional justice and not sacrificing endangered species is important, no matter what energy source is in question.

6.3 Sunnier Prospects for Solar

Whilst wind power will be stalled without support from the government, solar expansion is not having the same issues. Solar is proving to be cheaper and more consistent than hydro, and it is expanding independently of the government. Speaking on the topic, Chipashvili noted that whilst there had been no comprehensive study of Georgia's solar potential,⁷² it is the cheapest renewable energy per kWh, and many businesses are taking advantage of the opportunity to reduce their electricity costs by installing solar panels on rooftops. Not only is lessening demand on the central grid increasing its stability, but companies are seeing a return on their investment in three to four years due to solar panels being so cheap. Thus far, 50 MW has been installed, but concerns have been raised about the possible destabilisation of the grid in the medium to long-term if this trend continues (Devidze, 2020: 9). The IEA raised potential issues with solar becoming too widely used for the grid to handle, with the recommendation that electricity storage capacity should be increased (2020: 93). Grid expansion is included in the Long-Term Low Emission Development Strategy (LT LEDS)

⁷⁰ Nikoloz Kholodov, Interview with author, Tbilisi, 12 July 2023.

⁷¹ One case is the Kvernaki Ridge wind farms, which are planned to be constructed 300m from the nests of critically endangered Egyptian Vultures. Their recommended safe distance is 15km. The project developers acknowledged the threat to the lives of these raptors, but has not opted to move the project site.

⁷² Georgia has nearly 2 TW solar capacity according to the MoESD.

(2023), but this is a very expensive process, and like much of the Georgian electricity sector, the government is reliant on foreign investment to fund it. Nevertheless, ensuring a smooth transition for solar into the wider energy market is incredibly important for a more just electricity balance. The process could be simplified with engagement from the government in public investment, thus widening access to solar panels, and implementing distributive justice in facilitating cheaper electricity for households across the country. Solar provides a sustainable and affordable source of electricity for rural communities. However, this would make it even more difficult for the government to sell the benefits of hydropower to the rural communities to be convinced of the necessity of these projects.

For urban populations, it is clear from the lack of uptake from individual households that greater support mechanisms are required. Chipashvili acknowledged that green loans are available from major banks, but that the interest rates are currently too high to be considered a viable option for much of the Georgian population.⁷³ Devidze also noted that a lack of awareness is hindering its progress, leading companies to expend resources on raising awareness of the existence of solar energy rather than simply providing access to it (2020: 9). There are measures which the government could take to remedy these issues, including offering subsidies for individuals to purchase solar panels for their homes or removing the VAT on importing solar panels.⁷⁴ Despite these obstacles, solar is the cheapest form of electricity today in Georgia, when in the past it was hydropower. Whilst the government is adamant that expanding hydropower to a stable energy balance, combinations of other renewables like wind and solar have been proven to provide stable sources of electricity in other countries and are also viable alternatives in Georgia. A greater degree of distributive justice would be possible with solar as there would be fewer harms to share and the benefits would be available to a wider population.

One recurring topic in the debates surrounding hydropower expansion is the possibility of the rehabilitation and modernisation of old HPPs. From interviews conducted, it was clear that NGOs would support such policies if it was economically viable, but cost-benefit studies would need to be conducted to establish this. One alternative which was suggested was retrofitting functioning HPPs with floating solar panels which would sit above hydropower

⁷³ Interview with author, Tbilisi, 23 June 2023.

⁷⁴ The majority of solar panels in Georgia are currently imported from China.

dams, allowing solar energy to connect to the existing hydropower station whilst also reducing water evaporation from the dam. Whilst costs are slightly higher than ground-mounted farms, solar is still the cheapest renewable energy available to Georgia. This would also present the added benefit of solar panels working during the day, and HPPs only running at night, reducing water usage whilst mitigating increased damage to biodiversity by constructing a solar plant on land.⁷⁵ From a hydrological perspective, this would be possible for dams in open spaces, but many dams are situated in narrow valleys or in mountainous terrain so would not have access to enough sunlight to be particularly efficient.⁷⁶ For plants where this is a viable option, retrofitted HPPs could reduce biodiversity damage by not consuming as much water, and also increase electricity supply in a stable and consistent way, which is essential to ensuring a just transition for the sector.

6.4 Thermal Future

One lesser discussed alternative to balance Georgia's electricity system is thermal power. Thermal can produce electricity consistently, unlike solar, and does not encounter the same geographical constraints as hydropower or wind energy, as it can be constructed in isolated regions, thus mitigating the concerns of communities about the adverse effects of energy infrastructure on their daily lives. Thermal plants also require significantly less space to produce the same amount of electricity as a wind farm. Thermal electricity is part of the Georgian energy balance, producing 628.5 TJ of electricity in 2021, however, in Georgia these plants are fuelled by natural gas (Geostat.ge).⁷⁷ It is possible, but expensive, to operate plants with solar or hydro as an energy source to create electricity. The initial construction or modification costs are high, and is thus an unlikely, yet viable, addition to Georgian renewables. However, it would make the existing electricity infrastructure truly renewable and mitigate many of the unjust elements of the current electricity balance.

6.5 A Nuclear Solution?

One suggested solution to Georgia's chronic energy imbalance is nuclear energy. With a single 1000 MW nuclear plant, the base load of the country could be met by nuclear energy,

⁷⁵ Dato Chipashvili, interview with author, Tbilisi, 23 June 2023.

⁷⁶ Anonymous interview with author, Tbilisi, 13 July 2023.

⁷⁷ This gas is sourced from the South Caspian Pipeline, of which Georgia is permitted a percentage of annual gas flow for free, with a reduced tariff beyond that, from gas transported from Azerbaijan to Türkiye.

allowing hydropower and other renewables to function as seasonal balancing sources.⁷⁸ If the HPPs that the Georgian government seeks to construct are completed, they predict an increase in installed capacity of 1200 MW. Using nuclear instead would negate the need for these HPPs, instead facilitating further hydropower expansion based only on pragmatic and economic needs.

Whilst this could solve Georgia's energy security concerns regarding the inability to meet domestic demand, this could only be achieved with either Western or Russian funding, either of which could still allow foreign influence in the country. The geopolitical risks of such an investment, as well as the lack of domestic interest in nuclear, make this an unlikely route for exploration.⁷⁹ Kholodov from the MoESD confirmed that nuclear power was not part of the energy mix for 2030-50 (personal correspondence, 22 August 2023). Nonetheless, if nuclear power could be expanded safely in Georgia, and the environmental concerns surrounding it could be mitigated, it could be a more just solution to building multiple large HPPs in the manner that the government has been doing over the past decade.

6.6 Working Within the Reality

Whilst acknowledging the logic of expanding wind and solar to meet Georgia's electricity demands, the political reality is that hydropower is and will remain the dominant source of electricity in Georgia. There are methods, some already discussed, with which to make this a more just energy system.

One of the critiques of both solar and wind is their variability in supply. From the MoESD's perspective, more wind and solar farms aren't possible without more hydropower because the national energy balance relies on hydropower. Whilst wind and solar is 'also a priority' for the government, they maintain that once the added cost of building power stations is included in the price of electricity, it would be more expensive for consumers.⁸⁰ The intention of the government is instead to construct the four large HPPs in the next 5-7 years, at which point they will be able to invest more into solar and wind to balance out the electricity supply. The ignorance of recognitional justice from the government is unmistakable, as large HPPs have consistently been met with large protest movements from civil society, but has not led the

⁷⁸ It should be noted that whilst nuclear energy is considered renewable, many environmental organisations object to its continued development due to safety concerns surrounding the storage of nuclear waste, as well as the time required to construct plants being too long to facilitate nuclear energy reducing carbon emissions in the time required to meet international commitments.

⁷⁹ Tamar Antidze, interview with author, Tbilisi, 26 July 2023.

⁸⁰ Interview with author, Tbilisi, 12 July 2023.

government to reconsidering this electricity strategy. If the government intends to meet its 27.4% renewable energy target by 2030, continuing to source investments in hydropower over alternative renewables will not be enough to meet it, particularly if the near-inevitable protests against these projects delay construction. The MoESD admitted that the lack of social opposition to other renewables is an advantage, but this has not translated into any policy shifts away from hydropower.

Georgia's longstanding history of relying on hydropower resources has led to a broad understanding that it is the only viable electricity source. Whilst the Georgian government maintains that only with more hydropower can other renewables be expanded, this policy is pursued at the expense of other alternatives which are cheaper and are not accompanied by the same social opposition as hydropower. These alternatives also come with their own climate justice risks, but this highlights that hydropower itself is not the issue, but the ways in which it is implemented and expanded. Whilst this research has highlighted that even renewable energies can be implemented unsustainably, moving away from reliance on hydropower is more sustainable in the long-term for Georgia. This chapter has presented a series of alternative renewables which could balance out hydropower in the future and centre climate justice in their implementation.

Conclusion

This research has sought to answer the question; to what degree is climate justice visible in the Georgian electricity sector, and are other alternative electricity balances possible which could provide a more just electricity balance? The Georgian hydropower revival that has taken place over the past two decades has facilitated a substantial improvement in access to electricity, and the past decade has also seen a notable improvement in the quality of legislation surrounding hydropower expansion and environmental protection. However, as this research has examined, there are multiple key problems in the implementation of this electricity strategy. From the systemic lack of data and expertise; the poor implementation of environmental protection strategies; to the meaningless engagement between the government, construction companies, and civil society; there are multiple areas where climate justice could be implemented, but is currently not.

It is important to consider the political realities of these issues. Climate justice is a far-reaching framework for any country to implement, and as a historically non-polluting country, Georgia does not share the same burden of historical responsibility that other countries in the Global North do. Domestically, hydropower is still conceived to be the most stable and reliable source of electricity, and this perception is unlikely to change in the near future despite protests against specific HPPs. As such, it will be difficult for alternative renewables to gain traction and balance the disproportionate level of hydropower production which currently exists in Georgia.

Whilst the LT LEADS 2050 does integrate a just transition into Georgian policy for the first time, the likelihood of proactive steps to implementing the core tenets of distributive, procedural, and recognitional justice are not high (2023: 11). There is little evidence to suggest that this will not be another area where EU integration and cooperation improves legislation on paper, but never becomes reality. Meanwhile, hydropower has become such a contentious issue across Georgian society that implementing all three tenets of climate justice may be the only way for GD to avoid repeating the mistakes of the past decade.

The Georgian government is clear in its intentions to reinitiate construction of Namakhvani and Khudoni HPPs, and its pursuit of hydropower expansion as the driving force behind its electricity security. Multiple interviewees expressed their concerns over how this process will develop, and whether and to what degree the government will learn lessons from its previous

attempts at constructing large HPPs. The government is aware of the opposition which exists towards constructing large HPPs, but seems to be out of alignment with the perspectives of civil society members who are engaged with this work.⁸¹ The government has consistently viewed opposition to HPPs as originating from a lack of understanding of the importance of these projects, and that the problems with communication was its inability to persuade locals of how important the project was. Changing the systems of communication between the government, construction companies, and local communities, is essential to creating a procedurally just process of community engagement. The consistent lack of worthwhile engagement with local communities and other stakeholders, is an area that most interviewees cited as an urgent area for improvement, whilst also acknowledging their scepticism of it happening. One interviewee suggested that the government was not re-evaluating its approach because it has understood that it was wrong, but instead because they know the status quo cannot continue.⁸² Integrating procedural and distributive justice in future large HPPs could avoid the same scale of opposition developing against these projects once the government relaunches them.

What is clear, is that protests will continue against the large HPPs that the government intends to construct, unless the concerns of communities and civil society are answered convincingly. For Khudoni HPP specifically, one key concern expressed in multiple interviews was that if one HPP was built, then the government would continue without restraint to construct the other 35 HPPs currently in development across Svaneti, including Nenskra HPP. For Namakhvani HPP, concern was also expressed about the public support that the protests would get when the project is relaunched, due to their involvement in the July 5 Pride attacks.⁸³ The Namakhvani HPP protests are still ongoing today as the project still intends to be constructed by the government and another investor, but it is difficult to predict what degree of support the protests will receive once progress is made on the project. Progress is unlikely in the near future, as Georgian parliamentary elections are scheduled for October 2024. Aware of the polarisation of large HPPs, the government is unlikely to launch any more HPPs before 2025. This provides an opportunity to incorporate procedural and recognitional justice into the projects by engaging with communities and addressing concerns

⁸¹ Nikoloz Kholodov, interview with author, Tbilisi, 12 July 2023.

⁸² Giorgi Tsintsadze, interview with author, Tbilisi, 17 July 2023.

⁸³ On July 5th, 2021, Tbilisi's first LGBTQ+ Pride parade was cancelled after a series of counter-protests organised by far-right groups, which members of the Rioni Valley Defenders movement were present at.

that they have, thus mitigating the need to work around protests against the projects once they are re-launched. If the government can integrate the tenets of climate justice and address the concerns around these projects, then opposition will be drastically reduced, and NGOs would not provide support that they currently do to protesters.

This research has sought to combine multiple fields of study relating to hydropower by using climate justice as a theoretical framework. With comparisons to literature focusing on hydropower consequences in other countries, similarities can be drawn with the Georgian case. Insufficient monitoring of environmental damage, local opposition to protests when communities are not engaged with in advance, and poorly coordinated resettlement, are all chronic issues with hydropower expansion internationally. The Georgian case fits alongside many of the cases of the negative consequences of hydropower being perceived to outweigh the positive.

This research begins to fill the gaps in English language literature on hydropower in Georgia, by bringing together the political, biodiversity, and community elements of hydropower expansion. Using climate justice as the conceptual framework for research on hydropower systems is essential, as it addresses the need for both the burdens and the gains of policy to be shared equitably. Crucially, it applies justice to both people and planet, something which similar frameworks perceive as conditional. When an electricity system is reliant on a single natural resource, analysing how that electricity production affects nature should be non-negotiable.

Future research is largely reliant on an improvement of data on various previously discussed issues. However, evaluating the differences between small, medium, and large HPPs would be an interesting issue for future research which this project did not have capacity to fully explore. Investigating how resettled people have reintegrated into new communities is also important research which has not been conducted, and could provide essential data for evaluating how to improve community engagement when constructing future HPPs. Giving greater attention to how hydropower expansion has gendered impacts is also necessary, particularly for local communities. Limited research focuses on this in Georgia, but is integral for ensuring that disproportionate burdens do not fall on women (GA, 2016; Gelashvili & Gvasalia, 2018).

This research has focused on two large HPPs in Georgia, but has also demonstrated that the issues that exist in these projects are also prevalent across the whole hydropower sector. Ultimately, Khudoni and Namakhvani HPPs are two prominent symptoms of the disease that is climate injustice. From the damage to biodiversity that cannot be mitigated because its scale has not been quantified, to the communities who are most affected but last to be included in the development process, different elements of the hydropower sector highlight the lack of distributive, procedural, and recognitional justice which are crucial to providing climate justice. What exists on paper can deliver this, but with neither the capacity, expertise, nor the political will to implement this legislation, achieving climate justice for the hydropower sector will be impossible.

Bibliography

- Ahrens, F. von L., Thomas Diez, Solveig Aamodt, Bettina. (2021). *The EU and Global Climate Justice: Normative Power Caught in Normative Battles*. Routledge.
<https://doi.org/10.4324/9781003081517>
- Antadze, N., & Gujaraidze, K. (2021). The role of traditional rituals in resisting energy injustice: The case of hydropower developments in Svaneti, Georgia. *Energy Research & Social Science*, 79, 102152. <https://doi.org/10.1016/j.erss.2021.102152>
- AR6 Synthesis Report: Climate Change 2023 — IPCC. (n.d.). Retrieved 27 August 2023, from <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>
- Bogner, A., & Menz, W. (2009). The Theory-Generating Expert Interview: Epistemological Interest, Forms of Knowledge, Interaction. In A. Bogner, B. Littig, & W. Menz (Eds.), *Interviewing Experts* (pp. 43–80). Palgrave Macmillan UK.
https://doi.org/10.1057/9780230244276_3
- Boran, I. (2018). On inquiry into climate justice. In *Routledge Handbook of Climate Justice*. Routledge.
- Bréchet, T., & Tulkens, H. (2021). *Climate Policies: A Burden, or a Gain?* 16.
- Brechin, S. R. (2016). Climate Change Mitigation and the Collective Action Problem: Exploring Country Differences in Greenhouse Gas Contributions. *Sociological Forum*, 31, 846–861.
<https://doi.org/10.1111/socf.12276>
- Brown, M. T. (2022). Introduction: Three Kinds of Engagement. In M. T. Brown (Ed.), *A Climate of Justice: An Ethical Foundation for Environmentalism* (pp. 1–13). Springer International Publishing. https://doi.org/10.1007/978-3-030-77363-2_1
- Buschle, D., & Bujaroska, A. (2021). *Concluding Report in a mediation concerning a dispute related to a hydropower project at Namakhvani, Rioni River, Georgia*. Dispute Resolution and Negotiation Centre of the Energy Community Secretariat.

- Cactus Media. (n.d.). დიდი ჰესების პროექტები საქართველოში: საჭიროება, ზემოქმედებები, რისკები. Retrieved 26 August 2023, from <https://cactus-media.ge:443/index.php?do=full&id=550>
- Cactus Media. (2023). *Outstanding trends and possible causes of electricity consumption in Georgia in the last 10 years*.
<https://www.facebook.com/photo/?fbid=699547905522196&set=a.689555279854792>
- CEE Bankwatch, & Green Alternative. (n.d.). *The Khudoni dam: A necessary solution to the Georgian energy crisis?* Retrieved 27 August 2023, from <https://bankwatch.org/publication/the-khudoni-dam-a-necessary-solution-to-the-georgian-energy-crisis>
- CEE Bankwatch, Green Alternative, & Nature Conservation Georgia. (n.d.). *Complaint on Possible threat to Rioni River from the Namakhvani Hydropower Project (Georgia)*. Retrieved 27 August 2023, from https://greenalt.org/en/disputes_complaints/complaint-on-possible-threat-to-rioni-river-from-the-namakhvani-hydropower-project-georgia/
- Chanturia, G. (2014). In Defense of Khudoni. *Transitions Online*.
<https://go.exlibris.link/PNCWCHBL>
- Chipashvili, D., & Hlobil, P. (2018). *Complaints on the Shuakhevi HPP - Letter from Green Alternative/CEE Bankwatch to the EBRD* [Personal communication].
- Civil Georgia | Interview | Turkish Ambassador on Bilateral Ties with Georgia, Namakhvani HPP. (2021, April 16). <https://civil.ge/archives/412457>
- Civil.ge. (2022, May 2). Garibashvili Wants State to Build Large HPPs. *Civil Georgia*.
<https://civil.ge/archives/488321>
- Climate Change: Challenges and Responses* | United Nations Development Programme. (n.d.).
UNDP. Retrieved 26 August 2023, from <https://www.undp.org/georgia/publications/climate-change-challenges-and-responses>

Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. (1998).

https://www.cambridge.org/core/product/identifier/S0020782900019203/type/journal_article

Davis, M., Benzie, M., & Barrott, J. (2016). *Transnational climate change impacts: An entry point to enhanced global cooperation on adaptation?*

<https://www.sei.org/publications/transnational-climate-impacts/>

Delina, L. L., & Sovacool, B. K. (2018). Of temporality and plurality: An epistemic and governance agenda for accelerating just transitions for energy access and sustainable development. *Current Opinion in Environmental Sustainability*, 34, 1–6.

<https://doi.org/10.1016/j.cosust.2018.05.016>

Devidze, M. (2020). *Solar Energy in Georgia* | Heinrich Böll Stiftung | Tbilisi—South Caucasus Region. <https://ge.boell.org/en/2020/07/22/solar-energy-georgia>

Dundua, A., Vashakidze, T., & Uplisashvili, N. (2019). *Effective Operation Assessment of more than 25 years old and newly built Hydro Power Plants*. Greens Movement of Georgia/Friends of the Earth Georgia.

<https://www.greens.ge/storage/publications/February2020/imQVZ3U2cudM0Edkr8Po.pdf>

Dundua, S., & Karaia, T. (2019). “No to Khudoni Hydro Power Plant!” Social Movement in Georgia. *Studia Politica (Bucuresti)*, 19(2), 215–235.

Durdyev, S., & Ismail, S. (2017). The build-operate-transfer model as an infrastructure privatisation strategy for Turkmenistan. *Utilities Policy*, 48, 195–200.

<https://doi.org/10.1016/j.jup.2016.12.002>

ESCO. (2018). *Electricity Balance of Georgia* [dataset].

https://esco.ge/files/data/Balance/energobalans_2018_eng.pdf

ESCO. (2022). *Electricity Balance of Georgia* [dataset].

https://esco.ge/files/data/Balance/energobalans_2022_eng.pdf?fbclid=IwAR2G49fxeRh2bIX_hFohP3fxO4Imcih45ELxc4MHjvKTFvNWA5h7iuC-luY

Evans, G., & Phelan, L. (2016). Transition to a post-carbon society: Linking environmental justice and just transition discourses. *Energy Policy*, 99, 329–339.

<https://doi.org/10.1016/j.enpol.2016.05.003>

Fiscal Risk Analysis, 2019-23 (p. 88). (2019). Ministry of Finance of Georgia.

https://www.mof.ge/images/File/publications/FRS_2019_ENG.pdf

Five Reasons Why Climate Action Needs Women | UNFCCC. (n.d.). Retrieved 12 August 2023,

from <https://unfccc.int/news/five-reasons-why-climate-action-needs-women>

Gamma Consulting Ltd. (2018). *JSC ‘Namakhvani’ Screening Report*.

<https://mepa.gov.ge/Ge/PublicInformation/8374>

Georgian Energy Development Fund. (n.d.). *Wind Projects*. <https://gedf.com.ge/>. Retrieved 2

July 2023, from <https://gedf.com.ge/projects/Wind>

Georgian Government. (2023). *Georgia’s Long-Term Low Emission Development Strategy*.

<https://www.undp.org/sites/g/files/zskgke326/files/2023-07/undp-georgia-eu4climate-leds-summary-eng.pdf>

Giacomini, G. (2022). Climate Justice as an Interpretative Approach. In G. Giacomini (Ed.),

Indigenous Peoples and Climate Justice: A Critical Analysis of International Human Rights Law and Governance (pp. 27–97). Springer International Publishing.

https://doi.org/10.1007/978-3-031-09508-5_2

Global Wind Power Tracker (GWPT) Summary Data—May 2023. (n.d.). Google Docs. Retrieved

2 July 2023, from

https://docs.google.com/spreadsheets/u/0/d/1iTW9vwpGIXljS0CHIbsPxalEge200Di-zCLXZxq_wyU/edit?pli=1&usp=embed_facebook

Green Alternative, & CEE Bankwatch. (2011). *Comments of GA/CEE Bankwatch on Nam HPP Draft Environmental and Social Impact (ESIA)*.

https://greenalt.org/app/uploads/2021/05/comments_on_-_Namakhvani_HPP_cascade_draft_ESIA_report_14-June-2011_ENG.pdf

Green Alternative, & CEE Bankwatch. (2021). *Namakhvani Hydropower Plant Project Issue Paper*. https://greenalt.org/app/uploads/2021/06/Issue_paper_Namakhvani_May_2021.pdf

Hensley, M. L., & White, E. P. (1993). The privatization experience in Malaysia: Integrating build-operate-own and build-operate-transfer techniques within the national privatization strategy. *The Columbia Journal of World Business*, 28(1), 70–82.

[https://doi.org/10.1016/0022-5428\(93\)90055-T](https://doi.org/10.1016/0022-5428(93)90055-T)

<https://civil.ge/archives/author/civil-ge>. (2022, December 19). Government Decides to Buy Out Khudoni HPP Project. *Civil Georgia*. <https://civil.ge/archives/519343>

IEA. (2020). *Energy Policy Review: Georgia 2020*.

IMF. (2021). *Eighth Review under the Extended Fund Facility Arrangement* (IMF Country Report No. 21/79; p. 74). International Monetary Fund.

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjwksH7uLaAAxUFGuwKHVfyDDsQFnoECCYQAQ&url=https%3A%2F%2Fwww.imf.org%2F%2Fmedia%2Ffiles%2Fpublications%2FCR%2F2021%2FEnglish%2F1GEOEA2021001.aspx&usq=AOvVaw0jKc-AOP_lIXBgdHKUuMWE&opi=89978449

International Energy Agency. (2021). *Hydropower Special Market Report: Analysis and forecast to 2030*. OECD. <https://doi.org/10.1787/07a7bac8-en>

Jafry, T., Mikulewicz, M., & Helwig, K. (2018). Introduction: Justice in the era of climate change. In *Routledge Handbook of Climate Justice*. Routledge.

- Japoshvili, B., Couto, T. B. A., Mumladze, L., Epitashvili, G., McClain, M. E., Jenkins, C. N., & Anderson, E. P. (2021). Hydropower development in the Republic of Georgia and implications for freshwater biodiversity conservation. *Biological Conservation*, 263, 109359. <https://doi.org/10.1016/j.biocon.2021.109359>
- Jenkins, K. (2018). Setting energy justice apart from the crowd: Lessons from environmental and climate justice. *Energy Research & Social Science*, 39, 117–121. <https://doi.org/10.1016/j.erss.2017.11.015>
- Jijelava, D., & Vanclay, F. (2018). How a large project was halted by the lack of a social Licence to operate: Testing the applicability of the Thomson and Boutilier model. *Environmental Impact Assessment Review*, 73(Journal Article), 31–40. <https://doi.org/10.1016/j.eiar.2018.07.001>
- Khardiani, T. (2023). *Climate change policies and strategies development and implementation action in Georgia (Greens Movement of Georgia/Friends of the Earth Georgia)*.
- Law of Georgia. (2017). *Environmental Assessment Code* | სსიპ "საქართველოს საკანონმდებლო მაცნე". Retrieved 8 August 2023, from <https://matsne.gov.ge/en/document/view/3691981?publication=10>
- Lord, A., Drew, G., & Gergan, M. D. (2020). Timescapes of Himalayan hydropower: Promises, project life cycles, and precarities. *WIREs Water*, 7(6), e1469. <https://doi.org/10.1002/wat2.1469>
- Luzzatto, L. E. (2022a). Climate change as a complex problem of justice. In *Intergenerational Challenges and Climate Justice*. Routledge.
- Luzzatto, L. E. (2022b). Introduction. In *Intergenerational Challenges and Climate Justice*. Routledge.

- Marques, S., Lima, M. L., Moreira, S., & Reis, J. (2015). Local identity as an amplifier: Procedural justice, local identity and attitudes towards new dam projects. *Journal of Environmental Psychology*, 44, 63–73. <https://doi.org/10.1016/j.jenvp.2015.09.007>
- Mayer, A., Castro-Diaz, L., Lopez, M. C., Leturcq, G., & Moran, E. F. (2021). Is hydropower worth it? Exploring amazonian resettlement, human development and environmental costs with the Belo Monte project in Brazil. *Energy Research & Social Science*, 78, 102129. <https://doi.org/10.1016/j.erss.2021.102129>
- Mayer, A., Lopez, M. C., & Moran, E. F. (2022). Uncompensated losses and damaged livelihoods: Restorative and distributional injustices in Brazilian hydropower. *Energy Policy*, 167, 113048. <https://doi.org/10.1016/j.enpol.2022.113048>
- McCauley, D., & Heffron, R. (2018). Just transition: Integrating climate, energy and environmental justice. *Energy Policy*, 119, 1–7. <https://doi.org/10.1016/j.enpol.2018.04.014>
- McCauley, D., Heffron, R. J., Jenkins, K., & Hannes, S. (2013). *Advancing energy justice: The triumvirate of tenets*. <https://dspace.stir.ac.uk/bitstream/1893/18349/1/IELR%202013.pdf>
- Newnham, R. (2011). Oil, carrots, and sticks: Russia’s energy resources as a foreign policy tool. *Journal of Eurasian Studies*, 2(2), 134–143. <https://doi.org/10.1016/j.euras.2011.03.004>
- Noniev, I., Khelidze, G., & Shainyan, G. (2020). Assessment of Accidents at Storage Hydro Power Plants in Georgia. *Power Technology and Engineering*, 54, 472–477. <https://doi.org/10.1007/s10749-020-01234-7>
- OC Media. (n.d.). *Georgian riot police deploy rubber bullets and tear gas in Pankisi hydropower protest*. <https://oc-media.org/georgian-riot-police-deploy-rubber-bullets-and-tear-gas-in-pankisi-hydropower-protest/>
- Opitz, P. (2018). განახლების საჭიროება ენერგეტიკა სომხეთში, აზერბაიჯანსა და საქართველოში [Energy in Armenia, Azerbaijan and Georgia in need of renewal]. *Heinrich*

Böll Foundation. <https://ge.boell.org/ka/2018/02/06/ganaxlebis-sachiroeba-energetika-somxetshi-azerbajjansa-da-sakartveloshi>

Pankisi Valley Protesters. (2018, July 20). *Open Letter from the Pankisi Valley on the Pankisi Gorge Hydropower Cascade*. <https://www.facebook.com/pankisi/posts/2132809313414692>

Pankisi Women Rally Against Hydro Plant. (n.d.). Chaikhana. Retrieved 26 August 2023, from https://chaikhana.media/en/stories/736/pankisi-women-rally-against-hydro-plant?fbclid=IwAR0JyZWFZfBQ1Agc3tg_CI6xs16gwly6KL-bcWBe942QvMYUcO4714sb9AE

Patarkalashvili, T. (2021). Gigantic Hydroelectric Plants Destroy Ecosystems, Cultural Heritage and Displace Local Populations. *Environmental Analysis & Ecology Studies*, 8(5). <http://dx.doi.org/10.31031/EAES.2021.08.000698>

Patel, S., Shakya, C., & Rai, N. (n.d.). *Climate finance for hydropower*. 43.

Phillis, A., Grigoroudis, E., & Kouikoglou, V. S. (2021). Assessing national energy sustainability using multiple criteria decision analysis. *International Journal of Sustainable Development & World Ecology*, 28(1), 18–35. <https://doi.org/10.1080/13504509.2020.1780646>

Piggot, G., Verkuyl, C., van Asselt, H., & Lazarus, M. (2020). Curbing fossil fuel supply to achieve climate goals. *Climate Policy*, 20(8), 881–887. <https://doi.org/10.1080/14693062.2020.1804315>

Promoting Sustainable Dam Development at River-Basin-Scale in the Southern Caucasus. (2015). https://wwf.panda.org/wwf_news/?274110/Promoting-Sustainable-Dam-Development-at-River-Basin-Scale-in-the-Southern-Caucasus

Rawls, J. (1974). *A theory of justice*. Harvard University Press.

SABUKO. (2020, July 27). *SABUKO's Statement Regarding the Construction of Wind Farms at the Kvernaki Ridge*. SABUKO. <https://www.sabuko.org/en/sabukos-statement-regarding-the-construction-of-wind-farms-at-the-kvernaki-ridge-2/>

- Sayan, R. C. (2017). Urban/rural division in environmental justice frameworks: Revealing modernity-urbanisation nexus in Turkey's small-scale hydropower development. *Local Environment*, 22(12), 1510–1525. <https://doi.org/10.1080/13549839.2017.1368465>
- Schlosberg, D. (2004). Reconceiving Environmental Justice: Global Movements And Political Theories. *Environmental Politics*, 13(3), 517–540. <https://doi.org/10.1080/0964401042000229025>
- Sheppard, V. (2021). *Research-Methods-for-the-Social-Sciences-An-Introduction Updated Aug. 2021*.
- Simcock, N., & Mullen, C. (2016). Energy demand for everyday mobility and domestic life: Exploring the justice implications. *Energy Research & Social Science*, 18(Journal Article), 1–6. <https://doi.org/10.1016/j.erss.2016.05.019>
- Smith, E. S. (n.d.). *Climate change in Women, Peace and Security national action plans*. 32.
- Social Justice Center. (2021). *A Brief History of Namakhvani HPP Cascade Project: Violations, Inconsistencies and Unsubstantiated Concessions* (p. 71). https://socialjustice.org.ge/uploads/products/pdf/Namakhvani_ENG_1627034834.pdf#:~:text=A%20BRIEF%20HISTORY%20OF%20NAMAKHVANI%20HPP%20CASCADE%20PROJECT,the%20Tbilisi%20Office%20of%20the%20Heinrich%20B%3%B6ll%20Foundation.
- Social Justice Center. (2018, July 4). *EMC filed a complaint with the court on behalf of the local community regarding HPP construction in Pankisi valley*. <https://socialjustice.org.ge/en/products/emc-pankisis-kheobashi-hesis-msheneblobis-sakitkhze-adgilobrivi-temis-sakhelit-sasamartloshi-davas-itsqebis>
- Sovacool, B. K., Burke, M., Baker, L., Kotikalapudi, C. K., & Wlokas, H. (2017). New frontiers and conceptual frameworks for energy justice. *Energy Policy*, 105, 677–691. <https://doi.org/10.1016/j.enpol.2017.03.005>

- Tamoudi, N., & Reder, M. (2018). A narrative account of temporality in climate justice. In *Routledge Handbook of Climate Justice*. Routledge.
- Ten-Year Network Development Plan of Georgia 2023-2033 (p. 70). (2023). Georgia JSC 'Georgia State Electrosystem'. https://gse.com.ge/sw/static/file/TYNDP_GE-2023-2033_ENG.pdf
- Tielidze, L. G., Nosenko, G. A., Khromova, T. E., & Paul, F. (2022). Strong acceleration of glacier area loss in the Greater Caucasus between 2000 and 2020. *The Cryosphere*, 16(2), 489–504. <https://doi.org/10.5194/tc-16-489-2022>
- Tokar, B. (2018). On the evolution and continuing development of the climate justice movement. In *Routledge Handbook of Climate Justice*. Routledge.
- Transnational climate change impacts*: (2021). 5.
- Tsintsadze, G. (2022). *Public Participation in the Energy Sector: Namakhvani HPP Experience and Future Steps*. Social Justice Center. https://socialjustice.org.ge/uploads/products/pdf/Public_Participation_in_the_Energy_Sector_1661333636.pdf
- UNEP. (n.d.). *Climate Justice | UNEP Law and Environment Assistance Platform*. Retrieved 14 August 2023, from <https://leap.unep.org/knowledge/glossary/climate-justice>
- USAID. (2017). *The Assessment of Environmental Flows for the Rivers and Streams of Georgia*. https://pdf.usaid.gov/pdf_docs/PA00MRW1.pdf
- Vladimirov and Gigineishvili. (1991). Water Balance of the Caucasus and Geographical Regularities. *Metsniereba*, 33–34.
- von Lucke, F., Diez, T., Aamodt, S., & Ahrens, B. (2021). *The EU and Global Climate Justice: Normative Power Caught in Normative Battles*. Routledge. <https://doi.org/10.4324/9781003081517>

- Williams, S., & Doyon, A. (2019). Justice in energy transitions. *Environmental Innovation and Societal Transitions*, 31, 144–153. <https://doi.org/10.1016/j.eist.2018.12.001>
- Wind farm in Gori successfully generates renewable energy in Georgia—EU NEIGHBOURS east.* (2018, May 28). <https://euneighbourseast.eu/news/stories/wind-farm-in-gori-successfully-generates-renewable-energy-in-georgia/>
- Wood, N. (2023). Problematizing energy justice: Towards conceptual and normative alignment. *Energy Research & Social Science*, 97, 102993. <https://doi.org/10.1016/j.erss.2023.102993>
- Zhao, X., Wu, L., & Qi, Y. (2020). The energy injustice of hydropower: Development, resettlement, and social exclusion at the Hongjiang and Wanmipo hydropower stations in China. *Energy Research & Social Science*, 62, 101366. <https://doi.org/10.1016/j.erss.2019.101366>
- Ziemer, U. (Ed.). (2020). *Women's Everyday Lives in War and Peace in the South Caucasus*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-25517-6>
- Абхазия, S. (300 С.Е., 20230112Т1904). Названы причины введения графика отключений света в Абхазии. Sputnik Абхазия. <https://sputnik-abkhazia.ru/20230112/nazvany-prichiny-vvedeniya-grafika-otklyuchenyi-sveta-v-abkhazii-1043583149.html>
- „საქართველოს შეუძლია დიდი წვლილი შეიტანოს ევროპისა და აზიის დაკავშირების საქმეში“ » kvira.ge. (2015, January 14). *kvira.ge*. <http://kvira.ge/138301>

Appendix 1: List of Interviewees

Name (and field)	Date of Interview	Interview Location
Tamar Antidze (Heinrich Böll Foundation)	26 July 2023	Tbilisi
Margalita Arabidze (MoESD)	12 July 2023	Tbilisi
Zurabi Arveladze (MoESD)	12 July 2023	Tbilisi
Maka Bitsadze	21 July 2023	Tbilisi
Dato Chipashvili (Green Alternative)	23 June 2023	Tbilisi
Ekaterine Mikadze	8 May 2023	Tbilisi
Lika Jalagania (Ilia State University)	4 July 2023	Tbilisi
Nikoloz Kholodov (MoESD)	12 July 2023	Tbilisi
Salome Shubladze (Social Justice Center)	17 July 2023	Tbilisi
Giorgi Tsintsadze (Institute for Social and Cultural Research)	18 July 2023	Tbilisi
Hydrologist	26 April 2023 / 13 July 2023	Tbilisi
Community Consequences of Hydropower researcher	10 July 2023	Tbilisi

Appendix 2: Plain Language Statement



University
of Glasgow

College of Social
Sciences

Plain Language Statement

Study title and Researcher Details

Study Title: Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia

Researcher: Hannah O’Sullivan - 2313736o@student.gla.ac.uk

Supervisors: Dr Federica Prina – Federica.Prina@glasgow.ac.uk

Dr Florian Muehlfried - florian.muehlfried@iliauni.edu.ge

Programme: Erasmus Mundus MA Central & East European, Russian, & Eurasian Studies

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Purpose of Study

The purpose of this study is to develop an MA dissertation which examines how hydropower energy in Georgia has affected people and communities surrounding hydropower plants, and the damage to biodiversity. Using climate justice as a theoretical framework, this study seeks to expand on literature on the consequences of hydropower energy and propose alternatives to hydropower reliance which are not as damaging for people and planet. This study began in 2022 and will be completed in August 2023.

Why have I been chosen?

You have been selected for an interview due to your expertise in environmental issues in Georgia. Other participants will include members of NGOs which research or promote environmental or social justice issues, academic staff from universities in Tbilisi, and members of specific government ministries pertaining to energy and the environment. Around 6-10 people will be interviewed for this research.

Do I have to take part?

It is up to you to decide whether or not to take part. If you decide to take part, you are still free to withdraw via email until 31st July 2023 without giving a reason. If participants chose to withdraw from the study, all data gathered will be removed from the dissertation and destroyed.

What will happen to me if I take part?

In your interview, either online or in-person depending on your preference, you will be asked to discuss hydropower usage and expansion in Georgia, and the effects that this has on local communities, biodiversity, and the Georgian government's aim of achieving energy independence. You will also have a choice whether to consent to your interview being audio recorded, as per the Consent Form, which will be provided if you agree to take part in this research. An interview will not last for longer than one hour, but follow-up emails may be requested for clarification if needed.

Confidentiality

All information which is collected about you during the research will be kept strictly confidential. If you do not wish to be named, you will be identified by an ID number and any information about you will have your name and address removed so that you cannot be recognised from it. Instead, the organisation or institution which you represent will be used within the study as a replacement, with your agreement. If you do not wish for your organisation to be named, you will be referred to as a member of 'an environmental NGO/think-tank', 'an academic of – University' or 'a member from the Georgian government'. All data gathered during the research will be destroyed after its completion.

Confidentiality may not be guaranteed, due to the limited size of the participant sample.

Please note that assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.

Results of Study

I will analyse the data I collect from participants and present it as my final dissertation for my Erasmus Mundus MA in Central & East European, Russian, & Eurasian Studies. Data will be stored in a secure location on an encrypted device, which only I will have access to for the duration of this study. Upon completion of the research, all data will be destroyed, per the protocols of the University of Glasgow School of Social Sciences. All participants will receive a written summary of the findings via email, following which email addresses will be deleted.

10. Who has reviewed the study?

The project has been reviewed by the School of Social and Political Sciences Ethics Forum of the University of Glasgow.

11. Contact for Further Information

For further information, contact Hannah O'Sullivan, email: 2313736o@student.gla.ac.uk

If you (participants) have any concerns regarding the conduct of the research project you can contact the School of Social Sciences Ethics Officer, email: Gerda.Reith@glasgow.ac.uk

Thank you for reading this.

Appendix 3: Privacy Notice

Privacy Notice for Participation in Research Project: Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia (Researcher: Hannah O’Sullivan)

Your Personal Data

The University of Glasgow will be what’s known as the ‘Data Controller’ of your personal data processed in relation to your participation in the research project Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia. This privacy notice will explain how The University of Glasgow will process your personal data.

Why we need it

We are collecting basic personal data such as your name and contact details in order to conduct our research. We need your name and contact details to schedule interviews or potentially follow-up on information that you have provided.

We only collect data that we need for the research project and will de-identify your personal data from the research data (your answers given during the interview, for example) by referring to your organisation or institution.

Please note that your confidentiality may be impossible to guarantee for example due to the size of the participant group and location, as this project has a limited number of contributors. Please see accompanying **Participant Information Sheet**,

Legal basis for processing your data

We must have a legal basis for processing all personal data. As this processing is for Academic Research, we will be relying upon **Task in the Public Interest** in order to process the basic personal data that you provide. For any special categories data collected we will be processing this on the basis that it is **necessary for archiving purposes, scientific or historical research purposes or statistical purposes**

Alongside this, in order to fulfil our ethical obligations, we will ask for your **Consent** to take part in the study Please see accompanying **Consent Form**.

What we do with it and who we share it with

All the personal data you submit is processed by: staff at the University of Glasgow in the United Kingdom. In addition, security measures are in place to ensure that your personal data remains safe: including secure storage and encryption of files and devices. Please consult the **Consent form** and **Participant Information Sheet** which accompanies this notice.

We will provide you with a copy of the study findings and details of any subsequent publications or outputs on request.

What are your rights?*

GDPR provides that individuals have certain rights including: to request access to, copies of and rectification or erasure of personal data and to object to processing. In addition, data subjects may also have the right to restrict the processing of the personal data and to data portability. You can request access to the information we process about you at any time.

If at any point you believe that the information we process relating to you is incorrect, you can request to see this information and may in some instances request to have it restricted, corrected, or erased. You may also have the right to object to the processing of data and the right to data portability.

Please note that as we are processing your personal data for research purposes, the ability to exercise these rights may vary as there are potentially applicable research exemptions under the GDPR and the Data Protection Act 2018. For more information on these exemptions, please see [UofG Research with personal and special categories of data](#).

If you wish to exercise any of these rights, please submit your request via the [webform](#) or contact dp@gla.ac.uk

Complaints

If you wish to raise a complaint on how we have handled your personal data, you can contact the University Data Protection Officer who will investigate the matter. Our Data Protection Officer can be contacted at dataprotectionofficer@glasgow.ac.uk

If you are not satisfied with our response or believe we are not processing your personal data in accordance with the law, you can complain to the Information Commissioner's Office (ICO) <https://ico.org.uk/>

Who has ethically reviewed the project?

This project has been ethically approved via the College of Social Sciences Research Ethics Committee or relevant School Ethics Forum in the College.

How long do we keep it for?

Your **personal and research** data will be retained by the University only for as long as is necessary for processing and no longer than the period of ethical approval November 30, 2023. After this time, data will be securely deleted.

End of Privacy Notice _____

Appendix 4: Consent Form



College of Social Sciences

Title of Project: Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia

Name of Researcher: Hannah O'Sullivan

Name of Supervisors: Dr Federica Prina
Dr Florian Muelhfried

Please tick as appropriate

Yes No I confirm that I have read and understood the Plain Language Statement for the above study and have had the opportunity to ask questions.

Yes No I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

Yes No I consent to interviews being audio-recorded.

Yes No I consent to interviews being video-recorded for online interviews; I acknowledge that all video data will be deleted immediately upon completion of the interview, and only the audio recording will be kept.

Confidentiality:

Yes No I consent to being named when referred to in the dissertation.

Yes No I consent to being affiliated with the organisation I represent when referred to in the dissertation.

Yes No I wish to only be referred to by pseudonym.

Yes No I consent to direct quotes being used in the written dissertation.

I agree that:

Yes No The material will be treated as confidential and kept in secure storage at all times.

Yes No The material will be destroyed once the project is complete.

Yes No I waive my copyright to any data collected as part of this project.

Yes No I acknowledge the provision of a Privacy Notice in relation to this research project.

I agree to take part in this research study

I do not agree to take part in this research study

Name of Participant Signature

Date

Name of ResearcherSignature

Date

Appendix 5: Ethical Approval

Ethics Committee for Non-Clinical Research Involving Human Subjects

Notification of Ethics Application Outcome – UG and PGT Student Applications

Application Details

Undergraduate Student Research Ethics Application Postgraduate Student Research Ethics Application

Application Number: PGT/SPS/2023/039/IMCEERES

Applicant's Name: Hannah O'Sullivan

Project Title: Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia

Application Status: Fully Approved

Date of Review: 18/04/2023

Start Date of Approval

18/04/2023

End Date of Approval

30/11/2023

NB: Only if the applicant has been given approval can they proceed with their data collection with effect from the date of approval.

Recommendations (where changes are required)

Where changes are required by reviewers all applicants must respond in the relevant boxes to the recommendations of the Committee and provide this as the Resubmission Document to explain the changes you have made to the application as well as amending the documents. **Changes to the application form or supporting documents should be highlighted either in block highlight or in red coloured text to assist the reviewers.**

All resubmitted application documents should then be provided.

Approval Subject to Amendments means that the applicant can proceed with data collection with effect from the date of approval, but amendments must be fulfilled.

Amendments Subject to SEF should be submitted to ethics administrator.

If your application is rejected a new application must be submitted to the ethics administrator. Where recommendations are provided, they should be responded to and this document provided as part of the new application. A new reference number will be generated.

REVIEWER MAJOR RECOMMENDATIONS	APPLICANT RESPONSE

REVIEWER MINOR RECOMMENDATIONS	APPLICANT RESPONSE

ADDITIONAL REVIEWER COMMENTS	APPLICANT RESPONSE
Thank you for responding to comments so clearly. This application is now fully approved. All best wishes and good luck with your research.	

School Ethics Forum for Non-Clinical Research Involving Human Subjects

Request for Amendments - Reviewer Feedback

Application Details

Undergraduate Student Research Ethics Application Postgraduate Student Research Ethics Application

Application Number: PGT/SPS/2023/039/IMCEERES

Applicant's Name: Hannah O'Sullivan

Project Title: Climate Justice and Hydropower Expansion in post-Paris Agreement Georgia

Original **Start** Date of Application Approval: 18/04/2023

Original **End** Date of Application Approval: 30/11/2023

Date of Amendments Approved: 10/05/2023

Outcome: Amendments Approved

Reviewer Comments

Many thanks to responding to amendments so clearly, these are now fully approved. All the best with your research.

Appendix 6: Interview Question Sample

General Questions:

1. What are the main successes and areas for improvement that you recognise in Georgia's hydropower sector?
 - a. Are there measures that could currently be implemented to remedy or improve these issues?

Biodiversity:

1. How is biodiversity affected by hydropower expansion?
 - a. How are these effects monitored?
 - b. What mitigation and adaptation strategies are made?
2. How would you evaluate the quality of the environmental impact assessments and feasibility studies in relation to the harm it may cause to the environment?
3. How does the lack of data on endangered species in Georgia affect the abilities of companies to conduct accurate environmental impact assessments on hydropower projects?

Community Effects:

1. What is the risk assessment process for proposed hydropower plants? Is it sufficient?
2. How is the socio-economic damage for local communities evaluated and compensated?
 - a. What other support, beyond purely financial, exists to help communities who are displaced in order to construct hydropower infrastructure?
3. In what ways are communities indirectly affected by HPP?

Policy:

1. Are the issues seen in the large hpps also present in smaller ones?
2. Are there alternative ways to increase hydropower capacity in Georgia, without continuing to build new HPPs?
3. How do you evaluate the potential for expansion of other forms of renewable energy in Georgia?

- a. What is preventing investment in alternative renewables that are cheaper than hydropower?
4. What lessons can be learned from the opposition to previous attempts to construct large HPPs?
5. Where is there room for more justice in the transition from fossils to renewables?