

**Energy Transition in Post-War
Sri Lanka:
Policy pathways, geopolitical dynamics
and the question of equity**

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அப்பாவின் தோழமையான நினைவுகளுக்கு

Dedicated to my dear father,
a great guide and companion

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Gz. MeeNilankco Theiventhran
Bergen, 27th April 2023.

Summary

The global energy and climate crisis has prompted the world to accelerate energy transition and move toward clean and green alternatives. Energy transition involves a chain comprising many links: political will, regional and global interests, policy instruments, finance, energy providers and companies, delivery systems, technology and innovation, and end-users. With a focus on Sri Lanka, this dissertation examines post-war societies' prospects of achieving energy transition socially, equitably and positively and explores potential pathways and associated challenges.

This dissertation explores the motives, strategies, and conditions accompanying energy transitions in a post-war context. Understanding how such initiatives unfold in a post-war state is a complex task requiring research and insight into processes and mechanisms taking place at multiple levels. This dissertation addresses this task through a research design exploring energy transition from three analytical perspectives: the local, national, and global. The local level explores grassroots issues relating to justice and equity from the perspective of societies in former war zones. The national-level perspective directs attention to policymaking and democratic aspects of governance concerning energy transitions. The global level perspective explores geopolitical issues and conditions for energy transitions.

These three analytical levels deliver insights into how people react to new wind and solar farms in their area (local level), how spatial concentrations of energy policymaking emerge and evolve (national level), and the geopolitical conditions that enable or hinder the development of clean energy transitions (global level). Particular attention is devoted to analysing the interactions between levels and the spatial setting encompassing the energy transition. Much current research on energy transitions in the Global South builds on a particular set of theoretical approaches, including transition studies or governance studies. This dissertation nuances and enriches the kaleidoscope of theoretical and

conceptual thinking by adding other perspectives aimed at fostering critical thought when engaging with energy transitions.

Much, if not most, emphasis in the energy transition discourse is placed on new technological solutions like solar photovoltaics, digitalisation of electricity infrastructure, and electric vehicles. Such technological interventions can result in unintended consequences for energy poverty, justice, and democracy, not only but especially in the Global South if not given careful consideration. A range of social, scientific, and philosophical work has emerged on energy transition in the Global South in the last decade. However, three gaps have been identified in the extant literature: 1) Much of it is concerned with the effect of transition at the (inter)national energy systems level, with less attention given to the political and ethical consequences these transitions could have on people's everyday lives. 2) The literature falls short of interrogating the unintended consequences of (rapidly) ramping up energy transition in post-war settings. 3) Most work on energy transition has shown minimal engagement with geopolitical aspects, which are of particular relevance to the Global South.

The research questions are: How is the energy transition unfolding in Sri Lanka locally, nationally, and globally? How are energy transition dynamics interlinked to equity and justice in post-war Sri Lanka? What characterizes and explains policymaking on energy transition in Sri Lanka? How do geopolitics impact the post-war energy transition in Sri Lanka? How do Sri Lanka's climate commitments and post-war economic opportunities shape energy transition policies? These questions have been explored in more detail through five papers and from different vantage points. The papers explain and demonstrate the complexity of energy transition from a post-war Global South context. The dissertation with its associated papers is based on extensive fieldwork conducted in Sri Lanka.

The dissertation has four principal conclusions. First, the starting point for any energy transition, especially in a post-war environment, should be the understanding that energy injustice is produced historically, geographically

and materially. In other words, energy inequity, injustice, and vulnerability are far more complex than matters of technology, prices and income and involve structural and socio-cultural conditions that have evolved and will continue to do so, positively or negatively, over time and space.

Second, the Sri Lankan case demonstrates that there are four key prerequisites for successful and equitable energy transition in the developing world: 1) A localised participatory approach with a better understanding of and respect for varied local realities. 2) A consistent, inclusive policy built on improved inter-sectoral cooperation. 3) Political willingness to move beyond outdated or colonial understandings of development. 4) Financial models and mechanisms that disadvantage the poorest need to be replaced with models that harness local skills, know-how, business and management to provide deprived communities with renewable energy and the added benefits of community improvements.

Third, responding to climate commitments while ensuring equitable energy necessitates including and recognising the different capabilities of the state and relevant actors. Failure to do so can lead to hollowed-out energy transitions, detaching de-carbonisation from energy security, impeding social and justice issues, and confining any action taken to a minimal and even undesirable level with regard to energy transition. Whilst issues of carbon lock-in, path dependency and inertia are found in many developed and developing countries, their impact impedes the attention given to ‘newer’ aspects of the energy transition, such as justice and equity. This highlights the uneven distribution of agency throughout Sri Lankan society. In a post-war context such as that of Sri Lanka, this may further hinder or raise opposition to positive energy transitions.

Fourth, the case of Sri Lanka indicates that the geopolitics of energy is at the forefront of reshaping external affairs and diplomatic relations. Sri Lanka’s dependence on external actors for energy, international finance, technologies and its climate commitments has made Sri Lanka’s energy transition a geopolitical battleground. Energy transitions are used by

geopolitical actors for three essential purposes: 1) territorial control, where energy infrastructure becomes a route to geopolitical manifestations, 2) hegemony as part of grand strategies and initiatives and 3) influence, to gain specific control and to counter other actors' influence. Developing countries have committed to high renewable energy targets, yet they miss them considerably. Energy has become a geopolitical battleground since countries have failed to build up indigenous capacity, recognise their own energy sources, and are in need of a long-term sustainable and coherent energy transition policy. If these issues are not addressed, they will become increasingly dependent on external actors that, in turn, could create monopolies, debt, political tension, security threats and policy challenges. By focusing on these factors, this dissertation studies the policy pathways and geopolitical dynamics of energy transition in post-war Sri Lanka, and points out that clean and green are not always desirable.

List of Articles

Article I

Theiventhran, Gz.M. Sri Lanka's Energy Transition: One step forward, two steps back. In K. Ruwanpura, A. Saleem, & A. Abayasekera (Eds.), *Routledge Handbook on Contemporary Sri Lanka*. Routledge (Accepted).

Article II

Theiventhran, Gz.M (2021). Energy transitions in a post-war setting: questions of equity, justice, and democracy in Sri Lanka. In A. Kumar, J. Höffken & A. Pols (Eds.), *Dilemmas of Energy Transitions in the Global South: Balancing Urgency and Justice* (pp 93-110) Routledge. DOI: 10.4324/9780367486457-6.

Article III

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Article IV

Theiventhran, Gz.M (2022) Energy as a geopolitical battleground in Sri Lanka. *Asian Geographer* DOI: 10.1080/10225706.2022.2098507.

Article V

Theiventhran, Gz.M Energy Transitions Creating New Inequities: Rooftop Solar in Sri Lanka. (Under review for *South Asian Development*).

1. Introduction

1.1 Research objectives and relevance

This dissertation aims to study energy transition in a post-war context. The notion of ‘energy transition’ refers to the energy sector’s shift from a fossil-based production and consumption system towards a system based mostly on renewable energy sources. The climate crisis, increasing energy demands and the need for sustainable energy for all have made energy transition a critical global priority. In December 2015 at COP 21 – Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) – in Paris, an international agreement was reached to reduce global warming to less than two degrees over pre-industrial levels by the end of the 21st century, ideally to 1.5°C (UNFCCC, 2015). COP26, held in Glasgow in November 2021, reaffirmed the commitment to achieve carbon neutrality by 2050. The energy transition is the primary tool to achieve this target. Importantly, it is not only about shifting from fossil fuels; it is a paradigm shift ensuring decarbonisation, sustainability and equity.

Many facets of life in today's world are characterised by discourses on transformation and transition, and energy is no exception (Bridge et al., 2013). Indeed, there is an urgency toward accelerating energy transition when considering the global climate crisis. However, this runs the risk of overlooking the political and ethical implications for people's daily lives, particularly in the Global South where popular political representation may be weak and developmental needs often take precedence. Understood as moving from high-carbon energy sources and high energy consumption to low-carbon energy sources and decreased energy consumption (Bradshaw, 2010; Fouquet & Pearson, 2012; Fankhauser & Jotzo, 2017), energy transitions in the Global South creates and reinforces multiple challenges and, in some cases, faces increasing resistance from people at the grassroots level.

Post-war settings present a particular set of challenges for the energy transition. The changing face and fluidity of local political dynamics coupled with economic challenges and unmet grievances play a decisive role when implementing an energy transition in post-war countries. This dissertation uses the example of Sri Lanka for the case study since it is a post-war state grappling with energy transition. Local politics and geopolitical dimensions play an essential role in the transitional pathways. Meanwhile, there have been continued protests in former war zones over new renewable energy projects raising the question of equity in energy transition.

Sri Lanka is facing the worst economic crisis in its postcolonial history, and an insufficient energy supply has significantly contributed to food and fuel shortages. With modern societies dependent on reliable energy supply systems, climatic challenges and scarcity of resources have prompted the world to look for alternatives to carbon-based energy sources, with renewable energy sources as a central pillar in this approach (Dorian et al., 2006; Busch & Shrivastava, 2017). Energy transition is thus at the forefront of attaining a sustainable, climate-friendly future. Sri Lanka is not alone in this energy crisis. In a recent report, the UN points out that a further 107 countries are vulnerable to rising food costs, rising energy prices, or tighter

financial circumstances. Sixty-nine countries out of one hundred and ninety-three are affected by all three shocks, all of which are from the Global South (United Nations, 2022).

In energy transitions, much, if not most of the emphasis is typically placed on new technological solutions such as solar PV, onshore wind, the digitalisation of electricity infrastructure, and electric vehicles (Sovacool & Geels, 2016; Kern & Rogge, 2016; Healy & Barry, 2017). Much the same is true regarding the climate crisis with a focus on renewables in addition to technological efficiency, eco-friendly materials, carbon capture and other ‘technical fixes’. However, all such changes can have wide-ranging implications for society. If not well-considered, technological interventions can result in unforeseen effects on energy poverty, justice, and democracy; therefore, energy transition necessitates significant societal reconfiguration in the socio-political and economic sectors. This again applies particularly to the Global South, impacting vulnerable populations and groups on the margins (Sovacool, 2017; Healy & Barry, 2017).

Energy transition involves a chain comprising many links: political will, regional and global interests, policy instruments, finance, energy providers and companies, delivery systems, technology and innovation, and of course, the end-users. All of the energy transition issues discussed in this chapter are attracting increasing consideration from decision makers and researchers. They also pertain to prosperous and peaceful countries too – the Global North – where they attract attention, even though the consequences may be far less severe. Governance, finance, equity, participation, institutional inertia, fossil fuel lock-in, and socio-political conflicts present difficulties and weaknesses in every context, in forms that may be almost universal or specifically local. The Sri Lankan case study represents what may be the most risk-prone type of context, being both a developing and a post-war country, because core conflict issues and war-induced grievances remain, political processes are influenced by the legacies of underdevelopment and war and geopolitical influence is high also in the field of energy transition. This dissertation thus uses Sri Lanka

to examine the complexity and contentions of energy transition in developing and post-war societies.

1.2 Research focus and research questions

Sustainability transition is a “radical transformation towards a sustainable society, as a response to several persistent problems confronting contemporary modern societies” (Grin et al., 2011, p. 1). A sustainable energy transition involves “major changes in buildings, energy, and transport systems that reduce demand or shift from fossil fuels to renewable inputs. These system transitions entail technical changes and changes in consumer behaviour, markets, institutions, infrastructure, business models and cultural discourses” (Geels et al., 2016, p. 577). Moreover, such complex societal changes raise a broad range of research issues and approaches. Köhler et al. (2019) identify three key strategies for studying sustainability transitions: zooming out to develop a more encompassing understanding of transitions, exploring under what circumstances acceleration can occur, and finally, portraying the ubiquitous nature of change. Within human geography, Hansen and Coenen (2015) highlight three questions: “Why do transitions occur in one place and not another? How do transitions unfold across different geographical contexts? What is the importance and role of relations at different spatial scales for transition process[es]?” (Hansen & Coenen, 2015, p. 93).

Against this backdrop, this dissertation focuses on three research themes related to energy transitions:

- The importance of context
- The role of politics and power in transitions, and
- The need for just transitions to ensure justice, equity and democracy.

The dissertation also rests on the premise that understanding sustainable energy transitions from a Global South perspective is essential to facilitate

rapid decarbonisation and sustainability at a global scale. Notably, most of the world's population resides in the Global South, and this region needs to play a critical role in sustainability transitions since climate and environmental challenges are universal, knowing no boundaries. Understanding the aforementioned research themes in such settings is thus essential.

1.2.1 Contextuality

The context where sustainability transitions occur is essential since it plays a role in shaping the transition trajectory and outcome. Different socio-political and economic structures and dynamics influence and impact transitions. Newell and Mulvaney (2013) approach transitions from a political economy perspective, where they argue that “who defines what is just, and for whom” forms the critical question regarding just transition (Newell & Mulvaney, 2013, p. 138). In the past decade, there has been increased research attention to localised energy transition initiatives. MacArthur and Matthewman (2018), for example, draw from local environmental management practices and Māori scholars' works to look into how energy transition unfolds in indigenous community settings. They argue that these communities have a strong sustainability ethic that challenges energy norms. Based on research from Canada, Hulbert and Rayner (2018) reiterate the importance of recognition to enable energy justice for indigenous people. These studies point out that indigenous communities, people living in the peripheries and societies from the Global South bring fresh perspectives to the sustainability transitions debate. There remains, however, a significant knowledge gap regarding the capacity of democratic and community-based entities to effectively resist, reclaim, and re-envision energy infrastructure and practices at the local level.

It is also noteworthy to consider the point that Castán Broto et al. (2018) raise on the importance of understanding and envisioning the ideas of postcolonial critique of development in planning energy transitions in the Global South. It directs its critique against the cultural hegemony of

European knowledge in an attempt to reassert the epistemological value of the non-European world (Gandhi, 1998, p. 44). In transition studies, research on the Global South has remained at the periphery for a long time. For example, Huttunen et al. (2022), reviewing citizen engagement in sustainability transitions research, find a need for more empirical case studies, especially from the Global South, and cases where citizen participation is quite extensive. However, in transition research, this is not widely applied in practice. Adopting a postcolonial critique necessitates active involvement with the practicalities of energy accessibility and the integration of renewable energy systems while acknowledging the diversity of socio-political and historical contexts and relinquishing overly simplistic models for the energy transition.

In a comprehensive and systematic review of the literature on energy justice, Jenkins et al. (2021) point out that the literature needs more diversity in its author basis and research design. They argue that there is marked underrepresentation from the Global South, especially from Asia (except India and China), Africa and Latin America. Wood and Neira-Castro (2022) reiterate this by showing examples from Latin America. Lacey-Barnacle et al. (2020), producing the first systematic review of energy justice studies in developing world contexts, likewise argue that there is a need for more case studies from Sub-Saharan Africa, South America and Asia to have a better understanding of non-Western energy transitions. Further, Castán Broto et al. (2018) argue that the articulation of energy justice discourses at the global level may result in the naive translation of the universality of justice discourse into contexts where Western conceptions of justice may be entirely inappropriate. This becomes apparent when analysing global energy transitions. Examining energy transitions within particular geographical and historical situations is thus essential. Place-based energy transition research could contribute to a better understanding of the diversified nature and trajectories of energy transitions. The Global South viewpoint may also stimulate interdisciplinary ideas that have received insufficient attention but are vital for policy innovation in Global South contexts.

1.2.2 Power and politics

The governance of sustainability transitions has become one of the critical areas of study since it is essential to identify who is steering, for what reasons, and how and where steering occurs (Meadowcroft, 2009, 2011). It emphasises the role of politics and power in transitions. Insufficient attention to politics and power in sustainability transitions has been criticised (Walker & Shove, 2007; Avelino & Rotmans, 2009; Meadowcroft, 2009; Lawhon & Murphy, 2012; Geels, 2014). As a result, this criticism has created new openings for sustainability transition research. Lawhon and Murphy (2012) incorporate political ecology, Geels (2014) foregrounds political economy, Murphy (2015) highlights political geography and Avelino and Wittmayer (2015) emphasise the role of actors in sustainability transitions. More attention has been paid to ‘just transitions’, which can be defined as “a fair and equitable process of moving towards a post-carbon society” (McCauley & Heffron, 2018, p. 2). Such processes must seek fairness and equity regarding major justice concerns such as (but not limited to) ethnicity, income, and gender within both developed and developing contexts (Winther et al., 2020). It can, nevertheless, be argued that there is a divide between research on the Global North and the Global South. Existing research has given more attention to the role of politics and power in the developed world, where investments flow, innovations thrive, and policy coherence facilitates the groundwork for sustainability transitions.

Transitions studies on the Global South have engaged in understanding the context specificity as they seek to go beyond questions of technical innovation. Castán Broto et al. (2018) emphasise the importance of a contextual understandings of energy transitions rather than universalising approaches, pointing out the “need to pull back the apolitical veneer of technical ‘fixes’ in Global South contexts” (Broto et al., 2018, p. 654). They argue that energy transitions are more than just technical fixes and underscore the importance of comprehending energy transition within its contextual framework rather than adopting a universalised approach. The utilisation of energy is also influenced by socio-spatial relations, which

necessitates understanding these factors from the viewpoint of the individuals who encounter and inhabit them. This brings in a fundamental question of politics and power in energy transition: To what extent are current energy policies in the Global South intertwined with the provision of social welfare? The disconnect between needs and supply, availability versus affordability, and the challenge of technological feasibility of renewables in rural areas are a few critical deterrents in energy transitions where politics and power play a very significant role.

Hansen et al.'s (2018) review of sustainability transitions in the Global South point out that much research on innovation in the Global South has focused mainly on analysing the transfer of technical artefacts across space. They reiterate that “there is a need to engage in discussion at a more fundamental level about the basic ontological assumptions of the theoretical frameworks in the transitions literature concerning application in a developing country context” (Hansen et al., 2018, p. 202). Gailing (2016, p. 257) asserts that understanding power should be a part of any investigation of the social order that takes the energy system as its point of departure: “Energy transitions can result from both overarching technologies of power – in combination with energy-specific subjectivities – and power struggles between actors”. The significance of political factors and governance in driving energy transitions, particularly in the context of national and international climate change initiatives, also necessitates a heightened focus on politics and geopolitics. In the Global South, geopolitics will gain more ground concerning energy transitions due to two interrelated factors: finance and technology. In the renewable energy sector, most developing countries are technology dependent and lack financial capabilities for renewable technology uptake. This creates new openings for geopolitical actors in multiple forms and scales in the Global South. It is one of the emerging new research agendas, and this dissertation focuses on the geopolitics in Sri Lanka's energy transition.

Sustainability transitions literature has also acknowledged the presence of social movements; however, their impact and significance have been given

limited consideration thus far. In the past decade, social movements against energy infrastructures have grown both in number and scope in the Global South. It has demonstrated the role of people in energy transitions and how people resist power. Power and countering through people's resistance opens new spaces for understanding energy transitions in context-specific settings. Further, it highlights the importance of energy transitions that are democratic, just and equitable.

1.2.3. Just transitions

The conventional approach to transitions revolve around technical-economic issues, but transitions must effectively produce equitable outcomes for the broader society in order to be sustainable. Particularly in the Global South, there is a risk that the power of economic and political elites may undermine the possibility of a just transition, thus highlighting the importance of justice and equity. Energy justice has become essential to energy policy discourse in the last two decades. Guruswamy, one of the first scholars to define energy justice, argued that “energy justice seeks to apply basic principles of justice as fairness to the injustice evident among people devoid of life sustainable energy, hereinafter called the energy oppressed poor” (Guruswamy, 2010, p. 233). Later, McCauley et al. (2013) defined energy justice based on three tenets: procedural justice, distributive justice and recognition justice. Procedural justice is conceived in terms of the way decisions are made, who is involved and has influence, and access to the formal justice system. Distributive justice is conceived in terms of the distribution or sharing of good (resources) and bad (harms and risks). Recognition justice is conceived in terms of who is given respect and who is and is not valued (Walker & Day, 2012; Heffron & McCauley, 2014; Lee & Bryne, 2019). Later with the emergence of ‘just transitions literature’, energy justice was defined “as a global energy system that fairly distributes both the benefits and burdens of energy services and one that contributes to more representative and inclusive energy decision-making” (Sovacool et al., 2017, p. 677). The meaning of just transition is contingent upon the developmental requirements and economic framework of the transitioning

country or region. The concept of energy justice may vary across regions, especially when contrasting developed and developing countries.

With a focus on the Global South perspective, Swilling and Annecke (2012) present an exhaustive overview of global environmental and sustainability issues. For them, a “just transition” reconciles sustainable consumption with a commitment to availability and affordability, arguing for a globally balanced resource use and management approach. Van Steenberg and Schipper (2017, p. 2) observe that “when dealing with transitions, one is automatically entangled in moral and ethical questions”. They further argue that energy justice could be conceived as justice in transitions, pointing out that energy justice should be understood as a process and not an endpoint, where it is an essential and integral part of systemic change (van Steenberg & Schipper, 2017). This point has been reiterated in multiple case studies from the Global South. Velasco-Herrejón and Bauwens (2020), via a case study from Southern Mexico, demonstrate that using a bottom-up strategy to comprehend complicated questions of energy justice within a community can result in a greater understanding of the justice implications of community adoption of energy technologies. Tarekegne (2020) and Jodoin (2021), through their work from Sub-Saharan Africa, show that current electrification planning largely relies on techno-economic criteria that fails to incorporate ethical and fairness considerations. These deficiencies in the planning phase result in the construction of energy infrastructure that fails to provide energy services to those who need them most, further exacerbating energy access inequalities at the local level. Lappe-Osthege and Andreas (2017) discuss energy justice issues in Kosovo concerning a thermal power plant. An exceptional paper, it directly addresses the issue of energy justice in a post-war/conflict environment. While there have been frequent calls to go beyond a minimalistic, technocratic understanding of sustainability transitions (McMeekin et al., 2019; Rosenbloom, 2020), there still remains the need for a more inclusive holistic approach, which should entail a comprehensive and equitable strategy for advancing a low-carbon economy irrespective of the geographical location.

1.2.4 Research questions

This dissertation adds to the growing literature on energy transitions by providing a post-war perspective that furthers critical thought on energy transitions and justice. The dissertation adopts a comprehensive approach to energy transitions that centres on the equity-policy-geopolitics nexus. In the context of developing countries, this dissertation argues that justice and equity play a central role in energy transition, and that acceptance of new renewable energy projects at the local level will be determined by justice and equity questions. Geopolitical factors also influence energy transition pathways since international actors exert influence on the technological and financial aspects of energy transitions. Tasked with managing concerns at the local and geopolitical levels to achieve a sustainable energy transition, policymaking may still be hampered and distorted in multiple ways. The equity-policy-geopolitics nexus thus poses a challenging trilemma for developing countries, especially those that are in a post-war situation. In this respect, this dissertation addresses the above overarching challenge through five specific research questions:

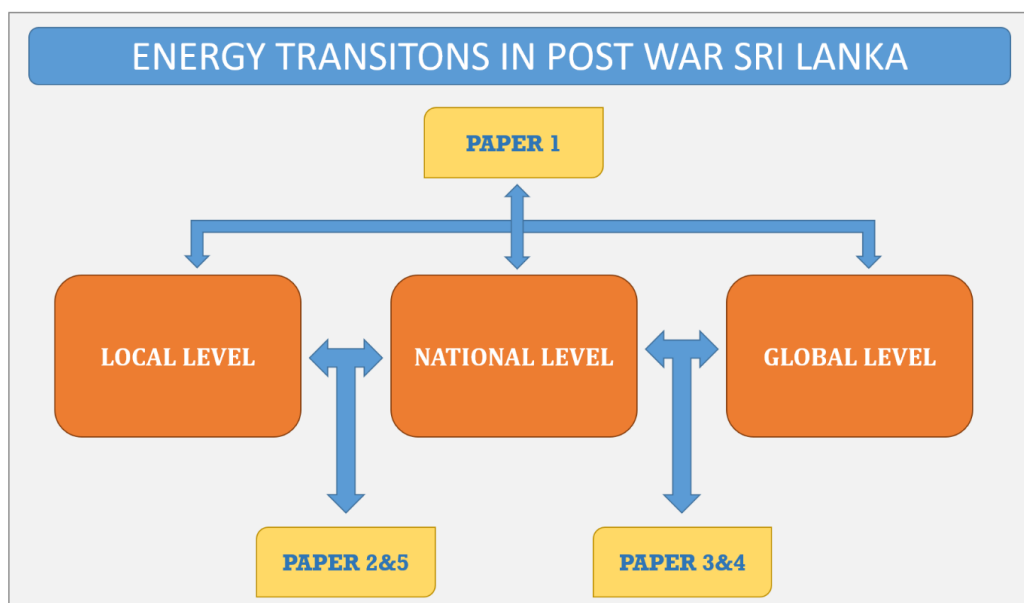
1. How is the energy transition unfolding in Sri Lanka locally, nationally, and globally?
2. How are energy transition dynamics interlinked to equity and justice in post-war Sri Lanka?
3. What characterizes and explains policymaking on energy transition in Sri Lanka?
4. How do geopolitics impact the post-war energy transition in Sri Lanka?
5. How do Sri Lanka's climate commitments and post-war economic opportunities shape energy transition policies?

This dissertation explores the motives, strategies and conditions accompanying energy transitions in a post-war context. Understanding how such initiatives unfold is a complex task requiring research and insight into processes and mechanisms at multiple levels. This dissertation addresses this task through a research design exploring energy transition from three

analytical perspectives: the local, national, and global levels. The local perspective explores grassroots level issues relating to justice and equity through the eyes of societies in the former war zones. The national-level perspective directs attention to the policymaking and democratic aspects of government concerning energy transitions. Lastly, the global level perspective explores geopolitical conditions for energy transition.

These three analytical levels deliver insights into how people react to new wind and solar farms in their area (local-level), how spatial concentrations of energy policymaking emerge and evolve (national-level), and the geopolitical conditions that enable or hinder the development of clean energy transitions (global-level). Particular attention is devoted to analysing interactions between the levels and the spatial setting encompassing the energy transitions. Each level is covered in one journal article or book chapter. Two more papers address the crosscutting levels resulting in five contributions addressing energy transitions from different analytical perspectives and geographical contexts. Fig.1 below explains how the papers and research questions are connected with the multilevel approach.

Fig.1: Calibrating the research questions with the papers



The **first paper**, ‘Sri Lanka’s Energy Transition: One step forward, two steps back’, gives a broad overview and introduces the themes explored in the dissertation. The paper contextualises the energy history of Sri Lanka, outlines the present status and explains the contemporary debates on Sri Lanka’s energy transition. It emphasises that the energy transition can potentially re-localise the economy around human-scale institutions that are more directly connected to the communities in which they operate. Internally, this transition should be ‘democratised’, implying a change toward empowerment and ownership, thereby changing end consumers into ‘prosumers’. The goal should be to repurpose ‘transition arenas’ from ‘frontrunner coalitions’ areas to more open spaces for thought, dialogue, and participation. This is even more critical in Sri Lanka due to its post-war political and economic setting. It is crucial to see energy justice, security and climate change through the prism of public values rather than strategic national interests.

The rest of the contributions go deeper into energy transition dynamics and the challenges faced in Sri Lanka to explain the nature of the post-war energy transition in the global South context. The four papers navigate the energy transition’s local, national, and global levels. The second and fifth papers discuss the inter-relationships between the local and national level of transition pathways and the disconnect between bottom-up and top-down approaches. The third and fourth papers focus on national and global trajectories, contradictions and complementarities. The **second paper**, ‘Energy transitions in a post-war setting: Questions of equity, justice and democracy in Sri Lanka’, poses the novel question of equity and justice in post-war settings, where a move towards peace and equity needs to be embedded into any plans for transition to low-carbon energy. It challenges the normative understanding of energy transitions as ‘good’. The paper questions why renewable energy projects in post-war societies encounter resistance even though they are clean and green? It argues that in a context like Sri Lanka’s, where the wounds of the war and injustices have not yet healed, equity and justice need to take centre stage.

The **third paper**, ‘Emerging frontiers of energy transition in Sri Lanka’, looks at the challenges of escaping carbon lock-in using an analytical framework where the interplay between agents and the nexus—climate commitments, energy security and justice—is analysed alongside the socio-politico-economic considerations to understand the trajectories of energy transitions. It is argued that a holistic policy framework for energy transition must incorporate democratic concerns from below to create pathways for a just energy transition. The paper explored Sri Lanka’s ongoing energy transition from an agency perspective. The analysis brought together the dynamics of different actors and how much influence different formations have on Sri Lanka’s energy transition discourse. Agency in different forms creates critical frontiers both spatially and temporally. Understanding how these processes constitute these agencies and contrariwise could empower policymakers in designing interventions that accommodate competing narratives whilst still achieving acceptability and sustainability.

The **fourth paper**, ‘Energy as a geopolitical battleground in Sri Lanka’, engages with why Sri Lanka has sought to expand its coal-fired power generation capacity in recent years despite public and explicit backing of increased renewable energy capacity and the commitment to meet ‘net-zero’ emissions. The paper situates the explanation within geopolitical and domestic political economy considerations. It explores the role of domestic institutions and regional powers (Japan, India and China) and their role in locking in particular carbon infrastructure in a developing country context. The paper offers fresh insights into understanding the geopolitics of energy transition in the context of a developing country.

Finally, the **fifth paper**, ‘Energy transitions creating new inequities: Rooftop Solar in Sri Lanka’, focuses on the global South; over the past decade, innovation and political economy have influenced policymaking in the energy sector producing both winners and losers. Who are the losers, what makes them losers, and how are they being left behind? These questions are essential to understanding and addressing equity issues in

energy transitions. Through the rooftop solar uptake case study, the paper contributes towards a better understanding of these questions and illustrates important aspects of energy transitions in the global South. It shows how policy, finance, and technology interactions have left certain people behind and argues that these renewable projects create new inequities and deepen and reinvent existing ones. It also demonstrates how Sri Lanka's post-war political context has created peripheries within the periphery.

1.3 Energy transition in Sri Lanka

The dissertation's case-specific, multifaceted backdrop merits attention. Just as the research fields on energy transition, justice, equity and geopolitics intersect in this work, so do the various features and knowledge fields addressing the Sri Lankan and post-war settings. Since the journal article format provided limited space to elaborate on case-specific features, I used this chapter to contextualise the analysis. Below I provide a detailed description of the case and the reasons for selecting and contextualising energy transition in the Sri Lankan setting.

Sri Lanka was engaged in a civil war that lasted nearly three decades. The ethnic conflict can be traced back to the post-colonial state formation that descended into a full-fledged war in the early 1980s (Stokke, 1998; Uyangoda, 2010). The war ended in May 2009 with the Sri Lanka's governments annihilation of the Liberation Tigers of Tamil Eelam (LTTE). The defeat of the LTTE meant that Sri Lanka was no longer at war, but many of the fundamental conflicts and power struggles that led to the deadly conflict remain unsolved. The unequal power dynamics that defined wartime Sri Lanka – between ethnic and religious groups, rich and poor, and men and women – continue to affect the country's society as it moves into a post-war future. Political reform (including regional power-sharing), economic development, rehabilitation of war-torn areas, and reconciliation

are all endeavours that must be negotiated between several sets of players with uneven access to power.

Against this backdrop, it is essential to understand that the current Sri Lankan setting is post-war rather than post-conflict as the underlining root causes of the conflict remain, and there is now only an absence of war. Paper 2, annexed herewith, discusses this complexity in detail. As a result of the end of the civil war, several power asymmetries, conflicts, and contestations have been concealed or silenced. Because of the post-war context and the failure to address the root causes, there is a danger that these conflicts and contestations will re-emerge. Renewable energy projects in former war zones as a result of the energy transition is one such area of contention.

Post-war economic development and rapid reconstruction initiatives brought energy onto centre stage. On the one hand, there was a need to increase energy production to meet increased demand, and on the other hand, the construction of renewable energy projects being planned in the former war zones due to their climatic suitability. Energy transitions in Sri Lanka have competing interests that are mutually exclusive, as elaborated in paper 3.

Sri Lanka's energy demand has been increasing rapidly over the past decade. Electricity demand has been forecasted to grow annually by 7 to 8 per cent in a decade (Asian Development Bank, 2015; World Bank, 2019), which will entail ramping up the energy infrastructure. Sri Lanka now relies heavily on fossil fuels to produce electricity since it has reached its maximum hydropower production capacity and is very slow in moving towards solar and wind energy. Nevertheless, at the UN Climate Vulnerable Forum Sri Lanka pledged carbon neutrality by 2050. In order to achieve this target, Sri Lanka needs to decarbonise and increase solar and wind capacity to produce renewable electricity.

Post-war Sri Lanka seeks to establish itself economically and politically, with the government attempting to appease its voting constituents.

Contracting private firms to engage in renewable energy fulfils many of the government's objectives. It improves government-private sector relations, includes renewables in the energy mix without government investment, assists international obligations, and boosts energy security. At the same time, it sends a top-down message to ethnic minorities about who is in charge. Whilst achieving some aims, this conventional post-conflict development rhetoric risks failing if it ignores the fundamental or lingering causes of conflict. It is more likely if the resulting state has a 'victorious' attitude toward specific areas or populations. In (residually) conflictual circumstances, inclusivity is a must.

Renewable energy sites in the former war zones have overlooked local concerns and become a battleground for spatial control. Because of the fluid character of the long-running and still-unresolved struggle, renewable energy projects have become viewed as 'land grabbing from traditional minority regions', with energy transition as a pretext. The land is a thorny problem in post-conflict situations (Pritchard, 2016; van Leeuwen & Van der Haar, 2016; Unruh & Williams, 2013), and it is nothing new in Sri Lanka. The ethnic strife in Sri Lanka stems from land grabbing through settlement colonialism in the name of development. Renewable energy initiatives are likewise observed similarly in the post-war era, and the behaviour of the government and business sector creates more problems than answers. Furthermore, issues of justice and equity preoccupy local communities and are highlighted by the post-war state's democratic deficiency.

While renewable energy initiatives are generally considered favourably, putting them into effect in post-war contexts poses fundamental socio-political and economic obstacles, raising concerns about equality and justice. Awareness that energy injustice may be generated historically, geographically, and physically should be the starting point for energy transitions in the post-war context. These issues with today's energy transition are equally relevant in prosperous and peaceful countries, even though the consequences may be far less severe. In other words, energy

disparity, injustice, and vulnerability are more than mere price and income disparities; they result from structural gaps that can grow through time and space.

1.4 Structure of the dissertation

The above synopsis has presented an introduction to the topic and outlined the research questions, design, and the introduction of the dissertation's case study. The next chapter (Chapter 2) theorises the politics of energy transitions, underlines the unique nature of the post-war state, outlines the energy transition dynamics in those societies and unpacks the geopolitics of energy transitions. Chapter 3 introduces the dissertation's methodology, details the data collection process, and discusses ethical concerns and fieldwork challenges. Chapter 4 provides a detailed outlook of Sri Lanka's present status and conflict dynamics concerning energy transition and explains the empirical data used in the five papers and the dissertation. Chapter 5 provides an overview of the articles in the dissertation. Finally, Chapter 6 concludes by highlighting the main contributions and findings of the dissertation. Full-text versions of the articles follow.

2. Theorising the politics of energy transitions

Existing theoretical discussions and understandings of energy transitions underpin this dissertation's research idea, questions, analysis and, ultimately, findings. Therefore, this section elaborates on research, theories about and conceptualisations of energy transitions, and my understanding of energy transitions in post-war societies. As the climate emergency dominates energy transition discourse, there are growing calls for urgent decarbonisation and energy transition. More emphasis is being put on new technological solutions like solar photovoltaics, digitalisation of electricity infrastructure and electric vehicles (Sovacool & Geels, 2016; Kern & Rogge, 2016). If not thought through carefully, such technological interventions may well have unintended consequences for energy poverty, justice and democracy, especially in the Global South (Healy & Barry, 2017). In the last decade, a range of social scientific work has emerged on energy transitions in the Global South (Hansen et al., 2018). It is reviewed in the following section.

2.1 Literature review and research gaps

This section will clarify the dissertation's core concepts and discuss relevant perspectives in the existing literature. The dissertation has three analytical

cornerstones: justice, equity and democracy in energy transitions, the geopolitical aspects of renewable energy, and the importance of post-war context in understanding just energy transitions. For a political geographer, understanding the Global South and North-South transitions unpacks the intersections that involve patterns of transitions, a reconfiguration of socio-economic relations, and the spatial embeddedness of energy geopolitics. It outlines new pathways for studying energy transitions.

2.1.1 Global South

The term ‘Global South’ is highly contested and denotes multiple meanings. For example, this term is now often used instead of the ‘Third World’ to designate the less developed countries located primarily in the Southern Hemisphere. The concept of the South was introduced by Italian Marxist Antonio Gramsci, whose article ‘The Southern Question’ began with the notion that southern Italy had been colonised by northern Italian capitalists (Gramsci, 1971). The North-South nomenclature originated from the figurative use of categories to identify wealth, privilege, and patterns of progress over expansive regions. Global South is not merely a metaphor for underdevelopment. It alludes to a long history of colonialism, neo-imperialism, and uneven economic and social transformation, which maintains vast disparities in living standards, life expectancy, and resource access (Dados & Connel, 2012). Mahler (2017) points out that this neo-colonial geopolitical term de-territorialises developing countries and refers to them as transnational political subjects that share a common experience of enslavement under global capitalism. Teixeira da Silva (2021) argues that the term ‘Global South’ implies intellectual and economic inferiority, and that ‘southern’ ideas must upgrade, improve, or meet ‘northern’ norms. In the present context, with the emergence of China and other countries in the BRICS, it has been questioned whether the classification is still valid. Further, it raises the following questions: are there not disadvantaged communities in the Global North? Don’t we have multinational corporations originating from the Global South? In the global development context, these are valid questions.

Berger (2021) argues that the term Global South can be used as a relational category to assist in analysing structural processes in the modern world that have real repercussions. It draws attention to connections between time and space, such as patterns of inequality that have developed throughout history. In doing so, it demonstrates the importance of taking into account (post)colonial and (post)imperial trajectories while attempting to analyse the contemporary outlines of world politics (Sud & Sánchez-Ancochea, 2022; Kloß, 2017). It must also be acknowledged that the Global South's diverse economic development trajectories, colonial and postcolonial political histories, cultures, and political institutions and practices make any simple categorisation unlikely.

The term Global South remains useful, however, despite the changing world order and its associated challenges. I use the term Global South in this dissertation for two reasons. First, the term Global South refers to regions of the world that are economically depressed and/or socially marginalised. It refers to a collection of nations that are marginalised to a greater or lesser degree within the framework of the international system. Second, the so-called Global South has recently been portrayed as a potential hotbed of opposition to neoliberal capitalism. Going beyond perspectives focused on individual countries, this has resulted in the Global South being reframed as a signpost for anti-hegemonic participation. Santos (2018) talks about “the epistemologies of the South”, where “the objective of the epistemologies of the South is to allow the oppressed social groups to represent the world as their own and in their terms, for only thus will they be able to change it according to their aspirations” (Santos, 2018, p. 1). Against this backdrop, rather than applying allegedly universal theories mostly built and based on the Global North perspective, this dissertation attempts to broaden current understandings of how energy transition unfolds by looking at it from the perspective of the Global South.

2.1.2 North, South and ‘Development’

The rich literature on the Global South provides opportunities for North-South and South-South comparisons on energy transitions. Comparisons between the ‘North’ and the ‘South’ are helpful in deconstructing overly simplistic assumptions, such as those that use development status as the default reason for incomparability or as the default explanation for the difference. Kumar and Shaw (2020) point out that comparisons between North and South do not necessarily have to result in the categorisation of a ‘developed’ North and an ‘underdeveloped’ South, where the latter needs to accelerate by eradicating the differences between itself and the North. Greene and Schiffer (2021), Kumar and Taylor Aiken (2020), and Sareen (2021) also support the above findings. In energy research, South-South comparisons also open new avenues for critical understanding (Shen & Power, 2017; Mohan & Tan-Mullins, 2019).

The political economy of the energy transitions in the Global South is one research strand where considerable work has been done on transition dynamics. For example, Hall and Nguyen (2017) examine energy sector liberalisation in the 11 largest developing countries regarding reform depth, market creation, and investment. They observe widespread failure, increased inequality, and poor efficiency by the end of the project funding from bilateral agencies. It counters a narrative commonly promoted by organisations such as the World Bank, namely that the state cannot provide the capital or managerial know-how to effectively address the key challenges facing the energy sector across the Global South— energy poverty and marginality, improved efficiency, and transition to low-carbon futures (World Bank, 2021; International Energy Agency et al., 2021). Similarly, Tomei and Gent (2017) explore the energy governance trajectory in Central America and trace the relative failure of the neoliberal market model in achieving energy transition in the region. Again, this underlines the differences and specificity of the southern context and how northern models and approaches may be inappropriate; they also underline the influential role of geopolitics in energy transitions in these Global South contexts. Notably, it brings in the political economy aspect of energy

transitions in the Global South and how transitions taking place in economically advanced countries cannot be copied in the Global South.

Decolonialisation studies have for some time questioned conventional approaches to sustainable development, arguing that relationships between humans and nature are deeply shaped by the legacies of coloniality, highlighting the need to unpack colonial legacies in the Global South to address the problematic roots of the state, institutions, development and sustainability (Carrasco-Miró, 2017; Ghosh et al., 2021; Mbah et al., 2022). Decolonial scholarship in political ecology acknowledges the historical and epistemological underpinnings of injustices that are concentrated in the Global South (Rodríguez & Inturias, 2018). From this perspective, energy transition strategies in the Global South have been evolving in parallel with sustainable development and green growth programmes that international agencies and financial institutions have promoted, but again tending to apply inappropriate approaches like non-consultation with locals, prioritising technocratic solutions and focusing on profit-oriented solutions. The idea behind inclusive green growth is that developing nations may grow in a socially and environmentally sustainable way if they make better use of the natural resources at their disposal. However, green growth initiatives have tended to follow deeply ingrained postcolonial modernisation objectives in many countries in the Global South. In this sense, they have often merely ‘greened’ the predominant modernisation paradigm while maintaining the postcolonial legacies (de Souza et al., 2018; Bergius & Busetth, 2019). The energy transitions literature seldom considers colonial and postcolonial path dependencies and the historical contingencies that require reform (Baptista, 2018). Decolonial researchers have argued that the strategy for achieving energy transition and energy justice requires analysing and reckoning with how colonialism’s values, violence, and mechanisms influenced and continue to impact energy systems in the Global South (Kumar, 2022; Tornel, 2023).

In these critical comparisons, a common overarching goal is to dismantle existing preconceptions about the Global South, notably the idea of

development, and how that should come about in the Global South. This would interrogate the consensus that what works in the Global North will work in the Global South, irrespective of space and time. The case studies from the Global South on renewable energy uptake have contributed to a better understanding of the different and, in many ways, contrasting experiences of development, especially in energy transitions, than in the Global North.

2.1.3 The Geopolitics of renewables

Renewable energy transitions are typically portrayed as an instrument to bring development, peace and stability, especially in the Global South. The broad geographic distribution and availability of renewable energy sources like sunlight and wind offers the potential for users in many countries to become prosumers rather than consumers (Scholten & Bosman, 2016), which suggests a change of geopolitical dynamics where supply-side geopolitics becomes less influential (Paltsev, 2016). Renewable resources, in contrast to conventional fossil resources, are more difficult to control in time and space (Månsson, 2015). The geographically dispersed nature of wind and solar resources renders them less prone to regional geopolitical conflicts, such as the case with fossil fuels of the Middle East (Global Commission on the Geopolitics of Energy Transformation, 2019). These are some of the reasons why the literature portrays renewable energy uptake positively. It is similarly suggested that renewable energy has positive geopolitical value in the sense of enhancing local autonomy and resilience (Lederer, 2022).

Over the past decade, there have been multiple studies on the geopolitics of renewable energy (Paltsev, 2016; Overland, 2019; Goldthau et al., 2019; Vakulchuk et al., 2020; Fischhendler et al., 2021; Lederer, 2022). Fischhendler et al. (2021) point out that most of these studies on the geopolitics of renewable energy have been limited to theoretical, hypothetical, scenario-based predictions, and there is little empirical knowledge regarding how the context of a conflict setting might hinder or promote the transition to a low-carbon society. However, several recent

studies have highlighted renewable energy challenges in conflict environments. Afghanistan (McLellan & Blanchard, 2018), South Sudan (Spyrou et al., 2019), the Democratic Republic of Congo (Sovacool et al., 2020) and Palestine (Fischhendler et al., 2021) are some examples where the geopolitics-conflict intersection is discussed. Among these, Sovacool et al. (2020) focus on minerals and metals for renewable transition in their case study from the Democratic Republic of Congo; Fischhendler et al. (2021) discuss the diffusion of solar panels in the Gaza Strip; and Spyrou et al. (2019) discuss power system investment strategies in fragile and conflict-affected places. Dresse et al. (2019) constructed a framework to understand environmental peacebuilding, arguing that the environment can be a space for building peace in conflict settings. It is also argued that being economically dependent on one another might strengthen international cooperation and political ties. Mozersky and Kammen (2019) provide a case study from South Sudan demonstrating how renewable energy sources can foster collaboration across communities that civil war has torn apart. Although these studies have examined the geopolitics-conflict nexus in the energy context, more research is needed on renewable energy uptake in post-war contexts. The case study of renewables in post-conflict Sri Lanka adopted in this dissertation confirms the existence of many of the above problems and issues.

2.1.4 Social challenges of renewables uptake

Cross (2019) reminds us that energy interventions alter not only technologies but also social relations within a community and how individuals perceive the world. There is an increasing realisation that various marginalities are crucial to the design of energy interventions and their outcomes (Baruah, 2015; Ahlborg, 2018; Osunmuyiwa & Ahlborg, 2019). On the one hand, class and gender marginalisation has received wider attention (Winther, 2012), while on the other hand, ethnic marginalisation, especially in post-conflict societies, has received little attention.

Infrastructural domination is another area of research. If elites are provided with control of essential infrastructure, this allows them to preserve or strengthen their political position and affluence (Moss & Francesch-Huidobro, 2016; Petersen-Perlman & Fischhendler, 2018). Infrastructures, then, represent an important material as well as symbolic nation-building narrative (Gellner, 2015). An under-researched area is how renewable energy infrastructures in particular are imposed and their role in nation-building.

Energy transitions thus raise important discussions about social impacts. Israel and Jehling (2019) urge in their Peruvian case study that local energy practices need to be incorporated into energy policy to ensure positive technological and social outcomes. Purcell and Martinez (2018) explain how the modified political-economic space created by energy transitions advances post-neoliberal modernity, deepens inequalities and facilitates capital accumulation in Ecuador.

In general terms, these studies highlight the need for more attention to and diverse conceptualisations of social challenges in renewable energy transitions. In addition to technological, economic and geopolitical issues discussed elsewhere in this dissertation, the social aspects are of prime concern in social sciences research. Poor or marginalised groups are seen to be particularly at risk of negative outcomes. As noted above, key arguments are the variety of contexts, the risks of perpetuating undesirable post-colonial or neo-liberal paradigms, and the risk of entrenching inequitable power relations. Velasco-Herrejón et al. (2022) argue the need to recognise and integrate different conceptualisations of sustainability to ensure an inclusive and just energy transition. They stress the concept of “pluriversal technologies” based on their research on Indigenous communities in Mexico, where “technologies embrace ontological and epistemological diversity by being co-designed, co-produced and co-owned by the inhabitants of the socio-cultural territory in which they are embedded” (Velasco-Herrejón et al., 2022, p. 13). These studies from different geographical locations in the Global South reinforce the need to understand

local cultures, the grassroots-level dynamics, and the questions regarding justice and inclusion. It thus recapitulates the postcolonial critique of development (Amin, 1990; Kapoor, 2008; Kothiri, 2019; Giuliani, 2021; Wagner Bozzolo, 2022).

2.1.5 Gaps in existing literature

However, three gaps have been identified in the current literature. First, the literature falls short of interrogating the unintended consequences of (rapidly) ramping up energy transitions in post-conflict or post-war settings. Post-war and post-conflict settings present different challenges for energy transition due to the emerging political and social structures following the ending of hostilities. There is especially a need to give special attention to the post-war setting since it is different from post-conflict.

Second, much of the literature concerns transitions at the macro level of (inter)national energy systems. At the same time, less attention is given to the political and ethical ramifications these transitions would have on people's everyday lived experiences, wellbeing and agency, especially in developing countries.

Third, there is a rich literature on energy geopolitics, but relatively few studies on the geopolitics of contemporary energy transitions. There has been a lot of research on the geopolitics of fossil fuels in the Global South, but very little on the geopolitics of renewables. However, many of the same issues pertain: reliance on imported technology, innovation, know-how, private sector investment, donor aid and assistance from external actors has created space for geopolitical manoeuvring in developing countries, also in the renewables sector.

This chapter is further organised into three sections addressing the research gaps further and conceptualising and theorising the framework of the dissertation. The first examines the nature of the post-war energy transitions and explores post-war development challenges. The second turns to the scholarship of energy transitions in the Global South and

introduces a framework to understand the complexities. The third focuses on understanding the geopolitics of energy transitions, particularly concerning renewables, and argues that energy transitions in a post-war Global South context create contestations between equity, policy and geopolitics, thus requiring a multilevel approach.

2.2 Post-war energy transitions

Scholarship on energy and energy transitions in societies emerging from war/conflict usually categorises these as ‘post-war societies’ (Lappe-Osthegea & Andreas, 2017; Gonzalez-Salazar et al., 2017). However, societies where war has ended, are not necessarily post-conflict as the end of war does not necessarily imply the end of the conflict (Kirsch & Flint, 2016; Klem, 2018). Galtung (1969) defines peace as the absence of personal and structural violence. This is a helpful description given by post-war researchers who propose typologies of various post-war systems or kinds of peace (Davenport et al., 2018; Suhrke, 2012; Høglund & Kovacs, 2010). Once the war ends, whether by negotiated settlement or military triumph, the subsequent phase is often described as a post-conflict setting and the state and society are now characterised in post-conflict contexts (Mac Ginty, 2011, Toft 2009, Langer & Brown 2016). However, the war’s end does not signify or ensure the conflict’s conclusion. Post-war transition refers to a process of profound and dramatic changes in a society that occur following the cessation of large-scale organised violence, but without necessarily looking in depth at the direction, causes, or outcomes of these changes (Klem, 2018).

The transition starts after the war, not after the conflict’s conclusion. Consequently, the phrase ‘post-war context’ signifies a distinction from ‘post-conflict context’, with substantial variances. Post-war, conflict persists in a variety of ways; the underlying issues that led to the war must therefore be addressed. Essential features - individuals, issues,

institutions, history – and underlying grievances - survive the conflict and play a role in the post-war setting. Energy transitions in these contexts must recognise that post-war and post-conflict situations are distinct. In the post-war societies conflict is confined but never resolved and after the war, divisions and hostilities remain in impacted communities (Collier & Sambanis, 2002; Walter, 2004, 2015). Energy transition in these contexts needs careful consideration since it has the potential to maintain and exacerbate divides. Alternatively, at best, it should help heal these. Therefore, understanding of and distinction between post-war and post-conflict are critical in the energy transition perspective.

Trajectories of post-war states share some common characteristics. The end of the war brings a tremendous sense of relief, and the post-war state normally prioritises the economy and development as a way to rebuild (Paris & Sisk, 2009; Langer & Brown, 2016). Post-war trajectories are conditioned by factors such as mode of government, governance structure, donor aid, international relations, and local political dynamics (Klem, 2018). Notably, the post-war state's actions are determined by how the war ended. If the war ended with a peace deal, the deal guides the state's actions. However, in the case of military victory, the state, as the victor, has power to unilaterally make decisions (Licklider, 1993; Luttwak, 1999; Mason & Meernik, 2006; Toft, 2009). It may do so rather than pursuing broad, inclusive processes.

Post-war peacebuilding and reconstruction commonly take the form of development and economic prosperity aided by liberal peace and market-driven solutions (Paris, 2010; Stokke & Uyangoda, 2011). The literature on peacebuilding places significant emphasis on development the liberal peacebuilding narrative (Mac Ginty, 2011; Smoljan, 2003, Stokke & Uyangoda, 2011).

Another typical dilemma concerns the choice between addressing the effects as opposed to the underlying causes of conflict. In a post-war setting, especially with the ending of the war by military victory, the victor may

concentrate on the manifestations of conflict, such as ethnic outbidding, land grab, changing demographics through resettlement, militarised environment and depriving rights. Addressing specific manifestations can make a qualitative difference in people's lives (Richmond, 2005; Newman et al., 2009; Menocal, 2011). However, without addressing the causes, conflict could remain dormant only to re-emerge generations later. Internationally supported efforts to deal with conflict manifestations often boil down to technocratic interventions (Mac Ginty, 2017). The energy sector is rich in technocratic interventions that are not tailored to post-war behaviour and perceptions. The affective dimensions of conflict, with related attitudes of hatred, prejudice, grievance, fear, and insecurity, are critical to transformation of violent conflict but often overlooked by the technocratic approach. These interventions occur on the premise of 'peacebuilding'. Technocratic intervention is generally followed by traditional post-conflict development initiatives supported by bilateral and multilateral actors to advance liberal peace with 'peace through development' set as the goal to achieve longstanding peace (Stokke, 2009).

The development trajectories in post-war states differ according to the state's ability, where weak states are economically and politically unstable and feel vulnerable. In weak post-war states, development is often used to build state authority, capacity and legitimacy (Call & Wyeth, 2008). Strong states are defined as ones that can ensure a reasonable degree of internal political stability and economic growth, have the prospect of social development, and can mobilise resources to achieve their goals (Tsygankov, 2015). Strong states may prefer to undermine democracy, justice, and equity in their push for development to gain political advantage and address socioeconomic needs. Development practices in former war zones have often exploited resources and increased inequalities, worsening people's vulnerabilities (Bender, 2011). In post-war states - whether weak or strong - development pre-supposes democracy, justice, and equity. Jarstad and Sisk (2008) point out that democracy and peace do not always go hand in hand. Development initiatives then do not address the post-war setting and its democratic shortfalls. Top-down interventions may

aggravate the underlying tensions. Most of them are liberal in outlook and focus on relationships between states, markets and citizens (Mac Ginty & Hamieh, 2010).

Energy is a vital sector of the post-war state that spans socio-political and economic boundaries and is deeply embedded in various economic objectives and development goals (Gonzalez-Salazar, 2017; Kirshner et al., 2020; Binnetti, 2023). As a key requirement for industries, jobs, households, administration, energy is essential to the functioning of any state, whether post-war or not (Klem, 2018; Pomponi et al., 2019). Beyond this, however, energy is a key feature of the sociocultural qualities of a society. It should also be seen as essential to address socioeconomic inequities and disparities contribute towards conflict and/or post-war reconciliation, and engender a more inclusive society. Overlooking the non-technical aspects of energy is another common dilemma.

Finally, the 'energy trilemma' refers to the linked and sometimes conflicting energy objectives: security, climate change mitigation, and energy justice (Heffron et al., 2015; Khan et al., 2021; Marti & Puertas, 2022). Accessibility, cost, and availability of resources (including energy) for the general populace are just some of the numerous obstacles that nations must overcome as they come to grips with the conclusion of a war. This trilemma is one of the most critical aspects of energy governance (Gunningham, 2013). As societies transition, post-war countries are forced to choose between availability and affordability and must find compromises between the various parts of the trilemma.

2.3 Energy transitions in the Global South

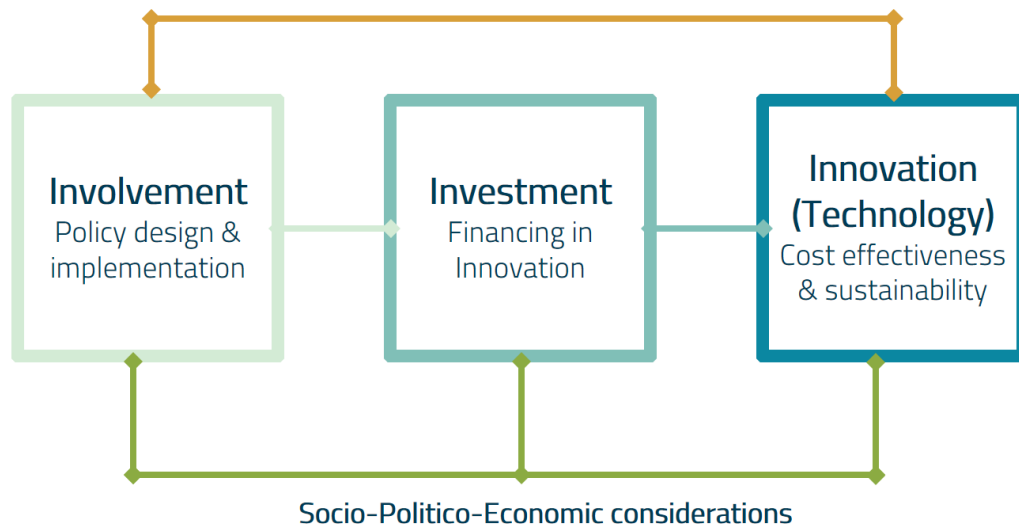
If we return to the broad perspective of the Sustainable Development Goals (SDGs), the goal for the Global South is how to integrate greenhouse gas emission mitigation and quick transitions to cleaner types of energy, along

with the societal issues of rapid scaling up of access to energy and advances in human development - poverty reduction, quality of life enhancement, gender and racial equity. Global governments have identified climate change as a crisis and joined international treaties and climate agreements in response. And according to the research, climate change is impacting Global South more than the North. Three obstacles to this transition which specifically face countries in the Global South are their population demographics, economic fragility, and governance difficulties (Taylor Aiken et al., 2017; Blicharska et al., 2017).

The global transition to a cleaner energy system will bring about fundamental and systemic shifts, which will affect governance, policy, trade, and innovation. As this process plays out, every country will be confronted with its own set of particular difficulties. It is expected that the Global South will have to make up for the lost time in developing and implementing low-carbon technology. The Global South faces a different set of energy transition challenges than the North. On the one hand, countries in the Global South are tasked with addressing their climate commitments and the transition to clean energy; on the other hand, they need to focus on ensuring energy security and justice. But as noted, the shift has predominantly focused on technology and finance through ecological modernisation strategies involving multiple stakeholders (Newell, 2019).

In developing countries, energy transition challenges are threefold: policy, financial, and technological. Without disruptive technology (innovation that significantly alters the way that consumers, industries, or businesses operate) and drastic shifts in consumer energy consumption, energy transitions will be near impossible. Government policy and regulation, investments from the state and private sector, and technical know-how and innovation are fundamental to achieving any sustainable energy transition. Policy, financing and technology are three interconnected actors in energy transitions. The Triple I framework (Fig.2) outlines the interconnectedness and the need to couple them with the socio-economic-politico considerations to achieve a grounded approach to understanding the energy transitions.

Fig.2: Triple I Framework



Innovation has gained much attention in contemporary academic writing, particularly concerning sustainability transitions, since it brings in novel approaches and technologies to renewable energy uptake, which helps amplify renewable energy production. Innovations function as ‘push’ and ‘pull’ elements that drive transition in numerous ways. Renewable energy has become a viable alternative and a focal point of the energy transition discourse because of technological advancements, increased efficiency, and decreased costs. However, there is widespread worry that the renewable energy industry has not yet made new clean energy technologies such as solar and wind accessible to low-income rural and urban areas. Clean energy producers continue to advertise their goods primarily to businesses and individuals who can afford to embrace new technology for financial advantage. The less fortunate continue to await their turn, as they have always had to. Investment and innovation remain significant obstacles for developing nations seeking to include renewable energy technologies into their policy mix. The ‘technological gap’ (Castellacci, 2011) is a problem that many countries in the Global South have to deal with; it is a cause of ongoing inequalities, underdevelopment and indeed poverty (Fofack, 2008). Nevertheless, researchers have claimed that efforts to facilitate access to low-carbon technology are expected to provide a ‘development dividend’ in the Global South, a view supported by evidence (Forsyth, 2007).

Investment is essential for developing nations to realise energy transitions while providing energy for everyone. The state's resources will determine the design and direction of the energy transition. Historically, investment has favoured giant firms over small-scale or participatory alternatives. Contrary to the liberal economic theory - that demand draws investment - the private sector does not always fully engage since it is difficult to do so owing to an unfavourable political climate for renewables. In addition to their political influence, external state players contribute investment capital. States already hampered by financial restrictions welcome these investments from external players, despite substantial political conditions accompanying them.

Glachant and Dechezprêtre (2016) argue that numerous countries in the Global South continue to be excluded from international technology transfers. This is because foreign private developers see insecure political environments as too hazardous an investment. There is no commercial justification for private industry participation in severely developing nations or areas (Kirchherr & Urban, 2018).

As part of the energy trilemma, maintaining energy security while adhering to climate pledges and ensuring energy equity is a crucial problem for policymakers in developing nations. The third element of the trilemma – social equity and improvement – tends to come last. Policy is shaped by the competing goals of energy justice, energy security, and climate commitment. Due to the complexity of the decarbonisation process throughout the whole energy system, it is crucial to adopt a system-integrated strategy. A systems view acknowledges the interconnectedness of efforts utilising the policy instruments, technical solutions and financial possibilities. Well-coordinated efforts can increase their cumulative impact. Energy policy is the key to initiating and accelerating the deployment of renewables, incentivising energy efficiency, supporting changes to the energy system, and paving the way for the private sector and research institutions. Following the SDGs and the Paris Agreement adoption, it will

be difficult for governments in the Global South to fulfil their pledges without instituting systemic change. The sustainable energy transition would be significantly accelerated by top-down forward-looking government policy combined with inclusivity and bottom-up entrepreneurship.

A distinction can be made between top-down and bottom-up approaches. The transition literature has looked at the role of socio-technical aspects (Baker et al., 2014; Goldthau & Sovacool, 2012; Geels & Schot, 2007; Smith et al., 2010), political structures and political economy factors (Voß & Bornemann, 2011; Meadowcroft, 2009, 2011; Fouquet, 2010) in governments in achieving sustainable energy transition. To maximise technical efficiency and reduce emissions, both the energy supply side and end-user side must be addressed (Acemoglu et al., 2012; Gillingham et al., 2009; Intergovernmental Panel on Climate Change, 2014). Energy conservation and energy-efficient technologies are cost-effective paths toward a sustainable energy system; these have received much attention, but the successful delivery of such solutions depends heavily on the social and cultural aspects of energy use, habits and understanding. This, too, demands policy that is both well-tailored, well communicated and not least well accepted by the consumer. Not least, the state itself must be credible and trusted. The social and cultural challenges, many would say, are more complex than the technological ones.

Institutional inertia, whilst common worldwide, is particularly widespread in the Global South. Over time, the politicisation of public administration institutions has rendered them weak and submissive to politicians (Uyangoda, 2013). This politicisation and weakening have resulted in unresponsive institutions with little flexibility for policy reform and adaptation. Path dependence and the power enjoyed by the institutions are critical challenges for systemic change. Path dependence refers to the outcomes of 'self-reinforcing or positive feedback processes' in a social system (Pierson, 2004, p. 10). Mahoney (2000) argues that path dependence generates a historically embedded inertia. This can be explained as the

inability to change development paths due to past choices, institutions and decisions.

2.4 Understanding the geopolitics of energy transitions

The current world order itself is transitioning as global institutions are weakened, nation-states reassert their powers, and powerful new actors lead the way with global and regional initiatives and coalitions (Dian & Menegazzi, 2018; Weiss & Wilkinson, 2014). Understanding this new geopolitical context is challenging since the question arises whether to understand it through perceiving states as a key unit of analysis or through seeing a complex assemblage encompassing aid, foreign direct investment, private entities, foreign policymaking and diplomacy. Understanding the role of geopolitics will help to understand how energy transitions are influenced by geopolitics in the developing country context. Climate commitments, international architecture and institutions to fast-track energy transitions, multilateral and bilateral cooperation and global financial instruments play a crucial role in charting the transition pathways in developing countries.

Thus, energy transitions illustrate new geopolitical power dynamics that have emerged due to globalisation and the existing international order. With the development of renewables as viable alternatives to fossil fuels, some of the most comprehensive innovations are taking place in the energy industry. As a result, growing collaboration trends in various industries provide new political and economic trade-offs, such as new partnerships on raw materials for renewable energy, joint climate financing and coordinated development funds for renewable uptake in poorer countries. This new reality has created new spaces for geopolitical engagement regionally and globally.

The geopolitics of energy transitions is a relatively new study area. Most energy geopolitics research focuses on oil and gas geopolitics (Akiner, 2004; Amineh, 2007; Umbach, 2010; Frideman, 2009) or renewable energy geopolitics (Scholten & Bosman, 2016; Overland, 2019). Studies on the economic elements of energy dissemination (Meade & Islam, 2015; Duan et al., 2014), energy technology (International Energy Agency, 2014, 2020; Schaeffer et al., 2015; Fortes et al., 2015), and policy implications have been conducted (Johnson et al., 2015; Schwanitz et al., 2015). However, the geopolitics of energy transitions have been examined holistically, considering economic, technological, sociocultural and regulatory considerations.

An increasing body of literature on the geopolitics of energy transition has arisen in recent years. Scholten (2018) explores the new global energy situation's winners and losers, the shift in regional and bilateral energy contacts between developed and developing nations, governance measures, and infrastructural upgrades. According to Goldthau et al. (2019), the energy revolution will ultimately result in a systemic shift; the low-carbon transformation is predicted to make the global energy system more sustainable and varied. According to Hache (2018), new challenges posed by energy transition tactics may be as complicated as today's energy geopolitics. Local and decentralised ties may add a new geopolitical dimension to conventional players, while technical, economic, social, behavioural, geographical, and legal factors may compound the expanding problem. Blondeel et al. (2021), after reviewing the literature on the geopolitics of energy system change, argue that a more thorough knowledge of the relationship between politics and energy systems is necessary to foresee sustainable energy transition trajectories. This study contributes to this by providing additional contextual knowledge on the interconnections between energy transitions and geopolitics from the perspective of the Global South.

Bazilian et al. (2019) present four scenarios for the energy transition and its implications for global geopolitics: cooperation and global consensus on

climate change that facilitates international policymaking, technological advancement charting a new path to transition, country-first policies that prioritise energy security, known as dirty nationalism, and business as usual in which fossil fuels remain dominant. Lombardi and Gruenig (2016) examine low-carbon energy security and energy geopolitics from four perspectives: Climate change and energy security goals, energy security in a geopolitical context, and the influence of large-scale renewable energy projects on energy security and shifting geopolitical alignments are all discussed. Hafner and Wochner (2020) discuss how the global energy transition will occur among the world's major geo-economic/geopolitical blocks and how it will impact and be influenced by global governance. They identified four variables contributing to the energy transition: global energy consumption, top-down climate legislation, bottom-up technology, and technological innovation in the energy business. This growing body of research on energy transitions and geopolitics is mostly focused on the Global North.

According to Eyl-Mazzega and Mathieu (2019), geopolitical and geo-economic energy and climate policy problems are becoming more complex, leading to old and new energy rivalries. According to Makarov et al. (2017), the post-Paris energy situation challenges both developed and developing nations regarding energy transition and climate promises. Overland (2019) investigates four developing misconceptions about renewable energy geopolitics: competition for critical resources, new resource curses, electrical disruption as a geopolitical weapon, and cybersecurity as a geopolitical problem. He contends that increased usage of renewable energy will result in more decentralisation, perhaps making the system more robust. He argues that international energy competition will transition from physical resource control, location, and transportation routes to control of technology and intellectual property rights.

Transitions involve social, political, and geopolitical dynamics where power and spatial relationships are keys to understanding. Notions of power, spatial relationships, and global space are continually reimagined and

rewritten through historically constructed discourses (O Tuathail, 1996). The face of geopolitics has been changing over the past decade, and new power centres have emerged within the Global South. The countries at the margins of the traditional geopolitical landscape have become the central actors spatially and materially in specific settings. Margins have often become a more central assertive core with new geopolitical actors becoming assertive and dominant in several spheres, energy transitions being one of these. Over the last decades, we have seen the rise of China and other BRICS countries (Brazil, Russia, India and South Africa) as dominant players in the energy sector, giving rise to new power rivalries.

Critical geopolitics and the theories of International Political Economy (IPE) provide rich approaches to investigating the Global South's geopolitical dynamics of energy transition. As a sub-field of human geography, critical geopolitics investigates the geographical assumptions and designations that enter into the making of world politics (Dodds et al., 2013). Critical geopolitics, which claims to offer a richer account of space and power than mainstream geopolitical analysis, concerns the specific sites and technologies of power relations rather than the sources and structures of power in the general sense (Jones & Sage, 2010). Knowledge about power relations, the influence of money and the role of technology is essential to understanding the geopolitics of energy transitions. Critical geopolitics, as a research approach, offers a more nuanced understanding of the complex spatialities of power (Dodds et al., 2013). It has the added strength that a substantial part of critical geopolitics seeks to unpack the rigid territorial assumptions of mainstream analyses to achieve a more flexible account that is better attuned to societal realities.

IPE argues that adequate investment in low-carbon energy sources is necessary to achieve sustainable development in low-income countries, placing them on a climate-friendly growth path. In truth, impoverished nations have the highest financial requirements for mitigation technologies (Tempest & Lazarus, 2014). The costs of migrating away from high-carbon systems and the alternatives available decide whether countries can escape

infrastructural and technical carbon lock-in (Seto et al., 2016). As a result, existing technologies and infrastructure in nations that are now unattractive for cleantech investments and do not participate in low-carbon tech value chains may resist transformation. When private firms refuse to invest, international organisations and public-private partnerships (Ockwell & Byrne, 2016; Rimmer, 2019) can help disseminate low-carbon technology (Chon et al., 2018). On the other hand, as we know, investing in a developing country, facilitating transitions, and reducing emissions may be more productive than investing in a developed country.

Energy transitions constitute a global phenomenon that impacts the modality of the evolving world order and leads to different conceptualisations (Acharya, 2014; Barnett & Duvall, 2005). Renewable energy has created a new rush for earth minerals, technologies and financing/funding modalities, and it has created new spaces of engagement in the Global South where new players, agents, and dynamics are involved geopolitically; hence there is a need for a fresh conceptualisation where new setting breed new hegemons and counter-hegemons. Their interaction provides a new understanding of emerging geopolitics in the Global South. The question is how the Global South (players, agents, and dynamics) can ensure and preserve the fundamental pillars of democratic politics, such as legitimacy, inclusion, accountability, and equity, in the face of new global problems, in this case, energy transitions (van der Merwe & Dodd, 2019; Weko & Goldthau, 2022). In the Global South new types of geopolitical power play have emerged in reaction to globalisation and the existing international order that needs further exploration.

3. Methodology and data collection

The overarching theme of ‘energy transitions in post-war societies’ is specified through five research questions, as outlined above, and three specific foci: policy, equity and geopolitics. In terms of methodology, the dissertation is based on a pragmatic and qualitative approach. A pragmatist engages the subject of inquiry from many angles while using all available tools to answer the question (Hesse-Biber, 2015). The central task of social science is to explain the social structures, interactions, and dynamics. Further, concerning epistemological questions, it assumes no symmetry between the social and natural sciences concerning concept formation and the logic of inquiry and explanation (Gunnell, 1969). The world of the social scientist is second-order because it has been logically pre-ordered by its participants, in whose terms action is conducted and justified (Gill, 1993). In qualitative research, the data we gather, organise, and analyse are always influenced by our identities as researchers and the choices and judgments we make along the way. This section explains the study and data collection methods to provide transparency pertaining to the research process that led to this dissertation. I begin by outlining the case study research design and then go into detail about the data gathering procedures; before exploring ethical issues, I will look at the analysis process. Finally, I assess the study’s validity in terms of its dependability.

3.1 Research design: Qualitative case study

This dissertation predominantly employs a qualitative case study approach to provide in-depth knowledge of the phenomenon being studied. The case study approach is particularly suited for thorough investigations of certain phenomena because it tends to explore relatively few units, enabling the researcher to observe and discover a myriad of mechanisms and causations using multiple methods (Yin, 2009). A case study research design is used in various disciplines in the social sciences when an in-depth explanation is sought. Yin (2009, p. 18) defines a *case study* as an empirical inquiry that investigates a contemporary social phenomenon in-depth within its real-life setting, using multiple sources of evidence. Karlsson (2016) similarly describe how a case study design has the following characteristics: — the study of the cases in their natural environment, orientation towards understanding, robustness and theory-generating. Yin (2009) noted the advantages and disadvantages of using a case study design. First, it helps to understand the phenomenon in its natural settings. Second, it provides a holistic and in-depth explanation by examining the topic in question from individual perspectives. Third, a case study researcher selects a small geographical area for intensive study by asking how and why questions.

Yin (2009) identifies three criticisms of using a case study design. First, it is tricky, if not impossible, to generalise the results to a larger population through representative sampling. This study aims to make analytical and statistical generalisations from the findings. The second criticism is that researcher bias may influence the findings. This is addressed in the ethics section. The third criticism is that a case study design produces a large amount of information that is difficult to manage. This was mitigated by categorising the data into different themes.

3.2 Fieldwork, data collection and analysis

This section gives a detailed account of the fieldwork process describing how I entered the field, the choice of field sites, the challenges encountered, and the kind of data collected during this process. After that, the following section reflects the ethical considerations and implications of the fieldwork and the dissertation broadly.

3.2.1 Scoping visit: I know that I know nothing

It was decided to embark on a scoping visit in November 2018, mainly focusing on achieving four objectives:

1. To identify the key interlocutors at the central level. This includes key central government institutions, persons and other influential actors.
2. To identify the renewable energy sites which are being developed or planned.
3. To contact the private sector and civil society entities at the local level who are engaged in the process.
4. To organise and attend introductory meetings with officials, local level politicians and village leaders of the possible field sites.

The scoping visit lasted for six weeks, from November to December 2018. During the visit, three types of renewable energy sites the Sri Lankan government envisions were discovered. 1) Solar farms, 2) onshore wind farms, and 3) hybrid wind and solar parks. A solar farm, wind farm and a hybrid park already exist in the former war zones in the Northern Province. Furthermore, there were several projects in the pipeline. The cabinet approved a 100MW wind farm in Mannar, a 390MW renewable energy park in Pooneryn and a 10MW wind farm in Maravanpulavu. The wind farm in Mannar and the renewable energy park in Pooneryn were projects operationalised by the government with a loan from the Asian Development Bank. The 10MW wind farm in Maravanpulavu was a private venture.

I visited these sites and talked to local inhabitants, of which the majority were unaware of the upcoming renewable energy facility. Local government officials had been informed but were unaware of any details. It was an exciting prospect to investigate. In the capital Colombo, there were contrasting messages from authorities outlining no unanimity in decision making, and a variety of actors are sketching Sri Lanka's energy transition pathways. Initial interviews with four key institutions (Ministry of Power and Energy, Sustainable Energy Authority, Public Utilities Commission of Sri Lanka and Ceylon Electricity Board) brought to my attention the highly complex nature and uncompromising intricacies of Sri Lanka's transition to renewables.

It was informed that the then Sri Lankan President, who was also the Minister of Environment, was keen to showcase his commitment to climate change and launched a rooftop solar project in 2016, intending to promote and set up small-scale solar power plants on rooftops of households, religious places, hotels, commercial establishments and industries. It was expected to add 200 MW of solar electricity to the national grid by 2020 and 1500 MW by 2025. This project has faced several challenges, and has received a mixed response from state entities. Furthermore, during discussions with policymakers, a people's protest against a proposed coal power plant in Sampoor was mentioned frequently. On the one hand, policymakers who favour a green transition said this protest had a positive impact and will help prioritise renewable over coal powered plants in future planning. Others said it sets a terrible precedent whereby national rather than local goals are prioritised. It also had an ethnic element to it. I found the interplay between these competing narratives exciting and vital.

3.2.2 Site selection: Hobson's choice

After returning from the scoping visit, the decision was made to pursue further fieldwork on the following sites:

1. Mannar wind farm had many equity and justice questions, especially related to land (paper 2 and 3).

2. Vavuniya solar farm: People were unhappy about the farm in their vicinity and protested (paper 2 and 3).
3. Renewable Energy Park in Pooneryn: Initial discussions with local level government officials outlined that there was insufficient information. (Paper 1 and 3).
4. Sampoor coal power plant: to understand the role of the people and their fight for justice (paper 4).
5. Rooftop solar programme: to unpack the interlinkages between politics and policymaking (paper 5).

Fig. 3: Map of fieldwork locations



I started collecting background information about the cases and building the networks for the fieldwork. The questionnaire (Annex 1) for the in-depth interviews and focus group discussions were finalised. The fieldwork was planned in two parts with a one-year gap in-between. The gap would help me to understand the changing nature of the dynamics and to compare the policy, practice and perspectives. The fieldwork was mainly conducted in the North and Eastern Provinces of Sri Lanka (Fig. 3). I have based myself in the capital Colombo since it is the administrative headquarters of the Sri Lankan state, and most of the political and policy decisions are made there. Interviews were also conducted in Colombo with multiple stakeholders.

3.2.3 Fieldwork: Walking through the minefields

The field study lasted for around three months, from November 2019 to January 2020 and was divided into four parts. Table 1 outlines the fieldwork matrix. Government officials, including policymakers, bureaucrats, and administrators from different governmental sections were the first group of people I interviewed. The justification was to understand their thinking and the rationale underlying Sri Lanka's energy future and how they foresee the energy transition. The second part of the fieldwork involved visiting renewable energy sites in the former war zones, including those already built and proposed sites. Field visits to these sites helped understand the discourses on renewable energy in war zones, realise how energy spaces are controlled and explore how the energy economy produces political outcomes. The third and fourth groups of people interviewed included those resisting the coal plant, and activists, academics and those from the private sector, respectively.

Table 1: fieldwork matrix

Section	Motivation	Location	Interlocutors	Method
1. Meeting with policymakers, officials and bureaucrats	To understand the mindset, trajectory and thought process of energy transition	Western Province Colombo	Officials from CEB, MoPE, SEA, PUCSL and others government institutions.	semi-structured interviews
2. Visiting the planned renewable energy sites	To understand the situation on the ground and to find the underlying issues and the dynamics between different actors.	Northern Province Vavuniya, Mannar, Kilinochchi and Jaffna	Local level politicians, government officials, local village officers, local activists, religious leaders, villagers.	semi-structured interviews, focus group discussions and participatory observation

3. Meeting with the people who stopped the building of the coal power plant	To understand how the social movement was built, mobilised support and succeeded	Eastern Province Trincomalee	Social movement members, indigenous community, local leaders, politicians, officials	semi-structured interviews and focus group discussions
4. Meeting with the policymakers, private sector and the activists and academics	To unpack the findings from the field in the North and Eastern Provinces and to understand the reasoning and logic behind government actions	Western Province Colombo	Government officials, solar companies, environmental activists, academics	semi-structured interviews

The first phase of the fieldwork comprised two elements. First was interviewing officials holding office to understand their thoughts on the energy transition and on incorporating renewables into the energy mix. The second was to interview retired government officials who had previously worked as policymakers. The retired officials were more welcoming and very open about their experiences and easy to get in touch with and talk to these individuals. Getting appointments with government officials, however, was more problematic. Even though I communicated to my potential interviewees through email and phone well in advance, getting an appointment was difficult. Being an ethnic Tamil and coming from a Norwegian institution complicated matters due to Norway's past relationship with Sri Lanka and its post-war Ethno majoritarian setting.

I was able arrange the required meetings - helped by previous association with diplomatic missions in Sri Lanka – and interview key persons who

were instrumental in the policymaking and implementation of Sri Lanka's energy transition. Three key observations were made from these meetings. First, the ability to speak the local language, Sinhala, helped give the interviewees comfort and confidence. Second, my background – my father being a retired senior government servant and myself being a former lecturer at a Sri Lankan university – helped build the interviewee's trust. Third, the interviewee only discussed the nuances and intricacies after recording and notetaking had ceased. This is a phenomenon I noticed throughout the fieldwork, and I call it 'while walking out'.

The second phase of fieldwork began in Mannar. My contacts alerted me, warning that needed to be extra cautious and vigilant during the fieldwork. The military intelligence visited the guest house where I was staying. The vehicle I travelled with was stopped regularly and was questioned. Everything was monitored, and I felt that I was under constant watch throughout my stay. The following field location was Pooneryn in the Kilinochchi district, where the government proposed a renewable energy park. The area designated for the park is situated around a few villages, located in a very isolated area on the Jaffna peninsula. Security here was tight, and regular questioning by security forces occurred throughout the fieldwork. The villagers were very welcoming and happy to help and provide all the relevant information. The local village officers were also helpful. The final field location of the second phase was Maravanpulavu, site of the construction of a private venture owned wind facility. A contested site, encounters occurred between the villagers and the company officials building the wind facility. Officials at the district level were very supportive, expressed their concerns, and asked me to visit the site and talk to the people to understand the context better. I went to the site to do the fieldwork and talked to the people and local-level officials. A few hours later, a group of men arrived at the location where I was talking with villagers and said that I was creating unwanted tension and accused me of trespassing on the wind farm company's property. The local villagers said these people were hooligans hired by the company and asked them to leave, at which point the situation became tense. These people then became angry,

brandishing sticks and rods and threatening to attack the villagers, myself and the vehicle that I was travelling in. After lengthy negotiations, I was able to leave the site unhurt. Following this, I decided not to pursue further fieldwork in this location. In this dissertation, I have not dealt in detail with the data collected from this site due to security reasons. This incident outlines the difficulty of conducting fieldwork in former war zones.

My final fieldwork phase was conducted in Colombo, firstly with government officials I had met before along with some new ones. I noticed a change in their behaviour, body language and the reception given to outsiders among the officials when I met with them again in the final phase of my fieldwork. On the second occasion, they were hesitant to talk, unwilling to give definitive answers, and unsure. In between these interviews, Sri Lanka had seen a regime change, electing a new President and government. Since the end of the war in 2009, a soft authoritarianism was in place, and it was challenging to extract information from officials. However, regime change in 2015 through elections provided a democratic opening. So, in the initial stages of my fieldwork, it was much easier to gather information and secure meetings with government officials, and access to the field was easier without restrictions. The military stepped back from civilian affairs in the former war zones. In the middle of the fieldwork in November 2019, however, the former regime returned to power, and I was able to observe the immediate changes. The military became very active and assertive, constantly stopping and questioning me.

I left Sri Lanka in January 2020, hoping to return later in the year to complete the final part of my fieldwork. Nevertheless, it was not possible due to the Covid-19 pandemic. During the summer of 2020, I decided to do the fieldwork digitally and to make it virtual fieldwork with, however, limited success. Nevertheless, the large amount of data collected has, in my view, mainly been sufficient for this study. I faced three key challenges in this endeavour:

1. Getting hold of persons through an online platform has been challenging. Especially government officials were not willing due to

- several reasons. 1) Most of them do not have good internet access in their office. 2) They were scared to talk on online platforms. 3) They had little eagerness to spend time during non-office hours.
2. Contacting new sources was difficult since trust is an important component of Sri Lankan society, and one of the key elements of trust is face-to-face conversation. Even though we moved to a more digitalised setting, there are a specific set of values and virtues that need to be met when conducting correspondence with developing countries.
 3. Grassroots-level fieldwork was impossible because it became too complicated to reach people in villages, most of whom do not have internet access. In Sri Lanka, the internet is unstable and expensive so contacts at the local level were not willing or able to interact via Skype or Zoom. Minimal conversations were possible through WhatsApp and Viber.

These challenges were overcome in three distinct ways. The first was continuous engagement, with the possible interlocutors. Continuous engagement allowed the motives behind the study to be clearly explained, thereby improving relationships and over time encouraging further engagement. Second, this engagement started building trust. In order to enhance their trust, I made several direct line calls instead of internet calls to demonstrate academic integrity and professionalism regarding the research and to indicate that their time and input was valued. Third, I was able to reach several contacts through third persons. For example, one possible interlocutor is a friend of someone who is in turn a friend of someone known to me. These unofficial channels played a key part in making connections.

3.2.4 Data: Deliberate often decide once

The dissertation builds on empirical data that I collected during fieldwork. The dataset includes 88 field interviews, 26 focus group discussions, 6 specific occasions of participant observation, supplementary observations, 32 virtual interviews and a compilation of collected texts, documents and

other secondary information. The following section provides details on each type of data and the data collection process.

INTERVIEWS

The interviews mainly followed the interview guide (appendix 2), but much improvisation was needed in certain instances. The interview guide has four sets of questions. The first set was for state actors at the national and local level, the second set was for private sector actors and the third for the people at the grassroots level. The fourth and final set of questions were crosscutting questions thematised under five topics: financial incentives for renewable energy, standardisation, licensing and planning, market of electricity production, electricity consumption and promotion and information. Most of the interviews with officials were recorded, however, interviews with the local people at the village level were not recorded to give them the confidence that they would remain anonymous. Extensive notes were taken when recording was not in place. If an interview was not recorded, I spent around an hour post interview making sure that enough notes had been taken, and writing down my impressions and noted the settings. The interview site was photographed to help me to refresh my memory and to connect the text visually. The interviews with the government officials at the national level and private sector was conducted in English, in certain instances it was conducted in Sinhala. At the local level interviews were conducted in Sinhala and Tamil and being fluent in both these languages helped with the interview process and transcribing. The breakdown of the interviews can be clustered as displayed in Table 2.

Table 2: Number of interviews in each location based on the fieldwork phase

Phase	Place	No. of Interviews
1	Colombo	11
2	Mannar	09
2	Jaffna	10

2	Poonakary	12
2	Maravanpulavu	06
2	Vavuniya	08
3	Trincomalee	05
3	Sampoor	06
4	Colombo	21

Fieldnotes from the interviews provided the much-needed nuances to gain an understanding of the society and their thinking after a day conducting field work, a few hours were spent in the evening reflecting on the notes and conversation and attempting to highlight any dominant themes or emerging patterns. The most interesting part of the interviews was that the most crucial/interesting information and further contracts were shared after the interview was completed. Only during the send-off chat did the interviewees talk about sensitive/political issues. This helped me to understand the field better. I was able to make connections and better understand the reasoning and logic behind some of the statements after their ‘unofficial talk’. It provided the context and the field notes on my reflections and the non-verbal communication during the interviews contributed towards formulating a holistic view.

FOCUS GROUP DISCUSSIONS

Focus group discussions were used to gain a more in-depth understanding of the issues and better understand the dynamics within the societies around a particular issue. Focus group discussions were conducted at the grassroots level with communities affected by energy projects. Four reasons were considered when conducting focus group discussions during my fieldwork. 1) Understanding peoples’ perspectives, 2) understanding their everyday life, 3) examining impacts, and 4) any other helpful information or side notes. Most of the discussions lasted for one and a half hours, the shortest being 35 minutes, and the longest was three hours and fifteen minutes. The average number of participants per group was eight, and I decided not to include more than ten participants per focus group

discussion. The focus groups were thematised based on the issues and the communities. In Mannar, the people who have lost their lands were identified through a list provided by the district land officer. In Vavuniya, protesting Sinhala and Tamil community members were called in separately for focus group discussions. In Poonakary, farmers, fisherman, women’s groups, took part in the discussions and in Sampoor a very interesting discussion was held with indigenous communities.

Table 3: Number of focus group discussions (FGDs) in each location based on the fieldwork phase

Phase	Place	No. of FGDs
2	Mannar	06
2	Jaffna	08
2	Poonakary	02
2	Maravanpulavu	01
2	Vavuniya	06
3	Trincomalee	01
3	Sampoor	02

The focus group discussions (Table 3) in many ways complemented the semi structured interviews but also outlined the tensions and differences of opinion within the communities. These discussions provided a space to understand the varying opinions and standpoints, especially on the issue of renewables where the major concern was a lack of consultation. Although everybody accepts the question of equity, some saw this as an extension of the Sinhala Buddhist state apparatus which targets ethnic minorities, others saw it as bad planning while simultaneously agreeing that there are positive aspects to renewables. The focus group discussions clearly indicated there is no overarching agreement on the way forward among the protestors in the fight for equity and justice. This was only identified in a very shadowy way in the semi structured interviews.

PARTICIPATORY OBSERVATION

During my fieldwork, I was invited by local villagers, village leaders and the local village officials to participate in their meetings as an observer. I took part in meetings conducted by the local village officer (*grama niladhari*), local self-help groups, women's groups and village association meetings. Through these meetings, the local village officer introduced me to the villagers in several cases. During the fieldwork, I participated in six such meetings as an observer. The key observation from these meetings was the hegemony in play in social relations and it helped understand of the lived reality of people's day-to-day lives.

SECONDARY SOURCES

Secondary sources became a vital supply of information, especially after the Covid-19 outbreak, to understand the movements in Sri Lanka's energy sector. A few Facebook groups acted as aggregators of the news on energy in Sri Lanka, which helped me find relevant information weekly and remain updated. During the research, I have used policy documents, concept papers, official proclamations, cabinet announcements, publications from bilateral and multilateral agencies, and newspaper reports.

VIRTUAL DATA

During the pandemic, I was able to get in touch with some of my interlocutors in the field and established a connection through WhatsApp and Viber. Over time, both of these platforms became a source of information, discussion and debate. Most of the communication took place through text chats, and some through voice calls. I was also able to conduct some interviews through zoom. The text chats provided handy information for the research. Table 4 provides an overview of the interviews conducted virtually.

Table 4: Number of virtual interviews based on sector and medium

Sector	Medium	No. of Interviews
Private sector	Zoom	04
	Calls (Whatsapp & Viber)	04
	Text chats (email, messenger, Whatsapp and Viber)	03
Government officials	Telephone (direct line)	03
	Calls (Whatsapp & Viber)	05
Activists and Academcis	Calls (Whatsapp & Viber)	04
	Text chats (email, messenger, Whatsapp and Viber)	09

3.2.5 Data Analysis

Qualitative case studies with extensive fieldwork, such as this, yield enormous and detailed data. The information gathered must be structured and classified to unpack the major themes and concerns. The data analysis for this dissertation was a continuous process throughout the research project; the preliminary analysis performed during the first phase of the fieldwork allowed me to adjust the fieldwork procedure and, at times, change the project’s direction. It is essential to understand that “the analysis of qualitative data continues throughout the investigation and is not a separate self-contained phase” (Basit, 2003, p. 144). After a lengthy period of research, I acquired data from a variety of geographic locations as well as a variety of different actors. I transcribed all of the interviews and fieldwork notes myself and had a complete understanding of the data before beginning the actual coding process (Braun & Clarke, 2006). While transcribing the interviews and arranging the field notes, I jotted down themes and article ideas, which I followed up on more closely during the coding stage.

According to Braun and Clarke (2006, p. 79), thematic analysis of data material comprises “finding, interpreting, and reporting patterns (themes)

within data”. In other words, the researcher meticulously studies the data to uncover recurring subjects, concepts, and patterns and meanings. It is an effective strategy for evaluating the views of various study participants, revealing parallels and contrasts, and providing unexpected findings (Nowell et al., 2017). I came up with a few key themes and notions that functioned as conceptual tools for further understanding and arranging the data. All interviews were examined and interpreted with fieldwork findings and secondary sources. Furthermore, I made links with pertinent scholarly literature.

Braun and Clarke (2006) points out that a theme is defined as anything noteworthy about the data in connection to the research topic and reflects some degree of structured response or meaning within a dataset in thematic analysis. In this respect, the thematic analysis provided versatility by applying deductive and inductive methods. I mostly used an inductive approach, moving from particular observations to more comprehensive generalisations. Because of the data’s complexity, I divided it into distinct data sets for a complete examination and coding. I developed various data sets to analyse the five articles offered in this dissertation, each of which shed light on distinct parts of the research topics presented at the beginning of this dissertation. It should be noted, however, that despite this separation, I still regard all of the data as mutually informing as part of a greater whole.

As I progressed through the coding process, I began to categorise the codes into broad categories and more specific subcategories. The first theme that emerged in the process was the question of equity, which became the subtitle of my second paper. The second dominant theme that emerged from the coding was policy entanglements at different levels. Coding also helped identify some sub-themes under the policy: carbon lock-in, weak institutions and the role of power. This helped to formulate the third paper. At the initial coding, geopolitics was not a dominant theme. Later, when I started coding, the fieldwork data from Trincomalee geopolitics began to emerge as a theme. Followed this up with the data obtained from the

Colombo officials and outlined the importance of geopolitics in the Sri Lankan energy sector, which resulted in the fourth paper. The data was analysed according to the thematic areas, and specific data were left unattended for three reasons. First, some require further exploration; Second, some thematic areas are beyond the scope of this dissertation and finally, some data were left behind due to security reasons.

3.3 Ethical reflections and positionality

Research as a practice of knowledge production has evolved over the years. Research ethics has become a significant concern particularly in academia. It is expected that research should be designed, reviewed and undertaken to ensure integrity, quality and transparency. Against this backdrop, every researcher is expected to follow specific guidelines and abide by the rules and regulations governing the said research institution. The Norwegian Centre for Research Data (NSD) has approved the data collection in this study, which has been carried out in compliance with the guidelines for research ethics in the social sciences, humanities, law, and theology (NESH, 2016). I have also followed NSD's advice for the safe storage of computer data.

Diebel-Fischer (2018) describes research ethics as a process that can be understood as a two-part endeavour: first, as part of an academic discipline which is usually situated in the philosophy (i.e. as part of foundational research in ethics), and second as being applied to research processes which are not connected to ethical questions (i.e. as applied ethics). The general term used in social science research to understand societies and people is the 'values' that they contain and practice. In moral philosophy and epistemology, 'values' have different meanings. Its moral-philosophical meaning refers to ideals we adhere to in individual and social life of which freedom, tolerance, compassion, and equality are all examples. This moral-philosophical idea of values has the same meaning in ethics and political

philosophy. Its meaning in epistemology is our personal beliefs, judgments, prejudices etc., which affect our understanding of the world. Value judgments are an idea in epistemology referring to moral evaluations that we attach to our knowledge claims.

Qualitative research is broadly conceived as research that employs relatively unstructured forms of data, whether produced through observation, interviewing, and/or the analysis of documents (Seale et al., 2007). The creation of such information can include scientists being in very close and, at times, long haul associations with individuals. In fact, the ethos of qualitative research, in general, stresses the requirement for such closeness. Besides, information accumulation usually happens in 'regular' settings instead of in the circumstances explicitly set up for research purposes. These highlights have extensive criticalness with regard to pondering moral issues.

The production of knowledge puts fieldworkers in close contact with subjects, and this closeness creates problems with the management of anonymity and confidentiality (Lincoln, 1998). Ethical problems and dilemmas are a necessary part of fieldwork. They cannot be adequately anticipated and usually emerge during the fieldwork (Fabian, 1991). Fieldwork becomes especially problematic when researchers cross boundaries of conventional and sensitive topics, public and private space, overt and covert methods, field notes to texts, and overlapped roles and relationships (de Laine, 2000). In qualitative research, Punch (1986) argues that dilemmas and ambivalences do not always reveal themselves clearly and are virtually impossible to plan for in advance. An ethical dilemma arises when the researcher experiences conflict, especially conflict that cannot be addressed by one's moral principles or the establishment of ethical codes (Hill et al., 1995).

Against this backdrop, my fieldwork which is mainly based on qualitative research, took careful consideration of three critical ethical issues, namely,

informed consent, confidentiality and anonymity. The following section will discuss these issues in detail in relation to my dissertation.

3.3.1 Informed consent

Informed consent is a central concept in ethical research practice and is one of the fundamental principles underpinning professional guidelines for social scientists. It involves providing participants with clear information about what participating in a research project involves and allows them to decide whether or not they want to participate. Specifically, research participants need to be made aware of: what the research is about; why it is being conducted; who is funding it; what will happen to the results and how they will be disseminated; what their participation in the project will involve; what the potential risks and benefits of their involvement might be; and, how issues of anonymity and confidentiality will be managed (Wiles, 2017). Likewise, potential research members should be made aware that they are not obliged to partake and can drop out from the process at any point.

Iphofen (2009) notes that consent should be gained in the most convenient, least disturbing manner for both researchers and researched. In practice, it is expected that researchers use signed consent forms; indeed, with the rise of ethical regulation, signed consent forms have become the norm in social research. The perceived advantages of using signed consent forms are that they increase the likelihood that participants understand what participation involves and protect the researcher from any subsequent complaints from study participants (Coomber, 2002). Faden and Beauchamp (1986) argued that research participants need to understand that they are being authorised by someone else to be involved in research, and second, what they are being authorised to do.

3.3.2 Key Challenges

In my research, I encountered five key challenges concerning informed consent, especially the fieldwork that encompasses qualitative research methods. The first challenge in this regard is the information on the project

itself. It is ethical to inform the participants about the researcher's project, however, this entails three challenges in itself. First, the researcher must decide on the amount of information that needs to be provided. How much is too much is a question every social science researcher grapples with. Sometimes participants want to know as much information as possible before agreeing to participate. Sometimes too much information confuses and even makes participants less interested in responding. Therefore, achieving the right balance is tricky. Second, how the information is provided is also important. It should be presented in a user-friendly, non-intimidating manner. It is crucial to consider the language, connectivity and creating interest in the research. Third, when to provide the information about the project is another question every researcher finds difficult to place in his or her engagement with the participants. This is of particular importance for social science research.

I overcame this challenge through different means. During the government officials, private sector and activist interviews, I formally introduced the project and the objectives academically and clarified the interview's purpose. In the field locations, I started with very informal chats about who I am and why I am here and then explained what I am doing and the purpose of my interviews or focus group discussions. I gave ample time for the people to reflect, question and clarify. It was ensured there was an equal power equilibrium between the interviewees and myself. I spoke in straightforward, plain nonacademic language, dressed very modestly and spoke softly and in a non-intimidating manner. This helped create the first point of contact and provided the space and opportunity for me to give and explanation of the purpose of the interviews and for them to question or probe my intentions.

The second challenge is obtaining consent when you are in a public setting. During my field visits, I sat in community meetings, observed public settings, and visited government officers and research sites. By following this process, it is impossible to get consent from all involved in the observation. Prior information about it sometimes alters the behaviour of

the people who are being observed. Whenever I attended the meetings, I introduced myself beforehand or allowed the meeting chair to introduce me and purpose for being there. I always seated myself at the back, never interfered in the proceedings and even after the meetings, I did not comment or make suggestion relating to the issues discussed. I wanted to keep myself a neutral observer. Many questions were posed to me before and after the meetings, but I withheld comment and maintained neutrality.

The third challenge is operationalising the participants' rights to withdraw from research. Informed consent consists of participants right to withdraw whenever they wish, but in reality, it does not happen. Researchers have noted that it is common for participants to be reluctant to express the desire to end participation in a project (Alderson & Morrow, 2011). Researchers must therefore be vigilant to participants' unspoken expressions of reluctance to continued participation during data collection, such as an apparent lack of interest or irritation with the data collection (Fraser et al., 2004; Rodgers, 1999). I took extra care to ensure that the participants were willing to be interviewed or discussed. During the interviews and focus group discussions, participants' body language, tone and way of expression were carefully considered to ensure their willingness to participate. On a few occasions when I felt that there were some concerns, I took the time to talk to them and remind them that it was ok to withdraw consent. During the fieldwork, two people withdrew from the semi-structured interviews, and four people withdrew from focus group discussions. I provided my personal telephone number – a Sri Lankan mobile number - to all interviewees and focus group participants and informed them that they could contact me through this number either directly or through WhatsApp/Viber in case they wanted to withdraw consent. This Sri Lankan number is still active, and some participants have contacted me regarding the past few issues to discuss their economic difficulties due to the prevailing Sri Lankan economic crisis, but none withdrew consent.

The fourth challenge is about incentives. During the fieldwork, participants repeatedly asking me, “what are the benefits of participating”. It is a

difficult question to answer in general. In my case, I could not promise anything and was not in a position to give them monetary benefits. Meanwhile, because their participation was a crucial component of this study, I endeavoured to overcome this challenge through continuous dialogue with the participants and with the help of trustworthy interlocutors. As I was operating as an individual researcher and not associated with any International NGO helped in this regard.

The fifth and final challenge is related to written consent. It is expected that I obtain written consent from all the participants interview or interact with as part of the qualitative fieldwork. Nevertheless, getting written consent is not always easy. The consent form was in English, of which I translated into the local languages. When communicating with illiterate people, it is hard to get written consent. In this case, Sri Lankan literacy rate is high even though people are not fluent in reading; all of them can provide a signature. So, the consent form was read out and explained in the local language, and written consent was obtained from those who could not read it. Another challenge during the fieldwork was that written consent sometimes makes people hesitate and feel intimidated. Some participants feared legal ramifications and refused to sign. In these instances, I took time to explain the nature and purpose of the research; to which some agreed to written consent others not. The persons not willing for written consent were left out of the fieldwork process.

3.3.3 Confidentiality and anonymity

Another critical ethical consideration for the researcher is confidentiality and anonymity. Participants must be informed about the management of confidentiality and anonymity, as a part of the consent seeking process. Confidentiality is commonly understood as akin to privacy and respect for autonomy (Oliver, 2003; Gregory, 2003) and is taken to mean that information given to another person will not be repeated without their permission. Wiles (2017) argues that in most qualitative research, confidentiality (through the process of anonymity) cannot be assured;

researchers can tell participants that they will endeavour to ensure that they cannot be identified, but they cannot guarantee this will be the case.

I was able to take the prerequisite precautions to maintain the confidentiality and anonymity of all my participants. This was achieved by transferring recordings onto an encrypted hard drive within 24 hours, transcribed within three months, and the recordings were later deleted. Data were anonymised entirely and coded. This has protected the confidentiality of research participants and their activities. These precautions offer the advantage of helping to guard data against theft and accidental or improper disclosure (Meth & Malaza, 2003).

The only issue related to confidentiality in my research is the information gathered from people holding public office. It is argued that social scientists feel that it is inappropriate to offer confidentiality to public office people who speak about their public work (Rainwater & Pittman, 1967). I encountered this dilemma in my fieldwork. In most social research, Tilley and Woodthorpe (2011) argue there is no good reason to allow this to happen. I have ensured full confidentiality and anonymity to all my participants, including those holding public office. Ensuring that public office holders retain confidentiality has provided more valuable insights into the government's functioning and policymaking important to a better understanding of the energy transition trajectories in Sri Lanka.

3.3.4 Reflexivity

At this juncture, it is essential to talk about reflexivity, a key attribute that is needed for researchers, especially those working on social sciences. Reflexivity is the critical self-awareness of the researcher about his/her role in the research process and its outcome. Reflexivity is broadly defined as a “qualitative researchers’ engagement of continuous examination and explanation of how they have influenced a research project” (Dowling, 2008, 747). It “draws attention to the complex relationship between processes of knowledge production and the involvement of the knowledge producer” (Alvesson & Skoldberg, 2018, p. 10). Some have even defined it as ‘thinking

about thinking in the research process'. In its conceptual history, reflexivity has been a theme of attention and debate mainly in qualitative social science research, although it can be relevant to quantitative research as well. In its evolution, reflexivity initially had a somewhat narrow meaning to refer to reflective concerns of the researcher on the suitability of research methods during the research exercise. Reflection, in that sense, was a critical awareness of the researcher on the relationship between the research methods and the epistemic outcome. Subsequently, this idea of reflection was replaced by the new idea of 'reflexivity,' suggesting that it is critical self-reflection on the researcher's part on methods and ontological, epistemological and political aspects and consequences of the research exercise.

We can also see two epistemological approaches to reflexivity: objective and subjective. In the 'objective reflexivity', the critical self-reflection was on how research methods enable the researcher to maintain the objectivity of the analysis and theory-building. The subjectivist approach to reflexivity, or 'subjective reflexivity', is closely associated with feminist and postmodern perspectives. It does not restrict its critical engagement at the level of the methods alone. Its key focus is on the subject of the knowledge production – the researcher – and the problematic nature of the researcher's role as an epistemic agent. These perspectives have redefined the notion of reflexivity, calling for a radical re-examination of the philosophical, methodological, theoretical and political assumptions on which the practices and cultures of knowledge production are constructed. Thus, reflexivity is not just self-awareness of methods that enable the researcher to effect course correction during research or a framework to enhance the objectivity of sociological knowledge, but a critique of the foundations of knowledge production.

In my case, I am a Sri Lankan first and researcher second. From this perspective, the subject-object position an insider holds can constrain access to the field. Connecting positionality to epistemology simultaneously empowers and disempowers individual expertise. The key challenge has

been the possibility of being simultaneously an insider, outsider, both and neither. So the contradictions in my positionality and in-between status had to be constantly reworked during the fieldwork. One of the key takeaways from the fieldwork is that positionality and subjectivity are tempered both spatially and temporally and are unstable and not fixed. During the fieldwork, when I am in the former war zones in the North and East of Sri Lanka, on the one hand, I am a local who speaks the language – Tamil – and have family origins from the region. On the other hand, I am an outsider since I was born and have resided in Colombo for a long time, and now, I am coming from Norway. For many in the North and East, I am a ‘Colombo liberal’, who prescribes the state-centric development drive, so I am an outsider and not so sympathetic towards the post-war issues faced by ethnic Tamils. I am a partial insider in Colombo since I speak their language – Sinhala – and have studied, worked and lived in Colombo for a long time. Nevertheless, I am an outsider since I am from an ethnic Tamil community and now come from Norway. It is noteworthy that Norway’s controversial peace facilitation attempts have left a bad taste in the Sinhala ethnic majority community. So, an ethnic Tamil from Norway is mostly eyed with suspicion among government officials. This was felt during initial interactions with certain government officials. Therefore, my positionality kept on changing from location to location. This fluctuating nature does however have its positives. Partial locality provided the initial space and access needed for the fieldwork and in building trust and confidence. Partial outsider meant there was neutrality, and participants were willing to discuss internal socio-political dynamics within communities and institutions. The seemingly contradictory nature of my positionality influenced my perception of others during the fieldwork, and after where I felt that the ‘otherness’ remained as my identity throughout. It was reflected in the language and engagement of the participants. Overall, even though I am from Sri Lanka and hold Sri Lankan citizenship, I was mostly perceived as an outsider.

4. Data analysis and empirical findings

This section presents a detailed analysis into the collected empirical data. The primary data and its analysis are the core of this research process. The primary step in qualitative research is data analysis which determines the research findings. The process of detecting themes in data that capture meaning significant to the research topic and relationships between such themes, is thematic analysis (Flick, 2018). Thematic analysis assists the researcher in identifying patterns in the data (Braun & Clarke, 2006). The transition from the field to the text and then to the reader is complex and reflective (Denzin, 2014). The fieldwork and background studies result in field text, notes, preliminary interpretations and reflections. Research implies active participation in the entire context; beyond data collection and analysis, it involves creating a practical understanding of the world through a dialectical process (Willis, 2007; Murray, 2018). Our theoretical imagination informs our practical comprehension. In this research the collected primary data were transcribed and coded, forming the bases for thematic analysis.

This chapter is divided into four sections. The first section puts Sri Lanka in context, and the second contextualises fieldwork locations. The third

section moves from contextualisation to construct ideas into themes and narratives, and the final section gives an overview of the empirical data, themes, and critical outcomes. It emphasises the imperative of a holistic view to understand Sri Lanka's energy transition.

4.1 Sri Lanka in Context: From Post-war to Economic crisis through a global pandemic

In 2023, Sri Lanka celebrates its 75th anniversary of independence as a divided nation, battered and bruised by an economic crisis. Ethnic conflict has played a crucial role in shaping Sri Lanka's history, politics, economy and social life. Sri Lanka was colonised by the Portuguese in 1505, then by the Dutch, and finally by the British. Upon independence in 1948, an early act of the new Sri Lankan parliament was to disenfranchise the upcountry Tamils (ethnic minority) in 1956. The Sinhala-only act created the seeds for ethnic conflict, transforming into a civil war after the anti-Tamil pogrom in 1983. Civil war lasted until 2009.

The decade following the end of the civil war has three significant characteristics. Firstly, a victors/victim mentality arose following the war's end, where the Sri Lankan government's triumph over the Tamils led to the emergence of a narrative that the Sinhalese were the actual victims of the war, not the Tamils. This narrative has been used to justify the demand that the Tamils should apologise to the Sinhalese for wrongdoings and miseries imposed on the Sinhalese society. As a result, Tamils should apologise to the Sinhalese because Sri Lanka is a Sinhala Buddhist country, and Tamils should not dare to defy the authority of the Sinhala Buddhist state. Extremist voices have successfully propagated this victim narrative, which has found popular support in the South of Sri Lanka. Consequently, there is a view that the war - perpetrated by the Tamils - has prevented Sri Lanka from developing during the last 30 years.

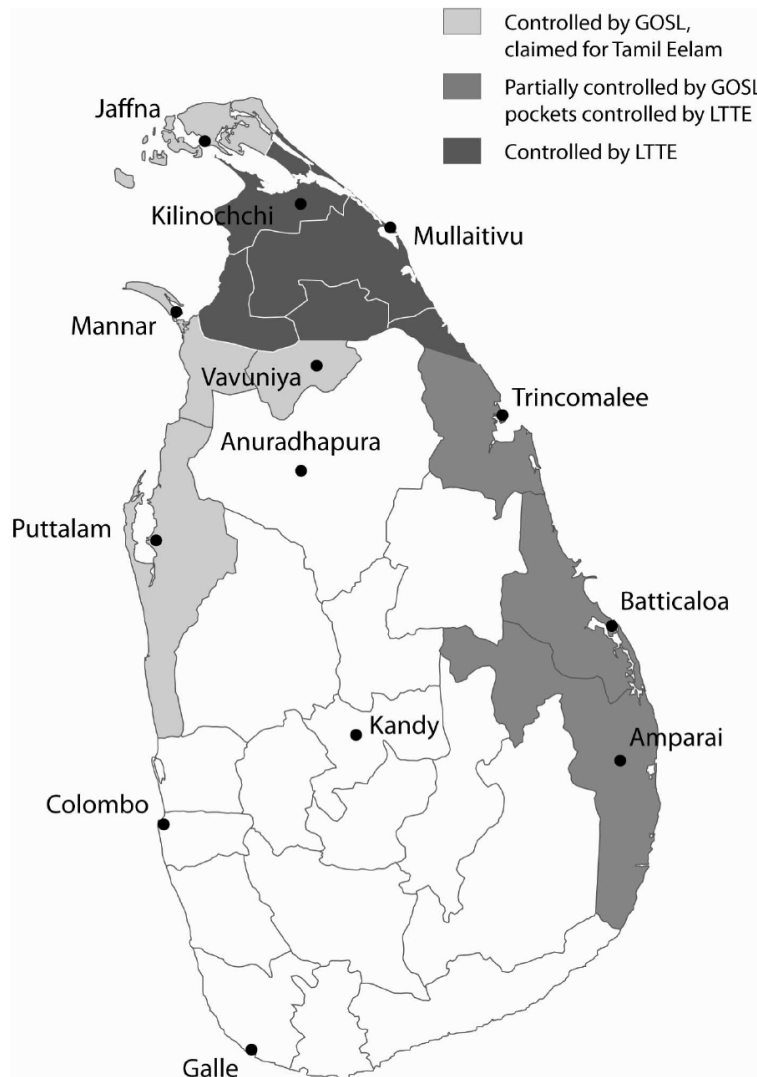
A second characteristic is that the Tamil freedom struggle has been viewed as a terrorist movement, and hence viewing the minority grievances as development problems in line with the liberal peace thesis. By branding Tamil's demand for equal rights as terrorism, the Sri Lankan state has undermined the fundamental demands for equal rights and secondly, seeing minority grievances as an economic development issue depoliticises the ethnic question.

The third characteristic of this post-conflict decade was a shift from soft to hard authoritarianism, promoting Sinhala Buddhist ethnonationalism. Uyangoda (2015) notes that soft authoritarianism initially had a clear populist ideology that included economic developmentalism, majoritarian nationalism, national security, patriotic militarism, and personality cult. However, DeVotta (2015) argues that the post-war period saw an intentional undermining and weakening of democratic institutions of governance. This move towards harder authoritarianism occurred despite elections and institutions such as parliament remaining in place.

These three characteristics of the post-war decade have had a significant impact on Sri Lanka's energy transition trajectories politically, economically and socially. Sri Lanka was focused on introducing new renewable energy, and initial studies found that the North and East regions are best suited for renewable infrastructure. Fig. 4 shows the Sri Lankan map, which describes the demographic context of the Sri Lankan conflict. This geographical context has important implications since the favourable areas for transition to renewables are mainly in former conflict areas.

Fig. 4: Territorial control in Sri Lanka as of June 2006.

Adopted from Stokke (2006)



GoSL (Government of Sri Lanka), Tamil Eelam (areas claimed for a Tamil separate state), LTTE (Liberation Tigers of Tamil Eelam)

Multiple studies carried out by Sustainable Energy Authority (SEA) outlined the potential for wind energy parks in the coastal areas of the northern part of the country. The National Renewable Energy Laboratory (NREL) of the USA mapped the wind resources of Sri Lanka (Fig. 5). The Asian Development Bank (ADB) through its Quantum Leap WRA project, installed three wind meteorological masts in the Northern province and confirmed the findings of the NREL. Furthermore, the Solar Resource Atlas developed by SEA, over many parts of the Northern province, found that

solar radiation to be above 2,000kWh/m²/year, ideal for harnessing solar energy using solar photovoltaic (PV) technology (Fig. 6).

Fig. 5: Sri Lanka's wind potential (Elliot et al., 2003)

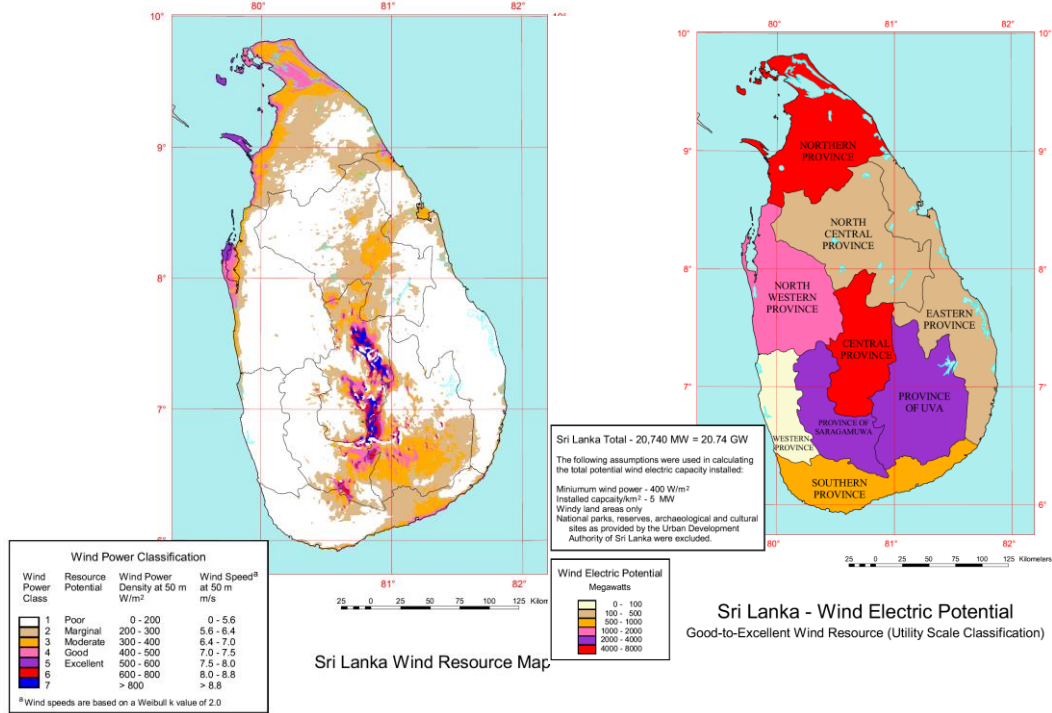
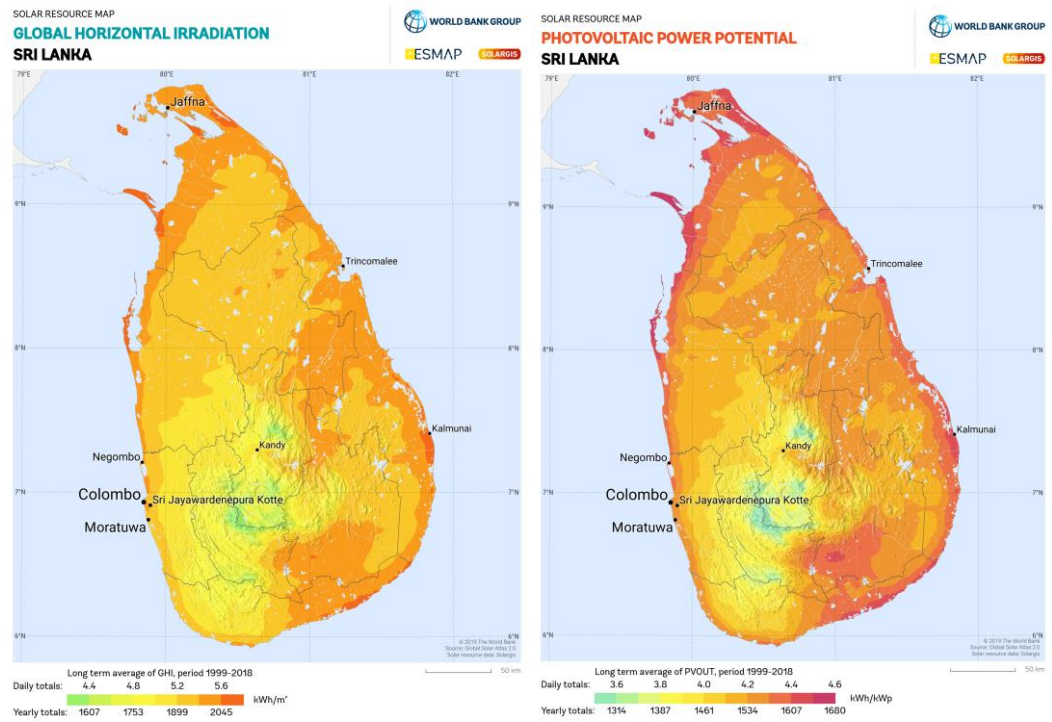


Fig. 6: Sri Lanka's Solar Potential (World Bank, 2023)



The impetus given by these scientific studies encouraged the government to plan renewable energy projects in Northern Sri Lanka. However, concerns about finance, technology and creating a conducive environment for private sector involvement were repeatedly voiced by policymakers and bureaucrats during interviews. Furthermore, SEA identified the highest amount of unused scrublands as being in the Northern and Eastern provinces of Sri Lanka, estimating that utilising just 5 percent of this land could provide 3,000 – 6,000MW of solar power.

In 2014, two wind farms with an installed capacity of 10MW each were commissioned in Pollupalai and Vallimunai, marking the first to be constructed in the Northern Province. However, interviews revealed that local residents were initially unaware of the projects and later, although they were informed, expressed a lack of knowledge about wind farms, highlighting the need for greater awareness of the nature and magnitude of these construction. This was the starting point of renewable energy uptake in the former war zones. The success of this project encouraged multiple private sector actors and bilateral donors to continue with these kinds of projects in the North, which have subsequently been challenged.

While Sri Lanka was trying to ramp up renewable energy projects, two underlying issues became major stumbling blocks. Firstly, there was a lack of a comprehensive renewable energy policy, including directives about social concerns, for example, the distance between the windmills and the human habitat, and regulation of coastlines as important migratory corridors for birds. Secondly, there were administrative challenges due to internal politics, favouritism, corruption and red tape frustrated several potential investors who shared their dismay in the interviews. These challenges have resulted in Sri Lanka achieving very little of its renewable energy potential. Against this backdrop, the global pandemic derailed progress further and impacted Sri Lanka economically. While Sri Lanka was emerging from the pandemic, it was hit with power outages and an energy crisis, in the worst economic crisis since independence. At one point Sri Lankans were experiencing 13-hour power cuts daily. The economic

crisis has had four significant impacts on the energy transition, further delaying Sri Lanka's progress towards renewable energy.

Firstly, Sri Lanka's energy production has become increasingly dependent on external actors. During the past three years (2019 to 2021), coal and oil contributed to more than 60% of the country's electricity generation mix. Due to Sri Lanka's inability to pay for coal and oil, India provided a credit line to assist with oil for electricity generation and domestic usage. Previously, the state-owned Ceylon Petroleum Cooperation (CPC), would import crude oil and refine it. However, due to the crisis, Sri Lanka had to purchase refined oil at a higher cost and give Indian Oil Corporation (IOC) more control over domestic energy usage by granting them more permits to operate oil and gas stations. As a result, during the latter part of 2022 most CPC stations were empty, and only IOC stations had diesel and petrol. This is a significant change from the past when CPC was Sri Lanka's largest company by revenue. Furthermore, India has been pushing for grid connectivity between the two countries since the 1970s, but Sri Lanka has resisted this. Paper 4 discusses this issue in detail. In February 2023, it was announced that Sri Lanka and India would indeed sign a pact to link their power grids, further cementing India's influence in the energy situation.

Secondly, over the past two years, Adani Green Energy Ltd, a prominent Indian conglomerate, was awarded Sri Lanka's most significant renewable energy projects. In late January 2023, Adani Group was accused of stock manipulation, accounting fraud and other wrongdoings (Hindenburg Research, (2023)). This had a serious impact, and rating agency Moody's cut its outlook for Adani from stable to negative, creating a significant challenge for Sri Lanka's renewable energy prospects. Adani Group has invested over US\$500 million in two wind projects of 286 MW and 234 MW in Mannar and Pooneryn, respectively. In 2021, opposition political parties claimed that the Sri Lankan Electricity Act had been amended to favour Adani.

Thirdly, Sri Lanka's economic crisis has made it even more dependent on fossil fuels. In order to address its current crisis, new coal power plants are contemplated as quick fixes. However, due to various internal and external factors, planned renewable energy infrastructures are expected to be delayed by years. Renewable energy development has also been hampered by the relatively high installation and operation costs compared to fossil fuel power generation. The national audit presented to parliament in February 2022 revealed that the Ceylon Electricity Board (CEB) has failed to prioritise renewable energy, undermining Sri Lanka's climate commitments.

Fourthly, electricity price hikes have had a significant impact on the public. In 2022, the government raised the electricity tariff by over 50%, and introduced a very large new tariff hike in February 2023. Meanwhile, in February 2023, Ceylon Electricity Board decided to continue power cuts due to the dry season hitting the country. National regulator Public Utilities Commission of Sri Lanka (PUCSL) said it had not approved the power cuts and has sought assistance from Sri Lankan Human Rights Commission (SLHRC). Despite orders from SLHRC to give uninterrupted power to the people, CEB has continued with power cuts. The regulator turned down the revised tariff for electricity proposed by the utility in mid-February 2023. The constant conflict between the energy utility and regulator has created uncertainty, which is impacting the broader economy of Sri Lanka. In addition to administrative delays, job losses, and social impacts, the economic cost to businesses of power cuts is extremely high.

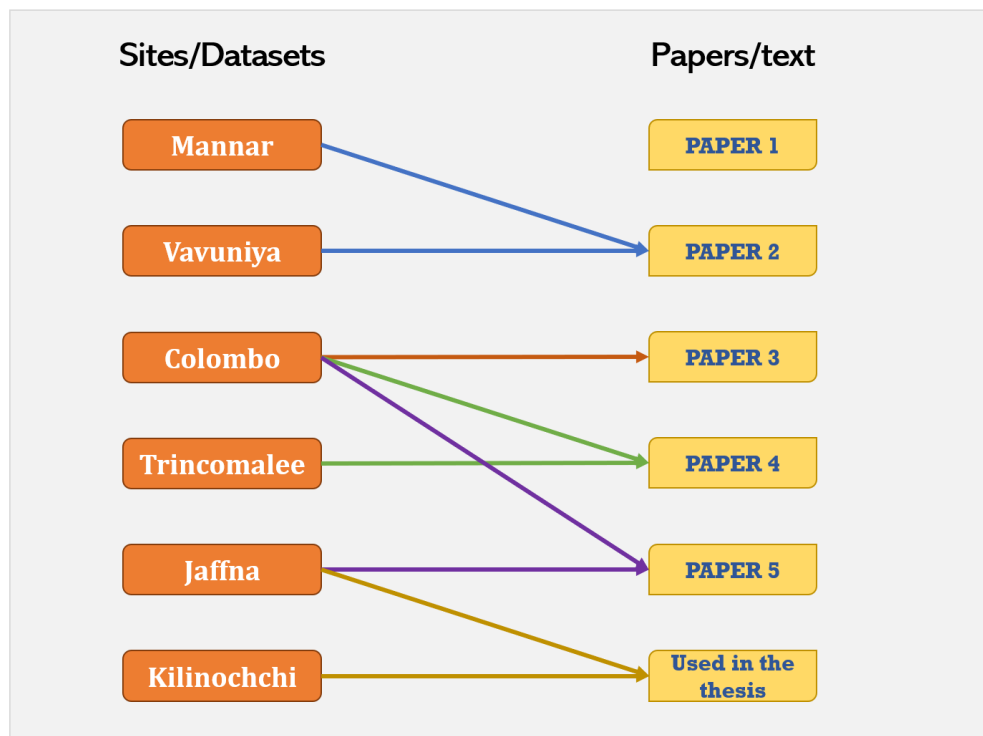
The field sites have explicit links to the post-war energy transition context, with their positionality in the conflict landscape in the former war zones. The capital, Colombo, is where Sinhala nationalistic hegemony emanates. Fieldwork in Colombo was essential for the study since it is central to the energy transition discourse in the Sri Lankan context, politically, economically and symbolically. It is the pivot of the post-war Sri Lanka energy transition, and most studies use data emanating from Colombo. The other field sites in the energy transition landscape are located in the former

war zones, and the data from the sites outline the nature of Sri Lanka as a post-war society. These sites express how they are being used under the pretext of green sustainability transitions, which is seen as re-colonisation, i.e., Sinhalisation of traditional Tamil areas, by opponents. Post-Independence Sri Lanka has a history of such “re-colonisation”, starting from the Gal Oya Scheme initiated in 1949, a year after independence, to resettle Sinhalese in Tamil-dominated areas and reclaim land for development purposes in the Eastern province. This resulted in the first anti-Tamil riots in 1956, known as the ‘Anti-Tamil Gal Oya Riots’. The government’s plan to take lands and resettling Sinhalese in the country’s North and East continued as way to reorganise the majoritarian Sinhala Nationalistic state, creating major grievances for ethnic minorities and eventually leading to civil war. While the military victory at the end of the war confirmed the state’s hegemonic position, the root causes of the conflict are still to be addressed, and Sri Lanka remains in a post-war state. Ethnic conflict, politics, history and geography thus form the context of this qualitative research – in addition to external forces and conditions. The sites studied are very much situated landscapes, with key themes and implications that are discussed in the following section.

4.2 Construction of ideas into themes and narratives

This section describes the empirical themes and narratives of the five papers that constitute the dissertation. The fieldwork sites and datasets are connected with the papers, as illustrated in fig.7 below.

Fig. 7: Overview of the interconnectedness of the papers and field sites



After discussing the five papers, section 4.2.6 adds data and notes from additional sites that were useful but not studied in detail.

4.2.1 Paper 1

The first paper was written for a Routledge Handbook on Contemporary Sri Lanka and provides context for Sri Lanka's energy transition. It offers an overall discussion of the energy transition facts, trends and challenges, mainly using secondary sources. Like much research in the social sciences, this approach provides access to a great deal of material from various sources. It is useful to broaden the area of investigation, suggest themes and perspectives, supplement primary data, or provide context. Secondary data can include surveys, governmental and official reports, census data, unofficial and 'oppositional' publications in addition to research and academic journals. This information can introduce or throw light on trends, patterns, and enable the research to arrive at broader and more accurate conclusions.

However, Sri Lanka's case posed two significant challenges for secondary data gathering. Firstly, the availability of secondary data is very limited,

with the Central Bank's annual report, CEB's annual report and reports for the World Bank, and ADB being the main sources of information. Secondly, it is especially hard to find very recent data, as data used in the paper is seldom from later than 2019 and 2020. The pandemic and the economic crisis virtually stopped production of later data. Within the energy sector, some sectoral data are only available from 2016. Some data collected through the fieldwork contained rich information yet to be published. Overall, however, the secondary data available has been generally sufficient to map Sri Lanka's energy transition trajectories.

4.2.2 Paper 2

The second paper was based on the fieldwork material from Vavuniya and Mannar. This section provides contextualisation of the locations and the empirical data used in the paper.

VAVUNIYA

Vavuniya is known as the gateway to the Northern Province. It is a multi-ethnic district where Tamil make up the majority (83%), with Muslims (9%) and Sinhalese (8%) also present. During the civil war, Vavuniya was under the GoSL control, heavily militarised, and tensions between ethnic groups were high. The solar park constructed in the district was the first of its kind in the Northern province, and thus was a novel experience for politicians, civil society and local administrators. The data gathered from Vavuniya can be categorised into three distinct groups: the public opinions and comments, reflections from local politicians and activists, and experiences and views of local administrators.

Table 5: Opinions from Vavuniya summarised and categorised by priority

Priority	Locals	Politicians/Activists	Local Administrators
1. Very high priority. Most pressing concern	<i>We don't know.</i> <i>We were not informed.</i> <i>We didn't understand what was happening.</i>	<i>We were not aware of this project.</i> <i>There was no consultation at local level.</i> <i>People are not aware of renewable energy, and it's benefits and costs.</i>	<i>No prior information about the project.</i> <i>It is done by the centre, and we were not in the loop.</i>
2. High priority. Primary concern	<i>The heat generated from the park is unbearable.</i> <i>We fear there will be health consequences.</i> <i>There is no rain in the area after the park was built.</i>	<i>Tamil areas are being targeted, no development for war affected population, private ventures encouraged.</i> <i>This is part of the land grab plan of the GoSL.</i> <i>This is top-down politics and local politicians don't have a say.</i>	<i>There is no local level involvement in these private ventures.</i> <i>Even companies don't get in touch with us.</i> <i>We are kept in the dark.</i>
3. Medium priority. Secondary concern	<i>Why are they building it here?</i> <i>We have land issues; some people don't have land.</i> <i>GoSL trying to change the demography in the name of development.</i>	<i>There are health and environmental issues.</i> <i>We need time to find out more about them.</i>	<i>Don't know anything about health issues related to heat or environmental concerns.</i>

The open coding indicated a consensus among participants that there was no prior information about the project, which was the primary concern for all local stakeholders. However, other issues were also identified as important. For the local community, health concern and land grabbing were their next priorities, and they wanted to know why the project was being implemented in their area. Local politicians and activists for their part saw the project as part of the State's programme of ethnic marginalisation, but

they also acknowledged that they lacked knowledge about the impacts of renewable energy. Local administrators who also live in the area with the people expressed helplessness, embarrassment and discomfort because they cannot assist with the people's grievances, and they found it challenging to provide satisfactory answer to questions about renewable energy.

Regarding the protests, different views were expressed by various groups. The affected people said they were left with no other option but to protest to express their displeasure. The Tamils and Sinhalese, who protested separately, recognised that post-war sensitivities prevented them from joining forces. Tamil protesters felt that the Sinhalese owned the company running the solar park, so the adjoining villagers, who are also Sinhalese, would not support their protests. Sinhalese protesters, on the other hand, initially did not realise that the Tamil village on the other side of the park was also affected. There was no communication between these groups, preventing them from joining forces. The protesters said they received minimal support because they lived in rural villages, and had very little political capital and no political representation, even locally.

While politicians and activists supported the protests, they criticised their lack of organisation and popular support. Nevertheless, the locals accused these politicians of being 'bought' by the solar company and undermining the protests. Activists highlighted their contribution in gaining attention for the cause, but they also noted that because there was no popular support, it was hard to get media attention. They also reiterated the need that in the post-war context waging a struggle against the State is difficult, especially with a heavy military presence, where threats and intimidation are widespread when the State is challenged. They also pointed out that the failure of the protest movement could be attributed to the nature of the post-war Sri Lankan surveillance state, especially in the Northern Province, where it is highly militarised.

The protest was a symbolic gesture for local administrators, but it failed to put enough pressure on the central government. They highlighted two critical points which outlined the post-war dynamics in the former war zones. First, they pointed out the need for a civic movement to discuss the people's issues. After the war ended, there was silence, political apathy, and depoliticisation at the community level. The people who suffered during the war were exhausted and scared of the ramifications. Trust has been lost, making it difficult to build a civil movement. Most of the protests are issue-based and confined to affected populations. This socio-political setting makes it hard to create a mass social movement, making it easy for the State to superimpose its wishes on the people in the North.

The second point they stressed is that even though the war is over, the underlying causes that led to it still need to be addressed. One of the key issues is the devolution of power. This solar park case is a classic example demonstrating the need for power devolution between the centre and periphery. Similar issues have cropped up in the past decade since the end of the war. The national and local politicians have failed to capitalise on this.

MANNAR

Manner is a coastal town located on the north-western side of the Northern province. Tamils are the majority in the district, accounting for 80% of the population, while Muslims make up 17%. It is one of the three districts badly affected by the civil war (the other two are Kilinochchi and Mullaitheivu). Some people in their area were initially forced to displace in 1990, and a major displacement of people occurred when the war broke out between the GoSL and LTTE in 2006. People were only allowed to return to their original villages after the end of the war, by that time, there was nothing left. The data collected in this field area can be categorised into several groups: first, people whose lands were taken for the wind power plant; second, people who are living close to the wind park; third, the local-level activists and politicians; fourth, the local administrators; and finally, officials working on constructing the wind park.

Table 6: Comments from Mannar summarised and categorised by priority

Priority	Landowners who lost their lands	Locals and activists	Local Administrators/ local politicians and technocrats
1. Very high priority. Most pressing concern	<i>There was no prior information. It happened so sudden. We were not expecting this.</i>	<i>There is no due process. Locals were not consulted and there was no local involvement.</i>	<i>We have nothing to do with this. Government at the centre is responsible.</i>
2. High priority. Primary concern	<i>Lands were taken without discussion. Fixed compensation. Compensation less than market value. Our Livelihood is lost. We live on the income generated from this land.</i>	<i>It is a land grab. Our ancestral are being taken in the name of development. New form of re-colonisation is taking place. This is the trend in the former war zones.</i>	<i>Local officials were co-opted into this. We were ill-informed. We feel bad to be part of this injustice. We are local politicians we don't have any power in this.</i>
3. Medium priority. Secondary concern	<i>It is a family land and owned by many. It will take ages for us to claim compensation. It is almost impossible to get the compensation since a court case needs to be filed.</i>	<i>It is a livelihood issue for the people in the vicinity. There is no local mobilisation against the project. We are disempowered to protest. Post-war sensitivities create uneasiness to question the government.</i>	<i>It is a pure development project. Politicians are creating stories to unsettle the public. The government has the right to take the land for development.</i>

The people who have lost their land are the ones hardest hit by the actions of the government. There was no prior information about the land reclamation announcement by the state. Almost all claimed they were displaced from their lands in the 1990s and then returned to their ancestral

lands after two decades. They were planning some economic activity on their land while using part of the land to build their houses. Therefore, for them, the land reclamation announcement by the state came as a major surprise. The landowners had three key issues. Firstly, they were not prepared for this outcome. Many depended on the land for their livelihoods, and so needed help to find an alternative livelihood suddenly. Secondly, they wanted a discussion about the amount of compensation, as the official government compensation rate had been pre-fixed for the landowners without any discussion on the market value of the land. The landowners argue that if they sell the land by themselves, they will get more than double the government compensation. These lands are close to the sea, and hotel developers were keen to buy them to build sea resorts. Now, landowners must settle with what the government gives, and so, they are not only losing their lands but, they are also losing monetarily. The third and most important aspect is that their parents or grandparents own most of the land that was taken. Since people moved out of their lands two decades ago, these lands were not transferred to the children or grandchildren. In most cases, there is no single owner of the land, therefore, multiple ownership disputes, claims and counterclaims for the property and the non-availability of the land deeds are some of the issue being faced. The government will only release the compensation once the land ownership is established without contestation.

The locals in the area have three main concerns regarding the wind park. Firstly, they felt they were not adequately informed about the process and that it was a continuation of the military occupation. The sudden appearance of heavy vehicles made them feel intimidated. Secondly, the fisherfolks who use the beaches to park their boats, dry fish, and maintain temporary huts (*waadi*) on the coastline are now affected by the occupation of the coastline by the wind park. They feel their future livelihood is now threatened. Thirdly, people question the motive of this project at this specific location. They argue that this is not a livelihood-generating exercise for the people in the area, and any development project should focus on helping the people in the area. The locals question the motive of this project,

citing that the area is badly affected due to war and the government's failure to prioritise the local needs and taking the lands.

The views expressed by local politicians, across the political spectrum, reflected their limited knowledge of the issue and the broader issue of renewable energy. Almost all the politicians maintained that this is a national issue and their party representatives at the parliamentary level should address the issue, not them. Furthermore, they complained that their counterparts at the national level need to give more attention to their local issues.

The activists' concern has been mainly about the injustice the project has brought to the landowners. They acknowledged limited public support due to the area's militarised socio-political nature. It was asserted that a broad protest against the wind park was nearly impossible. Some activists questioned the environmental impact assessment and social impact assessment of the project which ADB had undertaken.

During the interviews with local administrative officials, it became clear they were initially optimistic and thought the project would benefit the area, but have since become disappointed with its outcomes. Some said that they have been on the frontline, helping the government clear lands for the wind park and persuading people to let go of their land for the project. However, they noted that now everything is going in the wrong direction; compensations are not paid, people are in need of jobs, houses, and land. The project has not benefited society and many uncertainties remain. As a result, the officials expressed feelings of guilt. A point insisted on by all the officials was that the politicians at the national level have failed, and the government's actions are in line with their Sinhala Buddhist nationalistic ideology.

The last group of people who were interviewed were the officers who were working at the project site. Most of them are not from the local area, and all expressed strong support for the project. They all defended the

government's actions, saying that "this is a free country". This sentiment seems to have emerged as an outcome of the war. Furthermore, they viewed this as part of a broader 'development agenda' and feel that the government can do anything anywhere since and give little consideration to environmental and social concerns after the defeat of the LTTE.

KEY TAKEAWAYS

The data from both locations revealed similarities in context, questions and challenges. As discussed, the paper identifies three key factors that emerged from the field data. Firstly, it highlights the discourse around renewable energy in former war zones. Both sites narrated the following attributes of the discourse: (1) The policymakers see renewable energy uptake as a technocratic intervention. This approach undermines the social and political concerns of the people in the area and the broader society of the former war zones; and (2) Understanding the energy transition as a development initiative has undermined the post-war context and created multiple questions, including democracy, justice and equity.

The second key factor is the spatial politics of who controls renewable energy spaces. The uptake of solar and wind dominates Sri Lanka's renewable energy landscape in the post-war setting, and the areas with the best locations are situated within the former war zones. The state, bilateral and private sector are keen to explore the potential, leading to political contestation over spatial control of the potential areas. In Vavuniya, state land was given to a private entity without any public consultation. The lands in Mannar belong to private individuals, and the government took them to build an ADB-funded wind park. The economic geographies of energy production and use, in addition to their connections to the unequal distribution of resources, are key issues arising from these two field sites. Spatial linkages impact private and public domains and specific local contexts regarding how individuals and organisations understand and influence energy infrastructures. The formation of new linkages between these actors must be enhanced and sustained for long-standing energy

cooperation in which place-based activities generate alternative future trajectories.

The third and final factor is how the energy economy produces political outcomes. The two sites show how the economic aspect of energy has produced political outcomes since these sites are considered as ‘marketplaces’. Inequalities influence both the potential for energy access and the ways in which diverse actors respond to a perceived mismatch between requirements and available resources.

4.2.3 Paper 3

This paper explores the challenges of escaping the carbon lock-in and focuses on the role of the agency and climate commitments - energy security – justice nexus. The research is based on the data collected from both the head office and field-level officials. Throughout the fieldwork, one recurring theme was the inefficiency of the public administrative sector coupled with weak institutions. The institutional decay was very noticeable in the field data, and officials at both the grassroots and central levels agreed that their organisations have deteriorated over the past few decades due to politically motivated policymaking. The data thus highlights three keywords: uncertainty, path dependence and power relations. The primary data for the paper were collected from the fieldwork done in the Colombo.

COLOMBO

Colombo is the capital city of Sri Lanka and was the critical field location for the fieldwork. The fieldwork data was categorised into three actor categories. The first category of administrators and bureaucrats from CEB, PUCSL, SEA, Ministries, and departments. Retired officials who had worked in the energy sector were also interviewed. The second included the private sector, particularly those who are involved in renewable energy or envision engaging in it. The third actor category was made up of activists, academics and environmentalists working towards people’s rights and energy democracy. It was evident in the first category that different

stakeholders have different priorities when it comes to energy and energy transition.

Table 7: Differing views on energy transition by the state institutions summarised by priority

Priority	Ministry	CEB	PUCSL	SEA
1. Very high priority. Most pressing concern	<i>We need to have enough energy. Ensuring energy for all. Electricity is a political issue.</i>	<i>Our goal is energy sustainability. Economical energy is our priority.</i>	<i>We should work in line with the policy We have committed for renewables</i>	<i>We must be sustainable while being practical. We need to ensure that nation has enough energy, that is the primary concern.</i>
2. High priority. Primary concern	<i>We need cheap energy. politicians don't want to increase the energy prices. Priority is that energy must be cheap.</i>	<i>Coal is the cheapest. It fits well with our energy system. Fossil fuels do not disrupt our existing system. It is best to handle peak demand.</i>	<i>LTGEP should be in line with the policy and climate commitments. We can't dance to the tunes of the politicians and betray the public</i>	<i>Radical shift to renewables is difficult. There are multiple policy challenges. We need explore our indigenous energy sources. Having the right mix between fossils fuels and renewables is unavoidable.</i>
3. Medium priority. Secondary concern	<i>We can gradually move to renewables. Private sector can do renewables. We look for alternatives like LNG and nuclear.</i>	<i>We will incorporate renewables over time. We cannot bring in renewables overnight.</i>	<i>The coal lobby is very strong. Fossil fuels is conned with corruption at high level.</i>	<i>Renewables is facing challenges on the ground. Bilateral and multilateral agencies are supporting renewables, but failed to understand that it can only be gradual.</i>

The field data showed a lack of consensus on Sri Lanka's energy transition pathways, with every sector of the government having contrasting viewpoints on how to achieve carbon neutrality. CEB feels that the country needs time before fully engaging with renewables and put forward four key arguments. Firstly, they argue that fossil fuels are the most cost-effective option, benefiting people. Secondly, the present national grid infrastructure cannot absorb ad hoc electricity from renewables, as the transformers and transmission are not upgraded. Thirdly, renewables have intermittency, which means they cannot consistently produce energy at all hours of the day and cannot cope with peak demand. Finally, the technology for storing excess electricity is yet to be developed. CEB argues that the existing storage options are mostly lead-acid-battery-based, bulky, costly, with a short lifespan, lower voltage discharge rate, and are not environmentally friendly either. PUCSL, the national regulator, wants the CEB to follow the national policy and climate commitments by promoting more renewables and reducing the dependence on fossil fuels. However, CEB, plans to build more coal-fired power plants. Interestingly, SEA, responsible for promoting renewables, wants to balance fossil fuels and renewables in the energy mix. It argues that the failure to build the proposed coal power plants is the reason for the energy crisis, rather than the delayed uptake of renewables. Environmental ministry officials noted that they do their best to adhere to international commitments, but need to learn more about what is happening with the Power and Energy Ministry. During the interviews with the officials of power and energy, it was clear that renewables were not their priority. They were more focused on coal and oil and the possibilities of oil and gas exploration in the Mannar basin. In January 2023, it was announced that Sri Lanka would issue two-year oil and gas exploration licenses for 900 offshore blocks to foreign firms (Jayasinghe & Ghoshal, 2023). During the interviews, it was made clear that politics and geopolitics are an integral part of energy in Sri Lanka.

Retired officials from these state institutions provided a much-nuanced picture of Sri Lanka's energy landscape and its challenges. They all noted that successive governments lacked political willingness regarding carbon

neutrality. For politicians, the focus was on winning upcoming elections, keeping prices low, providing subsidies, engaging in corruption. Certain senior bureaucrats collaborating with politicians to keep the country energy dependent on fossil fuels. Policymakers identified two key points: a lack of political interest in formulating a comprehensive renewable energy policy, despite policymakers continually advocated it, and over-ambitious and unattainable climate commitments. Nevertheless, the President seeks to portray himself as a climate change champion and has promised that Sri Lanka will be carbon neutral by 2050. However, when informed about the impending energy crisis, he ordered the rapid construction of three coal power plants. Overall, it is clear that political pressures influence both Sri Lanka’s energy policy and its implementation. The divide between the two keeps increasing, creating challenges for regulators, utilities, other stakeholders.

Other actors also highlighted policy challenges, with data showing different priorities according to their interests. While there is a clear divide, all agree that the Sri Lankan government has failed to prioritise renewable energy.

Table 8: Views from non-state actors categorised, summarised and prioritised

Priority	Private sector	Activists/academics	Environmentalists
1. Very high priority. Most pressing concern	<i>Policy uncertainties undermines investments.</i> <i>It is difficult to finance when there are questions of return of investment.</i> <i>Government fails to show positive signs for renewable financing.</i>	<i>There is no political will on the part of the politicians.</i> <i>Energy is no people centred; it is driven by ulterior motives.</i> <i>Bureaucracy-business-politics nexus has undermined crippled renewable uptake.</i>	<i>Environment is not part of the energy policy agenda.</i> <i>Environment and energy sectors operate in a parallel universe without acknowledging that the other is existing.</i>

<p>2. High priority. Primary concern</p>	<p><i>There is no cohort policy.</i> <i>Policy keeps changing from government to government.</i> <i>No linkages between policy making and implementation.</i> <i>Renewables get a stepmotherly treatment.</i></p>	<p><i>Policy is designed for the politicians and not for the people and it is designed to fulfil other interests.</i> <i>Energy justice is not part of any energy discourse.</i> <i>Energy policy side-lines justice issues.</i></p>	<p><i>Environmental costs are not included when energy costs are calculated.</i> <i>We have already seen the ill-effects of the coal power plants.</i></p>
<p>3. Medium priority. Secondary concern</p>	<p><i>Lots of red tape.</i> <i>There is no collective will for renewables.</i> <i>Dirty politics of coal is the main stumbling block.</i></p>	<p><i>Policy consistency and continuity will help innovation, investment and public engagement on the issue.</i> <i>There is huge untapped renewable potential, innovation opportunities and investment openings which are yet to be explored due to unclear policy guidelines</i></p>	<p><i>The people's movement against the coal plant has outlined their concern.</i> <i>Government considering coal plants even after court verdict shows the policy failures.</i></p>

The private sector's main concern is that incoherent policies make it difficult to plan, finance or even contemplate renewable energy projects in Sri Lanka. Traditionally, the Sri Lankan government has mostly funded infrastructure projects using hydro and fossil fuels. However, with the government currently incapacitated, private institutions are keen to get involved in the renewable energy sector. It is critical to mobilise private investment and finance, but uninviting climate policy has kept the private sector at bay, and it will be impossible to reverse present trends unless stronger promises and effective policy actions are made. The private sector argues that not having a level playing field and a legal and regulatory structure in the country's electrical sector often makes the deployment of

renewable energy technology difficult for those with the necessary financial capacity. Electricity systems that are frequently characterised by the dominance of a state-owned national power utility with a legally endowed monopoly, lack the incentives and flexibility to provide third-party and private sector independent power producers with easy grid and market access on fair terms, creating other policy challenges.

The activists and academics argued that there are institutions and enough natural resources available for renewables uptake, and there are mutual interests from multiple shareholders. However, Sri Lanka is lagging behind due to policy failures. They declare that what is required is the political leadership that recognises that much more can be done with what we now have and create policy pathways. They also pointed out that even together, renewable energy interest groups have minimal lobbying power, limiting their ability to apply pressure due to the strong coal lobby. Learning processes are primarily focused on techno-economic elements and have omitted the social and institutional aspects surrounding new renewable energy technology. Learning about institutional constraints social acceptance of renewable energy appears to be lacking despite signs of their importance.

The environmentalists have highlighted that energy and environmental policies are often discussed separately, without identifying or understanding the synergy between the two. It is a key policy challenge for those working to promote renewable energy and those working to protect the environment. Energy policy has traditionally focused on providing ‘affordable and attainable energy’ while environment policy is about ‘safeguarding the forest, water and nature’. However, this narrow focus often fails to consider the environmental costs of energy production and the socio-economic impacts on local communities.

KEY TAKEAWAYS

The paper illustrates the absence of clear policies or guidelines for building new renewable energy infrastructure or managing challenges, with no

overall roadmap for the transition to clean energy. While the country was driven by climate commitments and increasing energy demand, political leadership was reluctant to make unpopular decisions and faced pressure from the powerful coal lobby. It also wanted to show that it was committed to achieving NDCs. As a result, there was much uncertainty at the top, which trickled down to the local level, which made the life of local administrative officers difficult, as repeatedly emphasised by officials.

The data shows that most senior officials do not believe that Sri Lanka can transition away from coal and oil in the next decade. The discourse that ‘coal is cheap, reliable and easy to operate’ has been influential with the help of corrupt officials and the coal lobby, creating a path dependency. It is seen as too much of a political risk for the cabinet and ministers to pursue renewable energy since electricity outages could jeopardise their political power. The utility also prefers to stick with the existing system to avoid the need for reconfiguring the network.

Institutional power imbalance further complicates the energy transitions in Sri Lanka. As discussed above, CEB and PUCSL are frequently at odds, while the private sector accuses SEA of delaying approvals and undermining renewable uptake. The Ministry of Power and Energy and the Ministry of Environment are not on the same page regarding fossil fuels. Certain actors are more potent than others, resulting in the lack of a comprehensive roadmap for the energy transition.

The complicated nature of energy governance in Sri Lanka is mainly attributable to weak institutions and short-sighted policymaking that exist in the country. Because of this, the prospect of incorporating feasible energy solutions, has been undermined. Investors’ confidence in the energy sector has been lost due to both the uncertainty and continued delays regarding renewable energy, and we have not yet seen a democratic governmental system that supports the energy transition.

4.2.4 Paper 4

This paper focuses on the geopolitical aspects of the energy transition in Sri Lanka. The collected data provides rich insights into the nature of geopolitics in Sri Lanka's energy transition. Geopolitical actors have been involved in the Sri Lankan energy sector for the past four decades. Japan was the first to get involved, followed by India and China. Western countries and South Korea are the latest entrants to the Sri Lankan energy landscape. The data outlines three entry points through which these external actors have engaged with the Sri Lankan energy sector: policymaking, economy, and technology transfer. External actors help policymaking by providing expertise and financial assistance to formulate plans. The economic power of external actors comes in as a handy tool for engagement providing aid, loans, or other financial assistance since Sri Lanka lacks finance. Finally, external actors contribute through new technologies and technological expertise. The paper is based on fieldwork from Trincomalee and Colombo.

TRINCOMALEE

Trincomalee is situated in the eastern part of Sri Lanka and is considered the capital of the Eastern Province. It is well known for its seaport which is one of the world's largest and deepest natural harbours, making it an important strategic location for the Indian ocean. During the colonial period, the British built oil storage facilities in Trincomalee, giving it a significantly strategic geopolitical focus. During the civil war, the LTTE partially controlled the district. In 2006 Sri Lanka and India signed an agreement to build a coal power plant in Sampoor, an LTTE-controlled area. By May 2008, military operations completely removed the LTTE from the Eastern province, with Sampoor and Muttur being the first areas to be liberated. In October 2006, the government published a gazette notification establishing a Special Economic Zone (SEZ) in Trincomalee, which encompasses approximately 675 sq. km including Muttur and Sampoor. In May 2007, while the displaced population lived in transitional and welfare centres, a High Security Zone (HSZ) was established in Muttur East and Sampoor under Emergency Regulations, with some areas declared a part of

the SEZ. 4,249 families, totalling 15,648 individuals were affected by the HSZ. Much of the land in the area is highly fertile, and there are 19 schools, 18 Hindu temples, one church, and two hospitals. The area where the coal powered plant was planned to be built was inside the demarcated HSZ.

Table 9: Summary of the viewpoints of stakeholders under each theme

Theme	Evicted people in Sampoor	Public Trincomalee	Activists/ Politicians	Officials at the local level
General Comments	<i>Permanently displaced Uncertain future No solution for our lands or livelihood Indigenous community suffers the most No schools community is torn apart</i>	<i>Eviction is bad and not fair. There was no indication of the HSZs. HSZs are land grabbing actions.</i>	<i>Their displacement became permanent Nothing could be done. The war and the victory made everything possible. There was no place for post war reconciliation.</i>	<i>A gazette notification declared those lands as HSZs.</i>
Coal power plant	<i>This fertile land will be destroyed How can we live with the coal dust? It is going to kill our future generations.</i>	<i>The plant will have impacts to the whole area. Trincomalee is a bay, everyone will be affected. Health hazard</i>	<i>It was a bad idea. Environmentally disastrous. None of the policy makers has thought about the impacts.</i>	<i>It was agreed between two governments. We were asked to clear the lands. We are not in favour of this.</i>
On protest movement	<i>No one was listening to our plea.</i>	<i>We support the movement This is a united front.</i>	<i>It became a broad-based movement rooted in the villages.</i>	<i>People did not have trust in us. They did not trust the</i>

	<i>We do not have any other option. Protesting is the only option to stop this.</i>	<i>Everyone in Trincomalee supports this.</i>	<i>People felt it is a common problem. It is a non-political movement.</i>	<i>promises given by government.</i>
Politics	<i>It was the fault of the politicians, locally and nationally. Politicians were trying to benefit by convincing us. Our representatives didn't bother about us.</i>	<i>It was all about politics. Politicians failed to see the health effects if this project goes through. There are ulterior motives in the name of development.</i>	<i>We faced a lot of pressure from politicians. We were constantly reminded not to interfere with post war development. We were threatened by multiple political actors and the state.</i>	<i>It is all about politics. This is not about development. Making of HSZ and SEZ are political moves.</i>
Role of geopolitics	<i>We were informed that India wants this project to go through. We were told not to antagonise India. Some said that if we allow the Indian Company to build the plant Indian government will be helpful to us (Tamils).</i>	<i>Trincomalee is a strategic location, so geopolitics is part of it. India has been keen to have a foothold in our area.</i>	<i>Pressure from the Indian side was tremendous. We were even portrayed as traitors to our regional superpower. Some equated Indian and Tamil interests saying allowing India will safeguard Tamil interests.</i>	<i>Our natural harbour and oil tanks will always attract geopolitical attention.</i>

The analysis from the Trincomalee fieldwork data highlights three critical geopolitical characteristics: political co-option, economic domination, social homogenisation along with the assemblage. Through the coal power plant, India, the leading geopolitical actor, was planning to establish a foothold in the Eastern part of Sri Lanka. Pro-Indian political groups were asked to be welcome India, as it would give an upper hand to Tamils in the district. Local political actors were co-opted to legitimise the coal power plant's eviction and establishment, with the rhetoric being that India is a friend of the Tamils, and this project will bring more development and prosperity for the Tamils in the area. The existing ethnic tensions, local political lobbying, social acceptance of Indian superiority, and post-war conditions helped in the political co-option. India's economic power, regional hegemony and Sri Lanka's economic dependence paved the way for India's economic domination in the coal powered plant project. Local Indian actors and social forces joined hands in the name of religion. The domination of the Sinhala Buddhist hegemonic state and the vulnerability created by the military victory and the defeat of the LTTE brought the Tamil Hindus closer to India, especially Tamil Nadu, due to the religious, linguistic and cultural connections. This connectivity and the political co-option collectively created much-needed social homogenisation to cater to India's geopolitical ambitions. It was evident from the interviews that the project is not only about energy production; it is more than that. It was about the land. Energy has become a new form of dispossession. The fieldwork provides details of the mechanisms and forms of dispossession, both overt and covert, direct and indirect, by the geopolitical actor. It also reveals the various dynamics of how the collective resistance came about.

COLOMBO

In the discussions, it became evident that external actors play a role in Sri Lanka's energy architecture. In the initial discussions, Sri Lankan government officials were very hesitant to talk about the external actors' role, limiting it to financial assistance. However, retired government officials more open about the role of the external actors and gave nuanced insights into the geopolitical manoeuvring. Other actors, such as academics,

activities and the private sector, provided in-depth details of the actors, actions and motives. They also demonstrated the breadth and depth of these actions in shaping Sri Lanka's energy transition.

Table 10: Views expressed on geopolitical aspects of energy sources

Source	Government officials	Retired government officials	Other actors
Coal	<p><i>Japan offered the first coal power plant in 1990s.</i></p> <p><i>China built the first and only coal power plant.</i></p> <p><i>Japan has offered to build 'clean coal' plants.</i></p>	<p><i>Coal procurement involves cronyism and corruption.</i></p> <p><i>Sri Lanka buys coal from South Africa, Indonesia, China and Australia.</i></p> <p><i>Sri Lanka has created its own state-owned coal company.</i></p>	<p><i>India's largest state-owned energy provider, National Thermal Power Corporation (NTPL) is keen to build coal plants in Sri Lanka.</i></p>
Oil & Gas	<p><i>Sri Lanka has 5 government owned and 11 privately-owned oil-fired power stations.</i></p> <p><i>These are owned by local companies from Japan, India and Scotland.</i></p>	<p><i>Private power purchase plays a key role in energy markets.</i></p> <p><i>It dents the renewable energy uptake.</i></p>	<p><i>In September 2021, a U.S. company announced that they had acquired a 40% stake in one of the private power stations.</i></p>
Hydro	<p><i>Hydro projects were funded by UK, Japan, Germany, and Iran.</i></p> <p><i>China has been awarded a 35MW hydro power project.</i></p>	<p><i>New small hydro projects are being sought by several local and international actors.</i></p>	<p><i>Iranian funded Uma Oya Hydropower Complex ran into problems and the government invited Norwegian expertise for assessment. It created tension between the countries.</i></p>

Wind	<i>The largest wind farm of 100MW was funded by ADB. Others are owned by Sri Lankan private companies.</i>	<i>There is more potential for wind and international actors are keen. The potential locations for wind parks are strategic and so have geopolitical significance.</i>	<i>There is a local market monopoly that undermines competitiveness. Almost all the wind parks have faced resistance.</i>
Solar	<i>Solar parks are owned by locals. The rooftop solar programme is financed through an ADB loan.</i>	<i>China is the first external actor to get tenders to build solar parks. Due to Indian pressure, the Sri Lankan government cancelled the project.</i>	<i>India has got the solar projects which were initially given to China. Indian is building a solar park in Sampoor, where it intended build its coal plant.</i>
LNG	<i>LNG is contemplated as an intermediate solution to renewables. China, India, USA, South Korea, Japan are interested.</i>	<i>There is clear geopolitical line in LNG. New coalitions have emerged in LNG bidding process.</i>	<i>China has won the bid to build its own LNG terminal in Hambantota, which is significant.</i>
Oil exploration	<i>The Government is preparing to issue exploration licenses. India, China, Russia, Netherlands, UK, Saudi Arabia, Qatar and USA are interested.</i>	<i>French company major Total and Norway's Equinor studied the potential of oil production in 2019. These companies are looking for possibilities.</i>	<i>India will be a key player in Sri Lanka's oil exploration efforts since Mannar basin is in close proximity to India.</i>

There is no doubt that in Sri Lanka's energy sector plays a significant geopolitical role. The country's oil storage facility and the natural harbour in Trincomalee have attracted attention since independence, with India and

the US competing for control, and it became a major geopolitical hotspot during the cold war years. Japan later became a major player, offering assistance to Sri Lanka's electricity sector and proposing the construction of a coal plant. However, China ultimately built the plant, leading to ongoing competition among key interests in Sri Lanka's energy infrastructure, including India, China, the US, Japan, and South Korea. Regarding oil and gas exploration, Russia (at that time, the USSR) was the frontrunner in the 1970s. During the peace process period (2003-2006), a Norwegian-based company conducted seismic surveys and later Indian companies expressed interest in further exploration, but the civil war ended their efforts. In 2011, an Indian company drilled three exploration wells and discovered natural gas from the first two wells (Premaratne et al., 2013). More recently, in 2021, a Scottish firm conducted the first aerial mapping of petroleum resources in Sri Lanka. Retired officials were very explicit about the role of international actors. They said Sri Lanka would not be able to achieve energy independent on its own, and that these external actors will continue to be important.

KEY TAKEAWAYS

The analysis mapped ten external actors, but the paper focused on the four key actors that have a stronghold over the Sri Lanka's energy sector. Except for the United States, the other three already have a strong presence in the energy sector in the country. Of the three entry points, technology transfer has been the least used strategy since it requires great technical capacities and political and economic support, and private sector investment, which is critical for technical spill overs, raising concerns of a technological gap. Furthermore, most technologies are still developed by and for developed nations and may not meet the demands of developing countries like Sri Lanka. Businesses have a strong incentive to focus on revenue-generating items, which leads to investments in products aimed at clients in the developed world rather than those aimed at individuals in developing countries. This has been the case with the private sector from the West, who are interested in Sri Lanka. However, China and India play different roles. They focus on South-South cooperation, with China leading the way

through infrastructural and financial support through the Belt and Road Initiative (BRI). China's growth as an infrastructure financier in Sri Lanka has seen its banks and companies striking deals that seem economical but have geopolitical undercurrents. India, on the other hand, is responding through its largest conglomerate (Adani Group) to win bids to build renewable energy projects, which arguably have more geopolitical than economic reasons. India and China use the economic entry point to engage with Sri Lankan energy, and the United States is following in the same footsteps.

There are some common features in this external engagement. The absence of accountability is seen at various levels and stages of the project cycles engaged by these actors. Compliance, adherence to local regulations, environmental impact assessments, public involvement, monitoring and evaluation are some key aspects that only sometimes occur at the highest quality with due diligence. It is a commonly voiced concern that global capital is so powerful because of its ability to interact with states on the one hand while at the same time insulating itself from the responsibilities of accountability and local communities on the other. The economic crisis has aggravated the energy crisis, creating new opportunities and pathways for external engagement that could eventually undermine energy sovereignty and democracy.

4.2.5 Paper 5

The fifth paper focuses exclusively on Sri Lanka's community-based rooftop solar project. The data used in this paper is twofold: first, from Colombo, policymakers, the private sector and commercial rooftop consumers; second, from Jaffna, where representatives of all parties involved in the project chain were interviewed. The data analysis pointed towards four key actors who acted as 'push' and 'pull' factors in the rooftop solar project. The paper was based on the fieldwork from Jaffna and Colombo.

JAFFNA

Jaffna is the capital city of the Northern province, the northernmost district and the most populous city of the province. While many moved out of the city during the civil war, it is the least affected district in the province due to the war. Jaffna houses the country's second most residential rooftop solar installations in both number and capacity. The fieldwork data collected from Jaffna can be grouped into three broad categories. The first is the data related to the rooftop solar programme in the area. The consumers, potential consumers, CEB, service providers, and local officials are the primary interlocutors under this category. The second focuses on renewable projects, especially the wind park project in Maravanpulavu. Local and district administrative officials, officials of the project and the public in the area are the ones who provided the data. The third overarching theme is the politics and geopolitics of renewables in Jaffna. Only the first theme is discussed in this paper.

Rooftop solar panels are widespread in Jaffna due to the rooftop solar project. By the end of 2021, the Total capacity of installed solar panels was 11,523 KW. With the exception of Jaffna the rest of the war-affected districts in the Northern Province did not have enough rooftop solar uptake making Jaffna an interesting case study. In the process of accessing rooftop solar programme there are four key actors: the CEB, service provider, bank and customer. All of them need to work together in order to install a rooftop solar PV system. Table 11 below summarises the key arguments and points shared by the interviewers on the process and its challenges during the fieldwork.

Table 11: Selected quotations at the level of intervention

Process	Quotations
Finding a Service Provider	<i>"I wanted to install a rooftop solar PV, but the companies refused it citing financial issues" – customer</i> <i>"Different companies gave different options, eventually I decided not to go for rooftop solar PV"- customer</i>

	<p><i>“We only work with customers who can benefit, otherwise it is not useful for them, so we advise against it” – service provider</i></p> <p><i>“SEA should do wetting and approve solar companies in order to assist the consumers, so they get good quality service” – CEB official</i></p> <p><i>“In certain parts of the country it is easy to get approval in others it is difficult, we consider that also when deciding out customers” – service provider</i></p>
<p>Clearance from CEB</p>	<p><i>“CEB delayed my initial clearance for so long without any reason” – customer</i></p> <p><i>“It is a shame that our good clients were unable to get the clearance from CEB” – Banker</i></p> <p><i>“CEB has a standard reply: unable to absorb into the network. This is typical of them who wish to work towards more coal” – energy expert</i></p> <p><i>“We do our level best to provide clearance, in certain instances we have issues some are technical and others are institution related” – CEB official</i></p> <p><i>“CEB has been the thorn in the back from the beginning in rooftop solar adoption in Sri Lanka” – service provider</i></p>
<p>Bank Approving Loan request</p>	<p><i>“Bank is looking for credit worthiness. By doing that they are undermining the ability of the lower middle-class people” – Activist</i></p> <p><i>“We have certain rules to follow, we are unable to approve loans even the customer has clearance from CEB” – banker</i></p>

	<p><i>“Government has established a credit line through ADB to facilitate banks. But banks do not promote rooftop solar PVs” – CEB official</i></p> <p><i>“In the peripheries we don’t get many inquiries about rooftop solar loans, we have provided many in urban centres around Colombo and Jaffna” – banker</i></p> <p><i>“Banks always worried about repayability. They don’t want to take risks with us, but they do with big businessman” – customer</i></p>
<p>Installation and verification</p>	<p><i>“My installation had technical issues, the service provider didn’t do a proper job, which made me to spent more than initially planned” – customer</i></p> <p><i>“Several technicians are not trained enough to do proper installation, which has become a problem. The reducing number of approvals also made solar companies to diversify has intensified the problems” – energy expert</i></p> <p><i>“CEB technician has twice refused to provide the compliance certificate. It has been lot of back and forth between him and the service provider” – customer</i></p> <p><i>“CEB purposefully delays the process and making us wait, financially it is hurting, and it creates unwanted tensions with the customer” – service provider</i></p> <p><i>“Several companies do not meet the required technical standards, so we have to ask them to improve the system before approving” – CEB official</i></p>
<p>Grid connection request</p>	<p><i>“The delay in the grid connection means that banks do not release the remainder of the money, making the project not profitable” – service provider</i></p>

	<p><i>“We keep getting different instructions from the head office, making the process slow and it is a procedural matter” – CEB official</i></p> <p><i>“I still do not understand why CEB delays the grid connection agreement. It is frustrating and makes no sense” – customer</i></p> <p><i>“Amount of delay involved in this whole process makes us feel drained out and lot of us feel it does not worth the effort and time – banker.</i></p>
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These selected direct quotations on the process outline the different views, workings and the operationalisation of the rooftop solar programme. To obtain a better understanding ten interview participants from the Northern province – two from each district – were selected for continuous engagement. They were potential customers selected through snowball sampling and were contacted on a regular basis from 2018 to 2021 to understand the developments. Two participants withdrew consent and the summarised overview of (engagement and interest) the eight participants is given below in Table 12.

Table 12: Annual progress of the selected participants

Interviewer	2018	2019	2020	2021
Customer - Jaffna	<i>Keen interest in rooftop solar panels. Heard about the SBS programme.</i>	<i>Applied for the ADB loan</i>	<i>Rooftop solar is in place. Feels like a good investment</i>	<i>With working from home due to the pandemic, rooftop PV is very profitable.</i>
Customer - Jaffna	<i>Not interested, No knowledge. Heard about the SBS programme.</i>	<i>Heard from some friends, and from his contact in the Bank.</i>	<i>Low interest rates prompted interest in rooftop PV, discouraged by CEB.</i>	<i>Rooftop PV in place. Used own funds. Happy and satisfied.</i>

Customer - Mannar	<i>Interested. No financial possibility. Not heard of the SBS programme.</i>	<i>The bank was not interested so I was unable to obtain a loan.</i>	<i>CEB has said since there is a wind power project, rooftop PV will not be welcomed.</i>	<i>CEB installed new transformers but failed to facilitate rooftop PV.</i>
Customer - Vavuniya	<i>Not heard of the SBS programme</i>	<i>Became interested after seeing rooftop PVs in Jaffna.</i>	<i>Had own funds but had issues with the service provider.</i>	<i>The pandemic influenced his income. So, the rooftop PV is currently on hold.</i>
Customer - Kilinochchi	<i>Very much interested. Had a SHS before. Exploring options. Heard about the SBS programme.</i>	<i>Banks did not know about the loan facility. Very negative atmosphere.</i>	<i>A service provider agreed. Decided to go for a personal loan. CEB approval is pending.</i>	<i>CEB approval is pending.</i>
Customer - Kilinochchi	<i>Not interested. No prior knowledge. Not heard about the SBS programme.</i>	<i>Small scale entrepreneur felt that rooftop PV will be profitable after advice.</i>	<i>Bank has indicated the possibility of obtaining the loan. CEB.</i>	<i>CEB said no capacity to add rooftop PV.</i>
Customer - Mullaitheivu	<i>Heard about rooftop PV, but not heard about the SBS programme.</i>	<i>Keen to have rooftop solar, but the roof is old and fragile. Planning to renovate the house.</i>	<i>Looking for rooftop solar as an investment. CEB says the transformer is far from the house, so no possibility to</i>	<i>Looking at other options to invest due to the pandemic. Moved away from rooftop PVs.</i>

			<i>have a grid connectivity.</i>	
Customer - Mullaitheivu	<i>Not heard about the SBS programme. No knowledge about it.</i>	<i>Interested in having rooftop solar panels after seeing a few houses. Don't know what to do.</i>	<i>No one in the village knows about it. There is no awareness. Bank said it is hard to get the loan.</i>	<i>Still interested. If the government provide any subsidy, will go for rooftop PV.</i>

There was keen interest among the population to engage with rooftop solar. Jaffna-based service providers were able to meet the demand, and rooftop solar became a successful entrepreneurial activity. Nevertheless, it was outlined during the interviews that attempts have been made to slow the progress by CEB and others. People waiting for approval and the service providers complained about the progress and stumbling blocks they faced.

It is evident that even though the Northern province is in the periphery there are marginalities within the province. Jaffna district was able to perform better in comparison with other districts in the province. In the province Jaffna is the centre and the remaining cities are peripheries with all the agencies mainly situated in the centre. The longstanding civil war also contributed to these dynamics. For the people at the periphery access to agencies is seen as a major problem. Agencies were also not keen to venture into new unknown territories. Solar companies preferred to work with the customers in Jaffna rather than people in other districts due to logistical reasons such as distance. Banks in those areas were promoting micro-credit and had a view that these areas need to develop first before integrating new technologies. This mindset was prevalent among bankers in the districts other than Jaffna. All of these contributed to the marginalisation of the peripheries within the periphery. Marginalisation in the rooftop solar project indicates that technology diffusion has its own geographic ramifications. It is noteworthy that these regional disparities are widespread and overarching in the global South context where

generalisations are not possible and ‘one-size-fits-all’ fixes create equity questions rather than providing sustainable solutions.

COLOMBO

The rooftop solar programme was hailed as the most successful community-based solar programme in the fieldwork. There was a common consensus regarding the importance of community-based renewable energy uptake in the case of Sri Lanka, with the increasing urban-rural divide in the past decade. Nevertheless, this project’s entry points, motivations and challenges differ within the state institutions and the private sector. This is explained below:

Table 13: Varying positions on rooftop solar programme by key stakeholders are thematised

Theme	SEA	CEB	Private Sector
Entry points	<i>This is our initiative. There is political will and institutional support. SEA drives the project. It is a must to achieve our climate commitments.</i>	<i>We were not properly consulted. It was done to please political masters. The only aim of this to show that we are combating climate change and working towards NDCs.</i>	<i>The project came about not because government had the will, but because there was ADB funding available. Government was not ready to give concessions to investors, which questions their motives.</i>
Motives	<i>We want to build a cohesive and sustainable renewable energy. This is the best way to bring in all the stakeholders.</i>	<i>We are not against rooftop solar projects. We want them to be incorporated gradually. Rooftop solar can’t address our peak load problem.</i>	<i>We see this as an opportunity. It gives space for the private sector to engage and grow. For a long time, the solar private sector has stagnated, so this is positive.</i>

Challenges	<p><i>Lot of companies suddenly want to engage in the rooftop solar business.</i></p> <p><i>Most of them do not have the expertise and accuse us that we have not legitimatised them.</i></p> <p><i>Country don't have enough people with the skillset.</i></p> <p><i>It is not a homegrown solution, so it is still expensive.</i></p>	<p><i>We don't have the capacity to absorb new additions.</i></p> <p><i>We have given approval whenever there is capacity for additions.</i></p> <p><i>It is important that we upgrade our grid infrastructure to accommodate new needs.</i></p> <p><i>Presently adding rooftop solar can't address our increasing energy demand.</i></p> <p><i>The monetary concessions given are making it difficult in the financial front where we are incurring losses.</i></p>	<p><i>There is lot of red tape involved in the government administration.</i></p> <p><i>Policy guidelines are not clear about the process and permissions.</i></p> <p><i>There is ill will on the political and CEB front towards this project.</i></p> <p><i>The process discriminates middle income families and backtrack the possible renewable additions.</i></p>
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Installing PV panels on the roofs of state-owned buildings, places of worship, and residences of people with low incomes is an integral part of the government's plan to generate solar power as part of one of its primary policies. During the last decade, the solar rooftop business has contributed to both Sri Lanka's renewable energy sector and the country's economy. The private sector complains about various barriers that systematically hinder the rooftop solar initiative. They argue that in many locations in the north and east of Sri Lanka, the CEB has already halted issuing approvals for the integration of solar panels on rooftops. Further miscellaneous fees are being added to discourage customers from applying for solar connectivity. It is argued that despite the government's efforts, the use of solar panels on rooftops has yet to gain the needed momentum. The policy quagmires, poorly constructed institutional and governance structures, distorted market mechanisms, and technological obstacles affecting grid connectivity are major contributors to the problem. However, the fundamental reason for the slowdown is the continuation of policy-level discrepancies. It is also

pointed out that the existing policy and regulatory regime is based on a top-down approach, with a standard set of policies and regulations that need more flexibility. Rooftop solar systems require bottom-up approaches that rely on significant consumer interaction.

The CEB argues that in addition to the overall imbalance of information, there needs to be a greater understanding of the particular products and processes. The private sector advises the consumers poorly, and they inherit outdated and ill-suited systems. The private sector, in turn, argues that the much-needed supply chain and the necessary market ecosphere still need to be developed. The argument has been that the stakeholders failed to work together on the rooftop project. If they had done so – or if the government had facilitated this – by now, Sri Lanka could have had a viable and vibrant rooftop solar sector.

KEY TAKEAWAYS

The analysis of the fieldwork data indicates that compliance and synchronisation between the institutions have produced mixed results. When they worked in coordination and harmony, it yielded positive results, but when issues were experienced, this led to many uncertainties. These uncertainties have then had a snowball effect on the rest of the agencies. The coordination among the institutions is vital since each encompasses much power politically, legally and economically. Striking the right balance and working for the ‘greater common good’ has not happened all the time, and has eventually created issues with the smooth implementation of the rooftop solar project. This was evident since different districts followed a different set of rules and procedures with some facilitating rooftop solar installations, and others not. This again highlights the importance of agency as one of the key themes in understanding the rooftop solar programme in particular. It helps to envision the direction of the overall energy transition.

The second key actors are the policymakers. Inconsistency in policymaking is a major obstacle in the renewable energy sector. Policy forecasts and

policy consistency are required not least since risk should be factored into investment valuations. Uncertainty, such as the kind caused by sudden, unexpected policy shifts, makes it harder to entice investors. The establishment of long-term stable policies that minimise uncertainty is a requirement of actors in all sectors not only renewable energy, and include those who want to support renewable energy for social or environmental reasons. It was also made clear from the analysis that policymakers are expected to adjust existing policies when new information indicates a more suitable alternative. Nonetheless, adjustments must be kept to a minimum and made rarely. However, rooftop solar programme was an attractive option since it gives political mileage with the state expected to do little, given funds from ADB loans, and the rest remains between the provider and consumer. The sole expected requirement from the state is to create an enabling environment and regulatory functions. One point which was stressed by several policymakers is the importance of differentiating between pragmatic, short-term policy intervention and comprehensive policy intervention. They argue that due to the Sri Lankan context – post-war, developing lower middle-income – timely policy takes precedence over comprehensive, holistic policy. This meant that a renewable energy policy was evolving and part of the more comprehensive energy policy giving precedence to energy security and affordability. Policymakers must both take credit for the success and partially accept the blame for the stagnation and setbacks of the rooftop solar programme.

The third vital actor is the private sector, which brings in investments, technology and human resources. Lack of available funding is the primary challenge to expanding renewable energy initiatives. Energy transitions rely heavily on the cost and accessibility of capital due to the significant investment requirements for low-carbon electricity generation. Sri Lanka's continuing issues with foreign exchange reserves and domestic financial and macroeconomic instability have challenged renewable energy investment. The state's inability to provide finance meant that the private sector had to take up the challenge, as it has done so in the rooftop solar project. However, Sri Lanka's economic crisis has created a foreign

exchange crisis. Moving forward, more work needs to be done to improve domestic financial resource mobilisation to increase the scale of locally made, climate-friendly, sustainable investments and decrease the flow of capital externally.

There is therefore an argument that large-scale utility-based initiatives should be favoured over customer-side projects to meet renewable portfolio mandates and avoid economic risks and sustainability. But some argue that utilities should also examine customer-side business models for strategic reasons, even though utility-side business models involve fewer risks and promise higher returns. The risk of income erosion due to customer-generated energy generation may increase. Expansion of the small-scale decentralised electricity generation market may, on the other hand, present major new economic prospects. This is where the private sector can contribute, with the rooftop solar project being a classic example. This project shows that the private sector is a vital part of the renewable energy chain in Sri Lanka. In order to prepare for future advances, Sri Lanka should strengthen its capabilities in innovation, business development, and strategy to respond effectively to market changes.

Fourth and finally, renewable energy uptake depends on technology. The technology selected should meet local needs and be both affordable and acceptable. ‘Technology transfer’ is a buzzword and a widely perceived pathway for developing countries such as Sri Lanka to achieve changes to renewable energy. Usually, technology transfer takes place through foreign direct investment, loans, development aid or skilled personnel. In the rooftop project, it was a local company with the technology, and installing it on local homes meant that this technology was acceptable. However, the price of the rooftop systems and the non-availability of subsidies for low-income families has kept the technology out of reach for many middle- and low-income families. The rooftop uptake has taken place mainly in the areas where upper-middle-income and high-income earners are concentrated. The present energy crisis also exposed the major weakness in the technology, namely the lack of energy storage. Even though many

households had rooftop solar installations, they were still without power during power cuts. Almost all the rooftop solar applications were installed without storage capacity, and the generated electricity was directed into the main grid. Furthermore, batteries being expensive, it is often only feasible to install enough batteries to power a few limited amenities, not the needs of the whole household or to keep small businesses such as shops operating during power cuts.

These key actors and the challenges they pose, suggest four lessons to consider in Sri Lanka's energy transition. First, any approach in the Sri Lankan context needs to be more localising and participatory, with a deeper awareness of the extremely varied local circumstances. Second, policy must be coherent and built on increased cooperation between different sectors, understanding local realities, the role of the actors and the economic and social conditions. Third, political leaders need to go beyond the traditional desire for economic growth and development. Given that Sri Lanka is a lower middle-income country, new technology diffusion should be technologically appropriate as well as acceptable and accessible by Sri Lankans. Fourth, financial models and procedures are needed that make use of the skills, knowledge, business, and management that are already present in the local community.

4.2.6 Rest of the field work data analysis

Some collected fieldwork data was not used in the five papers mentioned above but was used in the framing and argumentation of this dissertation. It is presented below.

KILINCHCHI

Kilinochchi was considered the administrative headquarters of the LTTE. It was under LTTE control until 2008 and was completely destroyed in the final stages of the civil war. It is one of the few mono-ethnic districts; 99% of the population are ethnic Tamils. The field data comprised two locations. The first was the Pollupalai and Vallimunai wind park, known as Palai wind farm, and the second was the proposed location for a hybrid renewable

energy park in Pooneryn. Table 14 provides the key arguments from different stakeholders in both cases.

Table 14: Differing viewpoints from both the windfarm field locations

Location	Locals	Politician/Activists	Local Administrators
Palai	<p><i>The project was first of its kind, we didn't know much.</i></p> <p><i>We were informed about the project, but not in detail.</i></p> <p><i>We are suffering to rebuild our lives after the war, our basic needs are not met. But the government is building this kind of infrastructure in our area.</i></p> <p><i>We used to see a lot of migrant birds before, but after the wind park we hardly see any.</i></p> <p><i>It is built in the buffer zone between the seashore and paddy fields. Now the salt water is drifting into our paddy fields.</i></p>	<p><i>This was a private venture done by the central government, local elected bodies are not involved.</i></p> <p><i>Legally it is not under local government purview, so we can't do anything.</i></p> <p><i>These kinds of projects are new, so we were unable gauge the project and its impacts.</i></p> <p><i>There was very little public consultation.</i></p> <p><i>It is almost impossible to have a civic movement in the former war zones due to security concerns.</i></p> <p><i>We have seen habitat loss due to wind parks.</i></p>	<p><i>It was administrated by the centre; we were informed about it.</i></p> <p><i>Government has leased the land for the company. We were not consulted. Even though land powers are with the provinces, the powers are not devolved.</i></p> <p><i>The issues arising from this wind park once again outline the need for post war power devolution.</i></p> <p><i>We were not part of the due diligence process, so we are not aware of the environmental and social analysis.</i></p>
Pooneryn	<p><i>The project is superimposed on us.</i></p> <p><i>We are not in favour of this project.</i></p> <p><i>Our fishing rights are challenged.</i></p>	<p><i>We have little say in this project.</i></p> <p><i>It is beyond the ambit of local politics.</i></p>	<p><i>Initially we did not know what is happening.</i></p>

	<p><i>We will not have grazelands for our cattle.</i></p> <p><i>Our agriculture land will be challenged if we lose the lands to the hybrid park.</i></p> <p><i>We are being pressurised to accept this project.</i></p> <p><i>The officials who come here don't understand.</i></p>	<p><i>It is very hard to get media attention over this issue.</i></p> <p><i>This is a remote village, so no one bothers.</i></p> <p><i>Our protests go unnoticed.</i></p> <p><i>This is part of the land grabbing process.</i></p> <p><i>Eventually the whole village will be displaced.</i></p>	<p><i>We only knew about the project when land officials measured the proposed land.</i></p> <p><i>Still, we are kept in the dark over what is happening.</i></p> <p><i>We are not able to help the villagers.</i></p> <p><i>We have facilitated a few meetings to create awareness.</i></p>
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The two field sites outline the increasing significance of land as a resource necessary to maintain the energetic metabolism of society, both now and in the future. Any feasible alternative for the provision of future energy results in trade-offs where limits in terms of the amount of land that is required as a precondition for achieving the ultimate objective of energy delivery. It is reasonable to anticipate that the physical and natural limits within national territories will encourage a further land rush to meet the requirements for alternative energy provision, and the post-war context will make it even more complex.

Another key question raised by the people in these sites is whether us and our lands are being targeted because it has the best potential for solar and wind. The question resonates with the "resource curse" argument. Therefore, it is important to acknowledge that understanding the resource curse risks in renewable energy is especially critical in a post-war context where poor institutional quality and under-regulated systems increase the risk of exploitation and social, economic, and environmental problems.

JAFFNA

Three themes emerged from Jaffna's fieldwork, as mentioned above. Out of the three, the first was discussed in detail above and was part of the fifth paper. The second and third themes were not part of that paper, but those themes strengthened the overall dissertation. The second theme is wind parks. The wind park project in Maravanpulavu was one of the most controversial projects where people in the area have continually protested against it. Residents had five serious concerns regarding the construction of the project. The first related to the lies made by the company which bought the land from the people and the fact that the company did not inform people that the land was to be used for windmill construction; it lied that it was for a water purification plant. Secondly, people objected to being forced to accept the project without any prior consultation. A further concern related to the intimidation and threats resulting from the protests. Fishermen were also concerned about the impact of the windmills on the local fish population being located on the coastal belt. Finally, with the windmills built close to residential areas, people felt that might be a health hazard.

The local officials are divided on the project; some officials say everything is fine, and people are protesting for financial reasons to obtain money from the company. These officials argued that the company had bought the land and had legal permission to construct a wind park. One official said they even took a group of villagers to view another wind park. The people in this group who visited the wind park said they were not informed that the company had paid for and arranged the viewing, adding that during the wind park discussion the villagers found that if the wind park was built it would be harmful. The local council officials of the area were against the park, stating that the company needed to follow procedures and obtain approval from the local council. Further, the local council officials accused the company of damaging the area's flora and fauna, thus destroying the environment. The company had also overlooked their concerns as they had already received government support. Notably, officials at the district secretariat said that most of the development projects in the former war

zones were top-down projects without consultation, admitting that they were not informed about the project and learned about it only after people protested. As such, these officials viewed this project as part of the overall trend in the post-war development discourse in Sri Lanka. They concluded that the inability and insensitivity of decision-makers at the political and bureaucratic levels was alarming; it might have serious political repercussions in years to come while undermining the possibilities for reconciliation at the end of the war.

The role of politics and geopolitics in the post-war development discourse is the third underlying theme throughout Jaffna's field data collection. Everyone felt that the Sri Lankan state's Sinhala-Buddhist hegemony is driving the policy and politics of the everyday life of Sri Lankans. They felt that the post-war context is understood as a development problem, and the military victory over the LTTE is interpreted as a victory of Sinhalese over Tamils and has played a significant role in the psyche of the Sri Lankan State. Jaffna's proximity to India and Chinese interests in renewable energy projects had made Jaffna a realm for geopolitical contestation. A classic example is India and China fighting over the hybrid renewable energy projects in Jaffna.

KEY TAKEAWAYS

The field data from Kilinochchi and Jaffna brings out three important points in the post-war context: their land, the land's resource richness, and its strategic nature. The first point is the growing calls to prioritise and comprehend the relationship between land and renewable energy. This requirement arises because renewable energy resources are location-dependent and necessitate legitimate access to and productive use of land. The construction of energy facilities has substantial repercussions for the surrounding environment, particularly in terms of land ownership and patterns of land use. These implications undermine the wishes, needs and concerns of the local communities. The fieldwork shows that when renewable energy projects are developed, there needs to be more public

consultation and that the plans fail to consider the connection between land and energy.

Second is the issue of the resource curse—the common question from the former war zones related to their land’s richness. Government officials, academics and others have told the people in the field sites that these are the best-suited places to build wind farms. It has created a discourse related to the resource curse which is not explored in this dissertation. The third point from the field data analysis is the myriad of ways geopolitics influence and affect local lives. Jaffna, with its linguistic and cultural ties and geographical proximity to India, is naturally seen as India’s backyard. China’s presence in Jaffna through renewable energy projects was an uneasy affair. Jaffna is seen as a contested landscape geopolitically.

5. Summary of the Articles

This chapter presents longer summaries of the five papers in Part II, which are based on the theoretical and methodological frameworks discussed in chapters 2 and 3. The five articles explore the energy transitions in post war Sri Lanka, analysed with different analytical scope and empirical focus (summarised in Table 15). All the papers are single authored.

Table 15: Overview of the articles

Title	Empirical focus	Theoretical approach	Main argument	Status
Sri Lanka's Energy Transition: One step forward, two steps back	Overview of the energy transition dynamics in Sri Lanka	Institutional approach and historical analysis	Bottom-up approaches coupled with top-down initiatives can create carbon lockout pathways/	Accepted
Energy transitions in a post-war setting: questions of equity, justice, and democracy in Sri Lanka	Investigates two renewable energy projects in former war zones to examine the equity and justice questions as an outcome of the projects.	Post-war development. Discourse on Renewable uptake.	Starting point for any energy transitions in the post-war environment should be the understanding that energy injustice is being produced historically, geographically and materially.	Published
Emerging frontiers of energy transition in Sri Lanka: Policy challenges, economic opportunities and climate commitments	Seeks to understand how climate commitments and economic opportunities in the renewable energy sector create policy challenges to energy transition	Political Economy. How energy economy produces political outcomes	Coherent policymaking ensures the political will and the sequencing to achieve a clean and sustainable energy transition.	Published
Titanic encounters: Energy as a geopolitical battleground in Sri Lanka	Explores the role of the geopolitical actors that influence the energy transitions	International political economy and the theory of hegemony	Energy becomes a geopolitical battleground since countries fail to build up indigenous capacities and know their energy sources and need a long term sustainable and coherent energy transition policy.	Published
Leaving the periphery behind: Rooftop solar uptake in Sri Lanka	Examines how energy policy undermines the people living in the periphery through a case study from rooftop solar programme.	Centre-periphery analysis, Dependency theory.	Politicisation of institutions and monopolisation contributes to the strengthening of the carbon lock-in and undermines coherent policymaking to include all.	Under review

Article I: Sri Lanka's energy transition: One step forward, two steps back

This paper gives a broad overview and introduction to the themes discussed in the dissertation. It examines historical, institutional and other contextual background factors of energy in Sri Lanka and outlines the present energy status and discusses key parameters and trajectories of the transition there. Sri Lanka's energy discourse is dominated by the notion of 'cheap and affordable energy' which was well suited with hydropower generation until the early 1990s. Increasing energy demand and climate anomalies however shifted Sri Lanka's energy dependence to fossil fuels resulting in carbon lock-in. Over the last decade, Sri Lanka's climate commitments, falling costs of renewables and geographical landscape suitability for renewables placed renewables into the mainstream energy transition discussions. Institutional inertia, political unwillingness, changing social dynamics, political fluidity, and economic challenges have all played a key role in Sri Lanka's energy decisions and contributed to geopolitical manoeuvring in the energy sector. Sri Lanka's clean energy future is in question due to its dependence on fossil fuels, justice questions over renewables, uncertain financing pathways and limited technology diffusion.

The need to understand the energy transition as a multiscale process is stressed. Bottom-up approaches coupled with top-down initiatives can create carbon lockout pathways while understanding justice and equity concerns in renewable uptake need serious consideration to consolidate support in displacing fossil fuels as an energy source. Globally energy sector is going through titanic shifts, and its impacts will be felt locally. The complex web of weak institutions has played a role in undermining the sustainable energy transition in Sri Lanka. It is time to rethink and recalibrate the way forward towards achieving the goal of being carbon natural and ensuring energy security and equity.

This paper argues that Sri Lanka's energy future is dependent on how Sri Lanka adopts renewable energy while mitigating technical and financial – as well as social – challenges. A better understanding of fossil fuel displacement as a socio-political and spatial process is needed. The sustainability of Sri Lanka's energy future depends on renewables' displacement of fossil fuels. In order to do this, renewables need to displace fossil fuels financially, institutionally and discursively. However, the persistence of fossil fuels in policymaking and institutions has made the displacement difficult and limited citizens' role in facilitating and influencing the energy future.

Article II: Energy transitions in a post-war setting: questions of equity, justice, and democracy in Sri Lanka

The second paper uses two renewable energy projects in former war zones as case studies and argues that in a post-war setting, energy equity and justice need particular attention since memories of conflict remain fresh and wounds remain unhealed. Energy projects, which are often sensitive in the light of post-war realities can reopen old wounds and lead to new conflicts, undermining well-intentioned efforts towards energy transitions. The puzzle this paper seeks to unravel is why renewable energy projects in post-war societies encounter resistance even though they appear clean and green. The case studies outline the multifaceted democracy, justice, and equity quandary regarding renewable energy projects in the post-war society. Intertwining post-war development and renewable energy uptake creates opportunities as well as challenges. The challenges are mainly faced by those at the bottom of the power structure, going unnoticed and rarely receiving attention unless they make their protest visible. The case studies point out that from the outset there are competing not compatible discourses at both the sites, one from the victor and the other from the victim.

Conventional post-war development runs the risk of failing if it neglects underlying or residual causes of conflict. This becomes even more likely if the ensuing state has a ‘victor’ mentality toward certain regions or groups. Inclusivity is a keyword especially in (residually) conflictual situations and international commitments on climate can tend to skew priorities in a direction that further leads to inequitable energy solutions.

The competing discourses stem from the political economy of renewable energy. Post-war Sri Lanka – achieved through military victory – looks to consolidate itself economically and politically where the government tries to please its electoral constituencies. Awarding contracts to private entities to engage in renewable energy ticks most of the boxes the government envisions. It enhances government-private sector relations, renewables become part of the energy mix without government spending, it fulfils global commitments, strengthens energy security; and sends a message to the ethnic minorities about who is in control.

These sites also have become a battleground for spatial control, and due to the fluid nature of the long-lasting and still underlying conflict, renewable energy projects are looked upon as ‘land grabbing from traditional minority areas’, where renewable energy is acting as a pretext. Land is a contentious issue in post-conflict settings (Pritchard, 2016; van Leeuwen & Van der Haar, 2016; Unruh & Williams, 2013) and it is not new in Sri Lanka. Sri Lanka’s ethnic conflict has its origins in land grabbing through settlement colonisation in the name of development. In the post-war setting, renewable energy projects are also seen in this vein, and the conduct of the government and private sector raises more questions than answers. Furthermore, justice and equity issues countenance the concerns of the local communities. The democratic deficit in the post-war state makes these entanglements possible.

As highlighted by current research, much of the questions on energy address technical issues concerning innovations that are cheap to mass-produce as well as ensuring lower emissions, while there is also interest in

matters relating to energy security and venturing towards renewables from fossil fuels. Questions of equity and justice have remained peripheral for policymakers and administrators. Democratising energy is fundamental in any energy transition, and it is even more important in countries which are coming out of conflict and in the post-war state. Post war societies need energy, there is urgency, but the fact is that equity and justice should not be compromised to achieve sustainable transition.

The starting point for any energy transitions in the post-war environment should be the understanding that energy injustice is produced historically, geographically and materially. In other words, energy inequity, injustice, and vulnerability are more than matters of prices and income and involve structural differences that have evolved over time and space. Actors involved in the energy transitions should be sensitive to equity and justice issues when dealing with energy transitions in post-war societies. This has been demonstrated in the case of Sri Lanka where renewable energy can give rise to societal inequality, questions on justice and democratic deficit, which can lead to ethnic suspicions and can reopen old civil war wounds. To make energy transitions sustainable and inclusive in the post-war contexts, considerations of equity and justice are more important than those of technology and economy. Addressing questions of equity and justice will play a key role in energy transition pathways to achieve energy democracy.

Article III: Emerging frontiers of energy transition in Sri Lanka

The third paper explains the energy transitions in Sri Lanka in the light of climate commitments and justice. This paper looks at how entanglements between climate commitments, energy security, and justice shape policy advancement and how the interlinkages between government, private sector, and the public shape energy transition. Through the adoption of the Sri Lankan case study, the chapter addresses the following question: How has Sri Lanka progressed on a decarbonised development path through

energy transitions? The paper uses agency theory to understand the situated actors' agentic processes in the energy transition in the case of Sri Lanka.

There is a tendency of carbon-intensive systems to persist over time and delay low carbon alternatives, which has come to be known as the 'carbon lock-in'. It happens due to single or multiple factors – economic, technical, political and institutional – and has a large impact, influencing decisions that characterise our lives (Erickson et al., 2015). The social and institutional connection between fossil fuels and the ways in which we use energy has tenacious power that is extremely resistant to change. Despite awareness of the climate impacts and the availability of cost-effective alternatives, the inertia of high carbon systems poses challenges for policymakers that are very hard to overcome. Carbon-intensive development trajectories are sustained and reinforced through path-dependent processes (Unruh, 2000; Berkhout, 2002). This paper develops a simple analytical framework for understanding the role of agency in carbon lock-in and identifies possible pathways to 'loosen' carbon lock-in. It investigates how the 'climate commitments-energy security-justice nexus' has influenced energy transition pathways in Sri Lanka.

In the case of Sri Lanka's energy transition, there are three emerging frontiers. These can help to understand how climate commitments influence energy transitions in developing countries and what space does justice have in this relationship. First, Sri Lanka's climate action process has been a relatively subdued process not conducive to decisive actions, with weak institutions and where policies and frameworks have been made without being incorporating into a more comprehensive national policy. Quite paradoxically, international organisations and multilateral partners have pushed for better alignment between climate action and energy transition yet continued supporting fossil fuels. Second, the 'reconstitution' of state-private sector relations. The relationship between private finance for renewables and energy justice is complicated. The emergence of a post-liberalised political economy and the decline of state control in private

capital, weak state institutions and limited public finance has reconfigured Sri Lanka's state-private sector relations. This 'reconstitution' of state-private sector relations has paved the way for the re-politicisation of Sri Lanka's energy landscape favouring a non-renewable future – the opposite direction from the country's goals.

Third, Sri Lankan policymakers, like its citizens, have taken energy transition for granted based mainly on affordability and availability. Clean energy has not been a critical part of the energy security discourse, and the call for climate action is detached from the energy transition. Nor has energy justice been in focus. Sri Lanka has not experienced a significant climate calamity even though it experiences severe droughts and floods annually. Climate action was an outcome of Sri Lanka's international engagements, especially with the United Nations. Sri Lanka's Nationally determined contributions and its commitment were not born from a public or social movement. Sri Lanka's climate commitment was not grassroots-driven and was not based on local needs. Sri Lankans feel the impact of climate change in many ways, but there was no sensitisation about climate action.

Article IV: Energy as a geopolitical battleground in Sri Lanka

The fourth paper explores the following puzzle: What is the role of geopolitics and local politics in shaping Sri Lanka's decision to embark on coal at the very point in time when it has pledged commitment to renewables? This is explored with particular attention to the encounters between global and local actors and the role of the state in the socio-political construction of the geopolitical battleground of energy. It traces the role and influence of international actors and agendas on domestic actors and dynamics, within the state and society, and the opportunities or obstacles for geopolitical actors exerting extensive influence. The paper offers fresh insights into understanding the geopolitics of energy transition in a developing country context.

In recent years, global and regional order and governance have changed with the emergence of 'new' powers. Actors who were at the margins of the geopolitical order have moved to the forefront of geopolitics and has given rise to new power centres. The contestation is taking place with new allegiances and in new areas. The case of Sri Lanka indicates that the geopolitics of energy is at the forefront in reshaping relations. Traditional powers are diminishing, and new powers are taking leading roles. Sri Lanka's energy sector has had a long-standing relationship with Japan. With China's emergence and India's renewed interest in cross border energy trade, new configurations have been created. This shows that Energy has politicised relations and has become a key foreign policy tool through different spheres of influence.

In the Sri Lankan case, energy transitions are used for three key purposes: 1) territorial control, where energy infrastructures have become routes to geopolitical manifestations 2) hegemony, as part of grand strategies and initiatives and 3) influence, to have a certain control and to counter other actor's influence. Developing countries have committed to high renewable energy targets, and yet they tend to miss them considerably. Energy has become a geopolitical battleground since countries fail to build up indigenous capacities and know their energy sources and are in need of a long term sustainable and coherent energy transition policy. If not, they will be dependent on external actors that in turn, could create monopolies, debt, political tensions, security threats and policy challenges.

Article V: Energy transitions creating new inequities: Rooftop solar in Sri Lanka

The fifth and the final paper look at the roof top solar programme and examines the outcomes in equity perspective. In the Global South, over the past decade, innovation and political economy have influenced policymaking in the energy sector, producing both winners and losers. Who

are the losers, what makes them losers, and how are they being left behind? These questions are explored in this paper through the community-based power generation project titled *Soorya Bala Sangramaya* (Battle for Solar Energy). This paper illustrates how one renewable energy project – rooftop solar – can undermine energy justice and deprive the underprivileged of the benefits of renewable energy. It demonstrates that even where renewable energy projects are introduced and implemented with an intention to benefit the underprivileged, they may only benefit the privileged. Systemic weaknesses, policy obstacles and profit-based motivation can undermine broad social participation in renewable energy projects, even though the hope has been that innovation and technology will address the justice and equity questions.

Through the Sri Lanka case, this paper offers four broader lessons for renewable energy development in developing countries and for policymakers, practitioners and researchers. First, the agency's role is determined by the nature of the renewable energy design. Most of the designs are based on 'sustainable energy transitions' literature and theorisation with Global North experience. This prioritises high tech innovative technology and market design as two critical parameters for transitions, and under this premise, the role of the agency is structured. The case context of the Global South presents different challenges and questions regarding agency, and a lack of understanding of the alternative configurations of energy transitions may lead to issues of equity that undermine just and sustainable transitions.

Second, for any industry to prosper it needs stable and secure regulations. It is vital to close the gaps between the government, the private sector, the public and the financial institutions. Policymaking is the necessary avenue to closing these gaps. To do so, policymaking needs to take a holistic approach. Economic globalisation has undermined local economic and social needs and solutions, whereas what is needed is more localisation. Globalisation and the programmes prescribed by multilateral and bilateral donors have often created inequity, unsustainability, and unreliability.

Third, a lack of funding is one of the critical reasons for the disappointing growth of renewables in emerging countries and transition to a fair, reliable and sustainable energy system. But if it is to benefit the poor, funding must be targeted, accessible and as non-bureaucratic as possible. Access to finance through government incentives can foster democratisation of renewables where people at the bottom of the financial pyramid are also able to participate and contribute. Financial availability through low-interest loans from banks, government subsidies, and international grants will help facilitate local participation in two ways: community participation and local private sector sustainability.

Fourth, the contextual setting and dynamics influence the diffusion and the impacts of technology. Therefore, understanding the socio-technical transitions with a Westernised theoretical approach may be to misunderstand the transitions in the Global South. Transition theories based on liberal market model of delivery and a western understanding of development with technocratic top-down approaches does not always fit for developing country context.

6. Concluding Discussion

The research objective of this dissertation was to study energy transition in the context of a post-war state in the Global South, with special attention to the role of politics and power in transitions, including both domestic policymaking and geopolitics, and the need for justice and equity for transitions to be sustainable. This objective was operationalised in five research questions and answered through five research papers. This concluding chapter summarises the main empirical findings and theoretical insights on policy pathways, geopolitical dynamics, and equity in the energy transition process. The main conclusion drawn is that even though energy transitions in the Global South are seen in a favourable light due to the sustainability goals, the Sri Lankan case illustrates how ‘clean and green’ is not always good and can create conditions for deepened policy deficits, inequities, and geopolitical rivalries. This dissertation argues that even though renewable energy projects are green and fit well with the energy transition narrative – sustainable energy for all – multiple complexities and complementarities come into play. This chapter expands this argument and outlines the implications of energy transitions in a post-war Global South context.

The chapter is structured into five sections. The first section focuses on policy pathways and argues that although green energy commitments frame Sri Lanka's energy policies, these policies are shaped by persistent carbon lock-in, economic and political interests, and institutional inertia. The second section points out that energy has become a primary geopolitical tool in Sri Lanka, where regional and global actors advance their interests through the political economy for strategic territorial control. The third section outlines the importance of equity and, in the post-war context, risk inequity and injustice from energy transitions, especially locally. Fourthly, the key recommendations are outlined. Finally, the chapter presents some concluding reflections on the relevance of this study for the contemporary debates on energy transitions in the Global South.

6.1 Entangled priorities: Policy pathways and pathologies

For policymakers in the Global South, achieving energy security, climate obligations, and energy justice is difficult, if not impossible, to achieve together. Policymaking, financial resources, and technology/innovation constitute the heart of energy transitions (fig.2). Due to a common lack of state investments and other capacities for renewable energy, developing countries are often over-reliant on external actors for technology, know-how, and innovation. It is expected that policymaking plays a central role in attracting investments and advancing knowledge, technological transfer, and innovative technologies. The character and challenges of policymaking is thus a key theme in this dissertation. The third research question focuses on how policymaking is shaping the energy transition in Sri Lanka, while the fifth research question asks how the state's climate commitments and economic opportunities shape policymaking in the energy transition.

In response to these questions, the third paper highlighted that the affordability and availability of energy have led Sri Lankan policymakers

to take carbon-based energy for granted. However, the discussion on energy security has yet to include clean energy as a critical component, and the call for climate action is poorly connected to the energy transition. It underlines the policy failure of the Sri Lankan state, where the clean energy initiatives that have been implemented lack substance. A key finding in this dissertation is that political, institutional, and discursive dynamics define what I call 'energy spaces' for energy transition policies. In the Sri Lankan case, policy processes and energy spaces are often path dependent. The analysis underscores that 'cheap coal' and 'energy for all' has dominated the energy discourse in Sri Lanka, allowing fossil fuels to maintain a dominant position within the energy sector. These deeply ingrained practices and ideas have resulted in a path dependency that hampers effective policymaking for renewable energy transition.

This dissertation notes how Sri Lanka's energy policy pathways are framed by its green energy commitments, but this is contrasted by a more traditional and 'dirty' energy reality. Sri Lanka's international climate commitments and geopolitical interests in the energy sector have thus created policy complementarities and confrontations. Sri Lanka has moved somewhat towards a green energy policy to address climate commitments and geopolitical interests, but the policies have been both hesitant and inconsistent, also because they attempt to accommodate the concerns of different external actors (papers 3 and 4). Sri Lanka's energy spaces have, on the one hand, been adjusted in view of its international climate commitments to fit in with the priorities of international organisations and multilateral partners. Sri Lanka's dependence on imported fossil fuels has, on the other hand, given external actors a stronghold in the energy landscape. Dependence on coal has especially increased the carbon lock-in. These geopolitical factors coupled with domestic preoccupations have undermined the transition toward renewable energy sources, while the post-war context has further extended the opportunity for external actors to engage in, influence or occupy the Sri Lankan energy spaces.

Sri Lanka's energy policies have also been shaped by the legacy of intrastate conflict. The post-war setting in Sri Lanka has constantly evolved at different levels. Initially (between 2010 and 2014), building renewable energy projects in the former war zones was relatively easy, and the initial projects were implemented without much popular resistance. However, later projects were resisted, contested and challenged legally, making project implementation in the former war zones more challenging. It has only recently (2021) been recognised by policymakers – both at the national level and by local officials – that comprehensive and inclusive public consultations are necessary. This has occurred after years of local level protests. However, a participative approach has yet to be implemented in practice. When the Indian Adani group was allowed to build a wind park in Mannar in 2022, there was still no public consultation before or after the decision. Likewise, in 2022 India started building a solar plant in Sampoor – where the land was first allocated for a coal plant – without public consultation.

This dissertation provides fresh insights into the argument that post-war development and reconstruction policies have primarily relied on technocratic interventions, which have been a typical but problematic priority. This approach is equally true of internationally backed initiatives aimed at addressing conflict manifestations, with a focus on energy becoming a key concern for post-war development. This dissertation demonstrates that this technocratic approach to development and energy transition is ill-equipped to address contextual power relations and inequities. By solely addressing the emotive dimension of conflict through technical remedies, there is a tendency towards the reaffirmation of old insecurities and the creation of new inequities. For instance, in the Sri Lankan case, renewable energy projects implemented in former war zones are top-down technocratic interventions that fail to understand local realities (paper 2). While this can be viewed as a policy failure, the socio-political setting and post-war context of Sri Lanka suggest a different explanation. The military victory which ended the war has given the Sri Lankan government a free hand to impose projects and agendas driven by

majoritarian ethnic-nationalist thinking. This power dynamic accounts for the rationale and logic behind the continued implementation of non-consultative energy projects. Since the new President assumed power in 2020, lands in the former war zones located in the North and East of Sri Lanka have been targeted for development, including renewable energy. This has raised significant concerns among ethnic minorities in these regions regarding the development of renewable energy. Thus there exist incompatible goals and insecurities: Energy security and retaining strong control in the former war zones are the state's concerns, while safeguarding lands and rights is the concern of the minorities involved.

In addition to the challenges posed by technocratic policies, effective policymaking towards renewable energy has also been hampered and distorted by different economic and political factors. Firstly, this dissertation demonstrates that financial constraints have led to an increased, rather than decreased, dependence on fossil fuels in Sri Lanka. In March 2023, (after the conclusion of this research), the Sri Lankan government issued licenses to three global oil companies from China, the USA and Australia to import, store, distribute, and vend petroleum products within Sri Lanka. This has created a new avenue for carbon lock-in, further complicating the shift towards renewable energy.

Secondly, this dissertation also shows how institutional inertia has been a primary barrier for effective policies on renewable energy (paper 3). Within the state, there are multiple energy institutions with often conflicting or unclear mandates and policies, opposing viewpoints and policy positions within each institution, and little, if any, intersectoral cooperation. A key finding is that this serves to undermine routes to decarbonisation and reinforces existing carbon lock-ins pathways. The lack of negotiated and consistent consensus across institutions has repeatedly hampered the energy transition.

Thirdly, this dissertation shows that in the energy sector, intertwined political and economic power networks hamper a renewable energy

transition. Paper 4 shows how Sri Lanka's energy dependence has created rivalry among interested parties, and politics is at the forefront of controlling the energy economy. Political means are used to gain economic benefits by competing for investments, technologies, and financial aid. This translates to ill-conceived energy transition policies. This dissertation shows that the political mantra of 'cheap energy' that has dominated Sri Lanka's energy discourse and has favoured reliance on fossil fuels, is entangled with vested political interests. The fifth paper also shows that Sri Lanka's solar uptake has been slow due to policy failures induced by vested economic interests that undermined the project and meant that it failed to benefit underprivileged communities.

Fourthly, this dissertation shows how energy policymaking has been influenced by geopolitical actors and how local counteractions have ramifications at the national level, with geopolitical consequences. The paper 3 characterises how climate commitments have, in turn, influenced policymaking over time and how this has local implications for justice. This dissertation argues that there is a need to interlink spatial and temporal trajectories of energy transitions, and policymaking is the avenue for this process. This interlinking requires a holistic approach to policymaking to achieve sustainable and equitable energy transitions.

In the context of a rapidly changing world where the whole field of energy is imbued with urgency, policymakers are faced with a plethora of new opportunities and challenges. These complexities are further compounded in a post-war scenario. This dissertation shows that in Sri Lanka, as in many less well-resourced or managed states, policymakers have been largely unsuccessful in addressing these multiple challenges. Currently, the energy spaces in Sri Lanka are heavily geared towards technocratic interventions (paper 2). Additionally, they are heavily influenced by outside actors and geopolitical rivalries (paper 4) and are financially constrained (paper 5). The policies are also enacted by national institutions that are often inappropriate and ineffective (paper 3).

6.2 Internalising externalities: Geopolitical dynamics in reshaping relations

Energy transitions provide an entry point for studying the formation of new types of geopolitical power plays in a shifting international setting. This is due to the rising importance of energy and an energy industry characterised by extensive experiments and changes, whereby renewables emerge as powerful alternatives to oil, coal, and natural gas. The fourth research question asks how geopolitics influence the post-war energy transition. One key finding of this dissertation is that the actions of prominent geopolitical energy sector actors strongly influence domestic energy policies and politics in Sri Lanka. Externalities are internalised through domestic policymaking, international commitments and, local political buy-in to address the needs of geopolitical actors.

The fourth paper highlights the relationships between the geopolitical actors in the energy sphere and how these have become tools for engagement, influence, territorial control, and hegemony in the Sri Lankan context. External engagement in energy transitions occurs through three interrelated fields: technology/know-how, economics, and climate change. In the past two decades, Sri Lanka has witnessed renewed interest among external energy sector actors and engagement through these fields. Firstly, through aid and technical assistance, Japan, a longstanding partner of Sri Lanka, helped formulate long-term electricity generation plans and energy master plans. Japanese technical know-how and technology dominate Sri Lanka's energy discourse. Most importantly, Sri Lanka's coal plant ambitions are driven by Japanese technology and the associated concept of 'clean coal'.

Secondly, China has played a prominent role in building Sri Lanka's first and only coal power plant and later funded energy projects through its Belt and Road Initiative. Sri Lanka is a strategic hub for this initiative, and

China needs energy infrastructure in Sri Lanka to run its commercial activities, such as the port in Hambantota and the Colombo port city.

Thirdly, India is an important neighbouring power but a relative latecomer to the Sri Lankan energy sector. It has acquired an oil facility near the Eastern port, controls Sri Lanka's oil supply, and advocates for cross-border grid connectivity to gain considerable control over the electricity infrastructure. India has also been granted permits to build solar and hybrid energy plants in the North and East. This influence has been reinforced since the completion of the research for this dissertation. Sri Lanka's economic crisis, which unfolded in 2022, has given India more leeway in the Sri Lankan energy sector. India was able to assist in the crisis by providing credit lines for oil and gas imports. In January 2023, the visiting Indian Foreign Minister stated that India is keen to develop Trincomalee as an energy hub, followed by a high-level Indian energy delegation that visited Sri Lanka to explore the possibilities of enhancing Indian investments in the oil and gas sector.

Finally, the United States has emerged as a new actor expressing interest in obtaining energy contracts for geothermal and renewable energy and has succeeded in obtaining projects in the Sri Lankan energy landscape. The interests of multiple external actors illustrate the importance of energy as a space for geopolitical contestation.

The third paper explores how geopolitics influence and reshape Sri Lanka's energy priorities and policies. Despite international calls for better alignment between climate commitments and energy transition and a global push towards renewables, external actors that are the primary source of capital and technology have continued to push for non-renewable solutions. Weak state institutions and limited public finance have made Sri Lanka's energy sector susceptible to such influence, hampering the energy transition, and favouring a largely non-renewable future. Therefore, a general trend has been that despite climate urgency and a need to move towards a post-carbon world, geopolitical interests are more dominant than

climate and environment. In Sri Lanka, and many other developing countries, energy is more about economic and strategic interests than climate change.

This dissertation argues that geopolitical actors have greater scope to intervene and exert influence in a post-war context than in societies that have not been affected by such major disruptions. Sri Lanka, as a post-war state, is evolving and is influenced by a myriad of factors such as international commitments, energy security, bilateral relations, and donor assistance, all of which influence energy transitions. The actions of external actors have a spill-over effect at the local level and impact local-level dynamics. The second paper illustrates how the Asian Development Bank-funded wind power plant had local ramifications. The fourth paper demonstrates how Indian interest in building a coal power plant created local environmental and livelihood concerns. The latest developments in the aftermath of the economic crisis have intensified questions on energy affordability and availability, side-lining the green transition discourse. The urgency of economic and political crises deepens the dependence on fossil fuels and, in turn, external actors.

The need for energy transition and energy dependence and in Sri Lanka and many other countries in the Global South has created new and widened spaces for external engagement and influence. Renewable energy technologies have matured commercially, making them competitive as an energy source, and international energy companies are looking for markets in developing countries where energy needs are growing, and the uptake of renewable energy has been limited. However, the Sri Lankan case goes beyond the traditional understanding of energy geopolitics, where energy is seen as a tool for engagement and trade. This dissertation shows that geopolitical actors have also used the energy sector to gain territorial control and influence, and energy infrastructure is part of the geo-strategic territorial control of the island. These energy infrastructures bear considerable power and influence in the political and national economy, providing the space to: (1) facilitate the hegemonic ambitions of the

geopolitical actors; and (2) exert considerable control, thereby acting as a countermeasure against competing actors.

6.3 Localised embeddedness: Addressing energy equity

In Sri Lanka and the Global South more broadly, social acceptability and justice is a critical criterion for achieving sustainable energy transitions. The second research question explores how energy transition dynamics are linked to equity and justice. This is addressed by understanding how energy equity is produced on different spatial scales. The second paper focuses on the local level and raises the question: Why do renewable energy projects in post-war societies encounter resistance despite being clean and green? The paper demonstrates explicitly how renewable energy projects in former war zones in Sri Lanka create uncertainties, aggravate tensions that led to the conflict in the first place, and show how post-war sensibilities and ethnicity were ignored. Renewable projects in the former war zones in Sri Lanka tend to marginalise rather than uplift regional and social peripheries. In the post-war setting, this marginalisation takes different forms, where the state consolidates after the war's end, and inclusivity is not a priority. Non-consultative actions to build renewable energy facilities aggravate existing injustices and create new inequalities. This dissertation especially highlights three interrelated concerns: (1) Non-consultative processes pave the way for socio-economic and political marginalisation; (2) Renewable projects deepen the problems of land grabbing; and (3) Individuals at the lower echelons of the power hierarchy encounter significant obstacles, which often remain unacknowledged and unaddressed unless they resort to visible forms of dissent. The second and fourth paper case studies highlight the presence of conflicting and incongruous discourses where the development paradigm overshadows equity and justice issues.

The fifth paper addresses the issue of equity from a different scale, where a community rooftop solar programme illustrates how policy, finance, and technology interactions have left a particular group of people behind. It argues that even though this case was a community-based programme, it created new inequities and deepened existing ones. The paper demonstrates how Sri Lanka's post-war political context has created peripheries within the periphery. This dissertation stresses that attention must be given to varied local realities, obstacles, and opportunities and argues that they must take precedence over technological fixes and conventional business practices. In developing countries, energy transitions should meet the local realities where markets, technology, and policy must be coordinated to enable energy transition with social justice; if not, new disparities will be created due to technological advances and financial models that are not responsive to the circumstances.

It is thus argued that post-war states are at risk of producing inequity and unjust outcomes from energy transitions, especially at the local level. This is because issues of power and local context are not considered, and there is little tradition for local participation and democracy. The Sri Lankan experience with new energy infrastructures in the former war zones has been that locals have increasingly challenged such projects, reiterating the need to address equity and justice questions for energy transitions to become sustainable also in socio-political terms.

6.4 Recommendations

The Sri Lankan case outlines the need for a holistic view of the energy transition that encompass justice and equity questions, the local setting (which in the Sri Lankan case is a post-war context), emerging economic difficulties, the challenges faced by policymakers, political and social questions, and geopolitical contestations. The key recommendations extracted from the case study are summarised below.

6.4.1 Finance

Despite Sri Lanka's tremendous potential for renewable energy, there are many obstacles – including the high cost of funding renewable energy projects – that have hampered Sri Lanka's energy transition. This financial aspect has also allowed external actors to engage and influence Sri Lanka's energy sector. Two key aspects of this have been noted: the overall lack of financial resources and the inability to tailor financial policies, investments, and incentives appropriately. It is vital to implement policy measures that reassure and incentivise investors, minimise investor risks, and strategically control external influence. Sri Lanka may offer government-backed assurances leveraging private investment with some public finance, and tailor the financial instruments and process to consumers and disadvantaged groups, but these measures are contingent on financial resources.

The establishment of robust national infrastructure and policies, not least incentives, can assist in promoting market acceptability, which will help businesses, the middle class, and the disadvantaged population to access renewables (e.g., rooftop solar panels). Low-cost domestic funding can facilitate access to financial markets. Subsidies, tax cuts and other government measures can also stimulate renewables uptake and include the poorer sections of the society in particular.

6.4.2 Integrating renewables

It is often argued that renewables require a large base load that only fossil fuels (or nuclear power) can provide. While this is not strictly the case, the variable nature of renewable energy solutions requires modified approaches to energy planning and distribution systems to ensure successful integration. For instance, independent renewable power producers and small-scale solar owners must be able to feed into the grid. Policymakers must introduce policies encouraging system-friendly renewable energy generation and increasing overall system flexibility as deployment levels rise.

However, linking new renewable energy systems (such as rooftop solar panels) to transmission and distribution networks can be prohibitively expensive, limiting their viability. Another challenge is where renewable energy projects are located in remote places with abundant resource availability (e.g., sun) but with poor or non-existent grid infrastructure. In such cases, off-grid solutions and microgrids can be better alternatives, but these too require appropriate policies, incentives and funding. Such issues must be addressed through synergies between institutions, the private sector, geopolitical actors and the public.

6.4.3 Institutions and procedures

Even when resource and market conditions are favourable for renewable energy deployment, the Sri Lankan case study shows that various non-economic barriers present obstacles to a renewable energy transition. These challenges are of an institutional and procedural nature and include ineffective bureaucracy, unclear regulations, and a lack of knowledge and skills.

A related issue of governance, noted from the Sri Lanka case study, is the institutional and political inertia which hinders both effective action and necessary institutional change. In the Sri Lanka case, this applies in particular to ministries and departments with overlapping or conflicting policies and procedures. A similar disconnect has been found between the central and regional/local levels of governance. Additionally, on the side of the civil society, there is also a common fragmentation and lack of organisational structures and capacities to make itself heard and effectively influence policy processes.

6.4.4 Participation and equity

Energy planning is not merely a technical task, but also a socio-political process. Energy transition policies should therefore take into consideration economic and technical factors, as well as local technical contexts,

acceptance, equity, and not least, social sensitivities of the kinds discussed in post-war/post-conflict contexts.

Consultations with the surrounding community during the project planning phase, promoting communal and individual ownership of renewable energy, enabling communities to benefit from renewable energy projects, and ensuring that renewable solutions are affordable, particularly for low-income households, are some of the measures that are highlighted by this dissertation. As energy transitions can involve socioeconomic, ethnic, regional and/or gender inequities, a key recommendation is for inclusivity in all its forms and with appropriate processes to ensure a good measure of energy justice and equity. However, this also requires acknowledging the many complexities and trade-offs which render ideal solutions unreachable, especially in countries with constrained resources.

In Sri Lanka, there are critical concerns regarding distributive justice that are linked to entrenched cleavages and conflicts. Renewable energy projects, including future plans, are quite largely concentrated in the former war zones where communities have a history of social deprivation and exploitation. These communities express both their discontent and experiences of exclusion. In order to practise energy justice, such communities must be included in future energy decisions. The legitimacy and inclusion of opportunities for community input are critical for the energy infrastructures' validity and sustainability.

6.4.5 External influences and geopolitics

This dissertation has highlighted the interests and agendas of external actors in Sri Lanka's energy transition. Many of them are well served by Sri Lanka continuing a carbon-fuelled development path, while others are keen to provide renewable energy technology. Such actors can exploit the energy agenda to pursue their interests and influence Sri Lankan domestic politics and policies. Hence external interests are both political and economic, intertwined in the name of helping Sri Lankans achieve energy security, affordability, and sustainability.

External influence in Sri Lanka for renewable energy is based on three key considerations: combating climate change, technology transfer, and financial assistance. Whilst the first of these, climate change, is a global concern with impacts not only for Sri Lanka, technology and finance are critical for renewable energy, and collaborations with external actors are both necessary and, in the best case, mostly beneficial. The potential downsides and conditionalities are well recognised globally, and it has been shown that Sri Lanka experiences these challenges too.

Ensuring sustainable energy transitions in the Global South depends on external actors' roles. What is clear is that each actor must become more responsible politically, environmentally and socially, in a sense playing a shared role in a common issue. To facilitate this, new frameworks, organisations, and political agreements are required that consider numerous stakeholders' requirements. It should note the following: (1) Acknowledging that within the Global South, there is an apparent conflict between the environment and development agendas; (2) Ensuring an even playing field for markets, technology and investments; (3) Understanding that the Global macroeconomic environment may become ever-more divided between the 'haves' and the 'have nots' as a result of the energy transition; and (4) For the countries in the Global South, a feeling of energy insecurity could lead to a hasty and reckless vault into a disorderly energy transition in Global South.

6.4.6 Future research

The academic discourse on energy transitions often employs a framework that relies on perspectives and methodologies originating from the Global North as the reference standard. This dissertation has highlighted the importance of contextual research from the Global South, particularly in post-war contexts. Further research that contributes to 'learning from the Global South' could help formulate an energy transitions framework more appropriate to the Global South. It must critically analyse established

frameworks that are commonly accepted and applicable to the Global North.

More empirical research on energy transitions is needed to understand and explore the diversity of challenges that they are creating, especially communities and places in the Global South that risks bearing the brunt of climate disruptions. Determining risks and policy requirements is highly contingent upon the specific context. Developing countries embark on the energy transition from varying initial positions distinguished by distinct challenges and prospects. Extensive country-specific case studies can facilitate the identification of solutions adaptable to each locale's unique circumstances. This is key to ensuring more sustainable and environmentally friendly transitions, achieving the objectives outlined in the Paris Agreement, and promoting equitable access to energy resources.

Contextual empirical studies may enhance comprehension of the pathways, mechanisms, and consequences of energy transitions in developing nations. They could illustrate the significance of conceptualising these transitions as ongoing rather than isolated actions taken at distinct intervals. The interplay between energy transition processes at various scales reveals the synergies, contradictions, and trade-offs within their respective contexts. Areas that require further study to identify appropriate solutions include economic and financing measures, regulatory mechanisms and effective technology transfer processes, in addition to the issues of participatory and inclusive approaches that have been a central focus of the present study.

We could return to the UN's Agenda 21 declaration from Rio in 1992, which states that inclusivity, broad acceptance and participation are not just desirable but necessary for sustainable development to succeed (and be 'sustained'). This study indicates how a centralised and mainly 'technocratic' path of energy transition is likely both to exclude many and to perpetuate, if not strengthen, the underlying conflict in a context such as Sri Lanka. In other words, energy justice, inclusivity and equity are at once a prerequisite for energy transition success, and equally a prerequisite for

socio-political stability and peace. This warrants further contextual, comparative and conceptual research.

6.5 Concluding reflections

This dissertation focuses on understanding the dynamics and challenges of energy transition in post-war Sri Lanka, contributing relevant knowledge on the broader question of energy transitions in the Global South. As discussed in the papers, post-war states in the Global South are often associated with weak institutions and finances, democratic deficit, and underlying socio-political complexities. In such contexts, energy transitions bring both constructive possibilities and serious challenges. Energy transition scholars and practitioners need to better understand and appreciate such contexts to develop sustainable solutions.

On the one hand, new energy technologies provide an opportunity to transition to a low-carbon economy. On the other hand, constrained capital and dependency on fossil fuels may well result in poorer countries falling behind in the shift towards renewables. Meeting the SDGs and climate commitments necessitates profound change within many sectors, including energy. The Sri Lankan case study presented in this dissertation assists in understanding and identifying key themes and discourses associated with energy transition in a post-war developing country.

Sri Lanka is at a crossroads regarding its energy destiny and whether or how it will pursue a more equitable lower-carbon future. Power and political issues will be critical in defining who wins and who loses from various energy pathways and how trade-offs between opposing policy objectives are handled. The Sri Lanka case study highlights the significance of further improving analytical frameworks to better understand the political landscape at different scales, where conflicting visions of desired energy futures meet and must be resolved in the setting of acute power imbalances.

Geopolitics significantly impinges on the unique geographical, institutional, and political-economic conditions in which changes occur. Better understanding of the power relations underlying competing narratives and interests might provide opportunities for coalitions and cooperation between interest groups to better balance the inherent trade-offs of energy policies in the Global South.

More broadly, the study also points towards the need, in the view of this author and many others, for a more fundamental critique of the current global paradigm. The global political economy of energy emphasises a free market framework with all it entails in terms of what, how and by whom. Whilst rivalries over technology are evident, the dominance of a growth, consumerist and market driven ideology in decision-making is opaque, tending to maintain current approaches whilst avoiding systemic critiques or alternative notions of socio-technical ordering. Alternative energy future visions and solutions that propose more profound socio-technical and political transformations may be side-lined or dismissed under such conditions. In such cases, I recall the familiar adage that one cannot fix a problem using the same conditions that caused it. Hence, whilst introducing renewable energy broadens technological choices and addresses the environmental imperative, it does not necessarily upset – or improve – current power dynamics in the energy sector. In an investor-led, donor-shaped policy environment where financing and technological choices are largely determined by corporate and foreign players and state elites, the interests of the poorest groups are easily neglected. The interdependencies established by global power infrastructure and the formation of new patterns in international trade relating to renewable energy have created new inequities impacting developing countries.

Therefore, I argue that in order to achieve just and sustainable energy transitions in the Global South, it is necessary to counter or at least balance the neoliberal capitalistic mode of technological-financial fixes typically promoted by bilateral and multilateral agencies (as shown in paper 5) as well as private sector investors. The experiences from Sri Lanka illustrate

how projects intended for the benefit of marginalised communities can end up benefiting those at a higher income level and, at worst, lead to further disempowerment of already marginalised groups. Globalisation and the programmes mandated by global and bilateral donors and agencies have frequently resulted in unfairness, unsustainable programmes, and unreliability. In developing countries, this has led to a new condition of hollowed-out energy transitions, where de-carbonisation is detached from energy security, social and justice issues are impeded, and the action is limited to a relatively minimal and, in part, undesirable energy transition.

This dissertation illustrates how social issues such as equity and energy justice can manifest in problematic ways that, whilst not unique to contexts in the Global South, are likely to be more pronounced there. Similarly, these issues are more pronounced but not unique to post-war/post-conflict contexts. This critique applies to the technologies and structures, controls, and management of new energy systems, as well as to the transition processes employed. Ultimately, these issues can threaten democracy, human rights, and the legitimacy of both state and private sectors. Sri Lanka provides examples of conflicting official policies and agendas, poor governance, insufficient participation, and unsuitable technologies or market mechanisms that present in many contexts, and among 'advanced' countries. This leads to the sobering conclusion that achieving a just energy transition or climate goals may be difficult for some time in such countries. As the global energy transition is a matter of necessity and urgency, it is vitally important to focus more on how to construct socially just processes in order to achieve greater environmental sustainability, and this requires more research and knowledge dissemination.

The energy transition is a critical concern for this and coming decades. The post-war Sri Lanka and developing country case highlights various fascinating and problematic dynamics and issues. An overarching conclusion might be that whilst technologies and even finance may be available, current understanding, approaches, and deep structural characteristics (both global and local) impede successful sustainable energy

transition. A particular concern behind this study has been that the energy transition risks various forms of energy inequity and social injustice. Beyond the challenge of a sustainable global environment, lies the issue of a sustainable society. Even though energy transitions are at the forefront of combating climate change, it is crucial to recognise that clean and green may not always be very clean or very green.

7. References

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Appendices

Appendix 1: Statement of informed consent

Are you interested in taking part in the research project
***“Energy Transition in Transitional Societies: Equity, Geopolitics
and Public Engagement”***

This is an inquiry about participation in a research project where the main purpose is to understand the challenges of energy transitions in the societies in transition. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The purpose of the project is to identify and analyse the potential political, social and economic challenges of energy transitions in Sri Lanka. The project envisions contribution to a deeper understanding of energy transition in Sri Lanka.

This research has two overall objectives:

- To examine the patterns and dynamics of energy transition from an equity perspective.
- To evaluate the impact and influence of geopolitics in energy transitions in transitional societies.

The research questions are:

1. Why are equity and justice issues important to energy transition in transitional societies?
2. How are energy equity and justice to be taken into consideration in energy transition?
3. What is the role of geopolitics in energy transition in transitional societies?
4. Why energy transitions in transitional societies are more difficult to achieve?

The research is conducted as part of a doctoral thesis. The data collected will only be used for the purpose of the PhD research.

Who is responsible for the research project?

Western Norway University of Applied Sciences is the institution responsible for the project.

Why are you being asked to participate?

The field research component of this PhD study consists of Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). FGD participants are chosen from the communities where the research is conducted and purposive sampling technique is used. KII participants are the ones whom are the members of the community which have benefited or disadvantaged by energy related activities.

What does participation involve for you?

If you chose to take part in the project, this will involve an interview or focus group discussion. It will take approximately an hour for an interview and around two hours for the focus group discussion. The interview and the focus group discussion includes questions about renewable energy, environment and socio economic aspects of life. Your answers will be recorded electronically and notes will be taken.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

Any political opinion you choose to share will be kept confidential. We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- The PhD Researcher who is also the enumerator and interviewer and his supervisors will have access to the personal data.
- Names and contact details will be replaced with a code. The list of names, contact details and respective codes will be stored separately from the rest of the collected data.
- Participants will not be recognizable in publications. The field research findings will be summarised, anonymised and will not be used in verbatim. All the collected personal data will be anonymised within three months.

What will happen to your personal data at the end of the research project?

The project is scheduled to end 23rd May 2021. At the end of the research project, the data collected which is already anonymised will be stored as an archive for further study and reference purposes. Data will be stored by me (PhD candidate) and I will only have access to the data after the end of the project.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with Western Norway University of Applied Sciences, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Western Norway University of Applied Sciences via Prof. Dhayalan Velauthapillai (Dhayalan.Velauthapillai@hvl.no)
- Our Data Protection Officer: Halfdan Mellbye, by email (personvernombud@hvl.no)
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Project Leader

Consent form

I have received and understood information about the project 'clean energy transitions in transitional societies' and have been given the opportunity to ask questions. I give consent:

- to participate in an interview
- to participate in the focus group discussion

I give consent for my personal data to be processed until the end date of the project, approx. 23rd May 2021

(Signed by participant, date)

Appendix 2: Interview guide

STATE ACTORS

The following are set of guiding questions which are to be asked and probed from the government officials, elected representatives and authorities who are working with/on energy or energy related matters.

1. How do you see the present energy status of the country?
2. How do you see the present energy mix?
3. What are your thoughts on renewable energy?
4. Do you think it is good for the country to move towards renewables?
5. How do you foresee the future for renewable energy in the country?
6. What is the government policy towards energy security?
7. How can this country achieve energy security?
8. How is the country going to achieve the CoP 21 commitments?
9. What are the external factors involved in energy related activities in the country?
10. Do you see any geopolitics involved in the energy sector?

PRIVATE ACTORS

The following set of questions are to be asked from the private sector actors who are involved in renewable energy related projects, activities, consultations and marketing.

1. What is the name of your company (or (main) companies part of your association), its size, and what market segment do you operate on? (wind, solar PV, concentrated solar power, hydropower, biomass, geothermal, other)
2. Who are the key economic operators active in your market?
 - a. What is their typical size? (turnover, employees)
 - b. Where do they come from (local or foreign)?
3. What are, to your knowledge, the main potential markets for green energy locally in your sector for the next 10 years?
4. Are you facing any specific trade barriers, which may hinder trade in green energy related goods, because your access to raw materials and/or semi-finished products has been limited due to government intervention/measures?
5. Are you facing any specific trade barriers, which may hinder trade in green energy related goods?
6. What is the scope of green energy services in your sector that could be subject to full liberalization in bilateral negotiations?

7. Are you facing any competitive pressure because your competitors obtain certain subsidies (tax rebates, grants, credit lines, export financing)?
8. How important in your opinion are standard setting, harmonisation of technical regulations and common conformity assessments for your sector?
9. Are there any government policies that hamper a successful liberalisation of green energy goods and services?
10. What is in your opinion the single most relevant action the government could undertake to foster the imports of green goods and services?

The following are specific for entities who are working on renewable energy projects. (Example: building a solar park, hydro project or a wind farm)

1. Does your company identify its salient human rights issues and does it have a due diligence process to manage them?
2. Does your company take any additional steps in your human rights due diligence process when operating in conflict/post-conflict affected settings?
3. What steps does your company take to ensure that the rights to land, access to water, and decent work are respected in communities affected by your projects?
4. How does your company monitor the compliance of subsidiaries, subcontractors, joint venture partners, and other business partners with your policies and standards?
5. What criteria does your company use to identify communities that may be affected by renewable energy projects it is involved in?
6. How does your company consult with the affected?
7. Does your company ensure its consultations include the perspectives and respect the rights of all affected community members (*including those who may be marginalised for reasons of race, ethnic origin, gender, social status, age, religion, wealth or income or other considerations*)? How is this ensured?
8. Under what circumstances does your company commit to seeking an affected community's free, prior & informed consent to a project?
9. What is your company's process for obtaining and evaluating free, prior & informed consent?
10. Has your company faced any challenges in its process to seek free, prior & informed consent for renewable energy projects?
11. Does your company have a grievance mechanism in place at each project site for affected communities and workers to raise concerns about local impacts, including human rights abuses?

12. What are some of the obstacles and challenges that your company encounters in implementing its human rights commitments and/or in relation to any of the areas mentioned above?

Targeting rooftop solar users

To understand the reasons, motives, and incentives behind fixing the rooftop solar in their homes. Homes which have acquired new rooftop solar under the new government programme is the target group.

1. Are you the person who usually pays the electric bills in your house?
2. Why did you decide to fix a rooftop solar?
3. How do you feel about it?
4. How much do you save every month after fixing this panel?
5. How did you find money to buy this solar panel?
6. What do your neighbours think about this rooftop solar?
7. Have you entered into an agreement to place power in the grid?
8. When was the system installed?
9. Who installed the system?
10. How long has the system been operational
11. Is there a maintenance schedule in place for the system?
12. Are storage batteries used with this system?

Protesting communities

To understand the dynamics, reasons, motives, interests, and the knowledge of the people who are protesting.

1. Why are you protesting? How long and what is your goal?
2. How did this start at the first place?
3. How it became a movement?
4. What is the present status?
5. How do you see the future of this project?
6. Who are the actors involved in this project?
7. What are your thoughts about energy security and energy affordability?
8. What is your relationship with the state actors? Who are the other actors you are working with and how is the relationship and why?
9. What are the main barriers and opportunities for your struggle to succeed?

Returning communities

To understand the perceptions, knowledge, feelings, and the socio-political, cultural and economic dimensions of the resettled communities regarding the new renewable energy projects.

1. How do you see your life since returning to your homeland?
2. What is the present economic status of the society in this area?
3. What are the key challenges the communities are facing right now?
4. Do you know about renewable energy?
5. How do you foresee this new renewable energy project?
6. What do you know of this?
7. Do you think you will have benefits from this project?
8. Do you see any challenges because of this project, if so what and do you have any plans to overcome these challenges?
9. Has anyone consulted with you with this renewable energy project? If so who when and what was consulted.
10. Do you still engage with the authorities regarding this project?
11. Do the company that is in charge for the project in dialogue with you? How is the relationship between the company and the community?

CROSSCUTTING QUESTIONS

The following is a set of crosscutting questions that can be asked from variety of stakeholders including the government, private sector, consumers, and civil society actors

Financial incentives for renewable energy

- Are national subsidies and grants available for investments in renewable energy production, particularly to small renewable energy producers and citizens?
- Is clear information on financial support readily available, particularly to small renewable energy producers and citizens?
- Is credit at low interest rates readily available to support renewable energy production, particularly to small producers and citizens?
- Are tax reliefs offered to small renewable energy producers?
- Are guaranteed feed-in tariffs set to encourage energy from renewable sources?
- If yes, how high are these tariffs? Are they guaranteed for a certain time period (how long)?

Standardization, licensing, and planning

- Is grid connection regulated and facilitated? Is the procedure complicated for small-scale producers?
- How is transmission access regulated and facilitated? Is the procedure complicated for small-scale producers?
- Is licensing simple and speedy, e.g., through one-stop shops?
- Are building codes in place to promote renewables, e.g., solar panels on rooftops?

- Are renewable energy equipment characteristics sufficiently standardized?
- In general, do you consider that the administrative framework facilitates small renewable energy producers?

Market of electricity production

- Are power purchase agreements in place whereby small renewable energy producers have priority in selling the energy they generate?
- Is there guarantee for small producers that their energy would be purchased?
- Is there a renewable portfolio standard in place (i.e., a quota for renewable sources among all electricity sources)? Which percentage for renewables?
- Is competitive bidding to produce renewable energy usually practiced?
- In general, to increase the share of renewables, which type of producers should be supported the most: large scale or small scale?

Electricity consumption

- Can consumers freely choose among competitive electricity providers?
- Can consumers opt to buy electricity from renewable sources if they wish to do so?
- Are full life-cycle costs (*including environmental externalities and health impacts*) reflected in energy prices for all types of energy?
- Do you think that electricity prices are transparent, i.e., that consumers understand exactly the sub-costs included in the energy price?

Promotion and information

- Are there marketing campaigns promoting the production of renewable energy by small producers and citizens?
- Is technical expertise and advice easy to access if a small producer wants to start generating renewable energy?
- Which public image about renewable energy is conveyed in the press?

Article I

Article II

6 Energy transitions in a post-war setting

Questions of equity, justice and democracy in Sri Lanka

Gz. MeeNilankco Theiventhran

Introduction

An exceptional technological transformation of the global energy system is anticipated in the next half-century or so, with alternatives, mainly renewable energy sources gradually replacing the conventional fossil fuel sources. Amongst all our technological infrastructures, energy systems are arguably those that are most deeply embedded in modern economies and societies. Energy transitions require considerable reconfiguration in the sociopolitical and economic spheres of society. This will have impacts especially for vulnerable population groups and disadvantaged communities (Sovacool, 2017; Healy and Barry, 2017). Communities in the periphery of existing power structures will be most affected since they lag behind and have little or no role in the policymaking, planning or implementation (Munro, 2019; Golubchikov and O’Sullivan, 2020).

Energy is high on the political agenda globally owing to concerns over increasing energy needs for development, security of supply, rising costs and climate change (Potocnik, 2007; Sovacool, 2014). It is not easy to reconcile these needs with international climate commitments. Energy systems and energy transitions engender and give expression to power relations, fairness, and comparative advantage. A key challenge is thus to ensure equity and justice in energy transitions whilst accommodating these other commitments (Bulkeley and Fuller, 2012).

The chapter contends that in countries coming out of prolonged conflicts, energy transitions raise particular equity and justice issues where democracy may be undermined. In the face of changing dynamics, political fluidity and economic challenges, as well as competing interests, the introduction of renewable energy systems may contribute to ethnic, religious, regional, gender or socio-economic inequities. The discussion sheds light on the difficulty and complexity of energy transitions in post-war societies. Sri Lanka as a case study illustrates how renewable energy projects as part of post-conflict development become spaces for contestation through different discourses in the post-war context, and how the new energy economy produces political outcomes. It illustrates the interlinkages between spatial politics and political economy and how energy transitions concern structural differences that have evolved over time and space.

The chapter begins by distinguishing between post-conflict and post-war settings and contends that the tendency to think that post-war societies are also post-conflict is misplaced. In fact they are significantly different. It is crucial to be conflict-sensitive; otherwise, energy transitions are likely to deepen conflicts and possibly undermine the viability of renewable energy projects. The following section underlines the basis for energy transitions in post-war societies and analyses why and how energy transitions are part of post-war transitions. The chapter then proceeds to a discussion on energy challenges in post-war Sri Lanka. Case studies examine challenges to democracy, equity and justice raised by renewable energy projects in the post-war setting. The case studies underline how, whilst private investment, innovation and scale are essential for renewable energy uptake, equity and justice need more attention in post-war societies, where technocratic interventions may do more harm than good.

Post-war state and post-war setting

Energy transition is a nonlinear progression; the nature and condition of the state determine and influence energy transition pathways. In a post-war state, the transition from war and the energy transition need to be understood together, not least the actors, interests and dynamics in play. A post-war transition focuses on development to achieve the peace dividend and socio-economic advancement. Technocratic interventions then often stem from international development assistance, whose premise for the interventions is normally a post-conflict peace and development narrative. But there are differences between post-war and post-conflict. These differences are important.

Differentiating post-war and post-conflict

Scholarship on energy and energy transitions in societies emerging from conflict frame these societies as post-conflict societies (Gonzalez-Salazar et al., 2017; Lappe-Osthegea and Andreas, 2017). Once the war is over, either through negotiated settlements or through military victory, the next phase has been termed a post-conflict setting, and the state and the society are framed as post-conflict (MacGinty, 2016; Toft, 2010; Langer and Brown, 2016). But, in reality, the end of a *war* does not mean or guarantee that the *conflict* has ended or is resolved (Walter, 2004).

Post-war transition connotes fundamental and intense changes in society (“transition”), after the ending of large-scale organised violence (“post-war”), without necessarily addressing the direction, the drivers or the outcome of these changes (Klem, 2018). In post-war, the conflict may well remain, if in different forms and means. The root causes of conflict – which led to war – may remain and need addressing. The key actors, issues, institutions and history are still partly or entirely in place at the end of the war, and inevitably continue to play out post-war. In the post-war setting, the transition towards peace is just the beginning and not the end of the *conflict*, and the initial “peace” is in fact

little more than the mere “absence of violence” (Galtung, 1969). Cleavages and antagonisms persist at the end of war; energy transition in these settings needs special care as it may tend to maintain or even exacerbate the cleavages and divisions.

In the particular case of the end of war through military victory, the victor concentrates on suppressing further manifestations of conflict. Ministering to conflict manifestations often could make a qualitative difference to people’s lives (Paris et al., 2009; Rocha Menocal, 2011). But without addressing the causes of the conflict, the conflict may remain dormant only to re-emerge years or even generations later.

Technocratic interventions and the quest for democracy

Internationally supported efforts to deal with conflict manifestations often boil down to technocratic interventions (such as reform of government institutions under the “Good Governance” agenda). This applies also to the energy sector. Here as elsewhere, the technocratic view is often poorly equipped to deal with behaviour and perceptions. The affective dimension of conflict, including elements of hatred, prejudice, grievance, fear and insecurity, is a key to resolving underlying conflict but is often overlooked by technocratic interventions. These “peacebuilding” interventions are commonly supported by bilateral and multilateral actors to advance liberal peace with “peace through development” set as the goal to achieve longstanding peace (Stokke, 2009).

It has been emphasised that development practices in former war zones often exploit resources and increase inequalities that worsen the vulnerabilities of people (Bender, 2011). In post-war states – whether weak or strong – development presupposes democracy or, at least, a good measure of genuine popular participation. Strong states have been defined as states that are able to ensure internal political stability, economic growth and the possibility of social development, as well as to mobilise resources for achieving their goals (Tsygankov, 2015). In weak post-war states, development is commonly used to build state authority, capacity and legitimacy (Call and Wyeth, 2008). However, strong states too may prefer to undermine democracy, justice and equity and push for development to gain political advantage and address socio-economic needs. Jarstad and Sisk (2008) point out that democracy and peace do not always move forward hand in hand.

Post-conflict literature about development initiatives as technocratic interventions suggests that these do not take the post-war setting and its problems of democracy into consideration. The interventions are top-down, and they may aggravate the underlying, unresolved tensions. Most are liberal and focus on the relationships between states, markets and citizens (MacGinty and Hamieh, 2010). Considerations of state and markets may outweigh considerations about the citizens, not least in a post-war setting achieved through military victory. The losers become even more vulnerable. Technocratic interventions must take note of the importance of the value of democracy in the post-war settings.

Energy transitions in post-war societies

Trajectories of post-war states share some common characteristics. The end of war brings a huge sense of relief, and the post-war states then prioritise the economy and development as a way to rebuild (Paris and Sisk, 2009; Langer and Brown, 2016). The trajectories are conditioned by factors such as mode of government, governance structure, donor aid, international relations and local political dynamics. Notably, actions of the post-war state are determined by how the war has ended. If the war has ended with a peace deal, it guides the state's actions. But in the case of one-sided military victory for the state, then as the victor the state has attained the power to decide largely on its own (Licklider, 1993; Luttwak, 1999; Toft, 2010).

Energy is a critical sector of the post-war state and cuts across socio-political and economic lines, and influences economic priorities and development goals. Energy is an integral part of any post-war state-making, since it potentially powers the state, empowers people, drives the economy and accelerates development. The needs to address social inequalities and socio-political grievances, post-war reconciliation and the quest for state-building are part of the post-war state. These competing interests and demands make energy governance challenging.

The energy trilemma

Post-war governments focus on economic recovery and securing energy. Making energy affordable is also a key requirement of their energy transition (Flores and Nooruddin, 2008). Affordable and uninterrupted energy supply is a primary goal of any energy governance in post-war states. There is a need to transit from pre-existing policies, procedures and energy sources to address the energy demand and reconfigure it to new local and global realities. However, the global goal for decarbonisation has also made states commit to cutting emissions and moving towards renewables. Energy is at the centre of climate change mitigation, and energy transition efforts mostly incorporate renewable energy solutions as well as energy efficiency moves. However, energy governance encompasses several dimensions including accessibility, affordability and availability. Central to energy governance is the challenge of the “energy trilemma” involving the interconnected and often competing demands of energy security, environmental sustainability and energy equity (Gunningham, 2013). As societies in transition, post-war societies are often compelled to choose between availability and affordability. Societies are compelled towards trade-offs between the different aspects of the trilemma. Not unsurprisingly, energy supply and security tend to top the list of priorities, with little room to also address the climate challenge and equity. Balancing the energy trilemma is difficult due to the post-war condition (Mulligan, 2010; Lappe-Osthegea and Andreas, 2017).

Need for energy equity and justice

In a post-war setting, energy equity needs far more attention, since memories of conflict remain fresh and wounds remain unhealed. Energy projects need to

consider local contexts and how the transition from war to peace evolves over time and space. This understanding is crucial for any energy project in a post-war state – especially when it is executed in the former war zones or among the people affected by war, as in Sri Lanka. Ethnic and religious tensions make energy transition in post-war societies complex, given major factors such as the multicultural nature of society and regional power dynamics. It is essential to explore the impact of the energy transition on the economic, cultural and social aspects of communities. The energy equity aspect of the energy trilemma is decisive for developing countries. Attention needs to be drawn to the poorest in the societies and the embedded inequalities of energy systems.

Energy: a development paradox

Development is a central component of peacebuilding literature (MacGinty and Sanghera, 2012). Achieving peace through development is the liberal peacebuilding narrative, which suits post-war governments whose focus generally lies more in the direction of development than building substantive peace (Stokke and Uyangoda, 2011). Development is seen as a way of building the peace; with energy being one main pillar of their development paradigm. Energy governance and transition should also play a key role in ensuring that communities feel that development projects are for the greater common good. Renewable energy projects are part of this development matrix, seen as ensuring energy security and affordability to communities affected by the war. An interesting aspect of renewable energy projects is that they fit well with the three narratives: clean and green initiatives, post-war development and ensuring energy access to communities.

Yet the above mentioned three narratives have pitfalls. Even though renewable energy projects are clean and green, it does not mean they are useful or do no harm to their communities or to the environment. As discussed below, some renewable energy projects have caused equity and justice issues and undermined democracy. When certain sections of society challenge renewable energy projects, the “clean and green” narrative enables the government to convince many, whilst suppressing opposing voices. In a post-war state, when the victor’s peace is in place, these narratives play a pivotal role in shaping public perceptions. The “clean and green” narrative offers a feel-good perspective, and is easier to sell among the communities even if undermining equity and justice.

Energy challenges in post-war Sri Lanka

Sri Lanka is a lower-middle-income country in South Asia, and is in a transitional phase after a long civil war. Colonial legacy and the ethnic conflict have long undermined peace and development. The ethnic conflict has its roots in independence from the British in 1948. Ethnic marginalisation and ethnocentric politics play a major role in Sri Lankan affairs, including policymaking which has questioned fundamental democratic principles of the modern state. Sri Lanka is also transitioning from a rural-based economy towards a more urbanised economy

oriented around manufacturing and services, one of the main challenges of this being energy supply. Economic growth has slowed and reached an 18-year low in 2019 according to a poll conducted by Reuters (Aneez, 2019). The high level of public debt is another problem for the Sri Lankan government. Hence, moving towards clean energy alternatives to ensure energy security and affordability has been challenging. The following section discusses the Sri Lankan post-war context and its energy challenges.

Long road to a post-war state

Sri Lanka was engaged in a civil war that lasted for nearly three decades. The ethnic conflict began as an outcome of a post-colonial state formation and became a full-fledged war in the early 1980s (Stokke, 1998; Uyangoda, 2010). The war came to an end in May 2009, with the government of Sri Lanka as the victor after annihilating the Liberation Tigers of Tamil Eelam (LTTE).

The end of the war had two distinctive features. First, the military victory of the Sri Lankan state brought peace in the form of victor's peace. Its viewing of the issues determines its politics and implementation. Ten years have passed since the war ended, and ground realities vastly differ from textbook-style post-conflict reconciliation and peacebuilding. It was expected that Sri Lanka would adopt an inclusive development approach to enhance reconciliation among communities and heal the wounds of the war. But the actions of the Sri Lankan state have made national minorities feel cornered and disappointed, which has led to a state narrative of "simultaneously being a victor and victim".

The Sri Lankan state with its Sinhala-Buddhist majoritarian hegemonic ambitions feels like a victim of the ethnic conflict in that the prolonged conflict has undermined the development of the country. The post-war development initiatives need to be understood in this setting. The conduct of post-war Sri Lankan society in general and of the Sri Lankan state in particular could be more clearly understood in terms of the victor-cum-victim articulation. Successive Sri Lankan governments have adopted this argument, describing themselves as the victim while celebrating victory. These political overtones convey the military success over the LTTE in several ways, the most problematic one being seeing victory as a triumph of Sinhalese against Tamils, a minority that challenged the authority of the majority (Wickramasinghe, 2014; Stone, 2014; Seoighe, 2016).

Second, the post-conflict literature argues that post-conflict states are generally weak and fragile (Ohlson and Kovacs, 2009). On the contrary, by the end of the war, Sri Lanka became a "strong state" and softly authoritarian, through undermining and weakening of democratic institutions of governance (De Votta, 2014). The Sri Lankan style of soft authoritarianism had three key features: majoritarian nationalism, developmental economic populism and militarised national security patriotism.

These three features guided the trajectory of the post-war Sri Lankan state and became the "new normal" for Sri Lankans. A short-lived good governance regime in place from 2015 to 2019 was seen as "abnormal". The deep-rooted nature of these three features underlined the post-war state-society nexus and undermined democratic principles.

Energy challenges

Energy is a key priority area for Sri Lanka in its post-war developmental planning (World Bank, 2019). Sri Lanka aspires to move towards renewable and sustainable energy amid rising energy demand, alongside destabilisation of hydropower production due to climate change, plus limited public finance and private sector reluctance curtailing new ventures. Meanwhile, Sri Lanka is also on the lookout for cheap energy. Hence, Sri Lanka's ambitions of transitioning to clean energy are politically and socially challenging.

Firstly, Sri Lanka's Ministry of Power and Renewable Energy has forecast that demand for electricity will grow annually by 7–8% (ADB, 2015; World Bank, 2019). Meeting this growing demand with low cost and reliable as well as sustainable energy is a big challenge.

Secondly, hydropower, the leading renewable source of electric power, has experienced climate anomalies in the past decade leading to reduced output (World Bank, 2007). To reduce its heavy reliance on polluting fossil fuel, Sri Lanka needs to find renewable energy options besides hydropower.

Thirdly, Sri Lanka has limited public financial resources and needs to engage with the private sector (ADB, 2015; Chen et al., 2018). Government policy and practice impacts on the diffusion of innovations, and vice versa. There is a need for clear cohesive policy towards the business environment, with appropriate subsidies and tax concessions to attract investment. Entrepreneurs generally see an opportunity for innovation and often can mobilise the resources needed for effective and sustainable operation. In other words, despite sound goals, innovation may fail to materialise if entrepreneurs do not adopt it. Lack of consumer finance and market infrastructure seem the main barriers to expanding renewable energy in Sri Lanka.

Fourthly, Sri Lanka has historically sought the least expensive option to generate power to keep down costs to the consumer (ADB and UNDPm, 2017; PEC, 2019). The cost of renewables is still high in most cases, and coal being the cheapest option has been preferred despite adverse implications to the environment and human health.

The above factors stand alongside Sri Lanka's commitment to the Paris climate declaration and its Nationally Determined Contributions (NDCs). It pledged at the 22nd UNFCCC Conference of Parties in Marrakech, Morocco, as part of the Climate Vulnerable Forum, to use only renewable energy resources by 2050.

Over the past decade, Sri Lanka's energy challenges can be summarised as a battle between coal and renewables. Sri Lanka's energy policy promotes coal, while wanting renewables in the energy mix to fulfil its international commitments. As discussed below, this duality presented an opportunity for renewable energy, where actors who were willing to invest in solar and wind projects were considered positively as post-war state Sri Lanka's energy concerns included energy security and environmental sustainability.

Three key factors

Energy projects, specifically renewable energy projects, thus became part of the post-war development paradigm in Sri Lanka. This has played out in several

interesting ways: a discourse about renewable energy in former war zones; the spatial politics of who controls renewable energy spaces; and how energy economy produces political outcomes. Renewable energy initiatives in the former war zones produced two opposing narratives in the public sphere: state-centric majoritarian and ethnic-centric minoritarian.

The government and its institutions argue that Sri Lanka's development needs the sites for wind and solar parks to cater to national requirements. The areas formerly controlled by the rebels are now fully controlled by the government. Therefore, the government is convinced that it has the right to decide on its own regarding land use. Almost all the government officials at the policy level in the capital Colombo echoed these views during the interviews. The views expressed by the officials can be understood through two different sets of thinking. First is a majoritarian nationalistic viewpoint: there is no need to ask or think about minorities or their concerns. The second is state-centric: it is the right of the state to do what it deems necessary. Both fail to acknowledge or understand the concerns of the local people. Whereas during the interviews and focus group discussions with people in the former war zones, they expressed dismay over the renewable projects and felt that they were being imposed on them without consultation, let alone consent. The sentiment shared by many during private conversations is that it gives them a feeling of a "defeated community", and the action of the government is seen as "insult based on ethnic identity" – according to a group of affected women. The low level of trust between the people and the authorities persists in former war zones. The opposing narratives that are in play clearly raise the questions of equity, justice and democracy.

The civil war was waged for the control of territory, which was the dominant arena for legitimisation and delegitimisation of the conflict (Stokke, 2006). When renewable energy projects started to occupy land (both public and private) in the former war zones, it became conflictual. As Lefebvre and Nicholson-Smith (2009) argued, spaces are always contested rather than fixed; political, economic and social forces shape them. Identity, agency and democracy are all closely connected with the control of space. In a post-war environment, control of space enables the state to downplay the military aspect and showcase the civilian nature of the state to propagate normalcy. Controlling spaces helps the state to control social processes. The communities, on the contrary, through creating new social spaces, try to win over the spaces. Bridge et al. (2013) discuss a geographical perspective on energy transition, attuned to spatial variation and argue that the low-carbon energy transition will generate new patterns of uneven development.

Post-war development projects are seen as an opportunity for multilateral, bilateral and local elites and the business community. It can be termed a "political marketplace", a system of governance based on transactions in which political services and allegiances are exchanged for material reward in a competitive manner (De Waal, 2016). Renewable energy attracts interest since it is (at least where given subsidies and incentives) profitable and it is less controversial. Investing in post-war renewable energy projects offers profit, patronage and a "feel good story". Especially for multilateral and bilateral donors, renewable energy projects in the former war zones

tick all the boxes – development, private sector involvement, public-private partnership, economic reconstruction, peacebuilding. Hence, they become popular.

Method

We now turn to the concrete research studies in Sri Lanka. This section outlines the research design, the approach to data collection and how the data is analysed. This is followed by a brief background introduction to the study sites to help understand the nature and selection of the sites.

Research design, data collection and analysis

The fieldwork was conducted in 2018 and 2019. It focused on renewable energy projects implemented in the Northern Province, specifically in former war zones, addressing issues with those projects from a perspective at different levels. The primary data was collected through 42 semi-structured interviews, 14 focus group discussions, and participant observation. The secondary data was collected through documents, communications, reports and newspaper articles. The initial interviews were conducted in the capital Colombo with the policymakers and bureaucrats. This data was used during the interviews at the case sites with the communities and the local administrators. Then the outputs from the case sites were further explored by again interviewing the policymakers and bureaucrats in the capital. This process helped to understand the gaps in knowledge and communication flaws. It facilitated understanding the different narratives in play regarding each of the field sites. The interviews were conducted in both the local languages, Tamil and Sinhala. The quotes used in this paper are translated by the author.

Background of the study sites

Territories have certain features in terms of social and political power (Brenner et al., 2003). The field sites manifest the power relations and the discourses attached. The selection of the field sites was determined by the following: it should be located in a former war zone; it should have a renewable energy project which began after the end of the war; and it should have faced protest and resistance by the local communities. Two field sites were identified that fulfilled the desired categorisation and also had differences. One was a solar farm and the other was a wind farm; one is completed and in operation, and the other is in the construction phase.

Both field sites are situated in the Northern part of Sri Lanka and in former war zones. The solar farm is located in the district of Vavuniya, the wind farm is located in the district of Mannar. In both districts, ethnic Tamils are the majority and comprise more than 80% of the population demographically. These were pioneering renewable energy projects in the district. Understanding the socio-political dynamics and the political economy of these projects will shed light on the operationalisation of renewable energy projects in a post-war setting.

Case studies

Through two tales from the former war zones, this section maps out the contested constellations of the energy transition projects. Both cases illustrate the dynamics in play at renewable energy sites, where opposing narratives shape and reshape the renewable energy futures in the former war zones in particular and the country in general.

Solar farm in Vavuniya

After the end of the war, in its attempt to encourage private investment in solar energy, the government called for proposals for solar parks in former conflict areas. It allowed the private sector to invest in solar facilities. The first solar farm, with 35,000 PV modules and 10 MW peak output capacity, located on an area of 21.85 ha (54 acres), was commissioned in 2016 and became operational in late 2017. The Vavuniya District is in a multicultural region, known as the gateway to the North. It is a kind of “border region” where the national majority Sinhalese are a minority, and the national minority Tamils are the majority. The site is partly on state land and partly on private land with the state land leased to the company, which has in addition bought the private land. On one side of the solar farm is a Tamil village and on the other is a Sinhalese village.

The area itself had some geographical contestation over the years. Traditionally the Tamils were the inhabitants of the area and in the mid-1980s – in the aftermath of the 1983 anti-Tamil-pogrom – Sinhala Buddhists were colonised into Tamil areas, and Vavuniya was one of those areas (Peebles, 1990). Therefore, any state-sponsored activity, which is termed “development” in the district, creates suspicion already. The solar farm was no different. The site attracted attention when the people in the Tamil village staged a protest in March 2018 against the solar farm. They complained that the heat emitted by the panels made life painful for the families living next to the farm. The protest was mainly on the grounds of health hazards; but there were also politics attached.

A villager of ethnic Tamil origin who took part in the demonstration explained it in the following manner:

When the solar plant became operational, the heat it produced was too much for the people living close by. We were worried, we were asking for an explanation, we were asking for help. No one cared. We are poor people, who have felt the brunt of the war and have returned from the IDP camps empty-handed. Solar was alien to our area. We even heard that solar radiation might cause cancer.

(Interview with the villager, 12 December 2018)

The villagers were concerned; they were very open about their concerns with the authorities. The initial reaction of the authorities was that the Tamil ethnic

minority was opposing the private venture undertaken by a company because it was owned by a member of the Sinhala ethnic majority. There was no communication between the communities and the authorities. The villages complain that both authorities – administrative and political – were hostile towards them. It created conflicting reactions from the local communities. The protest became political.

Initially there were no media attention to the protest, but later we got some media attention. We were determined to continue the protest until government gives us a solution. Later we heard from the local politicians that the company was donating a community hall for us. We were asking for a solution, not a community hall. Why they are not consulting with the concerned communities. Why are they using proxies? It means they are not genuine.

(Interview with the local activist, 18 December 2018)

The solar farm became the subject of post-war confrontation between the state and the protesting community. Weeks later, following discussion with the local authorities, the private company that owns the solar farm agreed to build a community hall for the village as a goodwill gesture. This move raised suspicion among those protesting against the solar farm. They questioned the motive of the company in building a community hall. They argued that the company's refusal to talk to the villagers is a matter of concern and that the company was using the local authorities and the central government to protect their interests.

The central discourse on this issue was thus initially on ethnic lines. But then in June 2018, the people living on the other side of the solar park – the Sinhalese villagers – also staged a protest against the solar farm, citing the heat emitted as a health issue. This protest put to rest the ethnic aspect and emphasised the overarching equity and justice aspect of post-war development.

Both Sinhalese and Tamil villagers complained during the focus group discussion conducted in December 2018 that they were not informed about the solar farm and that their main concern was the lack of public consultation and that neither the authorities (local and central) nor the company spoke to them regarding the initiative. The Tamil villagers also protested that the solar farm is feeding electricity into the national grid. At the same time, they do not have electricity in their village and questioned the purpose of having a solar farm in the village when the village itself was in the dark. Sinhalese villagers acknowledged during the interviews the need for a solar farm and saw it as a positive developmental initiative, but shared concerns about the health issues and lack of consultation.

This solar farm demonstrates how renewable energy projects can be undermined by both the state and by the communities if democratic principles are not adhered to, and equity and justice questions are not addressed. State and private sector together see renewable energy projects as initiatives for clean and green energy which ensures energy security. The communities in the post-war societies

see this as projects imposed on them by the state without consultation. A common thread among policymakers, administrators and the private sector is the following argumentation:

This is a government authorised project; the private company has bought the land; it is selling electricity to the government; so, there is no issue. The country needs electricity, and we must be happy that it is produced through renewable means rather than using fossil fuels.

(Interview with the policymaker, 15 November 2019)

This ethos at the centre remains the core of the problem, which needs to be understood through the narratives of the post-war state. As discussed earlier in this chapter, the decision-makers and implementors recognise renewable energy projects as clean and green post-conflict development projects to establish energy security. This undermines local concerns, needs and complexities.

The interviews in the field showed that awareness about renewable energy projects among the local-level politicians and the local-level administrators (from village officer to district secretariat) is very low. The general impression is that renewable energy infrastructures are like a traditional development project, which should bring economic and livelihood benefits to the communities. This misconception also played its part in local communities' resistance.

Such initiatives involve several institutions at the local and central levels, with most of the local authorities working under instructions from the central government without a comprehensive picture of the situation. This itself is a problem and the communication gap between sections of the authorities and the general reluctance to take responsibility points to the deficiencies in planning, policymaking and implementation.

Wind farm in Mannar

In 2014, the government decided to build a wind farm facility of 100 MW on Mannar Island in the Northern Province with the financial support of the Asian Development Bank. The project is owned and administered by the Ceylon Electricity Board (CEB), the state-run power supplier. The 132-hectare land earmarked for the wind farm was private land owned by several individuals and was acquired using an old colonial land acquisition Act, which is still in practice in Sri Lanka. The Act confers powers on the Minister of Land to acquire private land for "a public purpose" by merely declaring through a gazette notification that the private property is required for a "public purpose" and that he/she is exercising power vested in him/her to acquire it.

In the process, the government took over the land needed for the wind power project and then informed the landowners about it. Discussions with the landowners began only after the land was acquired. The land acquisition process inherently disadvantaged the landowners as the state has the power to acquire any piece

of land it deems necessary. The only option for the landowners was litigation. Most of the landowners are the people who were badly affected and displaced by the conflict and returned to their places of origin a few years after the end of the war. They are economically and politically marginalised.

Our options are limited, and it is an inherited land from my parents, and my brothers also have a say on this. I do not want to give this piece of land away, but my brothers feel otherwise. All are happening because we are vulnerable people. We are not against development or producing electricity, but why our lands are being confiscated. We are a lost community, government is not bothered about us and they do not need to. Because we are minorities.

(Interview with a landowner who lost land, 26 November 2019)

The above was a comment made by one of the landowners who has lost the land for the project. She feels that the post-war setting makes it easy for the state and the authorities to function to their liking without consulting the concerned community. It shows that the decisions are acted upon as top-down imposition, and it makes the marginalised powerless and vulnerable. It questions the notion of democracy and its applicability in the post-war context.

Sri Lanka is a free country now. The state can undertake any project anywhere to its liking without any consultation. We need to move forward with development, and we need more energy. Wind farms are environmentally friendly. Some people are opposing it for political reasons.

(Interview with the policymaker, 14 November 2019)

This is how a policymaker from the capital Colombo, who works on renewable electrification, views the project. The wind power project in the former war zone is seen as a “national requirement” by the state and its agencies.

Local-level bureaucrats were mostly positive to this initiative from the beginning, but they too feel let down by how the things are being done. One of the senior local administrators said,

When this was initiated, we supported it wholeheartedly. We were promised that the district would be developed and the people will get jobs, and the economic situation of the district will improve. Nevertheless, over the last five years, nothing has happened. It is disappointing; we see a tendency where war-affected areas are looked upon as places for profit-making.

(Interview with an official at the district secretariat, 28 November 2019)

The general public of the area and the district – most of whom were initially not aware of the project – became unhappy with the way the project was initiated. Over time, mixing the district priorities, mistrust, misinformation and political

overtones made people wary of the project. The feeling of the local public can be summarised as:

We can't discern why this wind power project is taking precedence over other development priorities. We are a community that is distressed by war and displacement. We are still finding our feet with our basic livelihood issues. The government has failed us miserably, but now they are venturing this to their needs. We are talking about putting food into our plates, not about having electricity to watch a movie.

(Interview with the local activist, 30 November 2019)

This case demonstrates the multifaced nature of equity and justice concerns. The project is a top-down project owned by the government. The way in which the land is reclaimed by the state has brought out three issues. First, the law that made this possible itself is draconian and violates fundamental principles of democracy. (Expropriation laws exist in other countries but are seldom applied except for extremely urgent or national security purposes.)

Second, in a post-war setting where ethnic sensitivities are alive, there needs to be careful consideration when it comes to operationalising development projects. Primary local development needs to be implemented first before going ahead with projects which are of national significance. The sequencing is vital; otherwise, it will jeopardise equity issues. Thirdly, the state both deciding on the project, and taking the land from the landowners without at least prior consultation, if possible voluntary settlement, and compensation, involves injustice. It ticks the “renewable kilowatt-hours” box but goes against the fundamental principle of Agenda 21 that, in order to be sustainable, any development must have the understanding and engagement of those involved.

Discussion and conclusions

Both the case studies outline the multifaceted democracy, justice and equity quandary in the renewable energy projects in the post-war society. Intertwining post-war development and renewable energy uptake creates opportunities as well as challenges. The challenges are mainly faced by those who are at the bottom of the power structure, and it goes unnoticed and rarely gets attention unless they make their protest visible. The case studies point out that from the outset there are competing non-compatible discourses on both the sites, one from the victor and the other from the victim.

The solar project illustrates several of the topics introduced above; such as how the goals of affordable, clean energy for all are conflicted by national and/or international goals. It also shows how post-war sensibilities and ethnicity were ignored and played a role. And equally evident are the broader energy transition issues related to equity and democracy, where peripheries are typically marginalised in relation to the centre.

Ironically, the fact that the two ethnic communities in the solar farm case found a common enemy in “big brother” in Colombo might conceivably contribute towards reducing the residual ethnic conflict tensions. The issue of power and cultural context is perhaps typical of authoritarian states, post-conflict or not, such as monarchies or colonies that have little tradition of local participation and democracy. Ensuring equitable energy transitions will be more challenging in such environments.

Conventional post-war development discourse runs risks of failing if it neglects underlying or residual causes of conflict. This becomes even more likely if the ensuing state has a “victor” mentality toward certain regions or groups. Inclusivity is a keyword especially in (residually) conflictual situations. The international commitments on climate can tend to skew priorities in a direction that further leads to inequitable energy solutions.

The competing discourses stem from the political economy of renewable energy. Post-war Sri Lanka – achieved through military victory – looks to consolidate itself economically and politically where the government tries to please its electoral constituencies. Awarding contracts to private entities to engage in renewable energy ticks most of the boxes the government envisions. It enhances government-private sector relations, renewables become part of the energy mix without government spending, it fulfils the global commitments, strengthens energy security and sends a message to the ethnic minorities about who is in control.

These sites also have become a battleground for spatial control, and due to the fluid nature of the long-lasting and still underlying conflict, renewable energy projects are looked upon as “land grabbing from traditional minority areas”, where renewable energy is acting as a pretext. Land is a contentious issue in post-conflict settings (Pritchard, 2016; Van Leeuwen and Van der Haar, 2016; Unruh and Williams, 2013) and it is not new in Sri Lanka. Sri Lanka’s ethnic conflict has its origins in land grabbing through settlement colonisation in the name of development. In the post-war setting, renewable energy projects are also seen in this vein, and the conduct of the government and private sector raises more questions than answers. Further, the justice and equity issues countenance the concerns of the local communities. The democratic deficit in the post-war state makes these entanglements possible.

Much of the current research on energy addresses technical issues concerning innovations that are cheap to mass-produce as well as ensure lower emissions, while there is also interest in matters relating to energy security and venturing towards renewables from fossil fuels. The questions of equity and justice have remained peripheral for policymakers and administrators. Democratising energy is fundamental in any energy transition, and it is even more important in the countries which are coming out of conflict and in the post-war state. Post-war societies need energy, there is urgency, but the matter of the fact is that equity and justice should not be compromised to have a sustainable transition.

The chapter argues that even though renewable energy projects are seen in a favourable light, putting them into practice in post-war settings is bound to pose

profound socio-political and economic challenges that could create equity and justice questions. The starting point for any energy transitions in the post-war environment should be the understanding that energy injustice is being produced historically, geographically and materially. In other words, energy inequity, injustice and vulnerability are more than matters of prices and income and involves structural differences that have evolved over time and space.

Actors involved in the energy transitions should be sensitive to equity and justice issues when dealing with energy transitions in post-war societies as shown in the case of Sri Lanka where renewable energy can give rise to societal inequality, questions on justice and democracy deficit, which can lead to ethnic suspicions and can reopen the old wounds of civil war. To make energy transitions sustainable and inclusive in the post-war contexts, considerations of equity and justice are more important than those of technology and economy. Addressing questions of equity and justice will play a key role in energy transition pathways to achieve energy democracy.

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Article III

Article IV

Energy as a geopolitical battleground in Sri Lanka

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ABSTRACT

Sri Lanka has committed to achieving carbon neutrality status by 2050, but it is foreseeing more coal power plants, which has created spaces of contention locally and geopolitically. What is the role of geopolitics and local politics in shaping Sri Lanka's decision to embark on coal at the very point in time when it has pledged a commitment to renewables? This paper explores this puzzle with particular attention to the encounters between global and local actors and the role of the state in the socio-political construction of the geopolitical battleground of energy. It traces the role and influence of international actors and agendas on domestic actors and dynamics within the state and society, and the opportunities or obstacles for geopolitical actors exerting extensive influence. The paper offers fresh insights into understanding the geopolitics of energy transition in a developing country context.

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Introduction

International climate commitments and local political realities have made energy transitions a contentious issue. In Sri Lanka, energy has become a battleground for geopolitical control through development aid, loans, and other bilateral and multilateral assistance. Despite having a high potential for solar and wind energy and an ambitious carbon neutral commitment, the energy transition policy in Sri Lanka still encompasses coal as a critical component. The puzzle this paper addresses is why Sri Lanka is going along with coal, knowing well that it will reverse its climate commitments, create environmental degradation and increase electricity prices. What is the role of geopolitics and local politics in Sri Lanka's coal pathways as part of the energy transition?

Energy transitions depend heavily on technology transfer, innovation, and local and foreign private investments (Hafner and Tagliapietra 2020; Goldthau, Eicke, and Weko 2020; International Renewable Energy Agency (IRENA) 2019; Murphy and Smith 2013; Potocnik 2007). The inability of developing countries to make the shift towards renewables without external support allows extraneous actors to play a role in their energy transitions (Hafner and Wochner 2020; Yermakov 2021; Ansari and Holz

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2020). These external actors – mainly states – embrace the opportunity to increase their influence through supporting energy transitions. This calls for critical scholarly attention to the new geopolitics of energy transitions.

Energy is a key challenge faced by developing countries, and many emphasize the uptake of renewable energy to achieve their climate commitments. At the same time, energy security and affordability are often the overriding priorities, taking precedence over trying to fulfill their international climate commitments (Sovacool 2014, 2017; Healy and Barry 2017). This conundrum makes energy transition a challenging task for policymakers (Munro 2019; Bridge and Gailing 2020; Golubchikov and O’Sullivan 2020). Given this backdrop, energy has become a critical geopolitical arena for contestation. Energy has also become a geostrategic tool, where external actors who provide and control energy directly or indirectly have influence and advantage.

The transition to a global energy system dominated by renewable energy will create geopolitical winners and losers, and as Paltsev (2016) argues, the future geopolitics of renewable energy could resemble the post-Cold War situation, where uncertainty prevails as to widely different possible outcomes. Transitioning to renewables could take multiple pathways and trajectories, any of which would also need to consider energy security, sustainability, and financial possibilities, especially in the global South.

Peters (2003) was among the first scholars to argue that the development of renewable energy would lead to more equitable energy distribution and lower geopolitical tensions. Vakulchuk, Overland, and Scholten (2020) likewise argue that renewable energy expansion would lessen the role of geopolitics in international relations since renewable energy will increase the local availability of energy and thereby make energy less prone to political tensions. Hoggert (2014) similarly notes that small-scale photovoltaics technologies are likely to promote a secure low carbon transition with reduced geopolitical risks. However, renewable energy, while strengthening energy security, could simultaneously lead to the emergence of new interdependencies between countries.

Several scholars argue that the transition to a predominantly renewable energy system poses numerous new geopolitical risks (Westphal 2011; Scholten and Bosman 2016; Overland 2019; Vakulchuk, Overland, and Scholten 2020). Westphal and Droege (2015) point out that metamorphosing the global energy mix will introduce greater diversity but at the risk of less security. Paltsev (2016) argues that supply and demand for energy will remain decisive factors in the future global balance of power. These diverse positions on the effects of geopolitics and energy transitions call for new contextual knowledge of key cases.

This paper responds to this by exploring the dynamics and politics of energy transitions in a changing geopolitical order. The paper presents a theory-informed single case study of Sri Lanka, focusing on how energy has become a geopolitical battleground and how encounters among external and internal actors heavily influence a country’s energy future and energy transition. Sri Lanka has committed to achieving carbon neutrality by 2050, but it is at the same time commissioning more coal power plants, causing contention both locally and geopolitically. The paper examines this puzzle with particular attention to the encounters between global and local actors and the role of the state in the socio-political construction of the geopolitical battleground of energy.

Understanding the geopolitics of energy transitions

The contemporary world order is in transition as the centrality of global institutions is weakened, nation-states reassert their powers, and new actors lead the way with new global and regional initiatives and coalitions (Dian and Menegazzi 2018; Weiss and Wilkinson 2018).

Energy transitions offer one of the best available opportunities to study the new modes of geopolitical power play that have arisen in this changing international context. This results not only from the continued centrality of energy but also the extensive and innovative experiments and transformations seen in the energy sector, with the emergence of renewables as clear viable alternatives for oil, coal and natural gas. Energy transitions consequently serve as a useful lens to scrutinize the increasing tendency for collaboration in the many sectors that also permit political and economic trade-offs. Geopolitics is now increasingly understood in terms of its expression not only on the national and international levels but at all spatial scales (Blondeel et al. 2021; Bridge and Gailing 2020). Contemporary environmental politics articulate this trend particularly powerfully, as exemplified by the complex interactions that take place between decentralized networks made up of multiple actors across all scales.

The global challenges encountered will condition the future of geopolitical actions. Energy transitions form a global challenge that influences the modality of the emerging world order and leads to alternative conceptualisations of geopolitical actions (Acharya 2014; Barnett and Duvall 2010). In the light of these global challenges, there is a need for a new understanding of the emerging political communities which will be composed of new actors, agents, and dynamics. Novel challenges also generate new hegemon and counter-hegemon, and the interplay between them paves the way for a fresh understanding of the new geopolitics in the light of global challenges, specifically from a regionalized world perspective. The question is how the actors, agents and dynamics in developing countries would secure and maintain the important mainstays of democratic politics, such as legitimacy, inclusivity, accountability, and equity, with new global challenges, such as energy transitions (Van der Merwe and Dodd 2019; Fischer and Newig 2016).

Geopolitics of energy transitions is an emerging research field. Most of the research relating to the geopolitics of energy is either about the geopolitics of oil and gas (Akiner 2004; Amineh 2007; Umbach 2010) or the geopolitics of renewable energy (Scholten and Bosman 2016; Overland 2019). Energy transitions have been addressed in studies on economic aspects of energy diffusion (Meade and Islam 2015; Duan, Zhu, and Fan 2014), energy technologies (International Energy Agency (IEA) 2014; Schaeffer et al. 2015; Fortes et al. 2015), and policy implications (Schwanitz et al. 2015).

In recent years, a growing body of literature has emerged on the geopolitics of energy transition. Scholten (2018) discuss the winners and losers in the new global energy situation, the shift in regional and bilateral energy interactions between established and developing countries, governance responses, and infrastructure improvements. According to Goldthau, Keim, and Westphal (2018), the energy revolution ultimately entails a systemic shift; the low-carbon transformation is expected to make the energy system more sustainable and considerably more diverse on a global scale. However, new difficulties created by energy transition strategies could, according to Hache (2018), turn out to

be as complex as today's energy geopolitics. Local and decentralized relationships may add a new geopolitical layer to traditional actors, while technical, economic, sociological, behavioral, geographical, and legal elements may further complicate the evolving conundrum. After analysing the literature on the geopolitics of energy system transformation, Blondeel et al. (2021) conclude that more profound knowledge of the link between politics and energy systems is required to forecast sustainable energy transition paths. This paper addresses this need through new contextual knowledge on the interlinkages between energy transitions and geopolitics from a global South perspective.

Bazilian et al. (2019) outline four scenarios for the energy transition and its impacts on global geopolitics: cooperation and global consensus on climate change that facilitates international policymaking; technological advancement charting a new path to transition; country-first policies that prioritize energy security, known as dirty nationalism; and business as usual where fossil fuels remain dominant. Lombardi and Grünig (2016) look at low-carbon energy security and energy geopolitics, focusing on four themes: challenging the energy security paradigm; climate change and energy security goals; energy security in a geopolitical context; and the impact of large-scale renewable energy projects on energy security and shifting geopolitical alliances. Hafner and Wochner (2020) describe how the global energy transition will unfold among several major global geoeconomic/geopolitical blocks and how it will influence and be influenced by global governance. They identify four factors contributing to the energy transition: global energy demand, top-down climate legislation, bottom-up technology, and energy industry technical innovation. There is thus a growing literature on energy transitions and geopolitics, but it is largely limited to the global North. This paper adds to this literature through a global South perspective and an empirical case study of Sri Lanka.

Geopolitics of energy transition in the global south

The geopolitical and geoeconomic concerns surrounding energy and climate policy are growing more complicated, according to Eyl-Mazzega and Mathieu (2019), resulting in rekindling old energy rivalries and creating new ones. According to Makarov, Chen, and Paltsev (2017), the post-Paris energy environment presents a challenge for industrialized and developing countries in terms of energy transition and climate pledges.

Overland (2019) examines four emerging misunderstandings about renewable energy geopolitics: competition for essential resources; new resource curses; electrical disruption as a geopolitical weapon; and cybersecurity as a geopolitical concern. He argues that higher use of renewable energy would lead to greater decentralization, which may make the system more resilient. International energy competition, he believes, will shift from control of physical resources, their locations, and transportation routes to control of technology and intellectual property rights.

From the global South perspective, theories of International Political Economy (IPE) help understand the energy transitions. Renewable technologies have reached commercial maturity, according to their cost curves. The costs of solar photovoltaic (PV) units have dropped by roughly 90% in the last decade (IRENA 2019), and onshore wind turbine unit costs have followed suit. This is primarily due to scale effects and a worldwide renewable energy capacity investment boom. Low-carbon technologies are now

cost-effective energy sources, and are attracting the highest amount of investment of any energy source in many locations (IEA 2019).

This trend is expected to continue given that the underlying investment decisions reflect government policies that favor renewables and the strong market pull from large economies. There are, however, considerable disparities in global disparities between the allocation and distribution of global capital as developing nations got just 12% of the total investment (Frankfurt School-UNEP Centre/BNEF 2018). This uneven investment pattern in renewables is consistent with overall energy investment. According to the IEA, middle-to-low-income nations contributed 14% of global investment, accounting for 41% of the world's population. In contrast, high-income nations got more than 40% of investment volumes, accounting for less than 15% of the global population (IEA 2019).

In order to ensure sustainable development in low-income nations, adequate investment in low-carbon energy sources is required, putting them on a climate-friendly growth path. In reality, developing countries have the most significant financial demands for mitigating technology (Tempest and Lazarus 2014). Many nations in the global South are grappling with a “technology gap” (Castellacci 2011), which is a source of persistent underdevelopment and poverty (Fofack 2008). As a result, some observers argue that promoting access to low-carbon technology would likely result in a “development dividend” in the least developed countries (Forsyth 2007). Glachant and Dechezleprêtre (2016) found that many developing nations remain cut off from international technology transfers. This is because worldwide private developers consider politically unstable countries too risky for investments, and there is a weak commercial rationale for private enterprise to engage in very impoverished countries or areas (Kirchherr and Urban 2018).

The cost of transitioning away from high-carbon systems and the options for alternatives determine whether countries can avoid infrastructural and technical carbon lock-in (Seto et al. 2016). As a result, existing technologies and infrastructure will resist change in nations that are currently not attractive for cleantech investments and do not engage in low-carbon tech value chains. When private enterprises refuse to invest, international institutions (Ockwell and Byrne 2015; Rimmer 2019) and public-private partnerships can help spread low-carbon technologies (Chon, Roffe, and Abdel-Latif 2018).

External actors, as well as domestic variables, play a role in carbon lock-in. For example, China's overseas investments in fossil fuels are far more than those in renewables (Li, Gallagher, and Mauzerall 2018). So Chinese investments as external actors contribute to carbon lock-in in their investing countries. Li, Gallagher, and Mauzerall (2020) point out that Chinese energy investments focus on developing nations, with the great majority going to coal (24.5 GW), gas (20.5 GW), and hydropower (18.1 GW), while wind (7.2 GW) and solar (3.1 GW) account for a very modest percentage. Investment challenges have undermined Chinese renewable uptake externally as fossil fuels have robust financial backing locally (Larsen and Oehler 2022). External investments help create a domestic environment conducive to carbon lock-in.

Such investments produce path-dependent positive returns in fossil infrastructure, potentially delaying the adoption of low-carbon technology and the deployment of renewables despite their economic viability (Unruh 2000; Unruh and Carrillo-Hermosilla 2006). This might substantially obstruct low-carbon future development pathways

in the countries receiving such investments. It is feasible to break free from such a shackle, but it comes with significant transaction costs because it necessitates modifying long-established infrastructure, norms, and (economic and political) institutions (Seto et al. 2016).

The energy transition will impact regional energy trade and integration. As part of the energy revolution, regional energy commerce is likely to grow as money may be generated from the cross-border balancing of renewables supply changes (Criekemans 2018). As a result, cross-border electrical systems become more integrated. According to observers, this gives a competitive advantage to countries that control and operate regional networks and to the most efficient producers. Controlling regional grid infrastructures, including power lines, storage, and software, will become increasingly important for national security for projecting influence and authority (Criekemans 2018). Regional integration may also occur around power centers in networked grids (Goldthau et al. 2019).

The crucial issue here in the context of the global energy transition and the global South is that technology, commerce, and finance are seen as a means to an end rather than industries in and of themselves. According to the number of patents in the low-carbon technology arena, the OECD countries and China have technological leadership. Because of their reputation as technological laggards, nations in the global South may become politically dependent on the goodwill of prominent green technology patent leaders. Similarly, trading cannot be said to take place on a global scale. In the context of the global energy transition, the concentration of renewable technology patents can be interpreted as a sign of the continued existence of the established OECD dominance in the global economic system, supplemented by the emergence of a small number of new core countries, most notably China. Chinese patents account for one-third of all low-carbon technology patents (IRENA 2019). The transition pathways have been modeled and facilitated to allow externalities rather than internal solutions where local solutions are discouraged. The energy transitions have been designed where the global South are dependent on external assistance rather than exploring internal capabilities and developing local capacity. For example, the global deployment of solar panels does not fundamentally alter the logic of perpetuating dependent relationships; hence, intellectual property rights continue to be necessary to profit from innovation. More to the point, low-carbon solutions cannot be projected to diffuse globally due to free-market forces, sufficient demand pull, and dropping unit costs, according to the IPE perspective. Instead, they may be made available in the strategic interests of both the countries that these innovations originate from and the organized incumbents in the destination countries. The case study will examine this through analytical attention to the interconnected dynamics of involvement, investment and innovation in energy transition, what I will refer to as a “triple I framework”.

The Triple I framework

In the context of developing countries, energy transitions have been primarily framed through the slogan: “affordable energy for all” (United Nations Department of Economic and Social Affairs 2016). These countries depend on external actors for technology, aid, finances and know-how.

Whilst many of these countries have long been dependent on energy from outside, the goal of increasing energy supply for development combined with the climate agenda gives new impetus for external actors to use energy as a geopolitical tool and make energy one of the central themes in the geopolitical arena. Energy has long been used as a tool to gain advantage and to strengthen bilateral and multilateral cooperation. The geopolitical actors use multiple avenues – state-to-state aid, multinationals, international financial institutions, private entities, technical advice, policy assistance – to ensure their dominance. In energy transitions, contestations among the actors occur in three different areas of engagement: Innovation, Investment, and Involvement. These are situated within complex and changing socio-politico-economic contexts (Figure 1). In developing countries, to achieve sustainable energy transition, there should be enabling policies, and the policies should be implemented. Innovative technological solutions could produce cost-effective, sustainable outcomes. These outcomes reduce the financial burden and environmental problems of the developing countries, thereby encouraging transitions toward renewables and research and development must be sufficiently financed. Enabling policy and financing innovation could produce cost-effective, sustainable solutions. The inability of the developing countries to advance energy transitions in the spheres of policy, investments and technology has allowed external actors to use them as tools of engagement.

Different actors involved in the multi-scalar geopolitics of energy transitions use these engagement tools singularly and in combination. Spatially and temporally, each actor will have their own set of limitations and advantages. Some will have more power, influence and control over certain thematic spheres than others and may seek to maximize this while trying to gain influence over other areas. The interplay between the actors and the available tools for engagement will pave the way for the emergence of new coalitions and contestations.

Policymaking and implementation obviously play a central role in making transition practical and possible. Policymaking can be top-down and technocratic or bottom-up

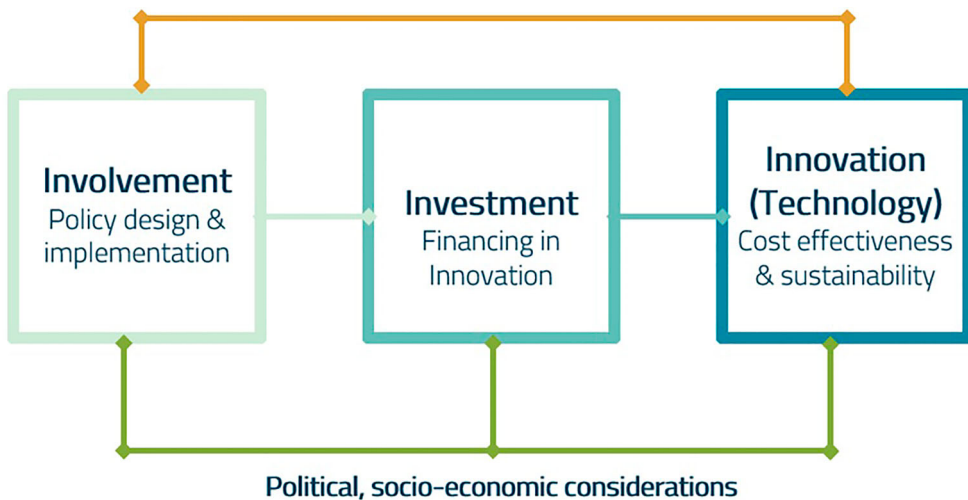


Figure 1. The Triple I framework: Tools of engagement (developed by the author).

and participatory, with important implications for the design, implementation and the role of different domestic and international actors (Stokke and Törnquist 2013; Törnquist, Webster, and Stokke 2012). A critical challenge for energy policymaking in the global South has often been a lack of political will to shift towards renewable energy sources. Enhanced public participation may be crucial for strengthening policymaking for green transitions but may also impede such policymaking if an energy transition is experienced as harmful to the interests of a group. Domestic policymaking on energy transitions, especially in the global South, also provides a space for political, economic and technological involvement by international actors, thus turning policymaking into a domain for complex and potentially contentious interactions between multiple actors.

While policy processes frame energy transitions, innovations and investments are drivers of change and focal points of international involvement. Advances in technology, improved efficiency, and reduced cost have made renewables an increasingly competitive aspect of energy transitions. There is, however, widespread concern that the energy sector has yet to make emerging new technologies accessible to developing countries (IEA 2020). Energy companies continue to market their products to commercial customers financially capable of adopting new technologies for economic gain. Those less well-off await their turn, as they have done for decades (United Nations Conference on Trade and Development 2018). It is also known that these power players export second-rate solutions to weaker countries (Clapp 1998; Cole, Greenwood, and Sanchez 2016). Moreover, innovation is not neutral; it may be directed towards large-scale and “high-tech” solutions or low-technology and locally manufactured ones.

Like innovation, investment is fundamental for developing countries to achieve energy transitions whilst ensuring energy for all. The state’s resources for energy transition will decide its design and direction. Investment has tended to focus on large enterprises rather than small-scale or participatory solutions (Mazzucato and Semieniuk 2018; IRENA 2020). High levels of unmet demand are significant constraints for renewable energy uptake in the global South (Frankfurt School-UNEP Centre/BNEF 2018). Contrary to the liberal economic theory that demand attracts investment, the private sector often does not actively engage since it finds it difficult due to political and economic conditions that are not favorable to renewables (Burke and Stephens 2018). As for external state actors, along with investments, they may also bring political influence (Chen and Li 2021). States already incapacitated by budgetary constraints may welcome these investments from external actors, even though they carry significant political conditionalities.

In recent years, the value chains for energy technologies have globalized. Production is now governed by multiple value chains (Meckling and Hughes 2017), making the emerging technologies available in the global South. In reality, globalizing value chains does not benefit all countries. Many developing countries remain excluded from international technology flows (Glachant and Dechezleprêtre 2016). Political and economic risks make private sector companies, especially energy companies, shy away from engaging in energy-related investments. This is despite efforts by, for example, the World Bank to encourage or leverage increased private sector investment in clean energy for all (Energy Sector Management Assistance Program 2019).

Nevertheless, businesses often do not see any viable market in many countries in the developing world. Profit centric business models apply to emerging clean energy

technologies such as solar and wind. The absence of a profitable renewable energy market makes a clean and green energy transition difficult, with countries struggling to escape carbon lock-in. For societies in transition, innovation and investment are challenging in many ways as they often lack the necessary know-how and financial capital – and policy by itself is to little avail without both innovations and investments. Thus, countries look for viable options for green and clean alternatives while giving in to the conditionalities and interests of local and international players (Bazilian et al. 2019; Vakulchuk, Overland, and Scholten 2020). Economic power, longstanding bilateral relationship, and regional superiority are critical geopolitical conditions that actors may use strategically to gain leverage and pursue their interests in the energy sector in recipient countries.

Research methods

The paper employs a qualitative single case study. The case study approach is used as the research strategy to collect, interpret, and analyse relevant data and report findings. Yin (2009: 14) defines it as “an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not evident”. Case study research contributes to understanding interrelationships in real-world situations that are too complex for survey or experimental methods (Yin 2017; Hodkinson and Hodkinson 2001). It can help describe and illustrate specific real-world processes and aid theory development (Hodkinson and Hodkinson 2001). The paper will not make empirical generalizations beyond the case study, but the case study can reveal causal mechanisms that are of analytical relevance beyond the single case study. Therefore, the qualitative single case study approach provides a suitable means of investigating the geopolitics of energy transition in Sri Lanka and identifying mechanisms of broader relevance.

The data collection comprised both primary and secondary data. Primary data was collected through in-depth, semi-structured interviews and secondary data through policy documents, statements, reports, newspapers and website information. The secondary data gave insights into key actors, processes, discourses, and energy transition dynamics in Sri Lanka. This paved the way for fieldwork planning and guided the interviews. The qualitative case study was designed to understand the power game dynamics and how this influences the energy transition in Sri Lanka. As it explores causal mechanisms, qualitative interviews with key informants are well-positioned to shed light on these dynamics. The fieldwork was carried out from November 2019 to January 2020. Interviews typically lasted 45 min or more, depending on each participant’s availability and interest. Interviews were conducted in English, Tamil and Sinhala languages as the author also speak Tamil and Sinhala. Identification of research participants was carried out based on information gathered from secondary documents and the snowball sampling method. The interview guide centered around specific themes derived from the document sources, where in-depth questions were used when the respondent had the ability and expertise to provide more understanding.

During the fieldwork, interviews were conducted in two phases. The first phase of qualitative interviews was done in the capital Colombo, which comprises government officials, energy experts, academics and environmental activists. The second phase of qualitative interviews was done locally in the former war zones, with local government

officials and the public. Altogether interviews were conducted with 45 respondents. After completing the fieldwork, interviews were transcribed, the notes and transcripts were translated to English and coded according to themes, and systematic thematic analysis was conducted. During the analysis, it was found that more information was needed to fully understand the specific nuances and intricacies, and it was decided to conduct further qualitative interviews. Digital interviews were conducted in the middle of the Covid-19 pandemic between June and September 2020, through Zoom and Skype. Out of 32 invitations, only 14 agreed to an interview online. Several persons declined to participate, citing security reasons. These interviews were also transcribed and coded. Both documents and interviews were thematically analysed to identify factual information and reflections from the informants relevant to the research question.

Sri Lanka: contestations for energy dominance

Sri Lanka is a post-war state rebuilding itself after the ending in 2009 of a three-decade-long civil war. It is a tropical country, rich with natural resources and excellent potential to develop renewable energy sources. Sri Lanka aspires to move towards renewable and sustainable energy amid rising energy demand, limited public finance, and destabilization of existing hydropower production as a result of climate change (Limi 2007; Asian Development Bank (ADB) 2017). Meanwhile, Sri Lanka is also on the lookout for cheap energy. The above reasons, along with Sri Lanka's commitment to the Paris climate declaration and its Nationally Determined Contributions add pressure to move towards clean energy alternatives. It has pledged at the 22nd UNFCCC Conference of Parties in Marrakech, Morocco, as part of the Climate Vulnerable Forum, to use only renewable energy resources by 2050 (ADB 2017). However, in reality, Sri Lanka is heavily dependent on fossil fuels, mainly coal. Before independence, Sri Lanka was a hydroelectricity producer but at a very small scale. Over the past two decades, an increase in demand and limits on remaining hydro potential have pushed Sri Lanka to look for energy alternatives.

The aim of the state in providing as much energy as cheaply as possible has consistently overridden the stated goal of renewables and reduced climate emissions. To understand Sri Lanka's opposing trajectories in energy policy and implementation, identifying the key actors in the energy sector will be beneficial. The key actors can be clustered into two categories, internal and external actors.

Domestic actors

The Ceylon Electricity Board (CEB) is a state-owned electricity company which controls all significant functions of electricity generation, transmission, distribution and retailing in Sri Lanka. The CEB plays a crucial role in Sri Lanka's energy transition. The CEB develops a Long-Term Generation Expansion Plan (LTGEP) once every two or three years, outlining the least costly generation options that need to be added to the system annually for the next 20 years to meet the forecasted demand. It includes information on the existing generation system, generation planning methodology, system demand forecast, and investment and implementation plans for the proposed projects. Furthermore, it recommends the adoption of the least cost plant sequence derived for the

base case. CEB also prepares a 25-year comprehensive electricity sector master plan which is updated every ten years: this provides the basis for the LTGEP. Both the master plan and LTGEP are only concerned about the policy perspective prescribed by the ruling government and fail to map out the investment opportunities and innovation possibilities. This has, throughout the years, undermined sustainable energy transitions.

The Public Utilities Commission of Sri Lanka (PUCSL), the national regulator, is another important domestic actor. It is an independent regulatory body that monitors the electricity industry's economic, technical, and safety regulations in Sri Lanka. It is mandated through an Act of Parliament and PUCSL must approve the LTGEP prepared by the CEB. Over the past decade, there have been constant contentions between CEB and PUCSL over the LTGEP. In 2018, the LTGEP 2018–2037 draft submitted by the CEB was not approved by the PUCSL, citing that the plan is not in line with the national policy that more renewables should be added, not more coal (PUCSL 2018). The PUCSL, in turn, proposed an alternative plan, which was not accepted by the CEB. This dispute continued for over a year and was settled only after the intervention of the President; eventually, CEB had the final say. The dispute resolution by the President in favor of CEB undermined the role of the PUCSL and the renewable energy policy.

Commenting on the matter, one of the experts on the Sri Lankan energy sector said:

This dispute outlined the issues relating to CEB plan 2018–2037 through the evaluations of the PUCSL and the submissions made during the public hearings. The blatant errors and misrepresentation in the CEB plan were made to force the adoption of other coal power plants. CEB's refusal to accept the errors and the revised plan shows their undue influence and political power. The fact that the government decided to force the PUCSL to issue an approval for the flawed plan submitted by the CEB makes a mockery of the entire process and the role of the PUCSL as the regulator of the Electricity Sector (10.12.2019, Colombo).

The internal strife between the electricity provider, the regulator and the President, who was also the minister of environment at the time and publicly championed renewable energy, indicates that the President also favored coal power plants. It was argued in the LTGEPs that this was the best way forward to address the impending energy crisis. Building a coal plant takes time, and renewable energy solutions are quicker. The decision is thus illogical and against Sri Lanka's renewable energy policy.

Coal has remained in Sri Lanka's future energy plans since the first coal power plant was constructed in 2006. Even though Sri Lanka's goal is to achieve 100% electricity generation through renewable energy by 2050, the comparison between the last three LTGEP shows how Sri Lanka has become coal-dependent. Sri Lanka revises its LTGEP every two years to include up-to-date load forecasts, plant cost, construction times and the technological data available. Table 1 shows the projected supply of electricity based on coal and natural gas. It demonstrates that coal and liquefied natural gas (LNG) plants remain central to the three LTGEPs that have been presented since the pledge to go carbon

Table 1. Sri Lanka's long-term generation plans (CEB 2014, 2017, 2019).

LTGEP	2026	2034	2037	2039
2015–2034	1400 MW Coal	3200 MW Coal		
2018–2037	900MW coal 600 MW LNG		2700MW Coal	
2020–2039	900MW Coal 1500MW LNG		1500MW LNG	2100 MW Coal 3000MW LNG

neutral. Strikingly, the most recent LTGEP (2020-2039) proposes the construction of new coal plants in 2039.

The above comparison shows that Sri Lanka's energy future is heavily dependent on coal and gas. Sri Lanka does not have coal or LNG resources and needs to import both, but it has good conditions for solar and wind uptake. Local and external actors influence Sri Lanka's persistent emphasis on fossil fuels. The CEB's insistence on coal in the LTGEPs is based on its master plan supported by Japan. Not included in the 2015–2035 LTGEP, LNG was only introduced into the energy mix after an Indian coal power plant was canceled through a court ruling in 2016. After the court ruling, in a bilateral meeting between India and Sri Lanka, Sri Lanka's President assured that India would be given the opportunity to build an LNG plant instead (Balachandran 2016). In an interview with Reuters news agency, Sri Lanka's petroleum minister said: "We do not want to hurt India. So the President has offered an LNG plant instead of the coal plant" (Reuters 2016). This is one among many indications that external actors greatly influence the energy transition pathways of Sri Lanka, and that energy is becoming a geopolitical tool.

International actors

Sri Lanka planned to build a coal power plant in 1995 with the assistance of Japan (World Bank 2019). However, it did not materialize due to public protests and the unwillingness of the successive governments (ADB 2017). There were no external actors in the energy sector until 2006.

Financially, Sri Lanka has traditionally been borrowing from the International Monetary Fund (IMF), World Bank and ADB (Kelegama 2000). Japan and the West were the main aid donor partners, with India being the key trade partner. In 2005, Sri Lanka elected a new President and a government that decided to invite China to assist Sri Lanka.

The year 2006 became a turning point for the Sri Lankan energy sector with three key events taking place that involved geopolitics actors and changed Sri Lanka's energy trajectory. Sri Lanka was looking for aid to build power plants to meet rising energy demand. Japan offered to build a coal power plant in 1997, but successive governments did not pursue the idea, citing public protest and environmental concerns (Amarawickrama and Hunt 2005). With the new government seeking China's help, China offered to build the coal power plant, and construction began in 2006. Meanwhile, India had for long been looking for a strategic foothold in the Eastern part of Sri Lanka, especially the port in Trincomalee. This was reinforced by the growing presence of China in Sri Lanka and the Indian Ocean. At the same time that China started constructing its power plant, India won a bid to build and own a coal power plant in Sampoor, close to the Trincomalee Harbor. Japan, as the lead aid donor for Sri Lanka, offered technical and financial assistance to make a comprehensive electricity sector master plan in 2006 (Ratnayake 2004). In this master plan, coal became a significant part of Sri Lanka's energy generation. Sri Lanka thus became an arena for geopolitical contestation between three major international actors in the year 2006. On the one hand, these events pushed Sri Lanka into uncharted coal territory due to cheap coal power being supported by external actors. On the other hand, energy supply became a significant sphere for the actors to increase influence and pursue hegemonic ambitions.

The China-funded power plant became operational in 2011. With a capacity of 900MW, it is the largest power station in Sri Lanka. The Indian-funded coal power

plant stalled due to public protests, and in 2016 the Sri Lankan court ruled against it, citing environmental concerns (Dhir and Sushil 2019). Even though China's coal plant also faced resistance, it was able to become operational, but India's coal plant was shelved. This indicates a shift in Sri Lanka's international relations towards China after a long period of close but at times contentious relations with India. The Sri Lankan government headed by President Rajapaksa was clearly seen as moving closer to China than India.

Around this time, public outcry against the environmental consequences of externally funded projects was increasing but the political impact of environmental activism varied between different projects and external funders. China proposed building a port city in the name of Colombo International Financial City by reclaiming 269 hectares of land from the sea, which threatened severe environmental impacts (Ruwanpura, Rowe, and Chan 2020). In contrast to India's coal power plant, activists could not stop this or other Chinese projects. This showed key factors at play: on the one hand, many Sri Lankans do not like India's regional hegemony, so it was easy to mobilize public support against the Indian coal power plant; on the other hand, China was seen as a friend and unlikely to cause damage, making the public less hostile. Furthermore, China's projects are taking place with active support from the government, whereas Indian projects are primarily to appease a powerful neighbor and lack the full backing of the Sri Lankan government.

The expectation among environmentalists and activists was that the court ruling against the Indian power plant would be the final nail in the coffin of coal power in Sri Lanka, but this was not the case. During the interviews, almost all the environmentalists, activists and members of the public said that they felt that the court ruling would change the tide towards renewables and coal would be phased out. In contrast, policymakers and bureaucrats felt the ruling would deepen Sri Lanka's energy crisis. They see coal in a favorable light and prioritize energy security over environmental concerns. Coal power plants have been included in the energy plans throughout, even though the stated policy has been to move towards renewables (CEB 2017, 2019). In 2020 amid the Covid-19 pandemic, the President of Sri Lanka ordered two new coal power plants (Wijedasa 2020). Domestic political-economic concerns thus superseded environmental and policy concerns and converged with the interests of external actors.

The three key external actors in the Sri Lankan energy spectrum have influenced, assisted, and dominated the Sri Lankan energy landscape and are expected to do so for years to come. As outlined in the Triple I framework, external actors have played a role in formulating policy, investing in energy infrastructure and providing technical know-how, within a context where socio-political-economic considerations act as opportunities and barriers. The following section will demonstrate how the three external actors made energy transitions a geopolitical battleground in Sri Lanka and how they shaped its energy pathways. The actors engage in different spheres: Japan influences policymaking and implementation; China does so through investments; and India through regional cooperation.

Global and regional allegiances and collaborations also come into play in the Sri Lankan energy context, especially in the form of two dominant but competing geopolitical initiatives. China's Belt and Road Initiative is the "new normal" in the South Asian setting and has challenged India, the US and Japan's sphere of influence in the region.

This has created new allegiances against China, such as India's Bay of Bengal Initiative, which is seen as a counter to China and supported by the US and Japan. Energy transitions are an area where both initiatives push for cooperation, cohabitation, and control in Sri Lanka.

Japan

Sri Lanka and Japan have cooperated closely since the end of the Second World War. Strong Buddhist roots and longstanding development cooperation are cornerstones of this (Ratnayake 2004). Japan was the largest aid donor to Sri Lanka until 2007 and remains the second largest (Weerakoon and Jayasuriya 2019). It was also the first country to offer aid to build a coal power plant in 1997, although it did not materialize (Ratnayake 2004). In 2006, Japan International Cooperation Agency (JICA) assisted the CEB with aid and technical support to plan and develop a comprehensive electricity sector master plan for energy generation, transmission and distribution for the whole country (ADB 2015). Coal became a central part of both the original master plan and the revised version supported by JICA ten years later in 2016 (World Bank 2019). The revised master plan includes expansion of non-conventional renewable energy sources, private sector participation, pumped storage power plants, optimal operation of coal thermal power plants, and utilization of LNG. JICA has been cooperating with CEB for a long time through technical cooperation as well as the provision of loans. Through the master plan, Japan influences Sri Lanka's energy policy. It involves financing through policy directives and creates space for its private sector to engage in Sri Lanka's energy sector.

One of the interviewees, who has a long experience of collaborating with CEB, was very critical of this relationship between Japan and the CEB:

Japan's longstanding cooperation and collaboration with the senior and middle-level officials of the CEB has had a lasting impact. Traditionally CEB engineers have always preferred high-optimised hydro and mini-hydropower generation. When coal was first floated as an idea, there was much resistance within the CEB. Sri Lanka has pioneered solar PVs from the 1970s. Further, a lot of people and experts felt that among available fossil fuel options coal is the worst. JICA over the years has built up its reputation as a coal champion, and visits to Japan's coal plants convinced a lot of CEB engineers that coal is a good option. Lately, Japan has floated the concept of "clean coal", which was bought by CEB without any critical outlook (06.01.2020, Colombo).

The CEB is the crucial driver of coal power plants in Sri Lanka, and Japan has been in the pipeline for several years to build a coal power plant in Sri Lanka. Japan argues that it has "clean coal technology" (Guan 2017; Yoshida 1997), and this claim is used by the CEB to justify coal plants. Japanese support for international coal plants has long been part of its export strategy (Trencher et al. 2019). The Japanese government provides funding to developing countries for new coal-fired power plants, and large Japanese multinationals provide their coal technology to build plants (Wallace 2019). Japan's primary tool has been its involvement in policy framing, which successfully intertwines policy and investment, thereby pairing with innovation in the name of clean coal technology to assert influence. The promotion of Japan's clean coal technology justified the building of coal plants based on cost-effectiveness, and environmental sustainability has the buy-in of the policymakers and politicians.

China and the Belt and Road Initiative

Sri Lanka and China also have a longstanding state-to-state relationship, cemented through the rubber-rice pact in 1952 that exchanged rubber for rice and was operational for three decades as a successful south-south cooperation project (Kelegama 2014). There is also a long history of political relations. The 1952 pact was signed when China was under sanctions; Sri Lanka supported China for its admission to the UN in 1971 and to the World Trade Organization in 2001 (Kelegama 2014; Fernando 2010). It is noteworthy that Sri Lanka-China relations have never been hostile, which is not the case with several other major states.

Over the last two decades, China has increased its presence and influence in Sri Lanka through several development projects. China offered to build the coal plant in 2006 that became operational in 2011. Sri Lanka was one of the first countries to be included in China's Belt and Road Initiative (BRI), and China's projects in Sri Lanka are part of the BRI. This inclusion is partly geostrategic. A former Sri Lankan foreign ministry official commented on China's emergence in Sri Lankan affairs as follows:

Since the new government came into power in 2005, Sri Lanka was looking for financial assistance. President Rajapaksa was looking for "no strings attached" options. China was ready to offer help without political conditionalities. It became the starting point of longstanding robust trade and political relations. China's non-interference in internal affairs policy is another foreign policy aspect, which pushed Sri Lanka towards China, where the West and India were considered making uncomfortable noises on local political issues. China's economic power, cordial relations along with its political stance gave them a freeride in Sri Lanka (10.06.2020, Online)

There have been two flagship projects in Sri Lanka under the BRI. One is the Hambantota Port project in the Southern part of Sri Lanka which gave China access to a vital east-west shipping route. The second is the Colombo International Financial City (CIFC). It is situated close to Sri Lanka's main port of Colombo, which is in a strategic location and a key transshipment port in the Indian Ocean. Both BRI projects underlined Sri Lanka's geographical importance and China's geopolitical interests. The port in Hambantota is now operational, and the CIFC is to be completed by 2040. Both projects raise energy demands and also have the facilities to produce energy. It is noteworthy that connectivity is the main goal behind the BRI sea route; therefore, typically, ports are the initial investment, followed by special economic zones, and then energy projects to facilitate the energy needs of the BRI projects. In the BRI sea route, Sri Lanka plays a key role along with Pakistan, Indonesia, Myanmar, Malaysia, and Kenya. Among these countries, all except Malaysia have low electricity production, and China has invested in all these countries' energy sectors.

In 2017 China offered to build an LNG terminal at the Hambantota harbor. It was announced in August 2020 that Sri Lanka launched a floating storage LNG trading facility at the Hambantota Port, with the primary aim of trading LNG in the region utilizing its strategic location. This was seen as a first step towards making Sri Lanka an LNG hub for South Asia, as Hambantota Port is strategically located near the world's busiest shipping lanes. China's financial capabilities and innovative technological solutions have prompted Sri Lanka to work with China toward building an LNG facility. The LNG terminal is strategic in many ways. It will sell electricity to Sri Lanka, provide electricity to Chinese investments in Sri Lanka, make the port in Hambantota independent, and

fuel the ships visiting the port. Overall, it gives China a stronghold in Sri Lanka. Through its financial might, China has consolidated its political capital, and its development projects have also given them considerable social capital. China has used all the tools of engagement discussed above. The harmonization of the tools has given more leverage than any other actor competing for influence.

India and the Bay of Bengal Initiative

China's growing presence and influence in its vicinity is seen as a challenge to India, which as a neighbor and regional superpower has a complicated relationship with Sri Lanka. India's intervention in Sri Lankan affairs through Indian peacekeeping forces in 1987 left a bad taste for cordial India-Sri Lanka relations (Pfaffenberger 1988; Bullion 1994; Ouellet 2011). Being a regional and emerging power, India has much influence in Sri Lankan affairs, and energy is one of them. Since the 1970s, both countries have explored the possibility of transnational grid connectivity (UN 2018; Huda and McDonald 2016). In 2002 with the support of the United States Agency for International Development (USAID), a pre-feasibility study was conducted and was updated in 2006. Both countries approved the study, and a steering committee was appointed in 2006 (World Bank 2008; Rodrigo and Fernando 2018). The scrapped coal power plant was part of the grid connectivity plan (UN 2018).

Nevertheless, Sri Lanka promised India permission to build an LNG facility instead of a coal plant. This shift to LNG was due to three key reasons. First, the Sri Lankan government felt that LNG would be less controversial than coal. Second, initial seismic studies showed the possibility of natural gas reserves in Sri Lanka, and an Indian conglomerate confirmed this in 2015 (Sirilal 2015). Third, India was insistent on building an energy facility in Sri Lanka.

India has for long been pushing for grid connectivity (UN 2018; Pillai and Prasai 2019; Huda and McDonald 2016). The initial plan was to set up a link for 1,000MW between India and Sri Lanka, of which 30 km would be under the sea. The transmission link was to run from Madurai in Tamil Nadu to Anuradhapura in Sri Lanka's north-central province. A foreign policy analyst said:

India is considering an overhead line instead of an undersea power transmission link since underwater transmission is costly. India is exploring the option of an overhead electricity link with Sri Lanka as part of India's strategy to create a new energy ecosystem for the neighbourhood to counter China. India is foreseeing the integration of energy systems and electricity gridlines by connecting with Nepal, Bhutan, Bangladesh and Sri Lanka (26.06.2020, Online).

An Indian energy expert who also works on regional energy ecosystems commenting on India's plan stated:

India has been supplying power to Bangladesh and Nepal and has also been championing a global electricity grid that may initially aim to link countries, such as Myanmar, Thailand, Cambodia, Laos and Vietnam, with the sub-continent. India's energy diplomacy initiatives range from cross-border electricity trade to supplying petroleum products and setting up liquefied natural gas terminals. Energy is one of the critical areas which will shape India's "neighbourhood first" policy (23.08.2020, Online).

The 2018 National Renewable Energy Laboratory (NREL) report suggests that cross-border energy trade between India and Sri Lanka will decrease the cost of generating electricity, but imports from India would displace over 69% of Sri Lanka's natural gas

generation, and Sri Lanka would export 14% of its generation to India. The noteworthy point is that India benefits most from this connectivity and Sri Lanka would become more dependent on India.

Fischhendler, Herman, and Maoz (2017) show with a comprehensive historical study that energy supply and sanctions have for long been used to gain leverage and control. In South Asia, through controlling electricity supply to its neighbors, India enjoys a virtual monopoly. The foremost case is India's grid connectivity with Nepal. Nepal has rich inland water resources and vast hydropower potential, but during 2008–2017 Nepal's net import increased from 638 GWh to 2175 GWh while exports were reduced (Gaudel 2018). India's regional energy geopolitics is based on its experience with Nepal. India is now trying to push through its grid connectivity plan through the Bay of Bengal Multisectoral Technical Economic Cooperation (BIMSTEC) and create a broader coalition to counter China's BRI. In contrast to China and a number of other countries, India is not a significant donor to Sri Lanka. Its policies are primarily guided by domestic factors, geostrategic concerns of the region, and economic considerations. India's energy ambitions go beyond coal, and it is not only about selling or constructing coal power plants. It is about regional hegemony, and energy is an instrument for this ambition. Through grid connectivity, India seeks to outmanoeuvre China in the Sri Lankan energy sector. China and India use the same engagement tools but in varying degrees and combinations. It shows that even though there are three engagement tools, the different permutations and combinations allow a variable sphere of influence.

BIMSTEC is a regional multilateral organization with seven member states. Its members lie in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional unity. India spearheads this, and it is seen as a counter initiative to China's BRI. In 2018 a Memorandum of Understanding for the grid interconnection signed by the member states sought to create a broad framework for the parties to cooperate towards the implementation of grid interconnections for the electricity trade to promote rational and optimal power transmission in the BIMSTEC region (Pattanaik 2018; Powell 2017).

The US and Japan see BIMSTEC as a legitimate counterforce to China's BRI in the region. In 2020, USAID, through its South Asia Regional Initiative for Energy Integration program, published a study to enhance energy cooperation in the BIMSTEC region. Likewise, Japan is considering BIMSTEC as a reliable partner in the region. Japan, through the ADB, is willing to invest in BIMSTEC regional power grid (Panda and Karthik 2020).

Meanwhile, India and Japan have entered into a partnership to build an LNG terminal on the West coast of Sri Lanka (Daily 2018). Both countries are also bidding for coal power plants in Sri Lanka. India's interest in energy in Sri Lanka was summarized as follows by an academic who is a geopolitical expert:

India is very keen to build an energy facility on the Eastern coast of Sri Lanka. Trincomalee harbour is strategically important for Indian naval security. India wants to have its presence since there is much resistance for Indian presence in Sri Lanka due to its history; energy facility is another way to have its presence felt. It is non-controversial. The facility can be either coal or LNG; it does not matter as far as India has a foothold (29.12.2019, Colombo).

Over the past two decades, India and Japan have been persistent about building coal power plants in Sri Lanka. Now both are building LNG facilities in Sri Lanka, which again shows that both India and Japan are vying for influence, and energy is an

effective and changeable platform. LNG presents them with a good opportunity where all three spheres of influence are in place, making the project much safer and most likely will not suffer the same fate as the Sampoor coal power plant. It also opens pathways into Sri Lanka's possible LNG exploration in future.

Sri Lanka's aggravated economic crisis has given more access and power to external actors since mid-2021; India has been the biggest beneficiary through newfound regional cooperation. In March 2022, India took over the proposed renewable energy projects initially awarded to Chinese companies in January 2021 through an ADB loan. Indian companies were also awarded a 500 MW wind farm project, leasing of oil tanks and oil distribution in Sri Lanka. These are significant gains, and energy has been used to reposition India as a strong neighbor. Likewise, the US has renewed its interests in Sri Lanka to counter China. It brings the BIMSTEC and US together in the Sri Lankan energy sphere. USAID began its new program in energy in Sri Lanka – the first of its kind – in 2021 and has awarded 19 million USD to energy-related projects. A US energy firm was able to secure an LNG deal overnight and has a long-term power purchase agreement with the government of Sri Lanka that undermines energy security and sovereignty. These latest developments point to the importance of energy as a tool of engagement and outline how energy has become a geopolitical battleground.

Summary

The Sri Lankan case has shown that energy has become an increasingly important space for geopolitical actors, where major states both converge in strategic alliances and compete and rival each other. The international actors have pursued different strategies for involvement, investment, and innovation, where innovation has been the weaker link within the triple I framework for all the actors. This has also been a contributing factor behind the slow diffusion of renewables and the growing dependence on coal. [Table 2](#) summarizes the actions taken by the key external actors within the realm of the triple I framework.

Energy transitions provide a space for the actors to make their presence felt using the tools of engagement. The Sri Lankan government has engaged with different international actors in the energy sector knowing well that there is contestation among them to assert control. In 2008, the Sri Lankan Prime Minister Ranil Wickramasinghe noted that Sri Lanka is part of the new phenomenon called “multi-layered regionalism” emerging in Asia (Wickremesinghe 2018). The competition for energy infrastructure projects in Sri Lanka is related to political influence, increased naval competition and economic advancement.

For a long time, Sri Lanka aspired to become a trade and maritime hub of the Indian Ocean region but failed due to civil war and financial constraints. Over the past decade, infrastructure in the form of harbors and terminals has been built through external support but creating new forms of dependence. The tools of engagement discussed in this article offer prospects for reduced oil dependence through energy transitions but may create new forms of path dependencies through technology and finance.

Conclusion

In recent years, global and regional order and governance have changed with the emergence of “new” powers. Actors who were at the margins of the geopolitical order are now

Table 2. Summary of external engagement within the Triple I framework.

Actors	Involvement	Investment	Innovation
Japan	Facilitated electricity sector master plan for Sri Lanka Power sector policy reform initiative with ADB	Financial assistance through JICA for energy sector Funding for Hydropower development	Technical support for CEB and “clean coal” concept Feasibility study on the use of LNG
China	Historical relationship provides space for policy influence Political relationship and “loan diplomacy” Social capital (China’s goodwill) transcends boundaries	Funded the first coal power plant and still maintains LNG facility in Hambantota Harbor Colombo Port city necessitates electricity needs Sri Lanka being part of BRI involves energy project funding	Chinese solar photovoltaics in the market China at the forefront in promoting LNG technology Chinese energy efficiency products in the market
India	Regional superpower status gives policy influence Cross border connectivity in the Sri Lankan energy policy agenda Outmanoeuvred China in winning bids to build solar parks	Controls Sri Lanka petroleum supplies Investing in LNG facility along with Japan Private investments in renewable energy projects Indian company provides coal	Private sector involvement brings new technologies and know how. Produces knowledge transfer through joint ventures
USA	Emerging actor in the Sri Lankan energy landscape Technical Assistance on renewable energy through USAID	US company awarded LNG deal Financing renewable energy projects	Innovation assistance to local electric car industry

at the core of geopolitics, giving rise to new power centers. Disputes are taking place between new allegiances and within new contested spaces.

The case of Sri Lanka indicates that the geopolitics of energy is at the forefront in reshaping relations. Traditional powers are diminishing, and new powers are taking lead roles. Taking lead roles exemplified by Sri Lanka’s prior longstanding relationship with Japan and new configurations created by the emergence of China and India’s renewed interest in cross-border energy trade. It was expected that the emergence of renewable energy would underplay the geopolitics of energy and create affordability and availability for developing countries, which will eventually help them achieve their climate targets. Energy has politicized the relations and has become a key foreign policy tool through different spheres of influence, as shown by the Triple I framework and the case study. As the case study demonstrates, there is a competition between the actors, but there is also an unholy alliance around coal. The actors push in the same direction but do that in different ways with special interests in mind. The energy transition is one of many new arenas for geopolitical contestation.

In the Sri Lankan case, energy transitions are used by geopolitical actors for three key purposes: 1) territorial control, where energy infrastructures have become routes to geopolitical manifestations; 2) hegemony, as part of the grand strategies and initiatives; and 3) influence, to gain a certain amount of control and counter other actors influence.

Developing countries have committed to high renewable energy targets, and yet they tend to miss them considerably. Energy has become a geopolitical battleground since countries fail to build up indigenous capacities and know their energy sources and are in need of a long-term sustainable and coherent energy transition policy. If not, they will continue to be dependent on external actors that, in turn, could create monopolies, debt, political tensions, security threats and policy challenges.

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Article V

