

For politics, people, or the planet? The political economy of fossil fuel reform, energy dependence and climate policy in Haiti

Keston K. Perry

University of the West of England

keston.perry@uwe.ac.uk

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Abstract

The uneven effects of the climate crisis and the need for decarbonization by reducing fossil fuel exploitation and eliminating subsidies create critical trade-offs and tensions for low-income developing countries. Recent reform of fuel consumption subsidies has shown a perennial mitigation bias largely imposed by external forces, in particular multilateral agencies and foreign governments in the context of the Paris accord. Contradictorily, external pressures to reduce subsidies have created competitive markets for multinationals to have a disproportionate role in supplying energy products, which foreground the inequities in Haitian society that have spurred social and political conflict. Empirical work on energy-subsidy reform and climate policy do not sufficiently interrogate the interplay and implications of underlying assumptions, power imbalances between domestic and foreign actors, the challenging infrastructural and political context of renewable energy promotion, and immediate concerns to address worsening social conditions and development priorities. Drawing upon these policy debates, this paper considers the recent experience of Haiti to reform its energy subsidies required by the International Monetary Fund to enforce austerity. The paper takes a more integrated and critical approach to these policy discussions in a context of interconnecting political, socio-ecological crises, and climate policy in Haiti. By inductively analyzing Haiti's main climate and energy policies and evidence drawn from field experience, the paper offers a more nuanced understanding of decarbonization and energy debates in this extremely vulnerable context. This approach gives priority to a more dynamic historical analysis of the socio-political context and factors that seek to advance climate justice.

Keywords: fuel subsidies climate policy; energy justice; Haiti; sustainable development; socio-ecological crisis

1. Introduction

Since the 2015 Paris Agreement, growing concern by international agencies and climate movements have increased pressure to make drastic policy changes that would enable transitions towards renewable energy and the phasing out of fossil fuels. The increasing attention to fossil fuel use and subsidy elimination have shifted interests away from concerns affecting many low income countries that face immediate political and social fallout from the rapid removal of fuel subsidies. The large numbers of people in poverty and dependent on low cost fuels to generate incomes and meet their day to day living expenses are left in dire straits when such reforms occur unexpectedly or without an adequate welfare support system. First, without immediate availability of renewable sources of energy already in place to meet the demand, and second without the social transfers and redistributive policies that can offer financial and income support, these policy shifts can bring about misery. As a result the mounting policy failures and reversals often may worsen the situation.

In the first place, the policy shifts do not consider the distributional implications at a social level, and conversely have little regard to the overall development conditions of the country where they are promoted and implemented. These policies, often touted as necessary to meet the demands of the climate crisis [1] suffer from a mitigation bias [2,3]. In the Caribbean and other low income countries like Haiti, the high cost of energy alongside widespread incidence of energy poverty and infrastructural challenges have historically contributed to the high level of carbon-intensive energy imports; their entire economic systems are heavily reliant on foreign energy producers making the transition to renewables appear distant and fraught with multiple intersecting challenges [4–8]. Haiti also exhibits extremely high levels of environmental exposure compared to other Caribbean territories, as it has the largest number of deaths caused by natural disasters,

with estimates as many as 8,608 from 1980 to 2009 [9]. Recent measures to stem fossil fuels subsidies has resurfaced concern about who is bearing the burden of the climate crisis and the mitigation bias of climate policy expressed in the current financing arrangements meant to support developing countries [10,11]. In 2017, while overall public financial flows to developing countries through bi-lateral and multilateral aid channels for climate action increased by 44 per cent, only a fifth of financial resources are allocated to adaptation efforts compared to mitigation [11]. This stark disparity, while acknowledged in the literature, remain under-emphasized in global policy discussions and financing towards climate actions [12,13].

Moreover, these imbalances mirror the contradictory and conflicting policy priorities of developed countries considered most responsible for the climate and ecological disaster which continue to subsidize international expansion of fossil fuel energy in developing countries [4,5,14]. As shown by the 2017 hurricane season where island nations in the Caribbean were devastated by mega storms Maria and Irma, and more recently by Dorian, any focus on climate mitigation targets may be misplaced as they do not meet the immediate needs of developing countries to stem the disproportionate effects of a changing climate and to and to increase their adaptive capacity in the face of higher sea levels, ocean acidification, loss of livelihoods, and more ferocious storms [15,16].

Through a number of powerful international institutions, notably the International Monetary Fund (IMF), the Organization of Economic Cooperation and Development (OECD), the International Energy Agency (IEA), rich Group of Seven (G7) countries dominate the subsidy reform debate and are able to disproportionately, using traditional financial and political levers, impose indirect actions or sanctions on relatively poorer and institutionally weaker countries [17,18]. For instance, via recent IMF loan programmes in Ecuador and Haiti, they have

been able to make requests for changes to such regimes that have had harmful political and social consequences. . Notwithstanding, evinced by the quantum of fossil fuel subsidies that are still prevalent in China (\$1.4 trillion), United States (\$649 billion), Russia (\$551 billion), European Union (\$289 billion), and India (\$209 billion) [19], the forceful demands made on low income countries get at the heart of the unequal burdens of the costs and benefits towards meeting mitigation targets in the Paris Accord [20–22].

This unequal relationship reflect not only asymmetries between developing countries and their rich country counterparts in material and political terms, and in policy debates, but can equally aggravate environmental and humanitarian crises and retard policy actions – a scenario well known to Haiti [23]. Eliminating subsidies can thus compound these already pressing everyday issues of people satisfying their nutrition and income needs and can trigger a vicious cycle and lead to political violence [24]. For instance, removing fuel subsidies can create immediate pressures on low-income groups affected by the subsequent rise in fuel costs as their livelihoods, dependent on lower prices rendering them unable to tolerate these adjustments [25,26]. These dynamics equally manifest as consistent encumbrances on sovereignty in political and policy terms [27].

Anchoring the fuel subsidy the debate, this paper contends therefore that in conformance with heterodox political economy that a combination of social, political, historical and institutional factors embedded in the economic structure of a country can help generate these potential outcomes. The overreliance on external forces, in this case, energy imports or aid can trigger certain sustained violent reactions and simultaneously have institutional effects on the quality of policy output. I argue that given the embedded and contradictory forces at play in a low income country, these multiple dimensions and events in the context of a crisis of legitimacy

are intrinsic to climate policy, which can limit its effectiveness. These socio-economic and institutional dynamics , often interact with each other and thus have varying yet intersecting effects on development needs [28] . External pressures on major policy issues such as climate policy can thus have two possible effects: follower-type policies, where the weaker party in the relationship conforms to the decision in broad terms, with or without the use of concessions to parties affected by the new policies. Second, agent-centered policies, which may stir outright contestation and social disturbance, may include an adaptation of the policy that responds to political circumstances to render them feasible (or impractical) in the context or acceptable (unacceptable) to the actors with the most veto power to challenge them, and thus become embedded in existing inequities. An equal result may include the reversal of policies or a diluted version of the policy that incorporates some concessions and limited political contestation to the decision in the long run.

This is illustrated in Haiti's recent experience. Compounded by the fear of defaulting on loans and not receiving further international fiscal support, and ensuing political/economic uncertainty, the government announced its intention to cut fuel subsidies on petroleum products. In the wake of this announcement, violent protests erupted during the summer football World Cup, and lasted from July 6 to 8, 2018. Earlier that year, support from the PetroCaribe program also came to an end, and triggered increasing worry about fuel shortages that turned into massive protests/political disagreement around corruption and social concerns. Given the pervasive effects of global phenomena on policy debates in Haiti, these events also foreground the unique nexus of climate change and energy subsidy reform.. This paper addresses the tensions between global policy demands and local political and social dynamics. It further

acknowledges the complexity of these tensions and their implications in framing an integrated analysis.

Following this introductory section, the paper reviews the literature about the political economy of energy poverty, the social and political costs and burdens of mitigation-oriented policies relative to low income countries, and recent fuel-subsidy reform experiences in Section 2. Then, the paper presents the data and research design employed in the paper in Section 3. Based a comprehensive analysis of the interconnecting areas of climate and energy policy in Section 4, Haiti's dynamic history forms the basis for a political economy investigation. The paper thus offers formative and relevant empirical insights about such reforms in a low-income country. In the conclusion, the paper provides context-specific lessons from a low-income country relevant to recent scholarly and policy interest given the contribution that eliminating fossil fuel subsidies may or may not make to improving development prospects in the context of climate and socio-ecological crisis.

2. Literature Review

2.1 The nexus of climate change and energy poverty: global and local dynamics

The specter of climate change in the context of widespread energy poverty loom large for many vulnerable low income countries, especially as action to stem the use of fossil fuels has strengthened in recent times. The disparity concerning energy use and access among developing countries and more industrialized nations is evident even as several international agencies emphasize the transition to energy sustainability and meeting mitigation targets set out in the Paris Agreement [2,13,29]. Energy poverty refers to (a) lack of access to electricity grids or (b) reliance on burning solid biomass, such as wood, straw, and dung, in inefficient and polluting

stoves to satisfy household energy needs [30]. Recent research acknowledges the poverty and inequality effects from increases in global warming are not shared equitably among countries with historical responsibility for the concentration of greenhouse gas emissions, and those which suffer from lower standard of living due to the worst effects of climate disaster [31]. According to the World Energy Outlook (2018), 700 million rural households in Africa would remain without access to modern energy services up to the year 2040, or about 40 per cent of the world's population, with little advance to be seen to minimize the current heavy reliance on traditional biomass used indoors as cooking fuel [32].

The distribution and quality of energy access varies depending on rural/urban geographical divides and determined by socio-technical drivers and political economic factors that are particularly acute in developing regions [30,33]. Part of the responsibility for these enduring inequities relate to the disproportionate demands made of developing countries in international agreements since the 2000s, including the Paris Agreement [18,22,34,35]. These mitigation targets which are emphasized in climate agreements relate to expanding provision of renewable energy and reducing activities that do not generate greater levels of emissions [1], which are confronted by complex social realities and political dynamics in developing countries [36]. These trade-offs and tensions are not straightforward. However, for some scholars tackling climate change, reducing indoor pollution from wood fuels and increasing access to modern energy services are not mutually exclusive goals for low-income countries [37].

In this way, policymakers can adopt an approach whereby energy policy represents a series of interventions and 'policy mixes' that seek to target different wicked problems. However this strategy may be fraught, and can bring about a series of new obstacles and unintended possible outcomes including new political battles and further discontent [38,39]. This tension lies

at the heart of the unequal exchange among powerful actors like multinational corporations or governments in advanced economies that subsidize the continued exploitation of these resources, foreign sale to import-dependent developing countries like Haiti, and repatriate profits from such activities to their headquarters [4,5]. No certain or clear path therefore exists for meeting climate goals and satisfying the energy needs of the population

Other scholars argue that by approaching climate policy with a synergistic lens that seeks to build complementarities between mitigation-centered and adaptation-focused measures and activities that would generate co-benefits and simultaneously impact reducing greenhouse gases and assist countries and communities to internalize the effects of climate change and boost resilience in infrastructure, agriculture and national priority areas [2,40,41]. However, much of these discussions surround the technical feasibility of bringing certain administrative segments and new sets of policy tools together [40]. They proceed without an analytical focus on correcting the already existing impacts of past policies and actions that may have created political asymmetries and socio-ecological crises in the first place [42,43]. Therefore, such technocratic discussions do not take into account the ‘non-economic costs’ and aspects of environmental justice: distributive, which is concerned with the uneven distribution of climate impacts; procedural, that is, the degree to which these discussions of, and policy responses to, climate change impacts are inclusive, as well as the transparency and accountability of the institutions addressing the needs of the most vulnerable; and recognition which refers to the degree of equality and equity, and the level of legitimacy given to the differentiated experiences of climate change [15,16,21,44,45].

Moreover, scholars that emphasize technical and political possibilities of combining adaptation and mitigation concerns and targets address little the burden of change and the justice

claims of low-income countries [45], the political economy and geopolitical constraints [46] in addition to the infrastructure and cost challenges and the substitutability challenges of fossil fuels for renewables that arise as a result of the aforementioned [30,47]. In other words, the ‘costs of transition’, that is the political costs associated with the movement from one energy regime to another that would affect constituencies in different ways when the new policies and socio-political arrangements are put in place, are not adequately considered in these conceptual arguments and empirical work [47,48].

From an exogenous perspective, the power structures associated with mitigation discourses refer to distinct constituencies, in particular fossil fuel companies, international agencies and increasing climate divestment movements. The external pressures that they apply to countries would influence, even limit, the domestic policy options, the conceptual framework for policy analysis, the technical and economic resources made available, depending on the country’s level of development and links with international economic actors. Similarly, internal institutional structures including powerful interests like fuel or energy-intensive importers, government leaders, and the distribution of power among them would either open up or narrow space for political action on addressing interconnecting social development and climate issues [3,49,50].

Moreover, the increased attention by international agencies to reducing subsidies for fossil-based fuels has translated into significant policy attention in terms of mitigation-related actions by developing country governments [49,51,52]. Shifting from a rhetorical level, increasing amounts of resources are being directed in this respect for deep decarbonization [53]. Meanwhile the application of carbon taxes that place a price on polluting activities has dominated policy discussions in advanced industrialised countries [17,54]. In these discussions,

however, this discrepancy does not consider the history of carbon emissions and the role played by now industrial nations. Policy responses thus reflect the unequal power dynamics between poorer, which have lower levels of emissions than rich countries [22,55], and have thus had limited impact on overall reductions of carbon emissions [56]. Historically, for instance in order to secure adequate energy supplies, advanced industrialized countries, once subsidized energy production in former colonies and in developing regions where they had commercial production activities and interests, including the Middle East [57]. An amplified concern about subsidy reform in climate debates equally shows the need to integrate overseas development aid, energy reform or climate finance as a tool for improving for renewable energy deployment but has not yet been fully incorporated in the agenda [58–60].

Overall, these developments also point to the complexity of the climate governance landscape as one that increasingly involves a variety of actors deploying differential means of influencing change, as well as the complex nature of competing priorities at the national and transnational scales that create contradictory economic and sustainability demands upon developing countries. These contradictions have in effect entered the climate policy debate [61–63]. In developing countries such as Haiti, where a number of targeted programs were envisaged but lapsed in implementation before the 2018 [64], after initial announcement to remove subsidies, the International Monetary Fund claimed a gradual instead of full-scale removal to quell opposition [65]. This policy trend has prioritized efficiency improvements and created a new source of profits for multinational energy firms. Broad-based social support and holistic developmental initiatives suffer in its stead. [8].

2.2 Recent fuel subsidy reform experience in the developing world

To offer a history of this debate, after the G20 meeting in 2009¹, subsidy reform resurged in scholarly and policy circles especially regarding why reforms are successful in some jurisdictions and not in others. Studies show that popular resistance to subsidy reduction or elimination arise due to several factors, including misinformation about the implications of reform, lack of social contract and trust in leadership, low-level perceptions of government effectiveness, and inadequate compensation for poor households that are severely impacted by price increases [25,26,36]. This extant corpus of work often takes the need for reform and the benefits of such reforms as given, without much exploration of the complex interactions and systemic effects of reforms that interact with the specific socio-economic, political and environmental context. –The level of development, climatic vulnerability and overall access to energy services are often not considered prior to introducing such policy changes [61,66] . For instance, these factors are complicated by the prevailing conditions in Haiti and other low-income regions. In several cases, outright public resistance has resulted in the rescindment of reforms or their partial reinstatement [17].

Table 1. Recent policy developments (direct and indirect subsidies) in developing countries²

Country	Production	Consumption	Nature of reforms
Argentina	×	×	January to March 2017: increased electricity prices for most residential customer classes. Total consumption subsidies decreased by 35% in 2017. 2016-2017: Production subsidies decreased by 37%.

¹ In its September 24-25, 2009 communique in Pittsburgh, the G20 announced its intention to take action to “rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption”. Available from: <http://www.g20.utoronto.ca/2009/2009communique0925.html>

² Available from https://www.iea.org/media/publications/weo/Recentdevelopments_2017.pdf

China		×	2014-2017: petroleum pricing reforms have cut down central and provincial level government outlays by 50% and 90%, respectively.
Egypt		×	October 2016: raised gasoline prices (RON 92) by 35% to 3.5 EGP and diesel prices by 31% to EGP 2.35 to reduce subsidies July 2017: raised prices of gasoline by 55% to EGP 3.65 to reduce consumption transfers
Bangladesh		×	February 2017: increased gas price for power, industry, commercial and residential sectors to reduce consumption transfers
India		×	2013-2017: fuel price liberalization reduced government outlays or consumption subsidies to oil-marketing companies by 80%
Indonesia		×	February 2017: gradually reduced subsidies and increased electricity prices for 900-VA customers by 32%
Kuwait		×	May 2017: increased electricity prices for the commercial sector
Malaysia		×	December 2016: increased gas prices for power sector and industrial customers by 7.6% to 21.20 RM (\$5.2) per MMBtu, and by 5.8% to 27.35 RM (\$6.7) per MMBtu, respectively.
Mexico		×	January 2017: LPG price liberalized to reduce the amount of government subsidy provision March 2017: liberalization of gasoline and diesel prices in the states of Baja California and Sonora
Mozambique		×	March 2017: increased gasoline, diesel, kerosene and LPG prices to reduce subsidies
Pakistan		×	January/February 2017: increased prices of gasoline and diesel to consumers previously benefitting from transfers
Zambia		×	May 2017: increased electricity tariff for all consumers by 50% to eventually eliminate subsidies

			September 2017: plans to increase by 25%
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Adapted from OECD [67,68]

This strand of research suggests that effect of subsidy reform varies across contexts and constituencies, dependent upon the level of commitment to and how much groups may benefit from the status quo. For instance in India, protests and social unrest followed the decision to cut subsidies on kerosene especially among farmers and the urban middle class, where as many as 40 percent of the population experience energy shortages and lack access to modern energy services [26] . Similar uprisings were witnessed within countries of varied political systems such as Nigeria, Jordan, Indonesia, Sudan and Iran [17,69] . Scholars have acknowledged that reasons for political challenges to subsidies include increased hardship on the poor and vulnerable, the influence of ‘vested interests’, inflationary effects, reduced competitiveness, and a potential rise in unemployment [24,25]. In addition, these studies utilize political economy analysis as an instrumental tool for incentive adjustment or for validating why ‘good’ reforms are not working or have not been implemented (for examples, see [69][70]). For instance, in Ecuador, political priorities to redistribute income to the population from natural resource rents and booms have confronted the international demands to keep fossil fuel assets stranded without an immediate mechanism that compensates those communities reliant on the resources into the future [21,71] These studies may however fail to acknowledge that fuel subsidies are a form of universal social provision that provides the basis for pro-poor developmental policies that shift the distribution of political and economic power and deliver public goods [72,73].

While an increasing number of studies pay attention to the political and institutional context labeled as ‘political economy’, few give detailed consideration to the specific global,

social, historical and institutional dimensions of subsidy reform in the context of climate policy and unstable governance in territories like Haiti..

As international agencies make increasing demands on developing countries, recent work using multiple models and oil price adjustment scenarios has found that cutting all fossil fuel subsidies would have only a limited impact on global energy demand by 2030, and on greenhouse gas emissions – a reduction of between 1 and 4 per cent under both low and high oil price scenarios [74] . In low-income countries, where households spend a disproportionately higher share of income on fuel and power, there would be a negative impact by the widespread removal of subsidies [69] (. Without action from large oil and gas-exporting high income groups greater than countries' current National Determined Contributions (NDCs) under the Paris Agreement, subsidy elimination would affect fewer numbers of people in poverty [74] . It therefore follows that institutions largely controlled by industrialized countries are now demanding removals of fuel consumption subsidies in other countries consistent with prevailing macro-economic policy norms that seek to create new markets. These studies limit the analytical scope in this way by expending less effort exploring the complexity of institutional factors under conditions of already existing energy poverty and global inequality.

These studies thus employ a static political economy model that assumes *ceteris paribus* that subsidy elimination will have positive economic effects, and assume that shifting from one policy regime to another, or re-directing some potential savings therefrom to social and public services will automatically have developmental effects. Accordingly, the assumed misallocation of resources would have benefits in reducing consumption of fossil energy sources and provoke an automatic shift towards renewable energy [75]. These narrow political economy studies *a priori* decide which policy options are optimal, and in the process reinforce a particular hierarchy

of power. The demand and supply of fossil fuels are not equally tackled and the infrastructural and institutional requirements for equitable renewable energy provision in low-income countries are relegated and market access is promoted. As a result, currently, already rich countries do not receive the same levels of pressure to contribute to rapid decarbonization, maintain current levels of subsidies and goals for increasing output growth. .

3. Data and research design

The study adopts a single case study research design and inductive research strategy. The investigation thus delves deeply into the global and local political configurations that have historically, and in more contemporary times affected discussions about energy and climate policy in Haiti. This history is replete with the multiple crises and experience of energy dependence and biophysical and human adaptations to disaster and unequal power in Haiti that have stressed the outsized role of international players in the country's political economy [23,27,76]. As one of the most vulnerable countries globally to the effects of climate change – with relatively limited financial and technical resources to address the threat [5,60] , an examination of recent reform approach can offer formative and useful insights about such experiences in a low-income country. Haiti's dynamic history offers useful evidence for analysis of the nature, type and range of interventions from domestic and international political actors in energy that have worked or not worked related to its use, production and availability..

3.1 Data Sources and sampling

To do this, a number sources of data collection and approaches to tracing and explaining these policy arenas were utilised namely documentary analysis, a constructed database, public data, and insights drawn during field visits in April to November 2018 to Haiti. Two methods are

useful in order to substantiate findings across data sets and thus minimize the effect of potential biases in the research design [77,78]. First, this study utilizes relevant aspects of a bespoke database that was constructed based on multiple international sources of climate finance drawing primarily upon multilateral donors' aid like multilateral fund databases such as the Global Environment Facility, Green Climate Fund, and the Inter-American Development Bank to Haiti in the area of energy and climate-related projects [60]. This database contained ongoing projects that were classified as either mitigation, adaptation or both, but most were initiated during or after 2015. This database helped demonstrate the degree of policy coherence – i.e. how national priorities are met and funded and the areas to which international funding is directed. The database also gave information about past and ongoing mitigation and adaptation projects based on region, scale and effectiveness, the attendant the internal political context and contestation between national stakeholders and policy officials and demands of international financiers [see 60] .

A number of published, unpublished reports, historical materials and newspaper reports and existing secondary literature about events that led to the decision to eliminate fossil fuel consumption subsidies were consulted. This secondary information provided the context, motivations and responses of various sections of society and powerful interests including the government, donors, citizens, the diaspora, and the international players, in particular the IMF integral in the subsidy reform attempt. The main policy documents were identified by officials of the Ministry of the Environment and the United Nations Development Program who confirmed their representativeness and relevance during the field visits in April to November 2018. Learning about the process and underlying tensions of decision-making power and perspectives of various actors during field visits enabled deeper exploration of the political economy

dynamics. The corpus of policies were selected based on a purposive sampling technique using the annotated document to draw out the relevant policies from a broader database of policies on related issues and included those from the early 2000s to 2017. The end result was a sample of eight documents from 2006 to 2017 that focused on both mitigation and adaptation (see Table 2 below). In addition, it contextualized the database and other publicly available data on energy production, imports and consumption, CO2 emissions and electricity production from the International Energy Agency, International Monetary Fund, U.S. Energy Information Administration, and the World Bank. Reports and data were also obtained from the International Monetary Fund and World Bank which detailed their advice and decisions taken by authorities in Haiti on the macroeconomic and social policy aspects related to fuel subsidy in Haiti. **Table 2.**

Climate and energy-related policies under analysis

Climate Policies
1. National Climate Change Policy (2015)
2. National Adaptation Plan of Action (2006 and 2017)
3. National Determined Contribution (2015)
4. 1st and 2nd National Communiqué on Climate Actions
5. National Plan for the management of risks and disasters
Energy-related Policies
6. Haiti Energy Sector Development Plan (2007-2017)
7. National plan for a sustainable energy system in Haiti
8. Scaling Up Energy Program

Source: Author.

The combination of these sources offered much insight into the conditions that led to the recent political riots and ongoing struggle to address justice claims of protestors.

3.2 Data analysis procedures

The paper employed document analysis. This method provided background information and historical insight into past and contemporary efforts by the national government to tackle climate change.

The main policy documents were first analyzed and summarized as an annotated document to show the main issues of concern, stakeholders involved and policy objectives. Then, a comparison of the main policies were undertaken to draw out the main themes relevant to climate action and energy issues, the actions, design instruments and policy outcomes that constituted political and development agenda. These materials were further analyzed where selective passages that took into account the major themes of the study to understand the global and domestic political arrangements and their impacts on energy provision and climate action in the areas of adaptation and mitigation. These passages provided the basis to explore the relative weight given to mitigation/adaptation priorities of and funding provided by international agencies and donors in the consumption subsidy debate shown in the database, as well as social and political considerations defined at a national level. This final procedure thus involved corroborating elements from the constructed database, newspaper accounts, the relevant policy proposals and outputs and triangulation of documentary evidence with insights from fieldwork visits [77].

In order to draw certain causal linkages and explain the relationship between the energy sector and climate change policies through a historical cartography, the paper utilizes process tracing technique [78,79]. It shows how policy focus on adaptation concerns have been prioritized as opposed to mitigation linked to energy subsidy reform creating a fragmented institutional apparatus. We highlight how the unevenness in political contestation and conflict

are interlinked with the nature of the political economy, reliance on and power of foreign energy producers, and the failure of subsidy reform to respond to social and political concerns and to take account of the development context that is increasingly defined by climate change [80]. The researcher's presence during the 'justice riots' of July 2018 and discussions with various actors within government and outside especially stakeholder workshops. Field visits thus provided much needed contextual insight about general conditions, institutional politics, justice claims and political tensions. These investigations excavated important nuances about climate justice and how power imbalances affect policy coherence to address Haiti's major climate-energy and shaped ongoing challenges by the population to the status quo. The next sections offers an historical account of the evolution of the use and production of energy in Haiti.

4. Results and discussion

4.1 The historical and institutional context

Haiti is situated on the western part of the island of Hispaniola, located in the Northern Caribbean Sea with a population of 10.6 million inhabitants whose colonial and political history affect its current development. The country's widespread impoverishment and marginalization and ecological degradation make Haiti particularly susceptible to climate change. About 96 percent of its population are exposed to natural hazards, with 80 percent of extremely poor households and 70 percent of moderately poor households experience an average of at least two environmental shocks per year [81]. The vast majority of the extreme poor (80 per cent) live in rural areas, where agriculture provides livelihood for nearly 70% of Haitians, through small-scale subsistence farming. From 1980-2009, Lopez-Marrero and Wisner (2012) noted that majority of

related deaths in Haiti resulted from floods and landslides caused by hurricanes and environmental episodes and exacerbated by the country's steep landscape, unsteady slopes, and widespread deforestation. Its geographic location in the Atlantic hurricane belt as well as its landscape, land use practices, high levels of inequality, high population density, dependence on foreign aid, and inadequate infrastructure and public services contribute significantly to its climate vulnerability [80,82]. According to Germanwatch³, which publishes the Global Climate Risk Index, based on data from 1997 to 2016, Haiti ranks among the top three countries most exposed to extreme weather events like storms, flooding, and droughts [83]. According to this study, in 2016, in terms of climate change related impacts, the country incurred up to 17.2 per cent loss of its Gross Domestic Product (GDP) and 613 deaths amounting to 5.65 per 100,000 inhabitants. In October 2016 alone, Hurricane Matthew caused catastrophic damage in the country, an estimated value of US\$ 2.8 billion, or 32% of GDP [84]. According to Haiti's Nationally Determined Contribution (2015), adaptation and mitigation needs amount to US\$25.387 billion – mitigation estimated at US\$8.773 and adaptation a further US\$16.614 billion [85].

4.2 Mapping the energy sector in Haiti

The history of energy in Haiti is tied to its history as a former colony and relationship with external forces that have exploited its natural resources and enslaved African labour to establish a lucrative plantation economy. European powers brought destructive environmental

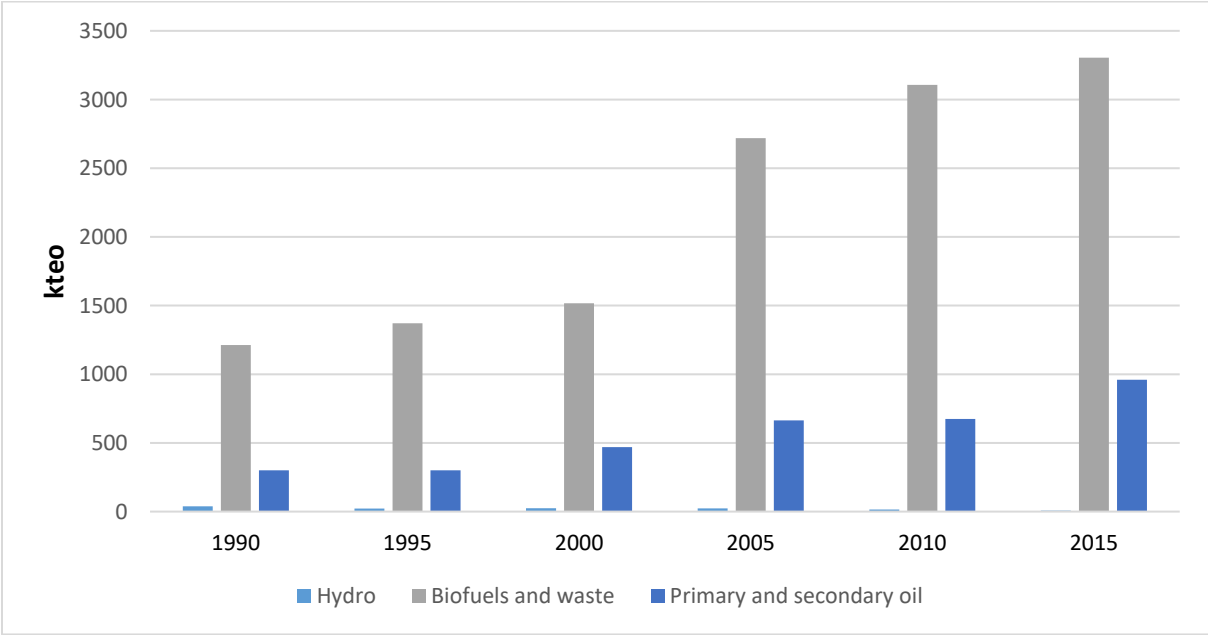
³ Germanwatch collects its data for enumerating the Global Climate Risk Index from the NatCatSERVICE database of the reinsurance company Munich Re, as well as the socio-economic data of the International Monetary Fund (IMF).

practices and systems of exploitation and sought to create a colony that drew heavily on the land and its natural resources to produce for profit for traders and merchant planters. After a major revolution in 1791 led by enslaved leaders, Haiti declared its independence in 1804 and have suffered the consequences of this bold feat that resulted in the new Black nation paying considerable external debt of 150 million francs to France for the latter to recognize its sovereignty [27]. From henceforth, the wrangling between external and internal forces for control and sovereignty has persisted. Its exploitative economic structure and unstable political climate were also a product of this revolutionary and complicated past. . With its colonization and establishment as one of the richest sugar territories in the Caribbean, it became reliant on and fell into the sphere of American corporate influence (especially during the early 20th century occupation) for fossil fuel energy sources to drive agricultural exports of sugar, lumber and coffee[27,42]. Its history thus represented a shift from a degree of resource independence to a position of reliance on external authority and successive interventions and embargoes imposed by foreign powers [27,42]. In modern times, foreign interventions have precipitated unbalanced socio-economic conditions and environmental degradation have generated ongoing crises [23]. Increasingly, wood resources became commodities that enabled Haitians to earn an income that was hitherto not possible, and later became a ready source of fuel for households.

The 1973 Arab oil embargo that spiked international oil prices and reduced imports for countries, at the time, unable to acquire goods and primary energy resources from abroad, which prompted the massive use of wood fuels across developing countries [86]. One study highlighted an example of a 1978 USAID project that sought to develop low-cost rural technologies for food, fuel, power and water systems but was inappropriate for the Haitian context [87]. Haiti's massive external debt, high levels of inflation and foreign exchange constraints also prompted massive

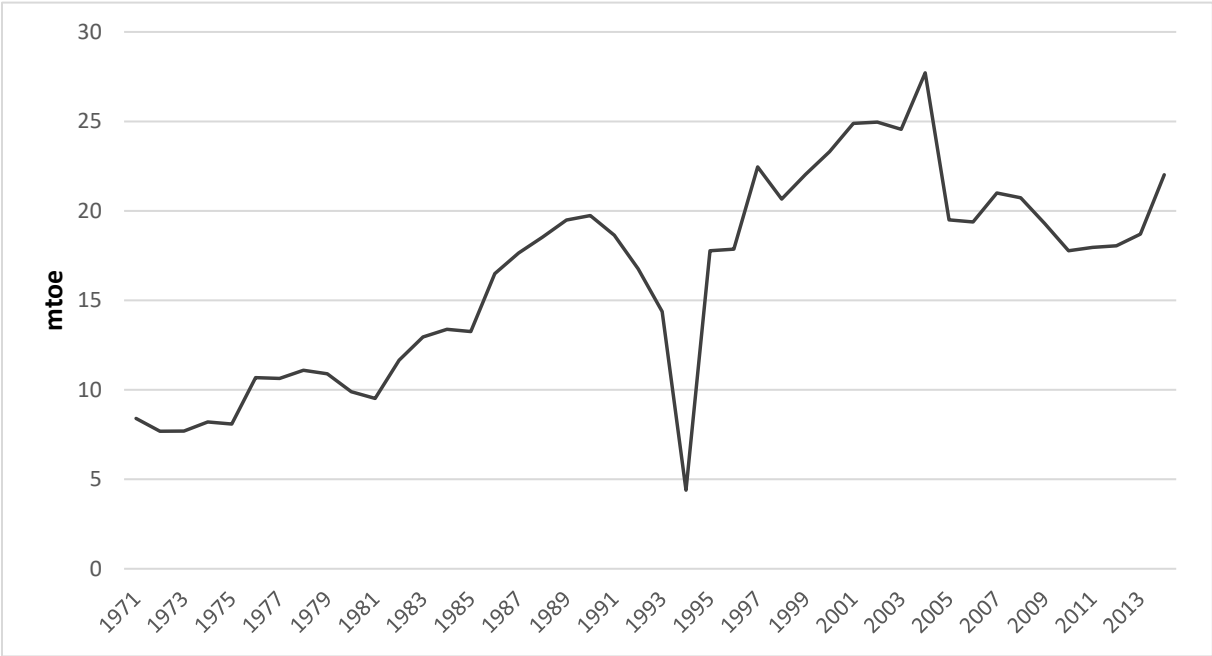
use of wood for export to gain foreign exchange to pay its burdening debts [88]. Due to a lack of readily available alternative sources of energy, wood fuel and charcoal make up about 80 per cent of the country’s primary energy supply (see figure 1), with 95 per cent of households using charcoal as the main source of cooking [89]. Over time, the promotion of markets, predominance by foreign powers controlling local resources and inconsistent domestic policies, and instability have contributed to an ever-increasing dependence on foreign sources of energy to meet commercial and household needs.

Figure 1. Energy Supply by sources (1990-2015)



Source: IEA World Energy Balances 2017 - <https://webstore.iea.org/world-energy-balances-2017>

Figure 2. Net energy imports (% of energy use) Haiti



source: World Bank Development Indicators (IEA records)

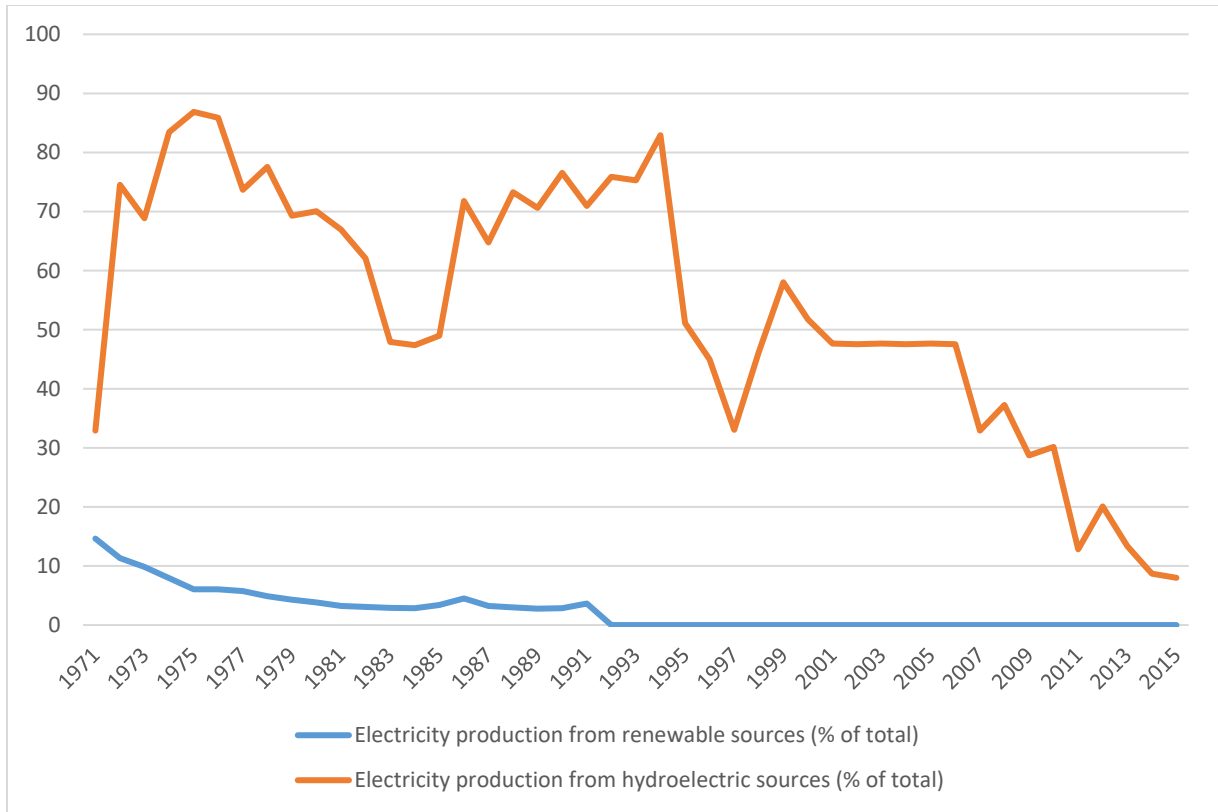
As Figure 2 illustrates, energy imports started to pick up in mid 1970s, just after the global energy crisis in 1973, and fluctuated based on domestic needs and political circumstances. In 1993, a major political shock occurred in Haiti when the United Nations Security Council passed a resolution that imposed a worldwide fuels and arms embargo against Haiti that ran until 1995. This was complicated by a political standoff between the US Navy and Haitian army, the latter at the time opposed the return of elected President Jean-Bertrand Aristide to the country. This precipitated a rapid decline in the availability of oil fuels and return to use of wood and charcoal (see figure 1).

Given the general level of impoverishment in Haiti, energy poverty plays a major role in the country’s level of development, as many as 75 and 85 per cent of the population can be considered without access to modern energy [90]. Only 15 per cent of inhabitants, primarily in

urban Port-au-Prince have access to electricity supply where outages are regular. Supplies offer coverage of a few hours of electricity access a day across several parts of the country, with rural areas chronically under-supplied. The country further became dependent on fossil fuel imports, amounting to around 85 per cent of energy provision, with hydroelectric power through the Péligre hydroelectric plant offering the remainder [90]. Haiti has one of the highest costs for electricity in the Western Hemisphere of \$0.35/kWh, above the Caribbean regional rate of US\$0.33 per kWh, with fuel imports for electricity valued at 7 per cent of annual gross domestic product (GDP) [91]. High energy costs have been supplemented by development aid for electricity access using primarily fossil fuels [5,82]⁴. At the domestic level, consumption subsidies for electricity generation is estimated at US\$300 million that is primarily directed at the state-owned utility Electricité d'Haïti (EDH) that has monopoly rights [91]. Haiti's per capita use of electricity is the lowest in the Caribbean area and one of the lowest in the world with an estimated 36 kWh annual electricity consumption rate per person [91]. The population's access to energy has been shaped by ongoing geopolitical games and externally-funded budgetary constraints and requirements that have increasingly been led by the United States and other international and bi-lateral donors .

Figure 3. Electricity production by renewable sources (1971-2015)

⁴ On a per capita basis, it is among the lowest in the Caribbean, only followed by Trinidad and Tobago, which is an energy producer; data availability in this regard is limited in terms of total amounts.



Source: World Development Indicators, IEA Statistics (<http://www.iea.org/stats/index.asp>)

Fortunately, in 2005, the country entered into the PetroCaribe agreement with Venezuela that aimed to support its economic and social development [82,92]. This program signified a temporary shift in geopolitics of the region, and created new dependencies, whereby Venezuela would become an influential player to recraft a new hemispheric anti-neoliberal alliance [92]. PetroCaribe supplied fuel at concessional rates offering a ninety-day payment schedule for fifty per cent value of oil imports, while 25 per cent was a direct credit to the receiving government, and remaining 25 per cent appropriated for social and economic projects of the importing country. The balance is payable within a 25 year period at a one per cent rate of interest and a grace period of two years. Haiti has received about US\$2 billion in PetroCaribe support that was destined for the construction of an electric plant and oil refineries and thus deepening its

relationship with Venezuela. 14,000 barrels of oil per day were supplied to the Bureau de monetization des programmes d'aide au développement, which in turn was sold to local companies [93]. Haiti opted in part to repay in food and agricultural products.

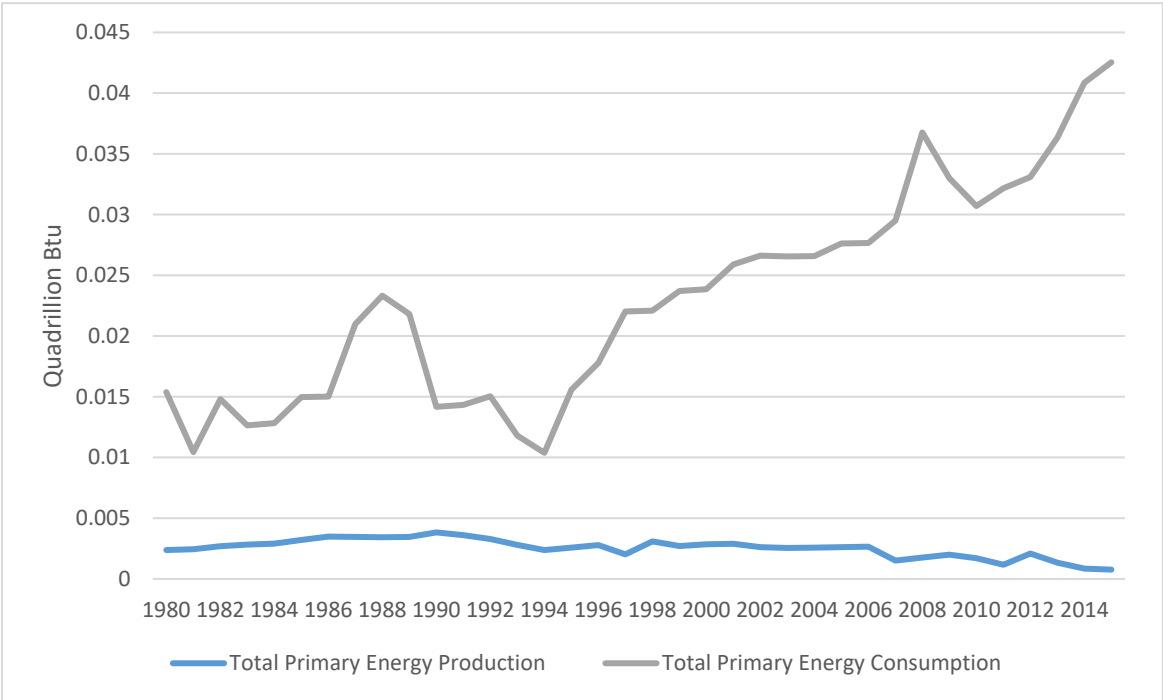
After taking office in 2016, President Jovenel Moïse promised to radically reduce energy poverty among Haitians to 'make universal and reliable access to energy a key factor of economic development' by focusing on rate collections and renewable energy [94]. Late in 2018, by which time political and economic turmoil in Venezuela threatened the viability of Petrocaribe, civil society actors charged corruption within the PetroCaribe arrangement after the publication of two commissioned reports by the country's Senate in 2016 and 2017. These reports showed that many of the earmarked projects were not undertaken. On 17 October 2018, an estimated 10000 to 15000 Haitians marched in the streets in 31 locations across the country, with the biggest crowds in the metropolitan area of Port-au-Prince. The protest movement demanded improved delivery of social services, and accused President Jovenel Moïse and other office holders of corruption, eventually calling for the government's resignation and fresh elections.

4.3 Haiti's fuel subsidy reform

With growing fuel shortages after the PetroCaribe deal unraveled, Haiti started experiencing an unstable and precarious supply. The government contracted US-based multinational companies to fill the gap. Haiti thus had to return to international markets for fuel supplies. The government imported as many as 22000 barrels of oil per day in November 2018. In early 2019, oil supplies were disrupted. US-based Novum Energy Trading Corp increased

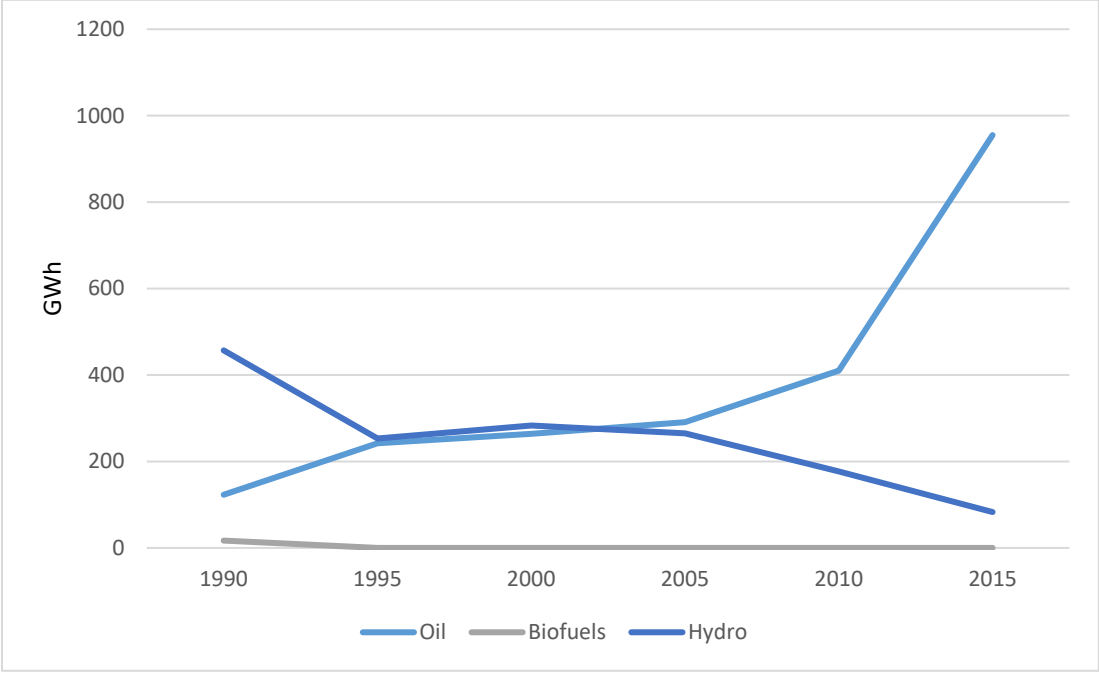
exports and benefitted from this new arrangement as the government debt obligations to the company increased. News reports in January and February 2019 indicated that due to non-payment of US\$35 million, its major supplier Novum Energy refused to supply to its major city. More than 60,000 barrels of gasoline and 260,000 barrels of diesel remained anchored off the bay of Port-au-Prince awaiting for payment from the government. Competition between two foreign suppliers Novum and DINASA followed but not to the benefit of Haitians. Both submitted bids after a dispute with the government that saw the contract canceled stirring concerns about further shortages. Fuel scarcity and mounting economic difficulties put basic necessities increasingly out of reach for Haitians, despite a \$229 million loan programme with the International Monetary Fund (IMF) that was initiated in March 2019 [95].

Figure 4. Energy production and consumption - Haiti (1980-2015)



Source: Author based on U.S. Energy Information Administration

Figure 5. Electricity generation by fuel source (quinquennial averages) (1990-2015)



Source: IEA Electricity Information 2017 - <https://webstore.iea.org/electricity-information>

Since the 2010 earthquake, and the massive dislocation it caused, the government instituted fuel subsidies. From 2011-2013, fuel subsidies were estimated at 2.9 per cent of Gross Domestic Product, of which 2.7 per cent was electricity and 0.2 per cent to fuel support largely financed through the PetroCaribe agreement [64,96]. According to the IMF, subsidies for nonrenewable energy sources amounted to US\$0.49 billion in 2013.]. Since 2014, with the decline of international energy prices, when the last fuel price increase of 7 per cent was made, little reform had been made to fuel subsidies. Yet, the global energy slump had effectively brought costs closer to market prices.

In 2015, the Haitian government entered a three-year Extended Credit Facility (ECF) agreement, Haiti would receive US\$69.7 million in order to ‘raise Haiti’s growth potential and reduce vulnerabilities to shocks, while entrenching macroeconomic stability’⁵. In February 2018, in an effort to fast-track implementation and consolidate reforms, the Haitian government also agreed to an IMF staff-monitored program (SMP)⁶ that incorporated a number of fiscal and macro-economic measures, including the removal of the fuel subsidy⁷. The July 2018 decision therefore cannot be seen in isolation but as a result of IMF pressure and policy constraints to reduce (and potentially eliminate) fuel subsidies that would have translated to a 38 percent increase in gasoline prices, and 47 percent hike for diesel and 51 percent for kerosene arising as part of the agreement with the IMF [65]. The government was also required to implement several structural reforms, including a public financial management and reserves monitoring programme, electricity sector restructuring to contain losses from the state-run utility, and the adoption of an automatic fuel pricing mechanism to prepare for imposition of fuel taxes, in the event that oil prices rebounded [81].

An update to the program indicated that the government and the IMF authorities also agreed on the need for social measures to help alleviate the impact of the subsidy reform on the most vulnerable sections of the population⁸. On July 6, 2018, the government attempted to eliminate the subsidy spurring violent protests and social unrest throughout the capital city and main towns, during which two people died, provoking the Prime Minister to reverse the decision soon thereafter. The riots led to the resignation of the entire Cabinet. As a result of these

⁵ IMF, <https://www.imf.org/en/News/Articles/2015/09/14/01/49/pr15231>

⁶ The SMP is a short-term agreement that the Fund specifies is designed to build a track record of adherence to the economic program.

⁷ IMF, Feb 25, 2018 <https://www.imf.org/en/News/Articles/2018/02/26/pr1868-haiti-imf-staff-reaches-staff-level-agreement-with-haiti-on-smp>

⁸ IMF, June 20, 2018 <https://www.imf.org/en/News/Articles/2018/06/20/pr18246-imf-staff-concludes-visit-to-haiti>

developments, the IMF countered that instead the Haitian government should take a more ‘gradual approach’ to eliminating the subsidy with the introduction of transportation vouchers and social compensation to those deemed to be most affected. These initiatives have yet to be implemented, nor have authorities adopted a more strategic view of development. Subsequently, the World Bank offered a US\$20 million grant for strengthen fiscal management and enhance the efficiency of social spending all the while trying to curb any resistance as opposed to encouraging a broader developmental outlook [81], as a precursor to the US\$229 million loan from the IMF. These events leading to and following the reform attempt shows the lingering effects of external powers in shouldering the national budget. Such effects include botched policies contributed to extensive vulnerability to external environmental shocks and outright violent riots expressed in the uneven approach to climate policy.

4.4 Analysis of main energy and climate policies

Moreover, external demands made to carry out reform of subsidy regimes have increasingly been linked to climate policy [18,19,24]. However, these policy discussions do not distinguish between the conditions of developing countries and advanced countries, the latter of which are historically responsible for the majority of emissions. In Haiti, the ongoing struggles to meet the development needs of the country by civil and state actors have resulted in a number of policy proposals as noted in Table 1 to address the links between climate adaptation and mitigation [40]. It appears that these package of proposals have also created new dependencies in the area of climate change policy. For instance, aid in the area of in climate change or climate-related projects in Haiti, a new database reveals, has amounted to US\$1.1 billion invested by international donors from 2015 onwards[60]. Of these projects, 57 per cent of the total funding

are directed towards climate-related or energy projects sourced from the World Bank, IDB, Switzerland, and Japan. The tension between national priorities decided for the most part by Haitian authorities between mitigation and adaptation is apparent, with \$773 million dedicated to climate change or sustainable energy [60]. Change in consumption subsidies featured within a single project in this database showing that governmental authorities wish to prioritize adaptation [60] but are being pressured to meet other external demands. At the macro-level, the greater focus on adaptation in the overall funding, while represented by higher levels of funding, has not improved resilience due to the incongruence among the political, economic and environmental objectives of donors. Their onerous demands are also insufficiently democratically negotiated and managed with the Haitian public.

Turning to its main policies, Haiti's National Energy Policy (2007-2017) outlines a goal to achieve 30 per cent reduction in energy intensity by 2030, 50% of electricity from renewable sources by 2020, and 50% electrification rate by 2020 [97]. With respect to consumption subsidies, the Plan indicated a concern to expand liquefied petroleum gas and kerosene through new investments and not direct subsidies to consumers. Similar to the investment database above, increased attention was given to decreasing consumption by introducing energy efficiency measures such as the distribution of subsidized energy-efficient lamps to poor households connected to grid which earmarked distribution of 200,000 lamp to save of 1 million US\$ in electricity bills [97]. In addition, its Second Communication to the UNFCCC [98] noted that in 2000, the energy, forestry, waste and agriculture sectors emitted 1447.66 Gg of CO₂. Per capita emissions in 2014 were also estimated at 0.2 tCO₂⁹. In 2018, overall greenhouse gas emissions in Haiti accounted for less than one-tenth of 1 per cent of total global emissions indicating that the

⁹ <http://data.worldbank.org/country/haiti>

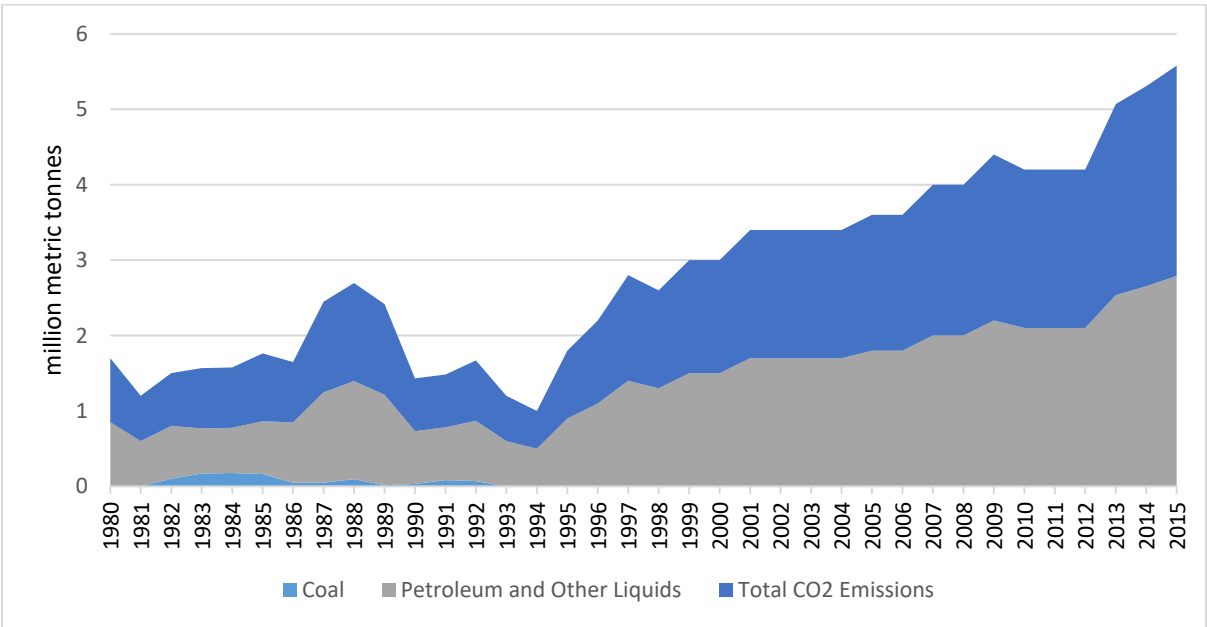
level of subsidization of energy projects does not compound the problem to a great degree, and any removal in this area may further contribute to already under-resourced area [88].

Previously, perhaps in response to donors' priorities and the Paris agreement, the country's climate policies have paid a great deal of attention to renewable energy. The country's NDC aimed to increase to 47% the share of renewable energies in the Haitian electricity system (hydro-power 24.5, wind 9.4%, solar 7.5 per cent, biomass 5.6%), as well as reduce wood fuel consumption by 32 per cent by 2030 [85]. Preliminary estimates for renewable energy in wind at 10MW, hydro-power at 50 MW and 1654MW in solar and 40 in biomass [99 Table 3]. Targets will be achieved through greater private sector participation which will benefit from fiscal incentives assigning more influence to multinationals over the energy transition to renewables, as well as other measures to cut greenhouse gas emissions [85,100]. From this analysis, in the database, of the US\$197 million to renewable, energy efficiency and bio-fuels projects, only one project aimed merely at providing a communication mechanism between experts and local policy-makers supported by the World Bank costing US\$2.7 million. Expansion of energy supplies and markets in various small-scale ventures appear to be the main goal of this program. In addition, the Haiti Sustainable Energy Programme (HSE) represents an important component of reducing dependence on fossil fuels. The programme also outlines the expansion of grid-connected renewable energy systems in hydro, wind, solar, geothermal and biomass [90]¹⁰. Similarly, the unconditional component of the NDC aims to reduce greenhouse gas emissions by 5% under the reference scenario, while the conditional mitigation goal involves an additional 26% reduction, predicated upon receipt of international assistance under the principle of common but differentiated responsibilities. Mitigation priorities include a transformation of its

¹⁰ The National Energy Plan (2007-2017) notes that the potential for geothermal energy is negligible in Haiti.

energy sector to reduce the country’s dependence on fossil fuels that will improve its balance of payments and contribute to overall reduction of its carbon emissions. This 31 % overall reduction in GHG emissions represents an onerous challenge for a low income country to shift resources that may be otherwise utilized for universal programs to address energy poverty.

Figure 4. CO2 Emissions by energy source (1980-2015)



Source: Author, based on data from U.S. Energy Information Administration

Additionally, to address its GHG emissions targets, the government pledged to introduce financing of forest mitigation programs, as well as grants and low-interest loans for the establishment of sustainable forest management systems, energy efficient improvements, and technology transfer, especially incentives and research and development [98]. Again, it is unclear whether these actions have materialized, but there are clear tensions that exist in following through with activities that will bring national and local interests in alignment with external funders. It is notable that for several projects in Haiti’s climate policies, many concerns about

political risk were noted by donors that would affect the project. In other cases, funds were withheld as certain aspects were not carried out in a timely manner. Haitian authorities are required therefore follow the funding and demands, and pursue piecemeal initiatives that overall have limited impact on improving long-term environmental and social conditions for its citizens.

Finally, the discussion on mitigation and adaptation project objectives have given little notice of the many interests and constituencies that come to bear on climate policy decisions that largely respond to external pressures. In response, however, Haitian officials have shown a capability to creatively ‘satisfice’, maneuver to make ad hoc arrangements, and try to effectively reframe climate/environmental concerns to an international audience that have resulted in additional support over time. From this perspective, Haiti’s ambitions to address its acute vulnerability is limited by its policy space resulting from its current institutional relationships with powerful external players. The manner in which projects are defined and then implemented are top-down and pay little regard to the institutional, structural and political context. These projects regard highly technocratic considerations about implementation over relatively short project cycles. Few ever make any mention of longer-term injustices and imbalances in global and local structures of decision-making power that have generated the high level of ecological and social exposure to the worst effects of climate change [42]. These conditions are equally replicated in the policies that have focus on energy and climate but their overall positive effects are uneven. These realities justify little the focus by the IMF and other external powers on reduction of subsidies. The immediate shock that this proposal caused and the political instability and unrest that is now underway have illuminated the undemocratic nature of the relationship between the government, the Haitian people and external powers.

Conclusion: lessons from an integrated analysis

The demands made by international agencies to reduce and eventually eliminate fuel consumption subsidies demonstrates the excessive burden on developing countries. Historical factors and the struggle to confront international forces have created multiple development challenges in Haiti, like high fuel costs, low rates of electrification, social inequity, poverty, and high dependence on fossil fuel imports. Policy makers have focused more attention on reducing subsidies as a means to obtain fiscal support on the top of existing debt burdens, to gain the ‘credibility’ of lenders and private sector that do not directly meet the needs of their populations. Political economy questions have therefore arisen to the extent of the pressures of external players versus local actors that help explain these conflicting policy priorities and uneven outcomes. This article aimed to question the assumptions of these political economy studies and broaden understanding of decarbonization relevant to a low-income nation, centering the analysis of fuel subsidy reform in Haiti within climate policy that expands justice for its citizens.

This approach is important as the subsidy debate has placed additional pressure on low-income and marginalized groups in least developed countries, most recently in Ecuador and Haiti, and no similar pressure or burden on rich countries with the highest historical records for greenhouse gas emissions. This represents an enduring imbalance and injustice especially as countries struggle to confront the climate crisis, and simultaneously address development concerns. In Haiti, challenging and polarizing political circumstances has historically impinged on critical policy decisions, and in this case has triggered ongoing political tensions, protests and energy supply shortages from which foreign corporations have handsomely benefitted. I have argued here that these events are not discrete for the reason that Haiti’s geopolitical situation, in

particular its dependence on fossil fuel imports, access to development finance and acute exposure to the worst effects of climate change interact in complex ways.

Moreover, climate policy scholars have proffered measures such as improving ‘energy access and energy security, reducing local air pollution and increasing economic efficiency’ through access to renewable sources [101] that assumes that fossil fuel energy is easily substitutable with renewable sources. In Haiti, existing poor infrastructure and lack of fiscal autonomy aggravate dependence and reinforce the existing social order. Policy options are limited in real terms and are decided outside of democratic deliberation. It is important that research on these questions create synergies in the analysis of the social, political, historical and institutional factors as a critical first step. Considering the varying levels of analysis of policy, and understanding how constituencies linked to various adaptation or mitigation priorities exercise their interests can offer new avenues for analyzing conditions for alternative options that tackle climate justice at an international and local levels.

Local disenfranchised actors and their concerns must therefore drive such a framing and their political capacity to organize and democratically devise solutions expanded to the extent that they may exercise some form of self-determination. In other words, external players should not act in quasi-dictatorial or paternalistic manner that undermine already existing support structures or impede the formation of new solidarities in the community to address their concerns. These multiple considerations enable deeper thinking to define the climate ‘policy space’, as Haitians challenge the neoliberal consensus and orthodoxy that incapacitates autonomous decision-making even as the ecological crisis worsens.

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