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Green energy crimes and resistance in the Global South

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Abstract

Climate change is looming large on the planet. However, green energy transition proposed as a policy solution poses its own problems. While climate change and resource extraction have been studied from a criminological perspective, little attention has been paid to developing a criminological analysis of the green energy transition. Drawing on green criminology, state-corporate crime framework and Southern criminology, this chapter aims to address this gap with a focus on the Global South. Adopting a harm-based definition of crime which includes both illegal acts and legal but harmful acts, and based on published case studies across political ecology and critical geography literatures, the chapter presents a threefold typology of green energy crimes as state-corporate crimes of accumulation at the intersection of neoliberal capitalism and the Global North-South power inequalities. Furthermore, resistances against green energy crimes by the affected rural communities are explored by highlighting the ideological and epistemological dimensions of these struggles. The chapter calls for a more wholistic analysis of the social harms of energy development that goes beyond a sole focus on climate change and attends to the dynamics of state-corporate criminality and of resistance in the green energy transition.

Keywords: Green energy, Renewable energy, Green transition, Green criminology, Southern criminology, Social harm, State-corporate crime, Resistance, Environmental activism

1. Introduction

Climate change poses a catastrophic risk to life on earth (Beard et al., 2021). The Intergovernmental Panel on Climate Change (IPCC) (2023) reports that the global surface temperature reached 1.1°C above the pre-industrial baseline of 1850-1900 in 2011-2020. Global warming already has observable adverse effects such as extreme weather events (e.g. droughts and floods) and losses in land and water ecosystems, impacting water availability, food production and wellbeing of nonhuman species (IPCC, 2023).

There is an overwhelming scientific consensus on the anthropogenic nature of the contemporary climate change (Lynas et al., 2021). The main factor in carbon emissions and the resultant global warming is identified as the combustion of fossil fuels (such as coal, oil, gas) for energy generation (Höök & Tang, 2013). Accordingly, widespread electrification and decarbonisation through transitioning away from fossil fuels towards alternative energy sources that are considered “clean” or “green” (including renewable energies such as hydro, solar, wind) are two key policy solutions that gained prominence in global climate governance (IPCC, 2022).

On the other hand, there is now an emerging literature that has unearthed the socio-environmental harms of the so-called green energy projects, affecting local communities, local cultures and natures, and nonhuman species particularly in the resource-rich Global South. Both growing concerns around the global environmental issues and the advent of green criminology have led to a proliferation of studies on environmental crimes over the last decades. While there has been an increasing interest on the analysis of climate change and resource extraction from a criminological perspective, too little attention has been paid to green energy-related crimes. This chapter aims to address this gap, drawing on green criminology, state-corporate crime framework and Southern criminology.

The chapter is structured in four sections. I start by sketching out the conceptual and analytical framework. I then briefly discuss how climate change and resource extraction are addressed in criminology. This is followed by a critical overview of the prevalent policies and practices of green energy transition in response to climate change. In the section that follows, drawing on published case studies across political ecology and critical geography literatures I present a threefold typology of green energy-related crimes and discuss locals’ resistance against them in the Global South.

2. Conceptual and analytical framework

This chapter draws on three criminological perspectives – green criminology, state-corporate crime framework and Southern criminology. They shape both the conceptual approach and the main lines of inquiry adopted in the analysis. Utilising key insights at the intersection of these three perspectives, below I lay out the three interrelated pillars of the conceptual and

analytical framework - namely, the harm-based approach to environmental crime, state-corporate criminality in neoliberal capitalism and the North-South divide in the context of neocolonialism.

2.1 Environmental harm and crime

More than two decades ago Hillyard & Tombs (2004) introduced the concept of social harm to describe the wider social injuries generated by political, economic and social structures of power. They argue that, as mainstream criminology tends to focus on individual-level crimes as discrete events, these wider social harms - from poverty to environmental pollution - are either excluded from the definition of crime or they are not effectively criminalised (Hillyard & Tombs, 2004). Green criminology's conceptualisation of environmental crime very much mirrors this harm-based approach.

A key green criminological insight is that many activities that damage the environment and cause injury to humans and nonhuman species are lawful (Beirne & South, 2007; White 2011, 2013). The use of climate-changing fossil fuels is a significant example. On the other hand, other activities such as fishing and logging *become* illegal only because of their intensity or the methods used (White & Heckenberg, 2014). It is the state that determines under what conditions and according to what threshold an environmentally harmful activity becomes unauthorised and, thus, an environmental crime.

Moreover, states themselves engage in environmentally harmful activities or they sanction and overlook similar activities of other powerful actors such as corporations in the name of economic development and growth (Lynch et al., 2020; Ruggiero & South, 2013). As Whyte puts it (2020, p. 113), "very often the environment is threatened not merely by the absence of the state, but rather by its presence". As such, environmental crime is not only contested and but also socio-politically constructed. For this very reason, green criminologists opt for a harm-based approach which extends the definition of environmental crime to include both illegal acts *and* legal but harmful acts (Beirne & South, 2007; Sollund, 2021; Stretesky et al., 2013; White, 2011, 2013). This chapter also adopts this approach and "crime" is used to refer to both crime and harm throughout.

2.2 State-corporate criminality and neoliberal capitalism

A significant manifestation of the crime-power-harm nexus is state-corporate criminality and the impunity it entails. Recognition of the criminogenic nature of the intricate relations between political authorities and corporations and the resultant widespread harms goes a long way back when Pearce (1976) coined the term "crimes of the powerful" in the 1970s. Later, Aulette, Kramer and Michalowski developed the concept of state-corporate crime to

denote the “illegal or socially injurious actions that result from a mutually reinforcing interaction” between states and corporations (Kramer et al., 2002, p. 271).

While early formulations of state-corporate crime highlight “deviant interorganizational relationships” (Kramer et al. 2002, p. 271) - which presume the ability and will of the state to control these by more efficient regulation - later work stresses the embeddedness of state-corporate crime in the modus operandi of capitalism (Tombs, 2012; Bernat & Whyte, 2017). For Tombs (2012) state-corporate relationship is inherently “symbiotic”, and regulation has historically functioned to enhance corporate dominance and accumulation. Whyte (2014) further argues that states’ various “regimes of permission” - such as legislation that protect corporations from criminal liability - create the very conditions for corporate crime and impunity.

Green criminologists with a political economic orientation have long asserted that environmental crime is driven by capitalism’s constant expansion of production (Stretesky et al., 2013; Lynch & Long, 2022). From the 1980s onwards, the advent of neoliberalism¹ has spurred renewed opportunities for state-corporate environmental crime (Bittle et al., 2018). For instance, while deregulation has fundamentally limited states’ administrative capacity to restrain environmentally harmful corporate activities, privatisation expanded corporate power and reach (Tombs & Whyte, 2020; Whyte, 2020; see also Castree, 2010). Additionally, trade liberalisation has opened Southern countries to transnational corporations, accelerating commodification of natural resources in the Global South (Long et al., 2024).

2.3 The Global North-South divide and neocolonialism

Bhambra (2021, p. 311) asserts that “it is through the colonial processes of appropriation, possession, enslavement, and extraction that the world is produced for the very capitalism” that we have today. The unequal positions of the Global North and South² in the current global economic and political hierarchy is largely rooted in these colonial histories (Lees, 2021). Mainstream criminology in the English-speaking world has been mostly indifferent to the Global North-South divide until the advent of Southern criminology which represents the first systematic attempt to theorise its criminological significance. The proponents of Southern criminology foreground the Global North-South power relations to understand Southern patterns of crime, victimisation and control, while challenging the Northern epistemological hegemony (Carrington et al., 2016, 2018). Recent, critical contributions to Southern

¹ Neoliberalism in this context refers to a set of political-economic practices based on deregulation, privatisation and trade liberalisation and promoted by the Northern-led multilateral financial institutions, mainly the International Monetary Fund and World Bank (Harvey, 2005).

² Here I use the North to refer to the imperialist and settler colonial states of Western Europe and North America, and the South to the post-colonial and non-colonised countries in Africa, Asia and Latin America.

criminology further call for attention to the contemporary appropriation and plunder in the Global South, situating it not only in the historical colonial practices, but also in the North's current neocolonial dominance (Ciocchini & Greener, 2021).³

One area where the criminogenic effects of the North-South power relations are particularly evident is state-corporate criminality enabling Northern-led resource extraction in the Global South (Böhm, 2019; Ezeonu, 2018). Resource extraction manifests the complex neocolonial and neoliberal dynamics of environmental degradation and social harm caused by the unequal structure of international trade and local state-corporate symbiosis. While neocolonialism predates neoliberalism, Long et al. (2024, p. 94) asserts that "the neoliberalization of countries in the Global South has made them particularly vulnerable to being caught in neocolonial relationships". The Indonesian palm oil industry which was gradually liberalised from the 1980s onwards to attract foreign capital is a striking example (Ciocchini & Greener, 2023). Today Northern-led transnational corporations take most of the palm oil profits, while the Indonesian state facilitates this unfettered corporate accumulation through land appropriation, disregard for indigenous people's land rights and deforestation, and violent repression of dissent (Ciocchini & Greener, 2023). Building on Whyte's (2014) "regimes of permission", Ciocchini & Greener (2023, p. 1322) propose the term "regimes of extreme permission" to denote such extreme levels of corporate permission in the Global South and argue for an understanding of its "political, social and institutional background...as embedded in imperialist modalities".

In this section I laid out the three interconnected pillars of the conceptual and analytical framework. The next section provides a brief overview of how climate change and resource extraction have been discussed in criminology for the purposes of this chapter.

3. Climate change, resource extraction and criminology

There has been a steadily growing body of work scrutinising climate change from a criminological point of view since the 2010s (see e.g. Agnew, 2012; Brisman et al., 2018; Holley & Shearing, 2018; Kramer, 2020; Stanley, 2021; White, 2012, 2018 among others). A key theme that runs in this literature is state-corporate culpability in climate change. For instance, White (2018) proposes a "climate change criminology" which focuses attention on states and corporations that benefit from climate-changing harmful activities and how their interests shape the public debates on policy responses. Kramer (2020) conceptualises climate crimes as socio-environmental harms arising from state-corporate refusal to acknowledge anthropogenic climate change and failure to take mitigation action, as well as adoption of harmful adaptation policies such as border fortification in the Global North against climate-

³ Neocolonialism is a term coined by Kwame Nkrumah - the first leader of independent Ghana - to describe the foreign control of the formally independent Southern countries after the end of colonialism (Langan, 2018).

induced migration from the South. On this latter point, Stanley (2021) draws attention to the legacies of racist colonialism behind the exclusionary policies towards climate migrants from the Global South. On the other hand, Brisman et al. (2018) highlights the rise of green, gated enclaves for the exclusive use of political and economic elites in countries such as Nigeria and China, suggesting a “climate apartheid” within the Global South.

Natural resource extraction is a related area that has received criminological attention. Crimes associated with the extraction of fossil fuels (e.g. oil, coal) as well as other forms of legal or illegal harmful resource extraction (e.g. gold, palm oil production) have been considerably studied particularly in the context of the Global South. These crimes include violations of the human rights of indigenous and non-indigenous locals (e.g. loss of access to commons such as rivers and loss of nature-based livelihoods; forced displacement; repression of dissent through coercion and violence), socio-environmental harms (e.g. water, land and air pollution; deforestation; destruction of habitats), and harms to and violations of the rights of nonhuman animals (Böhm, 2019, 2023; Ezeonu, 2018; Gutiérrez-Gómez, 2017; Rojas-Páez, 2017; Mol, 2017; Setyawati, 2022). Many such studies document a new wave of extractivism under neoliberalism from the 1980s onwards in the Global South (e.g. Böhm, 2019; Gutiérrez-Gómez, 2017). Transnational corporations’ acts driving this contemporary resource extraction in collaboration with the local political and economic elite are often conceived as state-corporate crimes and authors suggest a continuity with the colonial plunder of the past (Atilés & Rojas-Páez, 2022; Böhm, 2023; Long et al., 2024).

Both climate change and resource extraction are significantly represented as ecocide in the literature (Crook et al., 2018; Walters, 2023; White, 2018). Ecocide is defined as “the extensive damage to, destruction of or loss of ecosystem(s) of a given territory, whether by human agency or by other causes, to such an extent that peaceful enjoyment by the inhabitants of that territory has been severely diminished” (Higgins, 2010, as cited in Higgins et al., 2013, p. 257). This literature highlights an “ecocide-genocide nexus” at the intersection of capitalism and colonialism and in terms of the impacts of resource extraction and climate change on particularly indigenous people for whom ties to land is central for cultural and physical survival (Crook et al., 2018). Accordingly, there have been heightened calls to enable recognition of ecocide as an international crime alongside genocide and other crimes against humanity (Higgins et al., 2013). There is also considerable research that documents bottom-up action against resource extraction i.e. activism and resistance of indigenous and non-indigenous locals through various tactics such as litigation, protest and direct action (Deb & Ayon, 2023; Lynch et al., 2018; Weinstock, 2017). This body of research also underlines increasing criminalisation of socio-environmental activism and resistance in both the Global South and North (Selmini & Di Ronco, 2023; Vegh Weis, 2021).

Although some crimes associated with the policy solutions proposed for climate change are acknowledged in the criminology literature (see e.g. Martin & Walters, 2013 on the deception of indigenous people in carbon offset projects undertaken in the Global South), many are

unscrutinised. Similarly, while there is some recognition of the renewed pressures on natural resources in the face of climate change (see e.g. Böhm, 2023 who mentions the rise of lithium mining for electric cars and batteries in passing and Mondaca, 2017 on wind power as a “new” form of extractivism), a more focused analysis is needed. The next two sections aim to address these gaps.

4. Green energy: An overview

There is now an overwhelming scientific and policy consensus that anthropogenic climate change poses a catastrophic risk to the lives of humans and nonhuman species on earth (Beard et al., 2021, Lynas et al., 2021). The main cause of climate change is identified as carbon emissions primarily due to combustion of fossil fuels (such as coal, oil, gas) for energy generation (Höök & Tang, 2013). According to the Intergovernmental Panel on Climate Change (IPCC) - which is the leading international body for the scientific assessment of climate change - the global surface temperature reached 1.1°C above the pre-industrial baseline of 1850-1900 in 2011-2020, with already observable adverse effects such as extreme weather events (e.g. droughts and floods) and losses in land and water ecosystems (IPCC, 2023).

The 195 parties to the Paris Agreement of 2015 - which is the first legally binding international treaty on climate change - have agreed to reduce their carbon emissions and cooperate to adapt to the impacts of climate change. Decarbonisation (reduction or elimination of carbon emissions) and widespread electrification are two key global strategies for climate change mitigation upheld by the IPCC (2022). These strategies are part and parcel of the “green transition” which constitutes “energy-efficiency, renewable energy sources, electrification and energy storage” (Cedergren et al., 2022, p. 11). As such, green energy transition is described as “switching from energy sources that harm the environment to environmentally friendly and sustainable sources” (Muhire et al., 2024, p. 5).

Green energy transition is closely related to three other concepts - namely, sustainable development, green economy and green growth - in the prevailing climate change discourse. Sustainability came to the fore in the late 1980s. In 1987 the United Nations (UN) Brundtland Commission proposed sustainable development as a political strategy, seeking to align increasing environmental concerns with economic development goals. Defining sustainable development as “meet[ing] the needs and aspirations of the present without compromising the ability to meet those of the future” (World Commission on Environment and Development, 1987, p. 40), it stressed “the possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base” (World Commission on Environment and Development, 1987, p. 1). These ideas have underpinned the later global agendas on green economy and green growth⁴ which emerged

⁴ For an oft-cited critique of the green growth discourse, see Hickel & Kallis (2020).

in the aftermath of the 2008 financial crisis to address the dual problems of global recession and climate change (Bloomfield & Steward, 2020; Georgeson et al., 2017).

The Organisation for Economic Co-operation and Development - a global policy forum on economic and social policy - defines green growth as “fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services” in its green growth strategy adopted in 2011 (OECD, 2011, p. 18). In this document green growth is described as “an essential component of sustainable development” (OECD, 2011, p. 10). Green economy and sustainable development were the two key themes of the UN Rio+ 20 Conference on Sustainable Development held in 2012 (Georgeson et al., 2017). Furthermore, in 2015 the UN adopted ensuring access to “affordable and clean energy” as one of the 17 Sustainable Development Goals to be achieved by 2030 (Arora & Mishra, 2019). The European Green Deal (EGD) which was launched in December 2019 has been the most recent embodiment of green growth. The EGD is a growth strategy that foregrounds green energy transition alongside increased efficiency as a key pathway to achieve net zero greenhouse gas emissions by 2050 (European Commission, 2019).

In the global policy discourses on climate change mitigation, green energy is often used interchangeably with clean energy and renewable energy, despite the overlaps and differences between the three (Androniceanu & Sabie, 2022). Clean energy is non-polluting, i.e. non-carbon emitting energy, while renewable energy denotes clean energy produced by using inexhaustible natural resources, such as solar, wind and hydropower (Androniceanu & Sabie, 2022). Green energy usually refers to clean and renewable energy sources which are also environmentally friendly and sustainable, although the latter does not always apply to all renewables (Androniceanu & Sabie, 2022; Harjanne & Korhonen, 2019). Harjanne & Korhonen (2019) highlight three problems with the conceptualisation of renewable energy: 1) its different types (e.g. solar, wind, hydropower) vary significantly in terms of their power density and land use rendering the concept ambiguous, 2) some types of renewable energy have considerable negative impacts on the environment and are not sustainable (such as hydropower which is associated with decline in fish populations), and, finally and most importantly, 3) renewable energy generation depends on technologies built with non-renewable minerals. Regarding this latter point, Dunlap (2021, p. 84, original emphasis) goes even further and argues that “there is no such thing *as renewable energy* as we know the term”, and that “[f]ossil fuel+ technologies’ is the more appropriate term for renewable energy.”

It is now widely acknowledged that green energy transition substantially depends on non-renewable raw materials – such as aluminium, cobalt, copper, lithium, nickel and rare earth elements among others - which are used for green energy and storage technologies including solar photovoltaic panels, wind turbines, batteries and electric vehicles (Church & Crawford, 2020; Ghorbani et al., 2024; Sovacool et al., 2020a). The World Bank (2020, p. 37), reports that “the clean energy transition is expected to be much more mineral intensive than fossil-

fuel based electricity generation”. As such, it is argued that green energy transition has led to what is called a “green extractivism”, “whereby extraction and valorisation of mineral resources is rendered not only compatible with ‘sustainable development’, but *necessary* to it and the possibility of a ‘low carbon’ future” (Voskoboynik & Andreucci, 2022, p. 802, original emphasis).

Research indicates that green extractivism is often consistent with fossil fuel-based extractivism in terms of its *modus operandi* and social, economic and environmental impacts on the local populations (Mejia-Muñoz & Babidge, 2023), while it additionally “harnesses climate change and other socioecological crises as profit-generating and re-branding opportunities” (Dunlap et al., 2024, p. 438). Furthermore, together with renewable infrastructures such as wind farms, solar farms and hydropower dams which require large land area, green extractivism creates “green sacrifice zones” – places and populations that are disproportionately affected by green energy generation (Zografos & Robbins, 2020). For instance, more than half of the global metal and mineral reserves crucial for energy transition are located on or near the lands of indigenous and peasant peoples (Owen et al., 2023). In this sense, it could be said that the harms of green transition and green growth policies designed in the Global North centres are shifted to communities in the rural peripheries of the Global North and South (Brown et al., 2024; Zografos & Robbins, 2020). The next section conceptualises these harms as green energy crimes and discusses them in the context of the Global South, based on the conceptual and analytical framework outlined earlier and drawing on published case studies across political ecology and critical geography literatures.

5. Green energy and the Global South

There are two key features of green energy-related developments in the Global South for the purposes of this chapter. First, in many parts of the Global South, expansion of green energy investments is enabled by the neoliberal restructuring of the economy and particularly the energy market, with the national states playing an active role in this process (Avila-Calero, 2017; Furnaro, 2020). For instance, in Chile, following the liberalisation of electricity generation and distribution, new legislation enacted from the 2000s onwards have facilitated renewable infrastructure and green extractivist projects (such as lithium mining) through provision of state financial support or public lands to private companies (Furnaro, 2020). In Mexico, similar policies to liberalise the energy market have been accompanied by legislative changes to the land tenure regime at the expense of rural communities’ communal land rights to pave the way for construction of private wind farms in the countryside (Avila-Calero, 2017). Furthermore, in Turkey, a 2003 legislation has allowed water usage rights of rivers to be leased to private companies for periods up to 49 years for hydropower generation, which has led to a corporate “grabbing” of commons such as rivers and riverbanks (Islar, 2012; Sargin, 2021). While green energy expansion and the enabling legislation are justified by political authorities as climate mitigation strategies (Voskoboynik & Andreucci, 2022), in all these three examples

states have in fact created new opportunities for corporate capital accumulation through variegated “regimes of permission” (Whyte, 2014).

The second feature of green energy transition policy and practice in the Global South is its reproduction of Global North-South power asymmetries. This is most evident in green extractivism by which “‘resources’ drawn from the Global South are employed for technologies used to a greater extent by the Global North” in a manner reminiscent of the historical colonial and recent neocolonial practices of fossil fuel-based extractivism (Mejia-Muñoz & Babidge, 2023, p. 1120). The recent intensification of lithium extraction which is needed for electric vehicles is an example. Jerez et al. (2021) asserts that a major driver of lithium extraction in Chile is the Northern consumerist demand shaped by climate mitigation agendas.⁵ Countries’ dependence on aid can also shape the direction of their energy policies. For instance, Newell & Phillips (2016) explain that Kenya’s energy sector liberalisation from the 1990s onwards was a condition of World Bank loans, which later facilitated further flow of foreign capital into the country and paved the way for the development of a renewable energy market in line with donor and investor preferences. The authors characterise this as the “disciplinary power” of World Bank and other global economic actors (Newell & Phillips, 2016). Finally, renewable energy infrastructures such as wind and solar farms can be a medium for appropriation of land by Northern corporations in the Global South. For instance, recent research from Brazil shows that 78 percent of wind farms and 96 percent of solar photovoltaic farms in the country are controlled by foreign investors and owners, primarily from Europe (Klingler, et al., 2024).

Following from the above characterisation of green energy transition in the Global South, the next two subsections take a closer look at the harms involved, conceptualised as green energy crimes, and the resistance against them.

5.1 The crimes

Drawing on published case studies on green energy transition policy and practice in the Global South, below I present a threefold typology of what I call green energy crimes. These are respectively, human rights violations, socio-environmental destruction, and corruption and elite profiteering. Green energy crimes have three key features. First, they are state-corporate crimes to the extent that harm occurs at the intersection of state and corporation interests in the context of a structurally symbiotic state-corporation relationship (Tombs, 2012). Secondly, they are characterised by legal and illegal harm, i.e. they constitute illegal acts *as well as* legal

⁵ Here China’s growing role in the production and consumption of low-carbon technologies should be noted, which to a certain extent disrupts the conventional North-South binary described here (Jerez et al., 2021; Andreucci et al., 2023).

but harmful acts. Finally, all three categories of green energy crimes are interconnected in the sense that they co-occur and reinforce each other.

5.1.1 Human rights violations

According to the “Transition Minerals Tracker” of the non-governmental organisation Business & Human Rights Resource Centre, there have been 630 allegations of human rights violations in 2010-2023 associated with the mining of key minerals required for the green transition such as cobalt, copper, lithium and nickel, with most allegations pertaining to South America, Africa and the Middle East (BHRRC, 2024). 143 of these allegations involve attacks against locals and other activists who oppose the mining projects, including physical violence such as beatings and killings, as well as arbitrary detention, intimidation and threats, and denial of freedom of expression and association (BHRRC, 2024). Other research highlights intimidation tactics such as “firing guns in front of homes” and “attempted kidnappings” targeting those who oppose wind energy development in Mexico, and “police dropping rocks and shooting tear gas out of helicopters” and “planting evidence on protesters” opposing copper mining in Peru, as well as murders in both cases (Dunlap, 2020, p. 671). Furthermore, Transition Minerals Tracker documents 162 allegations associated with violations of labour rights and/or occupational health and safety in transition minerals mining in 2010-2023, including 53 work-related deaths (BHRRC, 2024), while another study has found child labour to be rife in cobalt mining in the Democratic Republic of the Congo and in e-waste processing in Ghana (Sovacool et al., 2020b).

Green extractivism is frequently accompanied by dispossession and often in a similar way as in fossil fuel-based energy generation (Temper et al., 2020). Furthermore, renewable energy infrastructures such as wind farms, solar farms and hydropower dams require large land areas, which renders the Global Southern countries more attractive for investors as land rights are less secure (Furnaro, 2020; McCarthy, 2015). Green energy transition-related dispossession is multi-layered: it is territorial with both cultural and economic implications (Avila-Calero, 2017; Hesketh, 2022), while dispossession may be experienced at the individual and/or group level (e.g. based on indigenous identity). Territorial dispossession is often enabled through the enclosure of the rural commons - including rivers, riverbanks, meadows and forests - and restriction of their communal use and enjoyment by private companies or public-private partnerships, e.g. for wind farming in Mexico (Avila-Calero, 2017) and for solar energy in India (Yenneti et al., 2016). Dispossession of land ultimately entails decline in or loss of locals’ livelihoods which are dependent on natural resources, and it additionally threatens the cultural survival of especially indigenous communities for whom culture is closely tied to territory and land (Temper et al., 2020). Dispossession can also have an epistemic dimension. For instance, Kelly (2021) documents how scoping reviews undertaken by private consultancy companies for the purposes of environmental impact assessment of hydropower projects in Chile trivialise territorial presence of indigenous people, ignore the spiritual and cultural

significance of rivers for them and disregard their traditional ecological knowledge on the possible effects of the hydropower infrastructures on their lives and the nature.

5.1.2 Socio-environmental destruction

Contrary to the widespread assumption that green energy transition is “environmentally innocuous” (Temper et al., 2020), there is a growing body of research that indicates negative environmental impacts of green extractivism and renewable energy infrastructures. For instance, hydropower - which is widely hailed as green energy - is linked to deforestation, as dams may flood forests and other lands, in addition to enabling further encroachments into the forests via new road and power line construction, while decomposition of vegetation in the reservoirs is found to be a considerable source of carbon emission (Gibson et al., 2017). Furthermore, hydropower infrastructures divert or reduce the flow of rivers, adversely affecting populations of fish and other aquatic species (Kelly-Richards et al., 2017). Soil erosion and habitat loss or fragmentation which also impair wildlife health are among the negative environmental impacts of wind and solar farms, while wind energy is additionally associated with noise pollution, bird and bat fatalities and local climate change, and end-of-life solar panels with chemical pollution (Dhar et al., 2020). On the other hand, production of green transition minerals such as nickel is carbon- and electricity-intensive and nickel is linked to soil and water contamination e.g. in Papua New Guinea (Andreucci et al., 2023). Furthermore, extraction of lithium from brine is associated with water depletion e.g. in Chile (Jerez et al., 2021), where the problem is rendered invisible and as such exacerbated by the nonrecognition of brine as water in the mining legislation and by lithium companies despite indigenous knowledge to the contrary.

Research documents the need for an interconnected understanding of the social and environmental destructiveness of green energy development in indigenous and non-indigenous rural communities. For instance, in his study of wind energy development in Mexico, Dunlap (2018) finds that while the projects put pressure on agricultural land, the influx of foreign money and workers to project sites are accompanied by food and rent inflation and income inequality, which the locals associate with a rise in street-level crime. Dunlap (2018, p. 567) concludes that “wind energy takes on genocidal qualities when flora, fauna and cultural relationships are being destroyed”, suggesting a “genocide-ecocide nexus” especially for the communities whose livelihoods and cultures are tied to land (see also Crook et al., 2018). Research on hydropower development has also found that the projects often create new social divisions or reinforce existing divisions in affected rural communities between those who seek negotiations and those who oppose the projects outright (Islar, 2012; Zeitoun et al., 2019). Furthermore, habitat fragmentation in ecological terms overlaps with socio-cultural fragmentation when hydropower projects are located in sites that are culturally and spiritually significant for the local indigenous population (Kelly, 2019).

5.1.3 Corruption and elite profiteering

Corruption in the context of decarbonisation is an emerging area of research. Corruption linked to renewable energy has been documented in the Global North, such as in the wind energy sector in Italy and Spain and in the solar power sector in the United States (Gennaioli & Tavoni, 2016). Studying the Italian case, Gennaioli & Tavoni (2016) found that large wind resources coupled with poorly functioning political institutions in the context of high public incentives to promote corporate renewable energy investments increase the risk of corruption. Similarly, Sovacool et al. (2024) argues that renewable energy sector is prone to corruption for three main reasons. First, renewable energy is capital-intensive. It is estimated that a low-carbon energy system requires cumulative investments of at least \$110 trillion until 2050 (Sovacool et al., 2024). Secondly and thirdly, it involves high levels of public procurement and, thus, public-private sector contact and partnership (Sovacool et al., 2024). Their research on the Mexican wind energy and Kenyan solar energy sectors indicates bribery and regulatory capture in Mexico and Kenya, in addition to nepotism in Kenya, and bid rigging and illegal funding of political campaigns in Mexico (Sovacool et al., 2024). Furthermore, bribery, bid rigging and nepotism are reported in the Malaysian hydropower sector and bid rigging in the South African solar energy sector (Sovacool, 2021).

These examples suggest that green energy transition can become a pathway to profiteering by elites (politically and/or economically powerful individuals and groups). It is argued that decarbonisation policies and initiatives by the national state can cement elite power at local and/or transnational levels (Sovacool et al., 2019). For instance, measures such as relaxed eligibility criteria that allow early-stage projects to bid and power purchasing agreements indexed in US dollar have aimed to attract foreign investors to auctions for renewable energy public procurement in Mexico (Matsuo and Schmidt, 2019; Sovacool et al., 2019). “Accumulation by dispossession” coined by Harvey (2005) is another way elites reap the benefits and exert dominance in low-carbon energy transitions (Sovacool et al., 2019; Yenneti et al., 2016). Harvey (2005, p. 159) has conceptualised accumulation by dispossession as part of his broader critique of neoliberalisation, referring to the elite accumulation of wealth by processes such as “commodification and privatization of land...suppression of rights to the commons...appropriation of assets (including natural resources)” among others. A stark example of accumulation by rural dispossession in the context of the green energy transition is from India where Yenneti et al. (2016) reports that illiterate peasants were deceived by local officials into signing documents that removed their customary rights to use government land for grazing and farming in the process of the public-private solar energy development on this land. Furthermore, the authors find that intermediaries with insider information about the solar project before its official announcement persuaded those peasants who owned land plots to sell for prices lower than the market value – only to re-sell the purchased lands to the government later for a profit (Yenneti et al., 2016). Considering that transnational capital from the governments of Global North countries, global investment firms and multinational fossil fuel companies play a significant part in the financing of solar energy in India (Stock &

Sovacool, 2023), this resonates with Lasslett and MacManus's (2018) broader reminder of the role of neocolonial alliances between national and transnational political and economic elites in the persistence of accumulation by dispossession in the Global South.

5.2 The resistance

While opposition to fossil fuel projects and climate activism have been more at the forefront in the global media, Temper et al. (2020) finds that low-carbon projects are as conflictive as fossil fuel projects. Based on a systematic mapping of approximately 3,000 energy-related conflicts between public and private energy developers and affected communities as recorded in the Global Atlas of Environmental Justice (an online database of socio-environmental conflicts worldwide), the authors report a number of similarities between fossil fuel and low-carbon energy projects as well as resistance movements against them (Temper et al., 2020). For instance, both low-carbon energy projects and fossil fuel-based projects disproportionately affect rural populations, particularly indigenous people. Moreover, affected communities have common grievances such as ecological degradation, loss of livelihoods and land grabbing - either due to the infrastructural impact or the waste generated - as well as a lack of efficient environmental impact assessments and meaningful consultations with the community. Furthermore, social movements use similar tactics to resist both types of projects, ranging from litigation and protest to disruptive action such as road blockades and sit-ins, which have been effective in at least a quarter of both types of projects which were delayed, cancelled or suspended (Temper et al., 2020).

Another similarity noted by Temper et al. (2020) is repression and criminalisation of resistance in both fossil fuel and low-carbon projects. This is in line with the criminological literature mentioned earlier in this chapter on the criminalisation of socio-environmental activism against resource extraction (e.g. Vegh Weis, 2021). In his discussion of elite accumulation by dispossession, Harvey (2005, p. 159) draws attention to the role of the state in "backing and promoting" dispossession "with its monopoly of violence and definition of legality". In this sense, state-corporate symbiosis and criminality (Kramer et al., 2002; Tombs, 2012) present apposite frameworks for making sense of the state response to socio-environmental resistance. For instance, research on wind energy conflicts in Mexico (Dunlap, 2019) and hydropower conflicts in Turkey (Sargin, 2021) indicate that the state security forces (e.g. the police, the military) often side with the private energy developers and enforce the laws in a way that suppresses dissent and protects corporate interests in energy-related conflicts involving local communities. Bringing in the North-South power dynamics into the picture, Vegh Weis (2024, p. 203) further notes that "actors in the South are more affected by environmental harms and have, nevertheless, fewer possibilities to confront and overcome the consequences of environmental disasters in the global debate" with the result that "the excessive (and even deadly) use of force by law enforcement in relation to environmental protest is a common feature in large parts of the Global South". She argues that "criminal

selectivity” by “over-criminalisation” of environmental victims and activists and “under-criminalisation” of state-corporate socio-environmental crimes is a distinctive feature of criminal justice systems in the Global South and, as such, of Southern green victimisation in resource extraction-related conflicts (Vegh Weis, 2024).

Finally, it should be noted that a key dimension of the resistance against both fossil fuel and low-carbon projects is ideological. This is even more so in the case of low-carbon energy projects which are promoted by Northern centres as “green” alternatives in the face of climate change. Avila (2018, p. 613) suggests thinking of local resistances against renewable energy infrastructures not “as regressive forces blocking the possibility of an energy transition, but instead...as political instances that enable a wider discussion to occur on the ways such transition should take place.” While this involves addressing and preventing the diverse harms and injustices green energy projects cause in the first instance, it should also prompt new debates around the potentials and limits of technical solutions to climate change (i.e. alternative energy sources) (McCarthy, 2015), as well as the normative contours of society-nature relations on a broader level. A significant question in this context is “how and through whose knowledge we come to know energy infrastructures and energy transition” (Bridge et al., 2018, p. 6). This brings to the fore epistemological contestations over environmental crimes (Goyes, 2019). For instance, against official environmental impact assessments that are often “riddled with omissions or inaccuracies” and “silent or weak on harms to communities”, victims-turned-activists resisting hydropower in their villages and towns in Turkey mobilise counter-expertise by identifying gaps and creating new knowledge about officially unrecognised socio-environmental harms, while foregrounding different values such as nature-culture interconnectedness (Sargin, 2023, p. 70). This example indicates what Tornel (2023, p. 57) refers to as “the contested nature and meaning of landscapes and the struggles to transform their meanings and values” in the energy transition process. It is in this sense that Tornel (2023, p. 58) stresses the centrality of place-based resistance against energy development imposed top-down and rightly argues that energy justice should be grounded in the “situated knowledges [that] emerge from relations to places and a defense of territories”.

6. Conclusion

Climate change is looming large on the planet with disproportionate impacts on the Global South, not least due to the prevalence of agriculture-based livelihoods in many Southern countries (Almulhim et al., 2024). However, green energy transition which is widely upheld as a climate change mitigation solution by Northern-led multilateral organisations poses its own problems. While climate change and resource extraction in the broader sense have been studied from a criminological perspective, little attention has been paid to developing a criminological analysis of the green energy transition.

Adopting a harm-based definition of crime which includes both illegal acts and legal but harmful acts, this chapter has aimed to address this gap by exploring the harms of green extractivism and renewable energy infrastructures, conceptualised as green energy crimes. Based on insights from green criminology, state-corporate crime framework and Southern criminology, and drawing on published case studies from the Global South across political ecology and critical geography literatures, three green energy crimes are identified, namely, human rights violations, socio-environmental destruction, and corruption and elite profiteering. It is argued that - particularly in the way they unfold in the Global South - green energy crimes are state-corporate crimes of accumulation, which constitute legal and illegal harms co-occurring and reinforcing each other at the intersection of neoliberal capitalism and the Global North-South power inequalities. Furthermore, resistances against these crimes by the affected rural communities are explored by highlighting the ideological and epistemological dimensions of these struggles.

A key argument made is that crimes associated with fossil fuel projects and low-carbon energy projects, as well as the state response to the resistance movements in both types of projects, are strikingly similar. This points out to the need for a more wholistic consideration of the social harms of energy development in the context of capitalism and neocolonialism, that goes beyond a sole focus on climate change and benefits from an interdisciplinary approach. As such, this chapter calls for more criminological attention to the dynamics of state-corporate criminality in the green energy transition and the related experiences of harm and resistance in the Global South (and beyond).

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