U4 Helpdesk Answer

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Land corruption risks in the green energy sector.

Green energy (and/or renewable energy) requires large areas of land to operate, often more so than energy generated from fossil fuels. The acquisition of land comes with accompanying corruption risks which can lead to challenges such as land grabbing and illegal displacement of communities. To help mitigate corruption risks and their consequences, strong regulatory oversight and rigorous licensing requirements are needed, as well as transparency and community-based approaches to ownership of green energy projects.

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RELATED U4 MATERIAL

- Grand corruption and climate change policies
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- Corruption risks and mitigation measures in land administration

Query

What are the land corruption risks involved with the green energy sector? Which anti-corruption measures are recommended to put into place to prevent or mitigate these challenges?

Contents

MAIN POINTS

- The green energy transition requires land for the extraction of critical minerals and for the development of farms and plants, such as wind farms and geothermal plants.
- This demand for land increases corruption risks such as bribery, embezzlement and a lack of compliance with legal frameworks and policies by project developers. These may lead to consequences such as land grabbing and the displacement of affected communities without fair compensation.
- These land corruption risks are aggravated by what is termed the "green resource curse", where a body of literature considers green energy to be a new driver of the resource curse, which in turn may reduce overall state accountability.
- Interventions to reduce the likelihood of land corruption risks should not only focus directly on the corrupt acts but also focus on creating a more accountable and participatory sector where affected communities (particularly Indigenous peoples) have a voice and are considered equal among officials and experts in terms of decisions made about land use.

Background

The emission of greenhouse gases from burning fossil fuels into the earth's atmosphere is heating the planet at an alarming rate, making a transition away from fossil energy sources vital to avoid the worst impacts of climate change (UN no date). This shift is necessary on a global scale and requires every country to turn to more sustainable and green sources of energy.

This Helpdesk Answer uses Ay, Dincer and Midilli's (2006) definition of green energy as "the energy source which has zero or minimum environmental impact, as more environmentally benign and more sustainable". Green energy therefore "reduces the negative effects of fossil energy resources and the overall emissions from electricity generation, decreases the greenhouse gases, gives an opportunity to take an active role in improving the environment, and meets the clean energy demand for both industrial and non-industrial applications" (Ay, Dincer and Midilli 2006). These energy sources include power produced by solar, wind, geothermal, biogas, low-impact hydroelectric and certain eligible biomass sources (EPA no date)[1].

As climate change's impacts increase, the urgency of green energy transition is clear; with a need to reduce net fossil fuel emissions by almost half by 2030 and reach net-zero by 2050 to limit the increase in the global average temperature (UN no date). Moreover, other worldwide crises have amplified the need for the green energy transition, including conflicts which compromise global energy sources, such as the conflict in Ukraine (Wario 2022).

While numerous industries are rushing to implement this necessary transition, in their haste, there is the concern that accompanying problems may be ignored. For example, an often-overlooked challenge of the transition is that green energy is expected to be much more mineral intensive than fossil fuel-based electricity generation (Hund et al. 2020). This means that, in its entire supply chain, green energy requires more land than energy generated from fossil fuels (Moore 2019). For example, to meet the green energy transition targets in France, Germany and Italy, an area equivalent to the size of Belgium is now needed (Bampinioti et al. 2023). However, land availability is not always considered by states and green energy project developers as a hard technical constraint (Matthews and Wynes 2022). This increases the danger that green energy's impact on land will come with a range of unintended risks.

The below table sets out green energy sources and the amount of land typically required for their generation, as well as accompanying land changes.

[1] However, it should be noted that some experts contend that the proclaimed environmentally friendly marketing of energy infrastructure often hides the extractive, processing, manufacturing and transportation components as well as labour regimes that underline the energy extraction infrastructure (Dunlap 2021: 84). Therefore, it is difficult to ascertain whether sources of energy are truly "green" or not. This paper uses the term "green" to encompass the mentioned energy sources but does not study in depth as to what extent they are truly environmentally friendly or not.

Green energy	Impact on land
Solar power	Solar power requires a large land area to harness the energy, including land levelling and clearing which may lead to erosion. Water is also needed for manufacturing and cleaning the panels and hazardous chemicals used in the solar panels need to be safely disposed of (Waters-Bayer and Wario 2020).
Wind power	A smaller area of land is required for wind power and can be compatible with grazing (although this is disputed by some Indigenous communities, see Fouche 2023), but access by road is necessary (Waters-Bayer and Wario 2020). This can affect the natural ecosystem.
Hydropower	Hydropower requires the construction of a dam and reservoir, often involving flooding natural lakes which can cause a loss of the area's biodiversity (Bazilchuk. 2018). This destroys the wildlife, and entire communities may need to be relocated.
Geothermal energy	Land is needed for wells that extract hot water from underground reservoirs but, generally, geothermal energy is considered to have the lowest impact on land compared to other forms of green energy (US Department of Energy no date).

Land corruption in the green energy transition

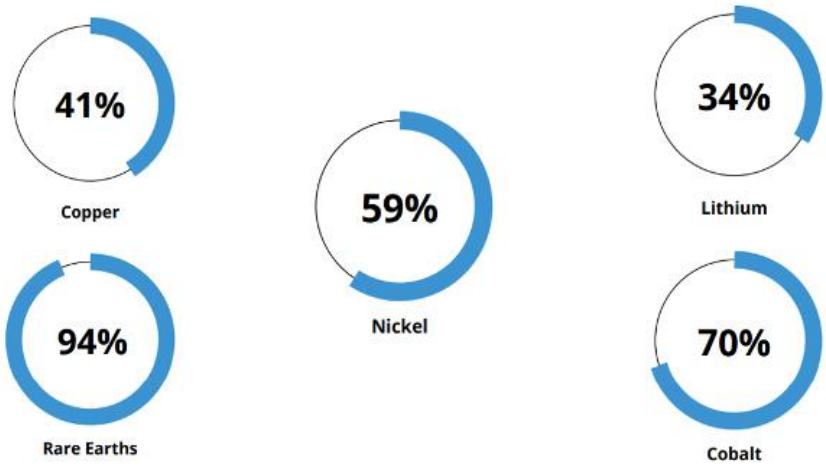
The definition of corruption that is adopted in this Helpdesk Answer is "the abuse of power for private gain" (Transparency International no date). The energy market is already vulnerable to corruption (one in five cases of cross-border bribery occurs in the extractives sector) due to the possibilities of economic rents from energy extraction and the need for large financial investments (UNODC 2022). Other corruption risks in the sector include bribery, embezzlement, trading in influence between public and private sectors, and the manipulation of the policy framework (UNODC 2022).

Land corruption in this paper is defined as "the abuse of power to claim, register, control or transact land" (Knight 2022: 1). Land corruption can include paying bribes during the land administration process, extortion in exchange for a land title, denial of land rights, exclusion of a community from participating in land deals between private investors and local authorities, and when people are evicted from their land without proper compensation or opportunity to participate in the decision-making process (Transparency International no date).

The need for land in green energy transition at the outset comes from the extraction of materials required to build green energy generation and storage technologies. At the start of the supply chain, what are referred to as "critical minerals" or "energy transition minerals" (minerals such as lithium, nickel, cobalt, etc.) which are necessary to build technologies such as wind turbines and solar plants (IEA no date). Critical minerals are geographically clustered, which puts pressure on land where these minerals are located and come with serious environmental and social concerns; potentially affecting communities and disrupting natural ecosystems (IEA no date).

To illustrate this point, the Democratic Republic of the Congo (DRC) is responsible for between 60% and 70% of the global production of cobalt (Davey 2023). However, these cobalt mines have destroyed local ecosystems and polluted the air, causing an increase in birth defects in the local population as well as serious environmental damage (Davey 2023). An additional concern raised by the literature (Carballo and Sahla 2022) is that critical minerals tend to be concentrated in areas with high levels of corruption, meaning that their extraction from the land (and the placement of mines) may be facilitate or increase further corruption. Additionally, the majority of the world's energy critical minerals projects are located either on or near Indigenous People's lands, which could potentially further entrench power asymmetries, with adverse conditions for human rights-compatible permitting, consultation and consent (Owen et al. 2022).

The percentage of energy critical minerals located in countries with high levels of corruption:



Based on Church and Crawford. 2020. Minerals and the Metals for the Energy Transition using the Transparency International 2017 Corruption Perceptions Index (Caripis 2022).

At the other end of the supply chain, the infrastructure required to produce green energy often necessitates the acquisition of large tracts of rural land, with implications for land use and natural resources. This comes with a myriad of different negative social and environmental impacts. For example, hydroelectric dams block migration routes for fish, preventing them from breeding (Moore 2019) and, in some cases, building wind turbines in rural areas have increased conflicts (known as land conflicts) when affected communities are improperly consulted (de Vries 2023). In terms of specific land corruption risks, bribery, kickbacks, embezzlement, and

deliberate non-compliance with regulations for economic benefits when acquiring land can occur. These corruption risks can have huge negative implications for communities who live on the land, including Indigenous People, such as land grabbing of ancestral lands and their displacement.

At different stages of the supply chain the green energy transition from critical mineral extraction to the building of plants and farms will require large amounts of rural land to be acquired. Cases have been recorded of both public officials and private companies using their discretion to maximise financial benefits, often at the cost of local populations. Therefore, given the high demand for land and the urgency of transitioning to clean energy, effective corruption risk mitigation measures need to be in place. The following sections provide an overview of the specific corruption risks identified with land acquisition and change for green energy projects and puts forward measures proposed by the literature to alleviate these corruption risks and challenges.

Corruption risks in the green energy sector

The green resource curse

The green resource curse is a phenomenon that may aggravate or worsen corruption risks in the green energy transition. The resource curse is the paradox whereby resource-rich countries, despite the potential wealth generation of natural resources, fail in development goals as compared to countries with fewer natural resources.

This is caused in part by what is referred to as the "rentier effect", which is the process whereby ruling elites accrue wealth through rents generated by natural resources rather than taxes. Therefore, through limiting a government's need for other forms of revenue generation, natural resource rents reduce the need for tax collection and can lead to the erosion of institutional capacity building and institutional checks on their accountability (Moore 2004; Barma 2014). These large amounts of revenue may increase the incentives for rent-seeking behaviour among the political class.

In terms of the green energy transition, the resources needed for green energy (critical minerals, green technologies and land for plants and farms) may cause a similar rentier effect, further reducing the accountability of political elites. A body of literature frames green energy as the new resource curse (Leonard et al. 2022). Importantly, traditional energy sources and renewable energy sources all rely on the state to manage financial flows around assets to produce an energy commodity that can be sold domestically or exported (Leonard et al. 2022). In both there are similar incentives for corruption and reduced government accountability (Leonard et al. 2022).

In part because of the green resource curse, some research indicates that green energy is unlikely to cause stabilising effects or increase development, which had been expected by experts (Braunstein, Golthau and Veit 2023). Other research points to lower income countries as having the highest risk for the green resource curse, particularly in sub-Saharan African which is rich in land and raw materials (Bruch, Dieni and Stein 2023).

Non-compliance with regulations and standards

When acquiring land for green energy companies may breach environmental and social regulations and standards to cut costs or gain business advantages. Local authorities may also overlook these violations if given bribes or other advantages

from companies. Despite there being a number of international standards mandating how energy companies should acquire land in a socially responsible manner through free, prior and informed consent (FPIC)[2] (see the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) Article 10) there have been numerous documented cases where project developers have deliberately disregarded this step, often in favour of economic benefit (Rural 21 2023: 34).

As an example, the largest lithium mining site in the United States (a signatory of the UNDRIP) is at the sacred Indigenous site called Peehee mu'huh (Fecht 2022). A mining project is moving forward in the area and local Indigenous communities report that there was no proper consultation as per the UNDRIP (Fecht 2022). The communities raised concerns about air and water pollution as well as the potential negative impacts to endangered species, suggesting that the mining companies had not conducted the proper due diligence through environmental and social impact assessments (Fecht 2022). Despite protests and these legal challenges from Indigenous People and environmental activists, Nevada's Division of Environmental Protection issued the mining permits for the project (Fecht 2022).

The affected communities claimed that the Bureau of Land Management violated multiple laws and was complicit in false statements about community consultations during older mining-related permits (Henshaw 2023). One tribe member claimed that private security from Lithium Americas also bullied tribal elders (Henshaw 2023). Many of the residents have accused state government officials as viewing lithium mining simply as an economic opportunity and doing little to offset the negative impacts on communities (Rothberg 2021).

In Kenya, authorities overlooked private developers' failure to enforce free, prior and informed consent in the case of the Lake Turkana wind power project in Northern Kenya. The developed area is a geographic point of convergence for migratory pastoral groups (Gargule 2019). In 2006, the area was set for transformation through the wind power project, with 365 wind turbines and related infrastructure planned on 150,000 acres of land (Gargule 2019). It attracted the interest of several international development funding agencies with an interest in renewable energy and carbon credit generating assets (Gargule 2019).

In 2014, affected communities (including pastoralists) brought a case to the environmental land court requesting the termination of project activities, citing "irregular, unprocedural and illegal acquisition and annexation of community land, commissioning of a self-serving socio-economic and environmental impact assessment (SEIA) by the proprietors of the project and denial of the Indigenous status of communities" (Gargule 2019). However, construction of the wind farm continued, and the project implementers used various mechanisms to circumvent claims, including illegal dispossession of communities and irregularities in the EIA and community consultation (Gargule 2019). Project developers sought to portray the project as providing development to the region through green energy and claimed that local pastoral livelihoods and communal land use was unviable (Gargule 2019). Ultimately, a 99-year lease was approved for the wind power project, and

[2] Free, prior and informed consent is the exercise of Indigenous peoples' right to self-determination, working alongside others to identify, co-design and pursue development pathways that respond to their priorities and aspirations (IFAD 2023)

local communities were improperly compensated as they were not deemed to be Indigenous. Cases of bribery of local political leaders were also reported (Gargule 2019).

Research backs up these claims that companies' commitment to conventions and regulations is inadequate and superficial. In 2016, the Business & Human Rights Resource Centre conducted a survey of 50 companies involved in renewable energy projects on their approach to human rights. Their key findings included that 34 companies demonstrated some commitment to local consultations, however, the quality of the majority of consultations were weak, with only 5 out of the 50 referring to respect for Indigenous Peoples' right to free, prior and informed consent (Business & Human Rights Resource Centre 2016). 11 of these companies have faced human rights allegations including the abuse of the right to free, prior, and informed consent, the abuse of land rights, and violence against communities (Business & Human Rights Resource Centre 2016).

This discounting of human rights standards is reflected in all stages of the green energy supply chain where project developers and local authorities may overlook regulations, exacerbating land corruption risks and human rights abuses. The ever-increasing demand for critical minerals is seeing greater state participation and raising concerns for a potential "race to the bottom" in regulatory standards to attract investment (Caripis 2022). This point, raised by civil society (Caripis 2022), is that by making it easier for companies to be granted a licence opportunities for public participation and scrutiny will be limited, subsequently reducing accountability and increasing corruption risks (Caripis 2022).

Not only are there cases of companies breaching FPIC requirements, but it has also been reported that even when the projects have been approved by communities, project developers deliberately fail to fulfil their contractual obligations. One notable case of is the Kunta Ultra Mega Solar Park in India. Farmers who had their lands acquired for the project were compensated less than promised, allegedly due to corruption, violating the provisions of the Indian Land Acquisition Act (Satish 2015). Reports were also made that police put up roadblocks to try to prevent public gatherings to protest, leading to conflict between activists and police (Satish 2015). The farmers' protests ultimately led to delays in the construction of the power plants, and the work came to a standstill in June 2019, with payment of compensation for land also shelved (Maganti 2016).

Moreover, in some of the most serious reported cases, local public officials have actively colluded with energy companies to overlook human rights in favour of financial benefits. In the DRC, Amnesty International reported that state officials are aware of critical-mineral mining taking place in unauthorised locations and that they are benefiting financially, and illegally, from them (Amnesty International 2016: 8). Miners have complained to the researchers that the police and other officials demand payments from them to work on the site, despite the Ministry of Mines in the DRC confirming that none of these agencies were authorised to collect such payments (Amnesty International 2016: 8). The state officials are also turning a blind eye to unsafe working conditions and child labour (which breaches DRC's laws) in favour of collecting economic benefits (Amnesty International 2016: 8).

Bribery, embezzlement and kickbacks

Given the large amounts of funding and discretional authority of public officials over land administration, the green energy sector has a high risk of bribery, embezzlement and kickbacks. Both

the public and private sector may engage in these acts of corruption.

Indeed, the first corruption scandal related to green energies involving a high-level European politician has recently come to light (Simon 2023). The Portuguese Prime Minister António Costa resigned after a corruption probe was launched into him and members of his administration in connection to lithium (used in rechargeable batteries such as those in electric vehicles) mining projects in the north of Portugal, a green hydrogen mega-project and a data centre in Sines (Hernández-Morales 2023). The projects had been criticised for the low quality of the elements set to be extracted and the disproportionate environmental damage expected from operations (Hernández-Morales 2023). Costa and other officials have been accused of malfeasance, corruption and influence peddling related to lithium mine concessions. Local communities stated that, from the beginning, the planned mines had drawn opposition and said the process lacked transparency (Simon 2023).

Evidence of fraudulent overpricing (which is often indicative of kickbacks) was detected in Brazil, where an investigation was conducted into the alleged overpricing and corrupt payments and money laundering arising from the 2014 sale of the Zeus wind project (Spatuzza 2019). Other issues have been recorded with wind farms in Brazil, with affected communities receiving low compensation rates compared to "the damage [the wind farms] leave behind" (Baptista and Teixeira 2023). Companies do not inform affected communities as environmental licensing occurs at a local level, with no single database showing which wind farms are planned (Baptista and Teixeira 2023). Advocacy groups state that this lack of information prevents communities from reacting before wind farms become a reality (Baptista and Teixeira 2023).

Further potential private/public sector corruption occurred in Germany, where the company Holt Holding is said to have sold wind turbines in Lower Saxony that never existed (Teller Report 2021). Staff at Holt Holding were said to have initially forged land use agreements and then presented them to their business partners (Teller Report 2021). And Ormat, one of the largest global producers of geothermal technology and geothermal power plants, has been embroiled in a corruption scandal. Its lucrative international contracts have allegedly been facilitated through payoffs to government officials, such as those who approved a power project in Guatemala (Hindenburg Research 2021). Kickbacks have also been suspected from the profits made from their overseas power plants (Hindenburg Research 2021).

The impact of corruption in the green energy sector

Land grabbing

One often cited consequences of corruption in the green energy sector is land grabbing. Land grabbing is when land is taken from residents in an unfair or illegal manner. Land acquisitions are considered as land grabs when they fulfil one or more of the following conditions (as defined by the International Land Coalition):

i. "in violation of human rights, particularly the equal rights of women
ii. not based on free, prior and informed consent of the affected land-users
iii. not based on a thorough assessment, or are in disregard of social, economic and

environmental impacts, including the way they are gendered

iv. not based on transparent contracts that specify clear and binding commitments about activities, employment and benefits sharing

v. not based on effective democratic planning, independent oversight and meaningful participation" (ILC 2011)

Already marginalised communities, such as rural communities and/or Indigenous Peoples are particularly vulnerable to land grabs as developments are often established in rural low-income areas where the land is cheap (Leonard et al. 2022).

Green grabbing, which refers to land grabbing when it is for climate change mitigation measures such as the green energy transition, builds on well-known histories of colonial and neocolonial resource alienation in the name of the environment (Leach 2012). Furthermore, it involves novel forms of commodification and marketisation of nature (Leach 2012). Leach (2012) argues that in the rush to repair nature through climate change mitigation interventions, actors are in fact neglecting (and further replicating) the processes and political-economic structures that caused the damage in the first place.

Land grabbing may be facilitated by bribes to a public official from a company seeking to gain access to land or the influence of businesses or political elites on decision-making by state bodies (De Schutter 2016). Influence peddling, undue influence and policy capture are also major corruption risks related to land grabbing as these are used to gain favourable outcomes for project developers. Groups aligned with the land grabbers can influence and manipulate decision-making processes of laws and public policies (Stassart et al. 2021: 16). This can lead to situations of policy capture where these groups help to further legalise land invasions and potentially facilitate future land grabs (Stassart et al. 2021).

In a recent example of green grabbing, media outlets have reported that in Xingtang County in China, farmers claimed an energy company, Xingte New Energy Co. Ltd., bulldozed their land and livelihoods to make way for solar panels (Ye 2022). Residents from Liujiazhuang Village in Xingtang Country said that they were forced to sign a 20-year lease, with some claiming they had not agreed to the company's conditions, while, concerningly others claimed that they had been assaulted by strangers when trying to stop the installations (Ye 2022). Moreover, there have been reports of many companies in China ignoring local policies, despite a ban on farmland for solar installations by provincial authorities (Ye 2022). This alludes to potential undue influence by the green energy companies who have been able to bypass these prohibitions to acquire land for solar farms without resistance from authorities.

Land grabbing is also a risk in contexts where there is political corruption and powerful organised crime groups. In Italy, for example, investments in wind farms have become a lucrative business for organised crime groups (Caneppele, Riccardi and Standridge 2013). Italy has attracted particularly high economic support for wind power, and high profitability attracted both legitimate and illegitimate investors (Caneppele, Riccardi and Standridge 2013). A positive correlation was found between the distribution of wind power and level of organised criminal group presence in research (Caneppele, Riccardi and Standridge 2013. Land grabbing was also recorded, as in some cases analysed, organised criminal groups used violence or the threat of violence to coerce landowners into selling their land for wind farms (Caneppele, Riccardi and Standridge 2013).

Project developers may also take advantage of the lack of knowledge from communities during land acquisitions (fitting point (ii) of the definition of land grabbing). In Isthmus of Tehuantepec, Mexico, more than 1,000 wind turbines were erected between urban areas and villages where around 560,000 inhabitants (primarily Indigenous) held land rights (Martínez-Mendoza et al. 2020). Affected communities reported that there was no participatory process or democratic involvement of communities in the decision-making or implementation of the project (de Vries 2023). Information on the impact of the development was also not passed on to the communities (de Vries 2023).

It is suggested that this lack of consultation tends to happen in areas where land rights are contested, and the state has not actively tried to resolve land conflicts (de Vries 2023). As a result, the wind companies promoted the legal modification to change the land's social ownership (*ejido*) to private land ownership to facilitate the wind farm installation (Martínez-Mendoza et al. 2020). The contracts signed with communities included poor payments for the use of their land, social development plans ignored, and subsequently, there were threats and violence from paramilitary groups and state officials against locals who opposed the projects (AIDA 2012).

The displacement of affected communities

When land grabbing occurs, this often leads to the displacement of local communities, depriving them of their homes and/or livelihoods. This can be considered corruption as those in power abuse their position to develop green energy projects, which come with a reputational or financial benefit, displacing communities in the process. The livelihoods of Indigenous smallholder farmers and pastoralists are particularly affected when displaced, as their livelihoods tend to depend directly on the land (de Vries 2023).

Displacement of these communities is exacerbated by the fact that the recognition of land rights is complicated in some parts of the world. Indigenous Peoples often live on lands that are governed by customary tenure[3] and other community agreements which may overlap with other state laws, meaning legal protection of their land rights does not always exist (Alcorn 2013). This makes these residents particularly susceptible to unfair land agreements, corruption and reduced government accountability (Leonard et al. 2022).

In sub-Saharan Africa, for example, many countries operate under legal pluralism, with multiple systems that govern land ownership and occupancy (Kazungu 2023). These systems include statutory laws, which are based on the legal title to the land, and customary laws, based on customary and community rules (Kazungu 2023). As much of land ownership and use in the region is based on customary tenure systems (through familial ties or granted by community leadership) this can lead to tenure insecurity and land rights not being legally recognised (Kazungu 2023). This risks individuals and communities losing the right to land and forced to move (Kazungu 2023).

Even when community rights to land are clear, efforts to enforce collective land and resource

[3] Indigenous and customary tenure regimes are those where community, rather than statutory, norms and rules usually prevail when it comes to land use decisions, where access to land is services from their membership to a community (Galeana, Lawry, Sauls 2022). Access is usually mediated through unwritten protocols and practices that set criteria for membership (Galeana, Lawry, Sauls 2022).

rights are often met with competing claims and threats by powerful actors, with a tendency to favour the power of the extractive industries (Land Gap Report 2022). This competition is often led by states, whether for public or private interests, and even well-meaning environmental projects fail to see affected communities as allies and equal partners (Land Gap Report 2022). Moreover, even if community rights to land are formalised, there is a risk of further entrenching of existing inequalities within communities, particularly if only engaging with "household heads" as this may exclude young people and women (Land Gap Report 2022).

In Morrocco, a solar energy plant was installed on Amazigh agro-pastoralist communities' land without their fully informed approval and consent (Hamouchene 2021). The land was purchased for a significantly low price of 15 cents per square metre, which was originally approved by the Ghassat Communal Assembly, which represented the seven Amazigh villages (Salime 2021). However, while the communities were consulted on the development, the benefits they agreed upon during consultations did not come to fruition. The villagers were assured development for their communities but the promised number of jobs for local residents in the solar plant did not materialise (Salime 2021). Over 8,000 people lost access to their ancestral pasture (Salime 2021). While this was hailed as the largest solar plant in the world and the Moroccan government gained international approval for investing in renewal energies, it was also revealed that the plant relies on concentrated thermal power, which potentially negates its status as a green project (Hamouchene 2021). Concentrated thermal power technology requires large amounts of water to cool down and clean the panels, and, in the context of a semi-arid region, this means that the already scarce amount of water was diverted away from communities for drinking and agriculture and towards the solar energy plant (Hamouchene 2021).

Measures to prevent and respond to corruption risks

Political will

Before reviewing specific measures to counter land corruption and human rights abuses in the green energy transition, it is important to note that broader structural reforms and political commitment are crucial to ensure the following interventions are successful. Authorities should work to ensure they have a robust national legal framework to counter corruption and ensure strong oversight mechanisms to build the foundation for successful anti-corruption measures.

While this is context-dependent for each country, Hinfelaar and Kaaba (2022) produced a notable legal and political economy analysis of anti-corruption in Zambia's energy sector. They identified that the foundations for dealing with corruption in the energy sector include revising the national legal framework to ensure the reduction of the president's executive powers and the independence of oversight institutions; harmonise anti-corruption laws; and blacklist and debar corrupt energy companies (Hinfelaar and Kaaba 2022). Additionally, pressure from civil society and the media to increase political will to counter corruption is key to driving change (Hinfelaar and Kaaba 2022).

Such structural reforms vary given the needs of different countries, but implementing the following anti-corruption measures will not work unless broader governance reforms are realised (or, at the very least, launched). And, in general, the complex

relationship between green energy development, land rights and communities (particularly in the Global South) requires further research based on each different countries' contexts (de Vries 2023).

Strong regulatory oversight and rigorous licensing requirements

Enforcement and stipulation into national law of different legal and regulatory requirements which provide social protections can reduce conflict between project developers and affected communities (Bruch, Dieni and Stein 2023). It should be noted that strong oversight and sanctions by the state for companies and public officials which bypass these regulations for economic benefit should be enforced. Companies themselves also have a responsibility to integrate social protections, anti-corruption measures and human rights into their operations.

Bruch, Dieni and Stein (2023) put forward recommendations for rigorous licensing requirements which requires project developers to comply with environmental laws, environmental impact assessment requirements, and health and safety standards as conditions to licence or permit approval (Bruch, Dieni and Stein 2023). For example, states should implement the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) to ensure the likelihood of fair treatment of all affected communities and reduce the likelihood of corruption risks.

Research shows that 47 out of 48 sub-Saharan African countries do indeed provide constitutional and/or statutory compensation for landowners displaced or who have experienced damage to their land (Bruch, Diene and Stein 2023). Most of them have also enacted benefit-sharing provisions for mining (Bruch, Dein and Stein 2023). In the VGGT, it is recommended that fair and prompt compensation should be provided to affected communities and that relocations, resettlement and access to productive land should be guaranteed when eviction cannot be avoided (FAO 2022).

Other notable prerequisites are social and environmental impact assessments. Failure to comply with these requirements should result in reviews and licences being potentially revoked. These assessments are mandated by the IFC Performance Standards as well as the VGGT and should in turn be reflected in national legal frameworks for project developers (World Bank 2022). The World Bank provides a comprehensive overview of good practices in national systems for environmental and social impact assessment (World Bank 2022).

Article 6 of the International Labour Organization's Indigenous and Tribal Peoples Convention (1989) requires signatory governments to consults with the peoples concerned through appropriate procedures and establish the means by which Indigenous Peoples can freely participate at all levels of decision-making in elective institutions and other bodies responsible for policies and programmes which concern them (ILO 1989).

In terms of the most worrying allegations of companies overlooking safety and human rights in critical mineral mines, Amnesty International's report (2016) emphasises the need for all companies in the supply chain to take corrective action. Widespread adoption of the OECD's Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas sets out how all companies in the supply chain are responsible for assuring that critical minerals are sourced responsibly and are free from corruption and human rights abuses. Under the UN Guiding Principles on Business and Human Rights

(UNGPs) companies have a responsibility to mitigate and take corrective measures for the victims, which requires more than just discontinuing a trading relationship, but every company in the supply chain should take steps in cooperation with other relevant actors (NGOs, national authorities, etc.) to ensure the harm suffered is remedied (Amnesty International 2016).

Documenting land ownership

In sub-Saharan Africa, one study found that many countries have started to address land grabbing and disagreements about critical mineral rights through establishing protections in their legal codes and regulations (Bruch, Dieni and Stein 2022). Many have legal mechanisms in place to prevent and peacefully resolve conflict between landowners, project developers and governments. However, it should be noted that many other studies dispute the efficacy of these land dispute mechanisms (see Ibrahim et al. 2022; van Leeuwen et al. 2020).

While the transition to green energy is ongoing, it is important that customary land ownership systems are recognised and protected in national law. By doing so, the value of land can be defined in project development as a contribution from the affected communities and will enable them to benefit in a sustainable way (Rural 21 2023). This is particularly important for pastoralist communities and Indigenous Peoples, many of whom may own the land through customary systems.

Indeed, the Land Gap Report (2022) argues that the solution to conflict over land for climate change mitigation interventions is legitimate and effective ownership and control of the land by affected communities and a strong voice to self-represent and engage on equal terms. This involves:

- "acknowledging place-based histories in development interventions through examining the specific histories of a place
- putting place-based knowledge on an equal footing with outside perspectives, that affected communities are held on an equal footing with international conservation and development experts
- respecting different values associated with land that go beyond economic and social values and include culture and self-determination
- co-producing solutions with affected communities
- unpacking the idea of community and understand it from an intersectional perspective that recognises internal politics that may not be immediately visible to well-intentioned outsiders" (Land Gap Report 2022: 66).

The participation of communities and community ownership of projects

Under Principle 10 of the Rio Declaration on Environment and Development (signed by 175 countries), every person should have access to information, participate in the decision-making process and have access to justice in environmental matters (CEPAL 2015).

Therefore, as a recommendation to green energy companies developing on land, success depends upon creating a stable and cooperative investment environment with local communities with public support to avoid costly conflicts and delays (Business & Human Rights Resource Centre 2023 a). To achieve this, projects can be designed through a shared prosperity project model, which includes aspects such as full to co-ownership of assets by affected communities and benefit-sharing

mechanisms (Business & Human Rights Resource Centre 2023 b).

Shared prosperity project models include various ownership models which are developed in response to provincial regulatory frameworks, availability of funding, governance capacity of the community, and capacity to support an Indigenous (or affected community) partnership (Bledsoe 2021). For example, in Canada, favourable funding conditions and access to project developers has led to fully Indigenous-owner projects, such as the solar arrays at Lutsel K'e Dene First Nation and Skidegate on Haida Gwaii (Bledsoe 2021). These are not major developments, due to financial barriers, but they still provide the community with control over planning, operations and profit of the renewable energy projects (Bledsoe 2021).

Ownership can also be split evenly between Indigenous People, meaning profits and decisions are taken equally. For example, the Apuiat Wind Farm is a joint project between the Innu First Nation and Boralex, a Canadian renewable energy company (Bledsoe 2021). The wind farm development is carried out with respect for Innu values, preservation of flora and fauna, and traditional practices (Bledsoe 2021).

Even if an affected community does not have full (or half) ownership of a green energy development on their land, ensuring adequate financial compensation from the development can ensure community buy-in and prevent human rights abuses and corruption. In Oaxaca, Mexico, the Ixtepec wind project is a community-owned Indigenous project (Business & Human Rights Resource Centre 2016). The community proposed the building of the wind farm to a private company, and they mandated that the agricultural impact would be minimal and conducted thorough environmental impact assessments (Business & Human Rights Resource Centre 2016). The energy was sold to the national grid at a fixed price and gave the community members an income, with 50% of the earnings going to community members (Business & Human Rights Resource Centre 2016).

Gaining the approval of affected communities not only reduces the risk of human rights violations and corruption but also provides financial benefits to companies as legal challenges cause expensive project delays. Contact Energy implemented community consultations with Māori communities from the start of project plans (Business & Human Rights Resource Centre 2018). The commitment to community consultations led to an agreement that provided access to geothermal sites for the company while allowing Māori communities to share the investment and monitor the project so that it does not have negative social and cultural impacts (Business & Human Rights Resource Centre 2018). In Mongolia, effective consultation with communities meant that local concerns about the siting of solar farms were taken into account during the project design, which resulted in herders retaining full access to the pasture under the wind turbines and power lines (Wario 2022).

The leasing of land

Project developers and local authorities should encourage the leasing of land for green energy projects over directly purchasing it from communities to help reduce displacement and opportunities for land grabbing. If land ownership is correctly documented, then the leasing of land for green energy projects is preferable over purchasing the land from communities. This is because leasing to project developers provides more economic benefits and protection (Sena no date). It ensures that the financial benefits are shared over time with communities, gives them opportunities to participate in the project development, as well as potentially supporting job

creation (OECD no date). This may also reduce the risk of land grabbing, displacement of communities and of rent-seeking behaviour from corrupt officials.

Transparency on green energy land deals

The Extractive Industries Transparency Initiative (EITI 2023) states that data is key to informing policy responses and public debate on the energy transition. This includes transparency on critical minerals and green energy technologies, such as transparency in the payment of revenues associated with extractive industries and sharing information on the permit process and the potential impact of mining with communities (Bruch, Dieni, Stein 2023). Transparency of information empowers communities to challenge decisions made by public authorities and project developers, as well as reducing the ability of companies to cut corners with regulations and policies. Publishing information on payment of revenues helps to diminish the risk of embezzlement and kickbacks. However, it should be noted that analysis shows that high transparency alone is not sufficient as an anti-corruption tool, especially in countries with low human development and poor rule of law and must be implemented alongside other measures (Mungiu-Pippidi 2022).

As tools to address adverse social and environmental effects, environmental and social impact assessments should be published in an accessible manner in the languages of all affected communities (Caripis 2021). As an example, under the German information act, any natural or legal person can request environmental information through submitting an application to a body in writing, orally, email or another way (BMUV no date). This information provided publicly includes environmental impact assessments on approved land developments.

Some countries have the requirement for open social impact assessments written into law, such as The Indian Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (2013). This act mandates that the government should identify or establish and independent organisation to be responsible for ensuring that a social impact assessment be carried out within the provision of the act (FAO no date). To guarantee participation and transparency, a public hearing in the affected areas is then carried out after the assessment (FAO no date).

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