

U4 HELPDESK ANSWER 2025:11

Corruption risks in the conservation and restoration of wetlands

A focus on peatlands and mangroves

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Wetlands are vital ecosystems that play a crucial role in carbon sequestration while supporting the livelihoods of communities worldwide. However, they face growing threats from extractive industries, urban expansion, illegal logging and other destructive activities. Protecting these ecosystems requires countering corruption through transparency and accountability measures. In doing so, this can help wetlands continue to sustain local communities and wildlife, and contribute to nature-based solutions for curbing climate change.

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Related U4 reading

[Community-based natural resource management as a good governance and anti-corruption method: Lessons from Madagascar \(2023\)](#)

[Corruption risks in land-based solutions to climate change \(2023\)](#)

Query

Are there any corruption risks in the wetlands (peatland and mangrove) sector or similar areas that prone to corruption? And are there any success stories of corruption prevention in this sector?

Main points

- Wetlands are recognised for their importance in providing a habitat for various species, flood protection and carbon sequestration, where they store carbon at higher rates than other ecosystems. However, their protection and restoration (which is designated under the Ramsar Convention) are undermined by a number of environmental crimes that undermine these protections, including illegal logging, illegal fishing, development of infrastructure and buildings, and others.
- The evidence suggests that these environmental crimes are facilitated by and complemented with corruption. Many studies show that those entrusted with regulating the protection of wetlands use this power to accept bribes and other favours to allow illegal activities to continue operating.
- Insecure land tenure for local communities and land corruption also exacerbates this issue, leading to communities losing rights to their land over the interests of developers and other private companies.
- Corruption in the extractive industries is also well documented, and particularly affects peatland ecosystems, which often have oil beneath the surface. In these cases, financial incentives may be superseded by the protection of ecosystems, as mandated by international and national legislation.
- Mitigation measures include the use of community management and oversight of conservation and restoration projects, allowing local communities to use sustainable practices to ensure these ecosystems thrive.
- Cross-sectoral collaboration between the different responsible entities is also important, with information sharing about each corruption risk necessary for holistic governance of the sector.

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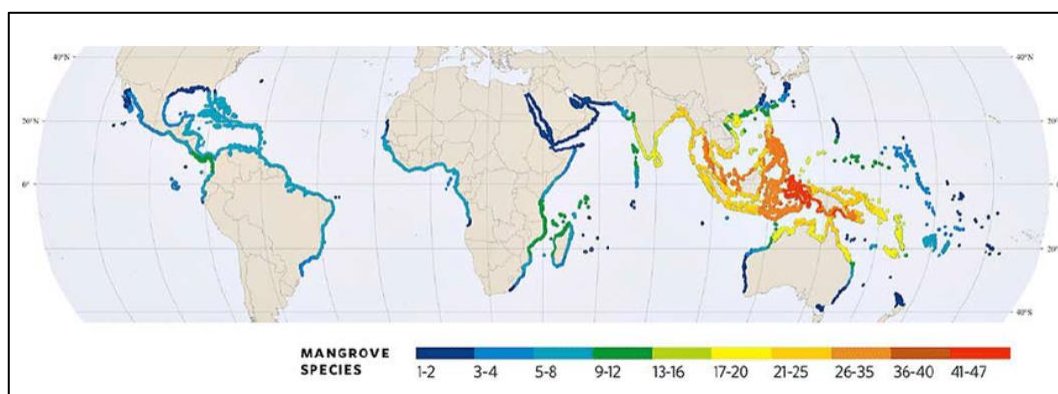
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Background

Wetlands are ‘areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres’ (Ramsar Convention Secretariat 2007). They have their own diverse ecosystems and contain vegetation that has adapted to wet soil, hosting a variety of plant and animal species (WWF n.d.). This Helpdesk Answer will focus on two types of wetlands: mangroves and peatlands.

Mangrove ecosystems cover approximately 150,000 square kilometres and are found primarily along tropical, sub-tropical and warm temperate coasts, covering around 15% of the world’s coastlines in total (IUCN 2024). They are home to a diverse range of fauna, with one study identifying 48 bird, 14 reptile, 1 amphibian and 6 mammal species that are endemic to mangroves (Luther and Greenberg 2009). They are also home to endangered species such as the pygmy three-toed sloth and Bengal tiger (Mangrove Action Project 2018). Figure 1 below illustrates the geographic distribution of mangroves worldwide:

Figure 1: world map of mangrove distribution zones and the number of mangrove species along each region



Source: Michel 2014.

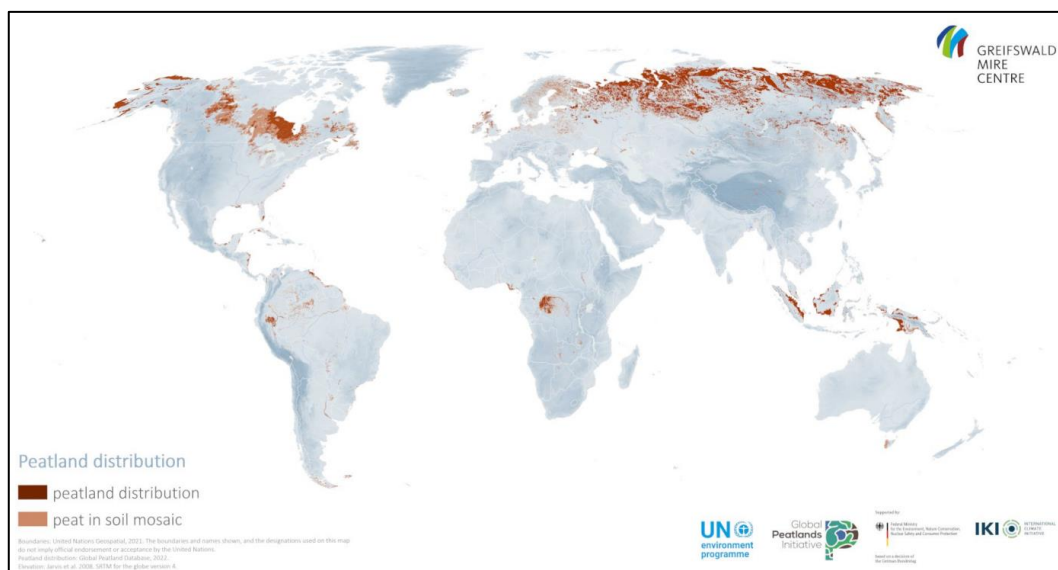
The ecosystems of mangroves are critical for carbon sequestration¹ as they accommodate large carbon stocks which have the capacity to control greenhouse gas emission and reduce atmospheric carbon dioxide levels (Choudhary, Dhar and

¹ Carbon sequestration is defined as the long-term storage of carbon in plants, soils, geologic formations and the ocean (Britannica 2025).

Pawase 2024). This is through soils, biomass accumulation and the roots of mangroves that are submerged in water, which creates an oxygen-poor environment that slows the decomposition of organic matter, leading to the buildup of organic carbon in the soil, which can remain for hundreds of years (Emerson 2023). Mangrove ecosystems store as much carbon per hectare as tropical forests, and ten times more carbon than savannahs (Dunne 2018). This is also known as blue carbon, which refers to carbon captured by ocean and coastal ecosystems, which sequester carbon at a faster rate than other ecosystems (NOAA 2024).

Peatlands, another type of wetland ecosystem, occur in almost every country and account for up to 3% of the total global land surface (IUCN n.d.). They comprise of peat soil, and the habitats that grow on the surface and are varied, ranging from temperate treeless areas to swamp forests (IUCN n.d.). Figure 2 below illustrates the global distribution of peatlands:

Figure 2: Global peatland distribution



Source: Greifswald Mire Centre 2024.

Like mangroves, peatlands store a large amount of carbon through soil and biomass. Peat is a marshy soil that is partially made up of decomposed organic material that has accumulated over centuries, which helps to remove carbon from the atmosphere through plant growth (Noema 2017). When peatland is disturbed, carbon is released back into the atmosphere (Noema 2017). Peatlands play a vital role in water regulation through buffering natural disasters such as floods and droughts, and they

regulate and safeguard the water table² (Austin et al. 2025; Ma et al. 2022). Peatlands also support critical ecosystems, which include food and a habitat for endemic species (Austin et al. 2025).

Given the vital role of wetland ecosystems in carbon sequestration and biodiversity support, numerous international conventions and agreements have been established and ratified to promote their conservation and restoration. This includes repairing ecosystems that have been degraded, planting native plants species, preventing harmful activities and adapting agricultural and other human activities to reduce pressure. For example, the Ramsar Convention on the Wetlands (1971) aims to work towards the wise use of all wetlands, protect important wetland areas and cooperate internationally on transboundary wetlands (Ramsar n.d. a). As of 2025, 172 countries are part of the Ramsar Convention, covering more than 2.5 million square kilometres worldwide (Ramsar n.d. b).

In addition, the United Nations Framework Convention on Climate Change (UNFCCC) recognises the importance of wetlands in the context of the climate crisis. The protection, restoration and sustainable use of wetlands are highlighted within nature-based solutions³ that are included in countries' nationally determined contributions (NDCs)⁴ (UNDP 2019:1). At COP28, countries and non-state actors committed to restoring 15 million hectares (ha) of mangrove by 2030 and are aiming for the sustainable finance of US\$4 billion (Mangrove Alliance 2024:112).

Finally, programmes such as the Blue Carbon Initiative work on coordinated efforts to conserve, restore and manage coastal ecosystems to prevent the release of stored carbon, which include mangroves (Blue Carbon Initiative n.d.). Restored or conserved blue carbon ecosystems can also generate carbon credits that can be sold

² The water table refers to the upper level an underground surface in which the soil or rocks are permanently saturated with water. It separates the groundwater zone that lies below from what lies above it. It plays a vital role in supporting agricultural and industrial enterprises (Britannica n.d.).

³ Nature-based solutions to climate change are approaches that offer the potential to both reduce and remove emissions through enhancing the ability of ecosystems to sequester carbon dioxide, or reverse the degradation of an ecosystem so that it no longer emits greenhouse gas emissions and once more becomes a 'net sink' of carbon (meaning it stores more carbon than it emits) (LSE 2022).

⁴ Nationally determined contributions (NDCs) are each country's climate actions to reduce national emissions and adapt to the impacts of climate change, as required by the Paris Agreement (UNFCCC n.d.).

on carbon markets⁵ and provide financial incentives for conservation and restoration initiatives.

However, despite international recognition of the importance of wetlands for climate change mitigation, these ecosystems continue to be destroyed. Globally, the area of mangroves decreased by 1.04 million hectares between 1990 and 2020 (FAO 2020:38). The primary changes to mangroves are a result of the conversion to aquaculture, oil palm plantations and rice cultivation, which account for 43% of mangrove losses between 2000 and 2020 (Mangrove Alliance 2024:3). Over the decade from 2010 to 2020, around 600 square kilometres of mangroves were lost, and around 62% of this can be attributed to direct human impacts (Leal and Spalding 2022:10).

Additionally, only 17% of the world's peatlands are protected, which is less than any other high-value ecosystem (Austin et al. 2025). Peatlands are subject to degradation for commercial agriculture, forestry, mining, road, other infrastructure, as well as peat extraction (Austin et al. 2025). Climate change also threatens these ecosystems, particularly as they are exposed to more frequent and severe weather events and sea-level rises (IUCN 2024).

Corruption plays a role in enabling many of these causes of wetland degradation. Corruption has been highlighted as a cross-cutting issue that, according to the executive director of the United Nations Office on Drugs and Crime (UNODC), 'fuels the multiple crises we face today, undermining every aspect of sustainable development' (UNODC 2023). In the wetlands sector, corruption, through bribery, regulatory capture⁶ and other forms of undue influence, can facilitate illegal development, poaching and logging. When those entrusted with protecting these ecosystems, such as public officials or state-appointed wardens, enable these activities, the consequences can be destructive. This undermines states' ability to fulfil their responsibilities under international conventions and agreements.

As such, this Helpdesk Answer will explore the different corruption risks facing conservation and restoration initiatives. Mangroves and peatlands face different

⁵ Carbon markets are carbon pricing mechanisms where governments and non-state actors can trade greenhouse gas emission credits, which can be compliance based or voluntary (UNEP n.d.). Compliance carbon markets are in response to an obligation established by a regulatory body, whereas voluntary carbon markets are when actors seek to voluntarily offset their emissions to achieve targets such as climate neutral or net zero emissions status (UNEP n.d.). However, there are a number of challenges associated with carbon markets. For more information see pages 6 to 9 of Carbon Market Watch's publication [Carbon Markets 101 \(2020\)](#).

⁶ Regulatory capture refers to regulators, as holders of entrusted power, that abuse this power by regulating in a way that diverts regulation away from the public interest and towards the interests of the regulated industry (David-Barrett 2023).

pressures in terms of land use, their locations, and different ecosystems lend them to slightly different corruption risks that will be explored. Mangroves face specific risks regarding the illicit cutting and selling of mangrove wood, which is often conducted by smaller scale illegal harvesters. Moreover, they are under pressure from unsustainable coastal development for local communities and tourists and irresponsible fishing and aquaculture (WWF n.d.). Peatlands are more prone to risk due to their potential oil reserves that sit beneath the surface, meaning that peatlands are also threatened by larger oil companies. As such, while both of these wetlands are critical to achieving climate goals, they exemplify the different corruption risks perpetrated by different actors globally.

Corruption risks that impact the wetlands sector

This section will provide an overview of the various environmental crimes that are facilitated by corruption and how they negatively affect the conservation and restoration of wetlands projects. It looks into the corruption risks of projects, particularly those operating under carbon market mechanisms. As seen in the following case studies, the relationship between environmental crimes (such as illegal logging, poaching and illegal development) and corruption is complex and mutually reinforcing. Corruption facilitates and enables environmental crimes, while at the same time an increase in environmental crimes can result in a rise and acceptance of corruption. Moreover, many communities also depend on illegal logging and other illicit activities for their livelihoods, adding another layer of complexity to the issue.

Illegal logging

Illegal logging and the illegal wildlife trade are environmental crimes that affect both mangrove and peatland ecosystems. Illegal logging perpetrated by different groups: small scale criminality that is often perpetrated by local communities as a source of income, middlemen that are involved in the illegal trade of goods, and larger scale industrial illegal logging by companies.

Corruption can occur in the zoning of forested land into logging land and the allocation of logging concessions to private companies in return for financial or political favours (Tacconi and Williams 2020). Even if logging concessions had been obtained legally, loggers may later bribe logging inspectors to enable them to harvest more trees than allowed or not implement fully environmentally sensitive logging requirements (Tacconi and Williams 2020). As an example, in Cameroon, state officials have collected an estimated €6 million per year in informal payments from illegal loggers, with these bribes now perceived as a legitimate source of income for improving their careers and livelihoods (Cerutti et al. 2013:10).

Furthermore, in some countries mangrove and peat forests are classified as forests (as opposed to wetlands), which results in them having less protection from logging. In Indonesia, regulations governing mangrove concessions are the same as those for terrestrial forests (Evans 2013). This means that logging companies do not have to manage their concessions in such an appropriate and sustainable manner than if they were mangrove forests, which need specific logging practices to minimise the impact to the environment and to allow the mangrove to regenerate itself (Evans 2013).

Along the Wouri coastline in Cameroon, many communities rely on fishing and use mangrove wood for smoking caught fish. However, the fish population has been declining due to the rapid destruction of the mangrove ecosystems, which has disturbed fish reproduction because mangroves are nursery grounds for many species (ACF 2022). Many mangrove wood dealers operate illegally despite placards at sea which prohibit the cutting and transport of mangroves and local security officers who should be protecting the mangroves and enforcing the law but are often the ones selling the mangrove wood for personal profit (ACF 2022).

In Indonesia, peatland drainage and conversion to agriculture has been associated with uncontrolled peat fires. In Riau-Sumatra, studies have found that certain stakeholders use fires to enjoy the resulting economic returns at the expense of people's health and the environment (Hergoualc'h et al. 2017:4). Patronage networks, profits and high market demand for palm oil have incentivised the use of fire as it clears the way for palm oil plantations, and the money made by selling land cleared by fire is distributed to district-level elites (Hergoualc'h et al. 2017:4). These actors have formed complex social networks that can influence decision-making processes at the district, national and regional levels, effectively hindering the government's capacity to enforce the rule of law (Hergoualc'h et al. 2017:4).

Finally, the illegal charcoal trade also threatens mangrove ecosystems, such as in countries like Myanmar, where one investigation found that approximately US\$10 million worth of charcoal made from mangrove wood was being smuggled from the north of the country into China (Yan 2019). Charcoal smugglers are reportedly stopped at checkpoints staffed by the navy patrol or forestry officials and then pay bribes, often in the form of mobile phones or televisions (Yan 2019). However, the situation is complicated as many local communities rely financially on the illegal charcoal trade to make a living, with few alternative jobs (Yan 2019).

Local communities are also reliant on mangrove wood for income, to build houses and for cooking, and, when this is combined with weak regulatory oversight and limited access to sustainable economic alternatives, illegal logging, forest fires or conversion to agricultural land become prominent issues (Basyuni et al. 2024:226-227). In peatland ecosystems, sphagnum moss for household use is illegally harvested from the peatlands, and this poses major conservation concerns in countries such as the UK (Wong et al. 2016: 25). However, many local communities depend on forests for energy and other essential means of livelihood, making it difficult for governments to prevent forest degradation in the absence of reliable alternative resources (Adanguidi et al. 2020).

Illegal fishing

Mangroves also host a variety of species of fish and crustaceans which have been illegally exploited by both private companies and local communities. There are several reports of illegal fishing in various countries, including Sierra Leone, Tanzania, Senegal and Indonesia, by foreign industrial trawlers (see Trent 2021; Sea Shepherd 2018; Pahlevi 2019). It is reported that in many cases, local authorities conspire with these illegal fishers and share the spoils. Such corruption can occur at every stage of the illegal trade in restricted animals, animal parts, plants and timber, from poaching, illegal logging and illegal fishing, through to the transportation of illegally poached or harvested goods, processing and export, and the sale of illegal wildlife products and laundering of the proceeds (WWF and TRAFFIC 2015:4).

Shrimp farming is another main cause of mangrove deforestation (Agarwal et al. 2019:2). For example, in Bangladesh, which has the world's largest compact mangrove, this rich ecosystem provides the conditions for cheap shrimp production. As a result, mangrove forests are being cleared and replaced by shrimp ponds (Agarwal et al. 2019:34). Shrimp farming has become an income source for the local population and contributes significantly to the country's exports. However, there is a strong lack of coordination among the country's regulation, such as the opposition between the protection measures such as the 1927 Forest Act, the 1992 National Environment Policy or the 1950 Protection and Conservation of Fish Act, to the Export Policy 1997-2002 calling for the expansion of the sector, without mentioning the conditions under which it should be carried out (Agarwal et al. 2019:34). This confusion, alongside widespread corruption, has led to of sanctions and disregard for the rule of law in favour of the political and economic elites (Agarwal et al. 2019:35). This has resulted in the destruction of mangroves and a loss of biodiversity, as well as the capture of the market by urban businessmen, driving the profits away from local communities and instead contributing to inequalities (Agarwal et al. 2019:35). The farms have also affected freshwater supplies for irrigation and direct human consumption, leading to a rise in food insecurity and gastrointestinal infections (Agarwal et al. 2019:36).

Poaching

Corruption enables poaching in the wetlands and facilitates wildlife traders to circumvent the checkpoints and licensing and certification requirements to maintain quotas or regulate trade (WWF and TRAFFIC 2015:5). It also facilitates the secretive sale of illegally collected wildlife and their movement across borders along with immunity for poachers and their associates (WWF and TRAFFIC 2015:5). This

damages biodiversity and ecosystems and hinders countries' efforts to manage their natural resources for the benefit of the national economy (WWF and TRAFFIC 2015:5).

The mangrove forests between India in Bangladesh hosts one of the world's largest populations of Bengal tigers (Alam 2023). Poachers regularly target them for their pelts, bones and flesh to be sold on the black market and export to 15 countries, primarily India and China (Alam 2023). These traders have often operated through their own logistics companies and concealed their activities through licences for legal wildlife trade (Alam 2023). While the Bangladeshi government has been targeting these illegal traders and poachers, it is unclear to what extent public officials may be involved in enabling or assisting the trade, particularly as legitimate companies with licences to trade are often the ones also trading in poached animals (Alam 2023).

Urban planning and development

The urban planning and development system, which includes the organisation and regulation of land use, is vulnerable to corruption and can lead to detrimental effects on nearby wetlands. For instance, large-scale investors and developers can put pressure on local political representatives to support their projects by threatening to relocate to other cities that offer more favourable conditions (Nkula-Wenz, Cirolia and Berrisford 2023:23). Investors may wish to construct on wetlands and claim to create economic opportunities and release pressure from congestion in the city centre and put pressure on the city's planning department to accept the project despite the environmental impacts it may have (Nkula-Wenz, Cirolia and Berrisford 2023:23). This could constitute undue political interference and may be exacerbated if local officials have received illicit funds in exchange for support from developers (Nkula-Wenz, Cirolia and Berrisford 2023:23).

In wetlands close to urban zones and/or beaches, developers sometimes plan to build on these areas despite protections in place, which may result in the offer of bribes to gain access to protected wetlands. For example, in Uganda, it has been reported that officials from the water ministry and other government agencies have claimed that high-level corruption among local leaders has deterred attempts to restore the wetlands (New Vision 2023). They claim that local councils have colluded with companies that have built structures near the wetlands, despite attempts to build buffer zones by erecting marker stones along the river (New Vision 2023).

In Harare, Zimbabwe, there were allegations in 2017 of corruption for continued illegal land allocations (The Zimbabwean 2017). At a community meeting hosted by the Harare Wetland Trust, there were moves to mobilise communities towards the preservation of wetlands in their area. According to a local councillor, land grabs had been made that resulted in houses being built on the wetlands in defiance of the law,

despite the area being among seven internationally recognised wetlands under the Ramsar Convention for the protection of wetlands, to which Zimbabwe is a signatory (The Zimbabwean 2017). Kudumba (2022) emphasises that Zimbabwe's urban municipalities are the primary offenders of wetland degradation and have 'wilful contempt for wetland norms and rules'.

Musira similarly (2019) cites opaque governance and structural problems that contribute to these problems in Harare, which has resulted in the city's authorities not complying with the laws. The Zimbabwe Environmental Lawyers Association (ZELA) has stated that a lack of political will to comply with laws as well as collusion between public authorities and the companies carrying out development projects have been the major obstacles (Musira 2019). Those tasked with oversight, like the Environmental Management Authority (EMA), are unable to carry out their duties in response to these issues. Moreover, there is a reported lack of clarity over who is accountable for the management of the wetland areas in Harare, with no clear demarcation between the central government, local government and government agencies such as the EMA in terms of who is in charge of and responsible for regulating the wetland ecosystems (Kudumba 2022).

Sometimes, when community members do defend the wetlands and their conservation, they are at risk of violence from aggressors. A community member who lives on the banks of the Magdalena River in Colombia began, with the help of lawyers, to monitor the contracts of companies operating in the wetlands and river that had been polluting the environment (Briceño 2023). This also included public complaints, strikes and protests against the companies (Briceño 2023). However, those involved have suffered retaliation including attacks, threats and theft of their tools (such as motos and canoes), and in 2021 unidentified aggressors fired shots outside a community member's house (Briceño 2023). In other cases, organised criminal groups have used mangroves to camouflage their transport of illegal drugs along the Colombian coast (see El Universal 2010). While it is not clear from the case study whether these were private or public actors involved in these attacks, these may have been enabled or overlooked by officials.

Finally, corruption in the wetlands sector can reach the highest levels of government. In 2023, the Portuguese prime minister resigned in response to a corruption probe that included an investigation into the development of the Start Campus, a data centre campus that is said to have damaged natural wetland habitats, which are protected by both Portuguese and European legislation (Judge 2023). The media has reported that the building project has damaged protected wildlife habitats despite guaranteeing to preserve their integrity (Judge 2023). This indicates that elected officials prioritised the development of infrastructure and buildings over the environmental commitments they have made in conserving these ecosystems.

Land ownership

Land tenure is another determinant in how well wetlands are conserved by local communities. In contexts where the land tenure is insecure for local people, this may create strong incentives to use up the resources that ecosystems provide, before they are lost to the harvesting efforts of others (Banana and Gombya-Ssembajjwe 1998 cited in Asante et al. 2017:66). Also, if a natural resource has little economic value to local people due to insecure tenure, sustainable local management institutions are unlikely to emerge (Lawry 1990 cited in Asante et al. 2017:66).

Additionally, when there is no recognition of customary and communal tenure agreements, local communities are vulnerable to eviction and violence and the associated corruption, with little at their disposal to protect their rights (Stassart and Collaço 2023:10). Communities, Indigenous People and environmental activists who seek to protect the land against land grabbers and illegal loggers may face violence, and the perpetrators often enjoy impunity from public authorities (Stassart and Collaço 2023:10).

In the wetlands in Bangladesh, gangs, corrupted public servants and the military have reportedly coerced small-scale producers into relinquishing their land titles. These land grabs are often accompanied by violence (Feldman 2012). One example is the Bangladesh Garment and Manufacturers and Export Association (BGMEA), which was under investigation for the legitimacy of the title they claim for their building site (Feldman 2012). It was suggested that there may have been collaboration with the export promotion board, which is a government institution tasked with reviewing and monitoring such projects (Feldman 2012:986). This example shows that government institutions can rule in favour of private interests in the processes of land grabbing, particularly when an influential private sector is involved.

Extractive industries

Corruption in the extractive industries, in particular the oil sector, has been well documented (see Moisé 2020; Kinyera 2024; OECD 2016). Tacconi and Williams (2020) suggest that the opportunities for corruption in the extractive industries are so significant that they consider whether these industries actually increase corruption. States and private companies often struggle for the control of the resource, as oil investments, for example, can lead to immense profits, and corruption scandals remain frequent (Moisé 2020). The ‘resource curse’ is a phenomenon where the discovery of natural resources such as oil (in some contexts, where relevant government intervention is inadequate) leads to corruption and rent-capture and slower economic growth (Moisé 2020). Of particular risk to the

conservation and restoration of the wetlands, corruption may distort the decision to extract and award oil rights and the regulations and management of operations in these ecosystems (OECD 2016:18).

As an example, a joint investigation by Global Witness, Der Spiegel and Mediapart, in conjunction with the European Investigative Collaborations media network found that an oil project based in climate-critical peatland forests was linked to the Republic of Congo's corrupt officials (Global Witness 2020). The Cuvette Centrale contains wetlands at the centre of the Congo Basin and, in terms of biodiversity and the global climate, it is a particularly significant swathe of land. However, the region's tropical peatlands also contain oil, which was discovered in 2019 by a company run by the nephew of the then president of the Republic of Congo (Global Witness 2020). Investigations found that environmental impact assessments (EIAs) for the oil wells did analyse any potential impact of drilling on the peatlands, and other analysis found that protected peatland has already been affected by the oil companies (Global Witness 2020). This peatland is estimated to hold around 1.34 gigatonnes of carbon, which is greater than the annual emissions of Japan if all are released (Global Witness 2020).

The (blue) carbon trade

Blue carbon refers to the carbon dioxide stored in the world's coastal and marine ecosystems, such as mangroves (World Bank 2023). Carbon sequestration and storage through such ecosystems has been valued to be worth up to US\$190 billion per year through blue carbon credits (World Bank 2023). Both the mangrove and peatland conservation and restoration can be included under the REDD+ mechanism⁷ and on the voluntary and compliance carbon markets (Joosten 2019). Wetland conservation and restoration for the purposes of carbon credits are included and will be governed by Article 6 of the Paris agreement (Di Leva and Vaughan 2021).

Corruption risks include government officials managing the registration and issuance of carbon credits and could be bribed to issue false credits (UNODC 2024). Since 2023, carbon projects must obtain authorisation from the host country to develop a project, and whoever issues this letter of authorisation should be from a specific government agency (van Doorn and Woydt 2024). Moreover, private companies could exaggerate or commit fraud, as recent research found that 90% of rainforest

⁷ The REDD+ (reducing emissions from deforestation and forest degradation in developing countries) framework was established under the Paris Agreement and allows developing countries to receive results-based payments for emission reductions when they reduce deforestation (UNFCCC n.d.).

offset credits (which are among the most used) are likely to be phantom credits, and do not constitute real carbon reductions (Greenfield 2023).

For example, concerns have been raised regarding the Indonesian government's plans to sell credits generated through the country's peatlands and rainforests on the new UN carbon market (Pearce 2024). Critics argue that the new UN carbon market is open to bad carbon accounting and 'outright fraud' (Pearce 2024). The Indonesian government is planning to restore lost peatlands that store an estimated 56 billion tonnes of carbon, but critics say this restoration happened before the carbon market was implemented – in response to major fires in 2015 (Pearce 2025). Moreover, current conservation projects in Indonesia have reported serious concerns about the probity of the carbon credits already sold, particularly around the 'baseline scenarios' used to calculate carbon gains (Pearce 2024). Finally, there have been instances of the Indonesian government already double counting carbon credits, raising concerns that those may be sold under the new UN rules for carbon trading, which will be defined and enforced under Articles 6.2 and 6.4 of the Paris Agreement and may also turn up in bilateral trades with other governments to meet their NDCs (Pearce 2024).

In Brazil, police launched an investigation and seized assets linked to some of the country's largest carbon credit projects, which operated through REDD+ in the Amazon rainforest and in mangrove ecosystems. The group was found to be land grabbing and were laundering timber from illegally deforested areas while selling carbon credits to buyers such as Toshiba, Spotify and Boeing (Wenzel 2024). The investigation found that the group had contacts in state offices, such as land reform agencies, who helped them obtain fraudulent documents to facilitate land grabbing (Wenzel 2024). As a result, eight public servants were removed from office (Wenzel 2024).

Mitigation measures

There are a number of mitigation measures that can address the corruption risks noted in the previous section. However, corruption in the conservation and restoration of wetlands is complex and involves a wide range of actors, meaning that one intervention alone is unlikely to have an impact. To effectively counter corruption in the sector, a comprehensive approach is therefore essential. This includes the following measures, along with other critical interventions such as whistleblower channels, robust anti-corruption legislation, well-functioning anti-corruption agencies and a strong judicial system. Only through a combination of these efforts can meaningful progress be achieved. The following measures are taken from the literature that focuses specifically on anti-corruption in wetlands.

Citizen-led environmental management and governance

Globally, 27% of peatlands are within Indigenous Peoples' lands (Austin et al. 2025). Therefore, Indigenous communities play a significant role in the conservation, restoration and governance of such projects (Denyer et al. 2018). The Ramsar strategic plan 2016–2024 recognised Indigenous Peoples' and local communities' customary use of wetlands and how they can contribute to their conservation. In 2018, the Ramsar Convention Secretariat published a [collection of experiences of Indigenous Peoples and local communities in the wetlands](#) to highlight their good practices in contributing to wise wetland use and conservation (Denyer 2018 et al.).

They provide a best practice example of the Indigenous Manobo people in the Agusan Marsh Ramsar site in the Philippines, who protect the wetlands alongside the Protected Area Management Board.⁸ Around 18,000 people live in floating houses there, representing several Indigenous cultural communities (Denyer et al. 2018:17). The Manobos consider their ancestors as guardians of the forest, lakes and rivers, and they prioritise reciprocity in their lives. All resources from harvesting or fishing are shared among the community, and reciprocity is emphasised in their belief that the spirits care for humans, plants and animals, which helps to create a framework for conservation and the wise use of resources and ecosystems of the wetland (Denyer et al. 2018:18). They have created animal sanctuaries that the elders protect by banning activities such as hunting, and they have strict regulations around fishing. Now, the

⁸ The policy-making body of the wildlife management area.

communities are actively involved in the management of the site, and are represented through the committee of Indigenous People, established under the Protected Area Management Board, and their customary laws and conflict resolution systems have been integrated into the board's manual of operation and communication plan (Denyer et al. 2018:18).

In the Waikato region of New Zealand (Aotearoa), a co-governing arrangement has been set up to between the community, agency and private wetland restoration projects. The Waikato-Tainui *iwi* (tribes) on the North Island have established the Waikato River Authority to jointly govern the management and restoration of New Zealand's longest river, the Waikato (Denyer et al. 2018:38). The authority has ten board members, five appointed from each river *iwi* and five Crown-appointed members (Denyer et al. 2018:39). The minister for the environment appoints two co-chairpersons, *iwi* chooses the others. The authority has conducted river clean-ups, and the work has led to an injection of funds to local communities as the demand for native plants and labour have risen (Denyer et al. 2018:39).

In Malawi, there have been demands that the governance of wetland conservation be decentralised and more power given to local authorities. The Malawi local government association has called for the enactment of the local government amendment bill of 2020 to strengthen the mandate of local authorities to demolish illegal structures and other unacceptable land developments on the wetlands (Nyasa Times 2021). The association claims that the bill, in its current state, restricts local governments to have autonomy to properly regulate land developments (Nyasa Times 2021).

This is in line with recommendations made by (Timoshyna and Drinkwater 2021:12) on reducing corruption in the trade of wild plants. Timoshyna and Drinkwater (2021:12) recommends that natural resource management practitioners and government agencies should consider decentralised resource governance (as long as the local governance is accountable and transparent, and that the intervention is appropriate) and to clarify and simplify the government regulations and permit processes. Similarly, the Mangrove Alliance (2024:125) recommends that community management rights should also be explicitly recognised in national legislation.

Another aspect of citizen-led governance that has seen success is through proactive policymaking. Proactive policymaking is a pre-emptive governance approach that anticipates future environmental challenges. Herrera (2024) looks into the case of Buenos Aires, where civil society actors inserted themselves into the policymaking process to ensure that policy content reflected community needs and greater environmental stewardship. The Rocha Wetlands (Laguna de Rocha) are located in the provincial district of the Buenos Aires metropolitan area called Esteban Echeverria and is the region's largest green space. However, the area has been threatened by land-use conflicts from the cultivation of soybeans, real estate speculation, industrial use

permits, sports stadium development and open-air trash dumping (Herrera 2024:358). The municipal and provincial government had reportedly neglected their responsibility for the wetlands, leaving civil society groups to lobby for improved environmental regulation and new subnational environmental institutions.

This began in the 1990s when a natural sciences professor published a paper on how the untreated wastewater sewage was damaging the Rocha Wetlands, leading to pressure that led to the wetlands being designated a municipal historical reserve. Grassroots pressure led to freedom of information requests being initiated and increasing transparency on the encroachment on the wetlands, which was later used by civil society groups as evidence in court (Ferrera 2024:361). In 2015, the Rocha Collective submitted more reports about illegal fires and dumpsites on the wetlands, which resulted in investigations by a federal judge and ombuds office. Eventually, this social mobilisation helped city officials create a subnational environmental institution and the establishment of a participatory institution that would co-govern the reserve (Ferrera 2024:363).

However, it should be noted that decentralised governance is not without risks. Timoshyna and Drinkwater (2021) note that in Indonesia, for example, decentralised forest management has been linked to the development of corrupt arrangements between individuals and regional regents, with forestry interests being traded for campaign support. Therefore, the authors note that, while decentralisation can be an anti-corruption tool, this should be implemented in the correct conditions where local governance is transparent and civil society can play a role in oversight (Timoshyna and Drinkwater 2021).

Sustainable funding

A lack of long-term sustainable funding often poses a challenge in the implementation of conservation and restoration projects. While this is not an explicit anti-corruption measure, sustainable funding enables the longer term governance of these areas of land. In Puspitaloka et al.'s research in Indonesia, they found that 74% of key informants (individuals who held formal positions in restoration projects) referred to limited access to capital and continuous funding as a key constraint in their restoration projects.

For example, many restoration projects in Central Kalimantan were planned to be carried out in the short term (5-60 years), but the key informants interviewed estimated that restoration activities would need to be carried out beyond the project

durations, depending on the degradation of each site⁹ (Puspitaloka et al. 2021). The authors noted that projects funded by government budgets, grants from foreign countries and NGOs had a shorter timeframe, whereas projects that held a restoration ecosystem licence for carbon trading was valid for 25 years (Puspitaloka et al. 2021). However, each of these funding streams come with different risks, meaning the most secure way to ensure long-term and sustainable projects is to diversify funding through different channels.

Similarly in Vietnam, the risks facing mangroves are their conversion to aquaculture, land reclamation for agricultural expansion, infrastructure development, urbanisation and tourism development (Hai et al. 2020:4). Clam farming and shellfish collection have also become pressing concerns (Hai et al. 2020:4). However, mangrove restoration projects funded by international NGOs that began in the 1990s were largely unsuccessful as the total mangrove area in the country declined from 269,150 to 168,688 ha between 1980 and 2013 (Hai et al. 2020:5). While a large number of mangrove areas were planted during the period, there were no assessments of survival rates after the restoration projects were completed (Hai et al. 2020:11).

Hai et al. (2020) identify, that in order for these mangrove restoration projects to be successful, long-term monitoring, reporting and evaluation of their interventions should be conducted. Organisations such as Global Mangrove Alliance have [developed tools](#) that use remote sensing data to monitor mangroves and provide real-time information on where and what changes are happening to mangroves across the world (Global Mangrove Alliance n.d.).

Moreover, the species selection should be correctly identified, without resorting directly to monoculture restoration. Finally, the authors (Hai et al. 2020:13) identify that the main reason for failure for these restoration projects have been a lack of incentives for long-term management. Incentives are needed for local communities to protect the mangroves from human impacts, such as illegal cutting and grazing, with longer term contracts with forest protection workers and nearby households. Co-management has also shown to be more successful in Vietnam, where mangrove co-management in the Mekong Delta has been shown to be an effective way of maintaining protection of the mangrove forest, providing livelihoods for local communities and resulting in better governance of the natural resources (Hai et al. 2023). Furthermore, providing long-term financial support and incentives to develop

⁹ There are different and parallel timelines for wetland restoration. One study (Schmitz 2012) of 124 wetland restoration projects found, for example, that the active restoration of physical properties such as topography, soil permeability, surface and ground water flows led to immediate recovery. Vertebrate species recovered within five years, whereas large aquatic invertebrates took five to ten years to approach reference levels. Plant assemblages took around 30 years, whereas the normal nutrient cycling of the wetlands took between 50 to 100 years to recover.

alternative economic activities, local communities will reduce the risk of illegal logging, wildlife trade and poaching.

Regulations and policies

International bodies and conventions that regulate the wetlands include the [Ramsar Convention on the Wetlands](#), the [UNFCCC](#), the [Food and Agriculture Organization of the United Nations \(FAO\)](#) and [the Convention on International Trade in Endangered Species of Wild Fauna and Flora](#).

National governments are developing strategies consistent with the [Convention on Biological Diversity \(CBD\)](#) and the [Kunming-Montreal Global Biodiversity Framework \(GBF\)](#), which was adopted during the fifteenth meeting of the Conference of the Parties of the Convention on Biological Diversity (COP 15); however, (Austin et al. 2025) note that data on the extent of peatlands benefitting from existing conservation approaches are needed to inform the scale of additional action required to reach key climate and biodiversity targets for these ecosystems. Furthermore, the historical application of the CBD (see Ulloa, Jax, and Karlsson-Vinkhuyzen 2018) has been limited, highlighting a significant gap between established targets and their implementation that must be addressed.

The UN has also [recently approved a new compulsory mechanism](#) to ensure that environmental and human rights safeguards are implemented in projects that participate in the UN's Paris Agreement Crediting Mechanism (UNFCCC 2024). Additionally, policies and regulations on the carbon market should be streamlined to avoid double counting or other fraudulent claims. Carbon Market Watch (n.d.), an NGO that focuses on carbon pricing and climate policy recommends that:

- validation/verification bodies should apply safeguard policies strictly, ensuring that projects which do not comply, or which are causing harm to local communities, Indigenous Peoples or the environment do not get approved or have their approval withdrawn
- if storage is guaranteed for a certain number of years, then reversals should be monitored and compensated for that number of years following the vintage year of the credit (project permanence)
- all data, models and equations used to calculate the carbon content of forests [and wetlands] should be publicly available, enabling independent researchers to reproduce and verify the calculations.
- uncertainty in baseline quantification should be measured, transparently communicated and taken into account when issuing credits

- all calculations, formulas and models used for baseline quantification should be made publicly available, including spreadsheets and risk maps where relevant, in a way that allows any outsider to recreate the baseline calculations independently (Carbon Market Watch n.d.)

Additional mitigation measures in blue carbon and the voluntary carbon market include:

- improved monitoring, reporting and evaluation
- more research into carbon storage and carbon accounting in wetlands to prevent over-crediting
- comprehensive local stakeholder consultations during the development and monitoring of a project
- central databases to track the issuance and retirement of blue carbon credits to prevent double counting

Mapping and accurate classifications of wetlands is important as this helps to understand wetland functions and monitor wetland response to natural and human impacts (Kudumba 2022). Wetland mapping enables decision-makers to have the information and tools to manage the area sustainably and should be based on environmental protection and sustainable development principles while adapting to local conditions so there are clear criteria for wetland use and protection (Kudumba 2022).

Environmental impact assessment (EIA) reports are required before and during the development or wetland project. However, they may be prone to abuse and corruption. Legal frameworks such as the 1998 Aarhus Convention should be considered, access to information and transparency in their reporting and inclusive engagement with local communities can help to mitigate some of these risks¹⁰ (Zakaria 2024).

Finally, the Extractive Industries Transparency Initiative (EITI) is also relevant in the conservation and restoration of wetlands as it promotes transparency, accountability and sustainable resource management. The EITI requires member countries to disclose information along the extractive industry value chain and to record how rights are awarded (EITI n.d.), which can help mitigate some risks in contracts and land allocations. The EITI requires, for example, that member countries disclose information related to all contract and licence awards and transfers taking place during their accounting period and include an explanation when different methods

¹⁰ For more information, see Zakaria. 2024. [Strengthening the Independence of Environmental Protection Agencies and Participation in Environmental Impact Assessments](#).

for awarding contracts or licences are taken (EITI 2019:15). The forestry and oil sector are included under the EITI too.

Cross-sectoral and multistakeholder collaboration

Given the transboundary nature of mangroves, cross-sectoral and multistakeholder collaboration is essential for their conservation, including local and central government bodies, planning agencies, environmental organisations and disaster management authorities (Narayanan 2023). A variety of different sectors affect the wetlands, such as with mangroves where fisheries, agriculture, tourism and forestry sectors all operate, meaning that their approaches should be integrated when managing the ecosystem (Mondal 2024:14). Protection measures for different areas (fish, forests, wetlands) and commercial and environmental policies are often issued by different ministries or governmental entities. This means they could contradict or supersede each other and be less effective, and companies can find loopholes. It is also important to establish mandates and responsibilities among these different entities, depending on the capacity of local government (Narayanan 2023).

It is important that there are processes for multi-sectoral dialogue, including discussion among agencies involved in wildlife protection, regulation and enforcement to provide a clear understanding of the needs, capacities, constraints, powers and mandates of other sectors, and enable the development of unified strategies for countering corruption and wildlife crime (WWF and TRAFFIC 2015:20). This can help to identify discrepancies in information which can indicate corruption. For example, customs officials may report inspecting a larger number of permits than were issued by the responsible agency, which could indicate falsified permits (WWF and TRAFFIC 2015:20).

Figure 3 below demonstrates the illegal wildlife trade chain, highlighting the responsibilities of various government agencies at different points and the potential anti-corruption interventions that can be implemented. This illustrates the different public agencies, regulators and private institutions that can be responsible for preventing wildlife crime. Moreover, it emphasises the need for coordination and cooperation between each entity.

Figure 3: illegal wildlife trade chain, with examples of anti-corruption interventions at each point



Source: WWF and TRAFFIC 2015:28.

Enforcement

It is crucial to enforce sanctions where corruption is detected and for responsible agencies to clearly communicate the consequences of such misconduct. The United Nations Convention against Transnational Organized Crime (UNTOC) defines wildlife crimes as a ‘serious crime’ as ‘conduct constituting an offence punishable by a maximum deprivation of liberty of at least four years or a more serious penalty’ (WWF and TRAFFIC 2015:19). Serious crimes carry higher penalties and are given higher priority by enforcement officers, prosecutors and the judiciary, and in some jurisdictions, all serious crimes are considered predicate crimes for money laundering offences, which allows anti-money laundering methods to be used to prosecute corruption and wildlife crime (WWF and TRAFFIC 2015:19). It may also be easier to secure extradition for suspects in serious crimes, which may provide a basis for international cooperation (WWF and TRAFFIC 2015:19).

WWF and TRAFFIC (2015:22) highlight the importance of protection for those who work to curb wildlife crime. These include wildlife wardens and rangers, police, prosecutors and judges, who should be protected from threats of physical violence or other forms of coercion and intimidation (WWF and TRAFFIC 2015:22). Whistleblowers and other witnesses should be protected too, and their intimidation should be criminalised (WWF and TRAFFIC 2015:22). Applying financial penalties can act as an effective deterrent, raising the operating costs of the illegal wildlife trade, potentially to levels that are unsustainable for the organisations involved (WWF and TRAFFIC 2015:26).

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