



Women often have significantly less access to capital, land, and resources—both tangible and intangible—making them more reliant on ecosystem resources, which are being devastated by offset mechanisms. A scene from a sand mine in Pokhara, Gandaki Province in Nepal. [Photo by Nishess Shakya](#)

# Biodiversity Offsetting

A corporate social license to perpetuate biodiversity destruction and gender inequality

Souparna Lahiri  
Valentina Figuera Martínez



OCTOBER 2024

# CONTENTS

1. The myth of “No Net Loss” .....	3
2. What are biodiversity offsets? .....	6
3. The origin of biodiversity offsetting in environmental legislation .....	7
4. Compensatory offsetting in India: a story of destruction and dispossession.....	9
5. Biodiversity conservation: competing objectives.....	11
6. The gold rush for offsets in Colombia.....	14
7. The reality of biodiversity offsets.....	17
8. Conclusion.....	20
9. References.....	21
10. Acknowledgements.....	26

“The time for talk is done; it is now the time for action. The story is disruptive change. Disrupt the current paradigm because what we’re doing is good, but not enough.”

-Inger Andersen, 2016, International Union for Conservation of Nature (IUCN) World Conservation Congress 2016)

Multinational corporations, governments, financial institutions, and major nature conservation organizations are increasingly promoting biodiversity offsetting as a key mechanism in biodiversity conservation, especially in the wake of the Kunming-Montreal Global Biodiversity Framework (KM-GBF) adopted at the Fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 15) in December 2022. This framework includes a biodiversity offsetting mechanism designed to mobilize financial resources from the private sector to support global conservation efforts.

Offsets, often promoted as a popular conservation tool, appeal to the most environmentally and socially destructive industries, such as fossil fuel extraction, mining, industrial agriculture, intensive livestock farming, and large-scale infrastructure projects. Offsets enable these companies to claim a complementary relationship between biodiversity conservation goals and economic development objectives. However, offsets remain a controversial tool in conservation, because they necessitate a trade-off - accepting ecological losses in exchange for uncertain gains. Polluting corporations benefit by gaining easy access to land and capital, securing their social license to operate. In addition to their ecological impacts, land dispossession, loss of livelihoods and systematic violations of individual and collective rights of the affected communities—especially of women and youth—are frequently overlooked and dismissed by the proponents of offsets.

### **The Myth of “No Net Loss”**

Biodiversity offsetting essentially allows a mining company that destroys a littoral forest in Madagascar, a tropical rainforest in the Democratic Republic of Congo, or an Amazonian biome in Brazil, to “protect” another forest elsewhere in exchange for the one it has destroyed. This

mechanism facilitates a double land grab: one for extracting minerals, oil, or gas, building a dam, or creating space for monoculture plantations; the other under the guise of biodiversity conservation. Corporations can then claim to have achieved “no net loss” of biodiversity or even a “positive net value,” with some even suggesting that mining operations are “rescuing of biodiversity.” As a result, these biodiversity offset projects are often falsely presented as conservation initiatives.

The concept of “no net loss” has profound implications for the rights and livelihoods of Indigenous Peoples, women in all their diversities, youth, and structurally underserved local communities. Biodiversity offsetting, although often promoted as a conservation tool, frequently fails to contribute to biodiversity conservation, and instead has significant negative social and cultural impacts, disproportionately harming women. Social impacts of nature conservation efforts often arise from restricted land access, which can affect livelihoods and recreational opportunities. This is particularly significant for Indigenous Peoples, as it disrupts their socio-cultural practices and alters their relationship with the environment.

Major international conservation groups and NGOs such as the International Union for Conservation of Nature (IUCN), Conservation International, the Wildlife Conservation Society (WCS), and BirdLife International, play a key role in mainstreaming biodiversity offsetting. They collaborate with some of the most destructive mining and fossil fuel extraction companies to design and implement offsetting projects. This disquieting nexus, which promotes conservation by extraction, enables these conservation groups to deepen fortress conservation through the expansion of protected areas, and access funding for biodiversity conservation projects.



The Cerrejón Coal Mine is an operating coal mine in La Guajira, Colombia. Environmentalists, activists, and scholars have highlighted numerous negative effects of the Cerrejón mine on people and ecosystems. These include the forced displacement of Afro-descendant communities, water pollution, and harm to traditional agricultural practices.

Source: Wikimedia Commons

Governments have also embraced the offsetting trend, diluting and dismantling their environmental policies and legislation by incorporating provisions for biodiversity offsetting, frequently under pressure from international financial institutions (IFIs) and conservation groups. In 2016, the [OECD](#) estimated that approximately 100 biodiversity-offset programmes were operating worldwide. A [report from the Inspection Panel](#), an independent complaints mechanism for people and communities who believe that they have been, or are likely to be, adversely affected by a World Bank-funded project, states that as of 2020, almost 13,000 biodiversity offset projects in 37 countries had already been completed or were in the process of being implemented by governments or the private sector. Furthermore, at least 56 countries—including Australia, Brazil, Canada, China, Colombia, France, Germany, India, Mexico, New Zealand and South Africa—[have laws or policies requiring biodiversity offsets or compensatory conservation measures](#).

Global biodiversity policy-making has increasingly allowed the very corporations responsible for environmental degradation to adopt market-based instruments, driven by strong corporate lobbying under the guise of “[stakeholder participation](#)”. These policies promote “innovative” schemes such as biodiversity offsets and credits while failing to commit support for effective initiatives to halt biodiversity loss, such as agroecology, community conservation initiatives, and other real solutions led by women, Indigenous Peoples, peasant farmers, and local and Afro-descendant communities all over the world.

In the aftermath of COP 15, the UK and France have emerged as leaders in advocating for a global biodiversity credit market. In March 2023, the UK government unveiled plans to launch [three separate nature markets](#) as part of its Environmental Improvement Plan 2023. These markets aim to increase private financing for nature, targeting a minimum of GBP 500 million annually by 2027 and GBP 1 billion cumulatively by 2030. In June 2023, the two countries jointly introduced the [Global Biodiversity Credits Roadmap](#), outlining a strategy to support companies in procuring biodiversity credits on a global scale. As part of preparations for the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 16) to be held in Cali, Colombia, from 21 October to 1 November 2024, the UK and France committed to bringing together global expertise on biodiversity credits and forming working groups to explore best practices in areas such as credit funding governance and monitoring frameworks.

The World Economic Forum’s (WEF) Nature Action Agenda is spearheading ‘[Financing for Nature](#)’, a global initiative which examines the potential of biodiversity credit markets to unlock financing for “nature-positive” outcomes. The stated objectives of this initiative are to: (1) understand and build awareness of supply and demand dynamics for voluntary biodiversity credits markets; (2) contribute to the development of a set of core integrity and governance principles for voluntary biodiversity credits markets; and (3) iterate and learn from early-stage voluntary biodiversity credits pilot transactions. The WEF’s initiative is to build a business case for biodiversity offsets and shape the biodiversity credit market to drive private sector-led biodiversity finance. Currently, with the advice of the Expert Panel on Biodiversity Credits, the WEF is developing a guardrail paper for high-integrity credits which may be unveiled during COP 16 in Cali, Colombia.

## What are Biodiversity Offsets?

Biodiversity offsets are often defined as conservation actions used to compensate for unavoidable, residual damage from human activity, typically as the final step in the mitigation hierarchy. They serve as compensatory mechanisms to address ecological impacts resulting from human activities. The mitigation hierarchy here includes avoidance, minimisation, restoration, and compensation.

Biodiversity offsetting is also described as a set of institutional rules and practices that enable the production and retention of “biodiversity gains” over time and space to compensate for biodiversity loss from authorized damage. The stated goal is to achieve “no net loss” of biodiversity.

According to a 2012 UNEP report, biodiversity offsets are measurable positive actions taken to compensate for harmful activities, with the aim of redressing the balance or tipping it in favour of the environment. The claim is that by this approach they can ensure no adverse effects or “no net loss” to biodiversity.

The central tenet of offsetting mechanisms is the trading of environmental losses for restoration gains, through permit systems and credit-debit swaps, aiming to balance the competing objectives of development and conservation and ultimately achieve “no net loss” of biodiversity. Broadly, biodiversity markets encompass payments for the protection, restoration, or management of biodiversity. This includes biodiversity offsets, conservation easements, certified biodiversity-friendly products and services, bio-prospecting, payments for biodiversity management, hunting permits and eco-tourism.

But not everyone agrees with this somewhat reductive, market-based view of biodiversity offsets, touted by those who stand to benefit economically from these markets. Offsetting has been criticized as a form of “greenwashing”. “cash for damage,” and even a “Trojan horse.” Critics argue that rather than serving as a conservation tool, biodiversity offsetting has often facilitated development while perpetuating biodiversity loss, and could be used as a “licence to trash or destroy biodiversity” in exchange for uncertain environmental gains.

Offsetting fails to account for the socio-ecological uniqueness and complexity of ecosystems, which cannot simply be replaced or substituted, and the difficulties in measuring and predicting the outcomes of offsets. This includes challenges in measuring and predicting the outcomes of offsets. For example, the spiritual value of sacred places, traditional resource management systems, self-governance, cultural practices, and the sense of belonging that Indigenous Peoples, and local, and Afro-descendant communities feel toward their landscapes are irreplaceable socio-ecological values. Their land is also the material basis of their distinct identity, spirituality, and culture, which are essential for their dignity and well-being.

As a result, the growing popularity and use of biodiversity offsetting is accompanied by increasing concerns regarding its ethics, human rights violations, socio-ecological impacts, conceptual flaws, loss of ecosystem integrity, and issues related to compliance and effectiveness.

## **The Origin of Biodiversity Offsetting in Environmental Legislation**

Biodiversity offsetting is embedded in various legislative frameworks worldwide. Increasingly, policies refer to biodiversity offsets, either directly or indirectly. For example, the European Union's (EU) no net loss initiative for 2015, part of its 2020 Biodiversity Strategy, reflects this trend. In the private sector, a growing number of investment institutions also demand offsetting as a condition to access credit, leading to the integration of offsets into government and lender regulations and policies.

The United States (US) is considered a pioneer in biodiversity offsetting. The concept originated in the US National Environmental Policy Act (NEPA) of 1970, which addresses the conservation of wetlands and endangered species. Federal guidelines under the Clean Water Act (1972) mandate that permits given to develop on wetlands follow a specified sequence of avoidance, minimization and compensatory mitigation (offset); and a similar procedure is required for the exploitation of endangered species under the Endangered Species Act (1973).

The United Kingdom (UK) is one of the most vocal advocates of biodiversity offsetting. In 2011, the Department for Environmental and Rural Affairs (DEFRA) published a White Paper—a statement of proposed future policy—titled Natural Choice – Securing the Value of Nature, outlining its ambition to use biodiversity offsetting to improve planning processes and reduce biodiversity loss.

Europe is another stronghold for biodiversity offsetting. Many European countries require some form of biodiversity offsetting or “ecological compensation,” as it is commonly called. The Netherlands, for instance, has had compulsory biodiversity offset regulations since the early 1990s. The ‘National Ecological Network’ (Ecologische Hoofdstructuur or EHS) was implemented to expand protected areas and any encroachment on EHS areas requires the use of the mitigation hierarchy with the application of biodiversity offsets to achieve a “no net loss of biodiversity.”

**Offsetting fails to account for the socio-ecological uniqueness and complexity of ecosystems, which cannot simply be replaced or substituted, and the difficulties in measuring and predicting the outcomes of offsets...As a result, the growing popularity and use of biodiversity offsetting is accompanied by increasing concerns regarding its ethics, human rights violations, socio-ecological impacts, conceptual flaws, loss of ecosystem integrity, and issues related to compliance and effectiveness.**

The EU has also incorporated elements of biodiversity offsetting into its updated EU Taxonomy for sustainable activities, despite recommendations from the Platform on Sustainable Finance—a group of advisors to the EU's executive branch—to exclude it from activities related to biodiversity protection and nature restoration.

In Australia, biodiversity offsetting has rapidly developed since the 1999 National Environment Protection and Biodiversity Conservation Act. The focus has primarily been on the removal of native vegetation or habitats in forests, wetlands, and marine environments. All six Australian states have implemented compliance-based biodiversity offsetting schemes, alongside a federal scheme. The Northern Territory also recently introduced a new policy framework for biodiversity offsets.

In Latin America, biodiversity offsetting schemes have been in place since the early 2000s. Brazil, Mexico, Colombia, and Peru explicitly require offsets through environmental regulations. Brazilian legislation focuses on compensating environmental impacts in protected areas during development licensing, while Colombia's 2010 offset regulation stems from environmental impact assessments (EIA). Peru introduced its offsetting policy in 2014 for large-scale development projects and Chile has required offsets for projects requiring environmental licensing since 2010.

Countries such as India, China, Indonesia, Mongolia and Azerbaijan have also implemented biodiversity offsetting schemes based on national legislation. India's Forest Conservation Act, 1980 and the subsequent Compensatory Fund Act, 2016, as well as similar laws in China, mandate compensation funds claimed to support conservation efforts. Biodiversity offsetting schemes have also been identified in South Africa, Sierra Leone, Namibia, Mozambique and Madagascar.

The Equator Principles, a voluntary set of standards for determining, assessing and managing social and environmental risk in project financing with capital costs exceeding USD 10 million, also apply the mitigation hierarchy. They are often applied in industries seen as the main drivers of biodiversity loss and destruction, which vary by country, but agriculture, mining, energy, road construction, and tourism are the most prominent in the literature on biodiversity offsets. The Equator Principles serve as a credit risk management framework, providing a minimum standard for due diligence and supporting responsible risk decision-making.

They are meant to ensure that projects financed by commercial banks with significant impacts on biodiversity and ecosystems are "developed in a socially responsible manner and reflect sound environmental management practices." Negative impacts on ecosystems and communities must be avoided where possible, and if unavoidable, reduced, mitigated, or compensated appropriately.

The January 2012 version of The International Finance Corporation's (IFC) Performance Standards, which form the operational basis of the Equator Principles, explicitly mentions biodiversity offsets in Performance Standard 6 on "Biodiversity Conservation and Sustainable Management of Living Natural Resources." Banks that comply with the Equator Principles are therefore required to apply the mitigation hierarchy in project financing, as outlined by the IFC.



## **Compensatory Offsetting in India: A Story of Destruction and Dispossession**

India's Forest Conservation Act of 1980, while aimed at restricting deforestation, includes provisions for compensatory afforestation (CA) to offset the destruction of forest land due to development projects. In 2004, following court orders, the Compensatory Afforestation Management and Planning Authority (CAMPA) was established to manage compensatory afforestation funds paid by developers for clearing forests for industrial and infrastructure projects.

CA is now calculated based on the valuation of the canopy density and quality of forest land being cleared, making it a statutory offset scheme for companies seeking permission to deforest. CAMPA and CA were merged to provide them with legal recognition under the Compensatory Afforestation Fund (CAF) Act of 2016. Although presented as a reforestation initiative, CA is fundamentally a deforestation project; behind each plantation established under this program lies the destruction of natural forests and local livelihoods. Its purpose is to compensate for the loss of "land with land" and "trees with trees."

According to the Ministry of Environment, Forest and Climate Change, from 1980 up to March 31, 2023, CA has been carried out on 1,067,520 hectares. (87.68 % of the cumulative target of 1,217,456 hectares). Since the CAF Act of 2016 came into effect, a total of US\$ 7 billion has been spent on CA through March 2023, with compensatory levies paid by companies amounting to US\$ 800 million in the 2022-23 financial year alone.

The payments made to offset deforestation account not only for the loss of forests but also for the loss of essential goods and ecosystem services for Indigenous Peoples and local communities, affecting livelihoods and disproportionately burdening women and girls, thereby deepening inequality in communities where negative impacts are unevenly distributed. Moreover, India's centralized forest governance structure enables the state to undertake CA, collect and disburse CA funds, and approve deforestation without respecting the rights or the process of free, prior and informed consent of Indigenous Peoples and local communities (IPLCs), as enshrined in the Forest Rights Act of 2006. CA is also used as a tool to forcibly relocate communities from protected areas. This mechanism thus facilitates the dispossession of land from communities, concentrating it in the hands of corporations and the Forest Department.

The forced implementation of plantations on community lands often involves forcibly imposing monoculture tree species, destroying traditional crops and displacing communities from their agricultural lands. Village grazing pastures have been burned down to clear land for CA projects, leading to severe disruptions in local livelihoods. This legalized deforestation and reliance on offsets have had significant adverse impacts on women's daily needs, decision-making power, and exposure to gender-based violence due to land conflicts. As Indigenous women lose access to and control over natural resources, the rights to commercially valuable trees and lands shift away from women, eroding their traditional roles and status.

A 2018 brief by the Community Forest Rights Learning and Advocacy Group concluded that the compensatory afforestation fund creates a perverse incentive for forest diversion and facilitates the dispossession of Indigenous peoples, other traditional forest dwellers, vulnerable tribal groups and pre-agricultural communities, pastoralists and women from community forest lands and resources. CA threatens the food security, good health and well-being, cultural identity, traditional practices, and livelihoods of forest-dwelling communities by replacing biodiverse food habitats with monoculture plantations. The diversion and use of forest land under CAMPA also undermines the rights and authority of village councils to govern and manage community forest resources.

India's internal offsetting mechanism is a stark example of how "no net loss" accounting of deforestation and biodiversity, not only fails to halt deforestation but also incentivizes land concentration and forced land acquisitions by imposing compensatory afforestation on community lands, thereby encroaching on the rights of Indigenous Peoples and local communities and their common forest land and resources. The result is an irreversible loss of their livelihoods and their symbiotic relationship with forests, which is further exacerbated by the gendered impact on women.

Source: "Net Gain" is a lose-lose for rights, gender justice and social equity in biodiversity policy, Global Forest Coalition, 2022

A world view provided by the Global Inventory of Biodiversity Offset Policies (GOBIP, 2019) shows:

- 100 countries are developing biodiversity compensation and/or offset policies
- Biodiversity compensation (including offsets) is legally required in 37 countries as a prerequisite for project clearance
- Biodiversity compensation/offset schemes are primarily embedded in the Environmental Impact Assessment (EIA) Framework
- The use of voluntary biodiversity compensation and/or offsetting is enabled in 64 countries

Only ten countries globally require offsets to follow the robust application of the mitigation hierarchy.

## **Biodiversity Conservation: Competing Objectives**

The inclusion of biodiversity in the global environmental agenda has made it both scientific and political, intrinsically linked to conservation and concerns over the loss of natural environments.

Biodiversity offsets are often framed around the themes of nature conservation and biodiversity protection. Biodiversity itself is commonly understood as the “variety of life on earth”. It encompasses ecosystems and the relationships between species, reflecting the complex interactions within communities, habitats, and the spatial and temporal interactions between species. Some economists have even described biodiversity as “life insurance for life itself.”

Biodiversity has been defined as “the variability among living organisms from all sources, including, inter alia, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part: this includes diversity within species, between species, and of ecosystems.” As a common good, nature belongs to all, and any policy aimed at protecting biodiversity must take this collective responsibility into account.

Assigning monetary value to nature, however, does not always promote the conservation of biodiversity and, in fact, can lead to the opposite effect. Such a narrative risks creating a “dangerous and misleading illusion of the substitutability” of critical and irreplaceable ecosystem services. Within the conservation field, mitigation approaches have historically been seen as more development-friendly alternatives to strict environmental regulations, allowing development to proceed when environmental laws might otherwise prevent it.



Natural environments harbour plural and incommensurable values which are irreplaceable. Photo by Biodiversity Act.

O'Neil (1993) argues that the valuation of biodiversity is technically difficult and ethically controversial. Natural environments harbour plural and incommensurable values, some of which—like cultural significance derived from the interplay of natural and human creativity over long periods—are irreplaceable.

While quantifying biodiversity can help integrate it into planning and business decisions, Cowell (1997) suggests that framing biodiversity as a calculable resource redefines environmental concerns as technical and managerial issues within a capitalist framework, rather than moral or societal goals. Capitalism and the continued pursuit of economic growth are often seen as key drivers of global biodiversity decline and ecosystem degradation over the last century.

The merging of business interests with biodiversity conservation, sometimes referred to as the “neo-liberalisation of conservation,” has promoted concepts like green developments and market solutions to biodiversity loss. Market-based interventions are paradoxically viewed both as the commodification of nature and as effective tools to finance and promote conservation efforts. Researchers such as Robertson (2000) argue that converting multiple biodiversity values into a single figure for offsets commodifies nature. This process transforms nature—intrinsic and embedded in place—into something mobile and transferable, abstracting biodiversity from its socio-ecological context into a resource for human use or investment. Placing a single quantitative value on biodiversity, which can easily be linked to a price, encourages the perception of nature as abstract from other socio-ecological connections, a transferable resource for human use or investment. This normative focus on ecological criteria alone disregards the socio-cultural dimensions of biodiversity, as they are not regarded as being part of nature conservation.

This paradigm shift in conservation has resulted in a variety of new conservation strategies. Conservation is now pursued through taxes, education, farming, and rural stewardship schemes, debt-for-nature swaps, eco-tourism, certification and marketing. Among these new approaches, the new alliance between business and biodiversity has led to the promotion of biodiversity offsetting as a mechanism to help achieve the aspiration of no net loss of biodiversity.

In the long term, biodiversity offset mechanisms promote technocratic and market-based approaches as solutions to decouple the economy from its environmental impacts. Much of the best practice offset literature implicitly assumes that development can be decoupled from its biodiversity impact. Offsets, therefore, are effectively a mechanism for pricing certain negative environmental externalities into development projects.

The findings of the 2019 Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), tasked with strengthening the connection between biodiversity science and policy, concluded that significant action on biodiversity loss requires transformative change; “a fundamental, system-wide reorganisation across technological, economic, and social factors, including paradigms, goals, and values.”

The Exporting Extinction Report, which studied extractive sectors in five countries, revealed that the international financial and monetary systems driving extractive land use change are responsible for 90 percent of global biodiversity loss. This extraction-based development model, reliant on unfettered resource exploitation, has resulted in highly unequal distributions of benefits and impacts, both between and within the Global North and Global South.

The neoliberal policies and conditionalities propagated by the International Monetary Fund (IMF) and World Bank, which aim to resolve economic crises through loans, coerce Global South countries to cut public spending, privatize state-owned enterprises, and focus on export sector productivity. These policies make it difficult for governments to conserve biodiversity, as they undermine efforts to regulate extractive sectors and support alternative forms of economic development.

As the biodiversity crisis worsens in the 21st century, debates over “development versus conservation” will likely intensify. Even The Business and Biodiversity Offsets Programme (BBOP), a partnership between companies, governments, conservation experts and financial institutions and a long-time advocate of offsets to help companies manage risks and liabilities, acknowledged in 2012 that “there is no single, best way to measure losses or gains in biodiversity.”

**Global biodiversity policy-making has increasingly allowed the very corporations responsible for environmental degradation to adopt market-based instruments, driven by strong corporate lobbying under the guise of “stakeholder participation”.**

# The Gold Rush for Offsets in Colombia

In 1994, Colombia ratified the Convention on Biological Diversity (CBD) through Law 165, laying the foundation for offsetting biodiversity loss under Article 14 of the CBD "Evaluation of impacts and minimization of adverse effects." In 2012, Colombia adopted the National Policy for the Integrated Management of Biodiversity and its Ecosystem Services - PNGIBSE, which prioritizes strategies to evaluate costs and benefits of the relationship between productive activities and maintenance of ecosystem services, and strengthening institutional competencies for compensation for biodiversity loss. According to the Ministry of Environment and Sustainable Development, in the same year, the *Biodiversity Loss Offsetting Allocation Manual* was created by its office of Forests, Biodiversity and Ecosystem Services Direction to comply with the provisions of the PNGIBSE. This manual was supported by transnational NGOs like the World Wildlife Fund (WWF), Conservation International (CI) and The Nature Conservancy. It was updated in 2018 through Resolution 256 and renamed the *Offsetting Manual for the biotic component*.

The update clarified implementation procedures by outlining four key components:

- 1. Actions:** *Offsetting can involve preservation, restoration (e.g., rehabilitation or recovery), and sustainable use of biodiversity on public or private lands.*
- 2. Modes:** *These are management alternatives that provide legal instruments to ensure effective execution and sustainability in designated areas.*
- 3. Implementation and Management Mechanisms:** *Offsetting can be achieved directly or through operators, using arrangements with NGOs, communities, universities, and other entities, or through public funds, habitat banks, or government initiatives like "Peace Forests."*
- 4. Presentation and Implementation Forms:** *Offsetting plans can be submitted individually or collectively, especially when a mandatory investment of 1% is required, allowing for the aggregation of offsets to maximize conservation benefits.*

Key players in Colombia's offsetting market include energy companies ISAGEN, Ecopetrol, Grupo Energía Bogotá, and Gecelca; mining giants like AngloGold Ashanti Colombia and Antioquia Gold; the cement company Argos; and the public utilities company Empresas Públicas de Medellín (EPM). The development of compensatory frameworks and the rise of "biodiversity investment" companies such as Terrasos—a main player in supporting polluters to offset extractive activities—have solidified a market-based framework for offsetting extractive activities in Colombia.

Colombia, home to the highest number of bird species in the world and nearly 10 percent of the planet's biodiversity, faces complex environmental challenges. With such rich complexity of ecological and biological components, the environmental policies to regulate

land use, water, biodiversity and forests need to address the root causes of ecosystem degradation and challenge the financialization of nature from a gender lens. Despite a 36% reduction in deforestation in 2023, government support for extractive industries—including extensive livestock farming and mining—in a bid to attract foreign investment, prioritizes corporate interests over social, cultural and environmental rights.

## **The Impact of Market-Based Instruments on Communities**

Market-based instruments for environmental management are having devastating impacts on women, Indigenous Peoples, and local and Afro-descendant communities. Policies aimed at attracting international capital undermine community-led conservation efforts. Between 2000 and 2010, coal production increased by 80 percent, including in national parks and territories held by Indigenous and Afro-Colombian communities, according to research by the Climate and Community Project, Third World Network and CCJ (2024).

One example is AngloGold Ashanti’s copper mining project in the municipality of Jericó, in the southeastern department of Antioquia. The project spans 4,881 hectares and is expected to mine about five million tons of copper concentrate containing gold and silver over a 21-year period, under a “0 greenhouse gas emissions” pledge.

A second project, the La Colosa mine in Cajamarca, Tolima—planned to be the world’s second-largest open-pit gold mine—, was overwhelmingly rejected by 97% of local inhabitants during a People’s consultation. La Colosa was projected to yield about 800 ounces of gold per year, leading to biodiversity loss, soil, water and air pollution and forest cover loss. If the current mining ban is lifted under pressure from AngloGold Ashanti, environmental risks and community opposition could escalate, with previous protests already resulting in threats and harassment of environmental defenders and the deaths of two young activists.

1

Another contentious project is the Hidroituango mega-dam, led by EPM. The dam caused massive socio-environmental destruction, permanent loss of forest cover and biodiversity, geological impacts and engineering failures, forced displacement and other human rights violations. The project, which had been planned for decades, couldn’t be built on time due to armed conflicts in the area. This has led to demands by local grassroots organizations to ban mega-dams in conflict areas. To offset the environmental damage, the company developed a compensation project to restore 24,000 hectares of dry tropical forests. However, the concept of “restoring” one area while continuing environmental degradation and community destruction in another is fundamentally flawed from both an ethical and socio-environmental standpoint.

1 The project, launched in 2009 in an area heavily affected by armed conflict, in the department of Antioquia, received 64% of its funding from the Inter-American Development Bank (IDB). In 2016, their biodiversity offsetting program for aquatic ecosystems was also funded by this institution.

## **“Marketable” offsetting solutions**

The "Peace Forests" program, created by the Ministry of Environment and Sustainable Development, aims to support productive activities in conflict areas "to generate marketable goods and services and contribute to conservation." Funded by voluntary contributions from the private and public sectors, international cooperation, and mandatory investments of at least 1 percent of the value of projects subject to environmental regulations, as well as through offsetting projects, the program has invested around 3.5 billion pesos (approximately US \$1.2 million) in agroforestry on 1,200 hectares in the municipality of Granada. Its goal is to establish 150 Peace Forests nationwide by planting around 8 million trees as environmental offsets. The program's methodology relies on the Corine Land Cover (CLC) dataset, a European Union land-use classification system.

Similarly, the "Habitat Bank" strategy, launched in 2017 with US \$1.5 million in private investment, had 667 Habitat Banks entries by April 2024. Marketed as a "profitable" conservation strategy, the program "seeks to have companies, which are obligated to offset the negative impacts they cause on the environment, do so through lands predestined for conservation and restoration. This US \$1.5 million investment is financed by the Multilateral Investment Fund (MIF) and the Inter-American Development Bank (IDB).

## **The Need for Transformative Change**

While both initiatives are positioned as alternatives to fulfil compensation requirements by quantifying results and promoting environmental investments, they fall short of delivering the transformative change needed to move beyond extractivism and the fossil fuel era.

However, Colombia's recent US \$40 billion energy transition plan, which includes a US \$8.5 billion investment to conserve and restore nature as part of its move away from oil and gas, will be worth watching closely.

*With contributions from Andrea Echeverri*





Forests are home to a complex interconnection of life, which cannot be quantified through offset mechanisms. [Photo by Kerala Tourism.](#)

## **The Reality of Biodiversity Offsets**

Biodiversity offsetting—also referred to as mitigation banking, conservation banking, environmental compensation, compensation pools, and conservation credits—largely emerged from practice rather than scientific advancement. Maron et al. (2012) argue that believing that we can restore complex natural systems reflects technological arrogance, while [Morrison \(2016\)](#) critiques restoration for presenting nature as replicable and interchangeable, stating that “restoration is rudimentary as best, criminally inept, at worst.”

The concept of no net loss assumes that restoration can recover lost biodiversity, yet evidence supporting this is sparse. [Morrison \(2016\)](#) cites Lockwood and Pimm (1999) who surveyed 87 restoration projects, finding that 17 were unsuccessful, 53 were partially successful and only 17 successful. Such findings suggest that biodiversity offsetting may simply facilitate environmental degradation, making “no net loss” an illusionary goal, a hollow promise or a symbolic policy.

“Net” approaches also conflict with the Convention on Biological Diversity’s (CBD) mission to live in harmony with nature. These areas are often home to Local communities and Indigenous Peoples who face economic and political marginalization. These communities are disproportionately dependent upon these forests and other ecosystems for water, firewood, fruits, nuts, bushmeat, fodder and medicinal plants and are prone to varied and differentiated impacts due to the various forms of structural barriers that entrench and maintain discrimination based on gender, ethnicity, race, age, economic status, sexual orientation and other factors of differentiation.

Women tend to possess far less capital, land, economic, tangible (water, livestock money), intangible (family network, collective solidarity, information) and human resources (labor, skills, knowledge) than men, which means they are even more dependent upon the resources ecosystems provide. This situation is exacerbated in contexts where women face gender injustices based on their economic status, age, ability, social class, sexual orientation and gender identity.

When extractive industries and other projects do not avoid and minimize the harm they cause to ecosystems, women in all their diversity, youth, people with disabilities, historically underrepresented groups, Indigenous Peoples, Afro-descendant and local communities are the first affected, as they lose their livelihood resources. A biodiversity offset in another location will not compensate them in any way for this loss. In fact, biodiversity offsets and other net approaches to biodiversity loss “fundamentally ignore the reliance on biodiversity for local livelihoods, and de facto dismiss its local economic, social and cultural value.” The loss of biodiversity and livelihoods can not only erode local food security and cultural identities, but also deepen inequalities in the division of labour (including unpaid care and domestic work), impede effective participation and equal opportunities for women’s leadership at all levels of decision-making, undermine access to power and control over resources, and trigger gender-based violence. Forced evictions, arbitrary detentions, and unjust imprisonment are common practices and can also lead to harassment, rape and sexual abuse, undermining women’s rights. As Bidaud et al (2018) point out, the governance of natural resources is often separated from considerations of livelihood impacts, leaving social rights lagging behind biodiversity goals in offsetting schemes.

In reality, biodiversity offsets are used by large corporations and financial institutions to reduce operational risks. Offsets help corporations with significant ecological footprints maintain legal and social licenses to operate, (deceptively) improve their reputations, and reduce credit risk.

An IUCN report (2004) based on interviews with stakeholders from the private sector, governments, intergovernmental organizations, and NGOs found that the private sector engages in biodiversity offsets to gain several advantages, including:

- A license to operate through improved reputation and regulatory goodwill;
- Better access to capital;
- Lower compliance costs;
- New market opportunities;
- Competitive advantage and influence over regulations;
- “Cleaner” asset disposal during mergers and acquisitions; and
- Improved employee satisfaction and retention.

Despite these business motivations, systematic assessments of biodiversity offsets in practice and the impacts of legislation are scarce. In the USA, for example, there have been few systematic assessments of the wetland protection legislation’s impact and whether it has achieved “no net loss.” When scientists looked at 12 of the longest-established wetland mitigation areas in Ohio, USA, they found that many did not even meet the regulation’s objectives. In Canada, 63 percent of projects aiming to offset fish habitat loss failed to meet their no net loss targets. Globally, up to two-thirds of restoration offsets fail, and the success rate is even lower for offsets that attempt to create ecosystems from scratch. Most offset sites have less biodiversity than the areas they replaced, and overall, the ecological effectiveness of biodiversity offsets remains unproven.

Biodiversity offsets are evaluated using parameters like equivalence, additionality, ecological outcome, longevity, time lag, and reversibility; yet, these measures often reveal continued biodiversity loss, further raising questions over their validity and efficacy.

Ecological equivalence is also difficult to argue, as man-made ecosystems, such as wetlands, are not equivalent to natural ones. Additionality—the conservation gain produced by the offset that wouldn't have occurred otherwise—can be undermined by "cost-shifting," where funds meant for protected areas are redirected from offsets. This dependency on biodiversity loss for the ongoing expansion of protected areas challenges the concept of additionality.

Longevity poses another challenge. Ensuring offsets last over time is difficult, and reversibility—considered essential for offsets to be viable—lacks an objective definition. To address the uncertainty of offset outcomes, some schemes use "multipliers," which increase the compensation required. However, this approach only amplifies uncertainty, as future gains may never materialize.

The time lag between biodiversity loss and the realization of offset benefits can also result in significant interim biodiversity loss, with detrimental effects on ecosystems. Restored habitats become increasingly uncertain over time, and the unsettling truth is that biodiversity losses are often guaranteed, while gains are uncertain and may not be realized at all.

The option to trade biodiversity losses for future gains could lead to relaxed safeguards. With increased emphasis on compensation, regulators may be incentivized to bypass avoidance measures. This could lead to greater environmental harm, with companies potentially using offsets to meet environmental targets without making substantial changes to their practices.

**When extractive industries and other projects do not avoid and minimize the harm they cause to ecosystems, women in all their diversity, youth, people with disabilities, historically underrepresented groups, Indigenous Peoples, Afro-descendant and local communities are the first affected, as they lose their livelihood resources. A biodiversity offset in another location will not compensate them in any way for this loss.**

There are growing concerns that biodiversity credits and offsets could distract from more effective conservation efforts and provide opportunities for greenwashing. A 2021 study found "no evidence that biodiversity gains from offsets actually compensate for development-associated losses, because losses were never estimated."

As Gilbertson (2021) rightly points out, biodiversity offsetting is incommensurable with the violence inflicted upon human and nonhuman nature and represents how such projects silence opposition, quell political mobilizations and build international support for corporate-led development rhetoric.

# CONCLUSION

Fundamentally, our governments must start to recognize biodiversity as a public good; and public goods must be funded by governments or incorporated into private investment decision-making through public policy, regulations, and incentives.

This funding must be driven by changes in government policies, and not as voluntary measures by corporations and investors, which have historically failed to provide funding that doesn't directly generate returns or increase shareholder value. Policy-driven funding should include increased taxes on companies that harm nature, tax incentives for conservation efforts, redirecting of harmful subsidies toward nature protection, and mandatory regulations that require investment in more sustainable practices.

One of the key outcomes of COP 15 for closing the biodiversity finance gap is the commitment to redirect US \$500 billion of subsidies away from activities that destroy nature. This requires, first and foremost, divestment from activities that contribute to biodiversity loss, including the estimated US \$5-7 trillion that governments invest in perverse subsidies and the estimated US \$2.6 trillion that the largest banks invested in sectors and projects harmful to biodiversity. In 2022, fossil fuel subsidies alone surged to a record US \$7 trillion.

Where governments are incentivized—or even obligated—to sustain biodiversity-damaging extractive sectors, meeting the targets of the Kunming-Montreal Global Biodiversity Framework (KMGBF) will be a monumental challenge.

Achieving transformative outcomes will require dismantling the political and economic structures that make extraction profitable, especially for so many Global South countries, where it is necessary to maintain their economic stability.

Without changing these underlying systems and the rules of the game, extractivism will continue unchecked, undermining public investment in sustainable development, and addressing the root causes of biodiversity loss. This will also perpetuate harm, disproportionately affecting women, youth, Indigenous Peoples, local and Afro-descendant communities.

Biodiversity offsetting, in reality, does more to allow extractive and destructive corporations to perpetuate and maximise their business empires and profits at the expense of biodiversity than it does to close the finance gap.

# REFERENCES



- BankTrack (2006). The "Equator Principles" A financial industry benchmark for determining, assessing and managing social & environmental risk in project financing, 1-10.  
[https://www.banktrack.org/download/equator\\_principles\\_ii/060706\\_equator\\_principles\\_2.pdf](https://www.banktrack.org/download/equator_principles_ii/060706_equator_principles_2.pdf).
- Bekessy, S., Wintle, B.A., Lindenmayer, D.B., McCarthy, M.A., Colyvan, M., Burgman, M.A., & Possingham, H.P. (2010). The biodiversity bank cannot be a lending bank. *Conservation Letters*, 3, 151–158.  
<http://www.colyvan.com/papers/bbcbalb.pdf>.
- Bidaud, C., Schreckenberg, K., Jones, J.P.G. (2018). The local costs of biodiversity offsets: Comparing standards, policy and practice. *Land Use Policy*, 77, 43-50.  
<https://doi.org/10.1016/j.landusepol.2018.05.003>.
- Black, S., Parry, I., Vernon-Lin, N. (2023). Fossil Fuel Subsidies Surged to Record \$7 Trillion. IMF Blog.  
<https://www.imf.org/en/Blogs/Articles/2023/08/24/fossil-fuel-subsidies-surged-to-record-7-trillion>.
- Bull, J., Subtle Blake, K., Gordon, A., Singh, N.J., and Milner-Gulland, E.J. (2013). Biodiversity offsets in theory and practice. *Fauna & Flora International, Oryx*, 0(0), 1–12. [https://www.forest-trends.org/wp-content/uploads/imported/Bull\\_et\\_al\\_2013\\_Oryx.pdf](https://www.forest-trends.org/wp-content/uploads/imported/Bull_et_al_2013_Oryx.pdf).
- Büscher, B. (2012). Payments for Ecosystem Services as Neoliberal Conservation: (Reinterpreting) Evidence from the Maloti-Drakensberg, South Africa. *Conservation and Society*, 10(1): 29-41.  
<https://pdfs.semanticscholar.org/a17c/2b29a6b28caf447af7e8158b7abad9896110.pdf>.
- Business and Biodiversity Offsets Programme (BBOP). (2012). Biodiversity Offset Design Handbook. [https://www.forest-trends.org/wp-content/uploads/imported/bbop-biodiversity-odh-final-with-updates-30-6-2012\\_final\\_v1-pdf.pdf](https://www.forest-trends.org/wp-content/uploads/imported/bbop-biodiversity-odh-final-with-updates-30-6-2012_final_v1-pdf.pdf).
- Chandrasekhar, A., (2023). In-depth Q&A: What are ‘biodiversity offsets’? Carbon Brief.  
<https://interactive.carbonbrief.org/carbon-offsets-2023/biodiversity.html>.
- Clare, S., Krogman, N., Foote, L. et al. Where is the avoidance in the implementation of wetland law and policy?. *Wetlands Ecol Manage* 19, 165–182 (2011). <https://link.springer.com/article/10.1007/s11273-011-9209-3>.
- Coolsaet, B., Dawson, N.M., Rabitz, F., Lovera, S. (2020). Access and allocation in global biodiversity governance: a review. *International Environmental Agreements* 20, 359–37.  
[https://www.researchgate.net/publication/340722571\\_Access\\_and\\_allocation\\_in\\_global\\_biodiversity\\_governance\\_a\\_review](https://www.researchgate.net/publication/340722571_Access_and_allocation_in_global_biodiversity_governance_a_review)
- Constantine, A. (2022). “Net Gain” is a lose-lose for rights, gender justice and social equity in biodiversity policy. Global Forest Coalition (GFC). 1-8. [https://globalforestcoalition.org/wp-content/uploads/2022/03/GFC\\_biodiversity-offsets.pdf](https://globalforestcoalition.org/wp-content/uploads/2022/03/GFC_biodiversity-offsets.pdf).
- Conway, M. (2013). Habitat Banking in the EU: Demand, Supply and Design Elements. European Commission.  
<https://www.forest-trends.org/wp-content/uploads/imported/final-habitat-banking-bbop-webinar-06032013-pdf.pdf>.

- Cowell, R. (1997). *Stretching the Limits: Environmental Compensation, Habitat Creation and Sustainable Development*. *Transactions of the Institute of British Geographers*, 22(3):292 - 306.  
[https://www.researchgate.net/publication/227713659\\_Stretching\\_the\\_Limits\\_Environmental\\_Compensation\\_Habitat\\_Creation\\_and\\_Sustainable\\_Development](https://www.researchgate.net/publication/227713659_Stretching_the_Limits_Environmental_Compensation_Habitat_Creation_and_Sustainable_Development).
- Damiens, F.L.P., Backstrom, A., and Gordon, A. (2021). *Governing for “no net loss” of biodiversity over the long term: challenges and pathways forward*. *One Earth*, 4, 60-74,  
<https://www.sciencedirect.com/science/article/pii/S2590332220306588>.
- Dasgupta, P. (2021), *The Economics of Biodiversity: The Dasgupta Review*. (London: HM Treasury).  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/962785/The\\_Economics\\_of\\_Biodiversity\\_The\\_Dasgupta\\_Review\\_Full\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf).
- Dempsey, J., Bigger, P., Christiansen, J., DiSilvestro, A., Irvine-Broque, A., Nelson, S., Rojas-Marchini, F., Schuldt, A., and Shapiro-Garza, E. (2021) *Beyond the Gap: Placing Biodiversity Finance in the Global Economy*. Biodiversity Capital Research Collective, Third World Network and the University of British Columbia. 112 pp.  
<https://twn.my/title2/books/Beyond%20the%20Gap/BeyondTheGap%20complete%20report.pdf>.
- Dempsey, J., Irvine-Broque, A., Gaster, T., Steichen, L., Bigger, P., Duque, A.Z., Linett, A., Ferreira, G.P., Kaechele, N. (2024). *Exporting Extinction. How the international financial system constraints biodiverse futures*. Centre for Climate Justice (CCJ), University of British Columbia, Climate and Community Project (CCP) and Third World Network (TWN). 56pp. <https://climatejustice.ubc.ca/wp-content/uploads/sites/45/2024/03/Exporting-Extinction-English.pdf>
- Droste, N., Olsson, J.A., Hanson, H., Knaggård, A., Lima, G., Lundmark, L., Thoni, T., Zelli, F.. (2022). *A global overview of biodiversity offsetting governance*. *Journal of Environmental Management*, 316, 301-4797.  
<https://www.sciencedirect.com/science/article/pii/S0301479722008040>.
- European Commission. *EU taxonomy for sustainable activities*. [https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities\\_en](https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en).
- European Commission. (2011). *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0244&from=EN>.
- FERN (2014). *Briefing note 3: Biodiversity offsetting in practice*.  
[https://www.fern.org/fileadmin/uploads/fern/Documents/Biodiversity3\\_EN.pdf](https://www.fern.org/fileadmin/uploads/fern/Documents/Biodiversity3_EN.pdf).
- Gaston, K.J. (2010). *Biodiversity*. In Sodhi and Ehrlich: *Conservation Biology for All*. Oxford University Press.  
[https://conbio.org/images/content\\_publications/Chapter2.pdf](https://conbio.org/images/content_publications/Chapter2.pdf).
- Gaston, K.J. and John I. Spicer (2004). *Biodiversity: An Introduction (Second Edition)*. *Blackwell Publishing*, 38(4), 191 pp.  
[https://www.researchgate.net/publication/270351099\\_Biodiversity\\_An\\_Introduction\\_Second\\_Edition\\_by\\_Kevin\\_J\\_Gaston\\_and\\_John\\_I\\_Spicer\\_2004\\_xv\\_191\\_pp\\_Blackwell\\_Publishing\\_Oxford\\_UK\\_ISBN\\_1\\_4051\\_1857\\_1\\_pbk\\_1999](https://www.researchgate.net/publication/270351099_Biodiversity_An_Introduction_Second_Edition_by_Kevin_J_Gaston_and_John_I_Spicer_2004_xv_191_pp_Blackwell_Publishing_Oxford_UK_ISBN_1_4051_1857_1_pbk_1999) .
- Gilbertson, T., (2020) *Compensating for Development at the In-between and Edges of Extractive Capitalism: Socionature and Cultural Erasure in the Northeast Caribbean Colombian Coal Mining Region*. [ Doctoral Dissertation, University of Tennessee]. [https://trace.tennessee.edu/cgi/viewcontent.cgi?article=7110&context=utk\\_graddiss](https://trace.tennessee.edu/cgi/viewcontent.cgi?article=7110&context=utk_graddiss).
- Global Forest Coalition (2012). *Corporate contagion: How the private sector is capturing the UN Food, Biodiversity and Climate Summits*. <https://globalforestcoalition.org/corporate-contagion/>.

- Gonçalves, B., Marques, A., Soares, A.M.V.M., Pereira, H.M. (2025). Biodiversity offsets: from current challenges to harmonized metrics. *Current Opinion in Environmental Sustainability*, 14, 61-67, <https://www.sciencedirect.com/science/article/pii/S1877343515000378?via%3Dihub>.
- Government of Australia (1999). Environment Protection and Biodiversity Conservation Act 1999, Commonwealth Consolidated Acts, [https://www8.austlii.edu.au/cgi-bin/viewdb/au/legis/cth/consol\\_act/epabca1999588/](https://www8.austlii.edu.au/cgi-bin/viewdb/au/legis/cth/consol_act/epabca1999588/).
- Government of India (1980). Forest Conservation Act, Ministry of Environment and Forests, [https://prsindia.org/files/bills\\_acts/bills\\_parliament/2005/bill53\\_2007010153\\_Handbook\\_of\\_Forest\\_Conservation\\_Act\\_1980\\_and\\_Forest\\_Conservation\\_Rules\\_2003.pdf](https://prsindia.org/files/bills_acts/bills_parliament/2005/bill53_2007010153_Handbook_of_Forest_Conservation_Act_1980_and_Forest_Conservation_Rules_2003.pdf).
- Government of India (2016). Compensatory Fund Act, <https://www.indiacode.nic.in/bitstream/123456789/2151/1/A2016-38.pdf>.
- Government of the Netherlands. National Ecological Network (NEN). <https://www.government.nl/topics/nature-and-biodiversity/national-ecological-network-nen>
- Gualandi, R. (2023). Biodiversity offsetting included as green investment in EU green taxonomy. Carbon Pulse. <https://carbon-pulse.com/208001/>.
- Harper, D.J., and Quigley, J.T. (2005). No Net Loss of Fish Habitat: A Review and Analysis of Habitat Compensation in Canada. *Environmental Management*, 36(3):343-55. [https://www.researchgate.net/publication/7676670\\_No\\_Net\\_Loss\\_of\\_Fish\\_Habitat\\_A\\_Review\\_and\\_Analysis\\_of\\_Habitat\\_Compensation\\_in\\_Canada](https://www.researchgate.net/publication/7676670_No_Net_Loss_of_Fish_Habitat_A_Review_and_Analysis_of_Habitat_Compensation_in_Canada).
- HM Government. (2023). Nature markets: A framework for scaling up private investment in nature recovery and sustainable farming. Secretary of State for Environment, Food and Rural Affairs, UK Government. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1147397/nature-markets.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147397/nature-markets.pdf).
- HM Government. (2011). The Natural Choice: securing the value of nature. Secretary of State for Environment, Food and Rural Affairs. UK Government. <https://assets.publishing.service.gov.uk/media/5a7cb8fce5274a38e57565a4/8082.pdf>.
- Holst, A. (1972). United States Clean Water Act. *Encyclopedia Britannica*. <https://www.britannica.com/topic/Clean-Water-Act>.
- Human Rights Watch (2024). Carbon Offsetting's Casualties. Violations of Chong Indigenous People's Rights in Cambodia's Southern Cardamom REDD+ Project. <https://www.hrw.org/report/2024/02/28/carbon-offsettings-casualties/violations-chong-indigenous-peoples-rights>.
- Inspection Panel and World Bank. (2020). Insights from the Kalagala biodiversity offset associated with the Bujagali power project in Uganda. <https://www.inspectionpanel.org/sites/default/files/publications/Emerging%20Lessons%20Series%20No.%205-Biodiversity%20Advisory.pdf>
- IUCN. Biodiversity Offsets Technical Study Paper (2014). <https://portals.iucn.org/library/sites/library/files/documents/2014-044.pdf>
- IUCN, Gland, Switzerland and Cambridge, UK and Insight Investment. (2004). Biodiversity offsets: Views, experience, and the business case. <https://lib.icimod.org/record/11648?ln=en>.

- IUCN (2019). World View - A Snapshot of National Biodiversity Offset Policies. <https://portals.iucn.org/offsetpolicy/>
- Kill, J. and Franchi, G. (2016). Rio Tinto in Madagascar: A mine destroying the unique biodiversity of the littoral zone of Fort Dauphin. World Rain Movement (WRM) and Re: Common. 1-32. [https://www.wrm.org.uy/wp-content/uploads/2016/06/Article\\_Rio\\_Tinto\\_in\\_Madagascar.pdf](https://www.wrm.org.uy/wp-content/uploads/2016/06/Article_Rio_Tinto_in_Madagascar.pdf).
- Kovel, J. (2002). The enemy of nature: the end of capitalism or the end of the world. London: Zed Books, 273 pp. [https://www.academia.edu/27683146/The\\_enemy\\_of\\_nature\\_the\\_end\\_of\\_capitalism\\_or\\_the\\_end\\_of\\_the\\_world](https://www.academia.edu/27683146/The_enemy_of_nature_the_end_of_capitalism_or_the_end_of_the_world)
- Lapeyre, R., Froger, G., Hrabanski, M. (2016). Biodiversity offsets as market-based instruments for ecosystem services? From discourses to practices. *Ecosystem Services*, 15, 125-133. <https://core.ac.uk/download/pdf/47163143.pdf>
- Lovera-Bilderbeek, S. and Lahiri, S. (2021), Addressing power imbalances in biosequestration governance. *Glob Policy*, 12: 57-66. <https://doi.org/10.1111/1758-5899.12882>.
- Mack, J.J and M. Micacchion. 2006. An ecological assessment of Ohio mitigation banks: Vegetation, Amphibians, Hydrology, and Soils. Ohio EPA Technical Report WET/2006-1. Ohio Environmental Protection Agency, Division of Surface Water, Wetland Ecology Group, Columbus, Ohio. [https://dam.assets.ohio.gov/image/upload/epa.ohio.gov/Portals/35/wetlands/Bank\\_Report\\_Ohio\\_Final.pdf](https://dam.assets.ohio.gov/image/upload/epa.ohio.gov/Portals/35/wetlands/Bank_Report_Ohio_Final.pdf).
- Maron, M., and Watson, J. (2015). Offsetting Biodiversity: Greening or Greenwashing? *Africa Wild*. <https://africawildforum.com/viewtopic.php?t=6110>.
- Maron, M., Ives, C.D., Kujala, H., Bull, J.W., Maseyk, F.J.F., Bekessy, S., Gordon, A., Watson, J.E.M., Lentini, P. E., Gibbons, P., (2016). Possingham, H.P., Hobbs, R.J., Keith, D.A., Wintle, B.A., Evans, M.C., Taming a Wicked Problem: Resolving Controversies in Biodiversity Offsetting, *BioScience*, 66, (6), 489–498, <https://nespurban.edu.au/wp-content/uploads/2019/01/taming-a-wicked-problem.pdf>
- McKenney, B.A., Kiesecker, J.M. Policy Development for Biodiversity Offsets: A Review of Offset Frameworks. *Environmental Management* 45, 165–176 (2010). <https://doi.org/10.1007/s00267-009-9396-3>.
- Moreno-Mateos, D., Maris, V., Béchet, A., Curran, M. (2015). The true loss caused by biodiversity offsets. *Biological Conservation*, 192, 552–559. [https://www.researchgate.net/publication/283885251\\_The\\_true\\_loss\\_caused\\_by\\_biodiversity\\_offsets](https://www.researchgate.net/publication/283885251_The_true_loss_caused_by_biodiversity_offsets).
- Morrison, R.E. (2016). Biodiversity Offsetting and Environmental Impact Assessment A critical analysis of the use of Environmental Impact Assessment as a vehicle for the operationalisation of Biodiversity Offsetting. [Doctoral dissertation, University of Manchester]. [https://pure.manchester.ac.uk/ws/portalfiles/portal/66044596/FULL\\_TEXT.PDF](https://pure.manchester.ac.uk/ws/portalfiles/portal/66044596/FULL_TEXT.PDF)
- OECD. (2016). Biodiversity Offsets: Effective Design and Implementation, OECD Publishing, Paris. [https://read.oecd-ilibrary.org/environment/biodiversity-offsets\\_9789264222519-en#page1](https://read.oecd-ilibrary.org/environment/biodiversity-offsets_9789264222519-en#page1).
- O'Neill, J.(1993). Ecology, Policy and Politics. Human wellbeing and the natural world. Routledge. <http://people.whitman.edu/~frierspr/ONeillConstituency.pdf>.
- Portfolio Earth. Bankrolling Extinction. The Banking Sector’s Role in the Global Biodiversity Crisis. <https://portfolio.earth/wp-content/uploads/2021/01/Bankrolling-Extinction-Report.pdf>.
- Quigley, J.T., Harper, D.J. (2006). Effectiveness of Fish Habitat Compensation in Canada in Achieving No Net Loss. *Environmental Management* 37, 351–366 . <https://doi.org/10.1007/s00267-004-0263-y>



- Rafferty, J. P. (1973). United States Endangered Species Act. Encyclopedia Britannica. <https://www.britannica.com/topic/Endangered-Species-Act>.
- Robertson, M.M. (2000), No Net Loss: Wetland Restoration and the Incomplete Capitalization of Nature. *Antipode*, 32: 463-493. <https://doi.org/10.1111/1467-8330.00146>
- Saenz S, Walschburger T, González JC, León J, McKenney B, Kiesecker J. (2013) Development by Design in Colombia: Making Mitigation Decisions Consistent with Conservation Outcomes. *PLoS ONE* 8(12): e81831. <https://doi.org/10.1371/journal.pone.0081831>
- Suding, K.N. (2011) Toward an Era of Restoration in Ecology: Successes, Failures, and Opportunities Ahead. *Annual Review of Ecology, Evolution, and Systematics*, 465-487. <https://www.landscapepartnership.org/maps-data/climate-context/cc-resources/ClimateSciPDFs/AnnualRevRestoration.pdf/app-download-file/file/AnnualRevRestoration.pdf>.
- Taherzadeh, O., Howley, P. No net loss of what, for whom?: stakeholder perspectives to Biodiversity Offsetting in England. *Environ Dev Sustain* 20, 1807–1830 (2018). <https://doi.org/10.1007/s10668-017-9967-z>.
- Ten Kate, K. and Crowe, M.L.A. (2014). Biodiversity Offsets: Policy options for governments. An input paper for the IUCN Technical Study Group on Biodiversity Offsets. Gland, Switzerland: IUCN. 91pp. <https://portals.iucn.org/library/sites/library/files/documents/2014-028.pdf>.
- The Equator Principles. <https://equator-principles.com/about-the-equator-principles/>.
- The International Finance Corporation (IFC)-World Bank Group. Performance Standards. <https://www.ifc.org/en/home>
- The International Finance Corporation (IFC)-World Bank Group (2012). International Finance Corporation’s Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. <https://www.ifc.org/content/dam/ifc/doc/2010/20190627-ifc-ps-guidance-note-6-en.pdf>
- UK Government (2023, June). UK – France Global Roadmap launched to mobilise global nature finance. UK Government. <https://www.gov.uk/government/news/uk-france-global-roadmap-launched-to-mobilise-global-nature-finance>.
- UNEP FI, UNEP-WCMC. (2012). Biodiversity Offsets: Voluntary and Compliance Regimes. <https://www.unepfi.org/publications/biodiversity-offsets-voluntary-and-compliance-regimes/>.
- United States Environmental Protection Agency. (1970). National Environmental Policy Act. <https://www.epa.gov/nepa>.
- West, P., Igoe, J., and Brockington, D. (2006). Parks and Peoples: The Social Impact of Protected Areas. *Annual Review of Anthropology*, 35, 251-277. <https://doi.org/10.1146/annurev.anthro.35.081705.123308>.
- Walker, S., Brower, A.L., Stephens, R.T.T. and Lee, W.G. (2009), Why bartering biodiversity fails. *Conservation Letters*, 2: 149-157. <https://doi.org/10.1111/j.1755-263X.2009.00061.x>.
- Washington, H., *Ecological Economics: Solutions for the Future*. (2020). PANGEA Research Centre, BEES, UNSW, 362pp. <https://www.isecoeco.org/wp-content/uploads/2020/07/EESolutionsFutureRoyalEbook.pdf>.
- World Economic Forum. (2024). Financing for Nature: Driving investment in conservation, restoration and nature positive business models. <https://initiatives.weforum.org/financing-for-nature/home>
- Zero Carbon Analytics. (2023). Biodiversity offsetting and biocredits. [https://zerocarbon-analytics.org/wp-content/uploads/2023/11/2023-11-Biodiversity-offsetting-and-biocredits\\_ZCA\\_Updates.pdf](https://zerocarbon-analytics.org/wp-content/uploads/2023/11/2023-11-Biodiversity-offsetting-and-biocredits_ZCA_Updates.pdf).

# ACKNOWLEDGMENTS

---

## **Editors**

Ismail Wolff

Chithira Vijayakumar

## **Translators**

Spanish: Megan Morrissey

French: Gaëlle Le Gauyer & Rachel Babin

## **Design and Layout**

Chithira Vijayakumar

