



Trading carbon credits for human rights:

Does Article 6.4 of the Paris Agreement protect Indigenous Peoples and local communities?

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CARBON MARKET WATCH



LAND MATRIX

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Executive summary

The Paris Agreement's [Article 6.4 mechanism](#), also known as the Paris Agreement Crediting Mechanism (PACM), is expected to channel a growing number of carbon market projects into land-intensive sectors such as hydropower, wind, solar, reforestation/afforestation, and ecosystem restoration. Many of these projects are located in areas used, occupied, or claimed by Indigenous Peoples and local communities. This raises urgent questions about whether the mechanism's Sustainable Development (SD) Tool, in its current state, is sufficient to prevent harm to these communities.

This analysis finds that the current version of the SD Tool includes only limited safeguards for communities affected by land-intensive projects, thereby increasing the risk of infringements of their land rights through carbon market projects. While the Tool does include important safeguard language, it remains largely procedural in design. Key weaknesses of the Tool include a lack of clarity on whether international human rights standards should prevail when domestic law is weak or exclusionary, few safeguards in circumstances where Indigenous Peoples lack formal recognition or where other customary rights-holders are affected, and too narrow an approach to Free, Prior and Informed Consent (FPIC).

These gaps could leave Article 6.4 open to the proliferation of high-risk projects – a concern this report demonstrates is more than just theoretical. A geospatial assessment of land-intensive projects in the Article 6 pipeline indicates substantial potential overlap with the lands of Indigenous Peoples and local communities. Of 663 geolocated projects that submitted a prior consideration notification (PCN) for inclusion in the mechanism, 117 show a high risk of direct overlap, with a further 48 located nearby. Among 1,319 Clean Development Mechanism (CDM) projects in transition, 309 show potential overlap with such lands, while 271 are in close proximity. A review of documented cases of land conflicts further shows that such overlaps have already translated into real-world harm in many instances. Existing projects in the Article 6 pipeline are associated with deficient consultation, involuntary resettlement, inadequate compensation, and complex and unresolved land conflicts. Given these findings, a revision of the SD Tool is essential, including the need to:

- **Establish a clear hierarchy of legal standards** so that international human rights norms prevail where national law is weak or exclusionary.
- **Expand the scope of safeguards beyond formally recognised Indigenous Peoples** to include local communities and other customary rights-holders.
- **Make consent-based safeguards a universal and ongoing requirement for all land-related impacts**, including economic displacement.
- **Require robust clarification of land tenure before project approval**, including the identification of customary claims, overlapping rights, and unresolved disputes.
- **Broaden compensation frameworks beyond a narrow “no worse off” economic standard** to reflect the social, cultural, ecological, and spiritual value of land.
- **Shift from consultative to participatory governance and accountability** by strengthening community agency and prioritising shared decision-making mechanisms.

01

Systemic weaknesses of the SD Tool's social safeguards

The [Paris Agreement Article 6.4 Sustainable Development \(SD\) Tool](#) is designed as a safeguard framework to guide the assessment and management of social and environmental risks in carbon market projects. The Tool's social and environmental safeguards are structured into 11 elements defined by specific criteria that provide the foundation for the risk assessment. It plays a critical role in shaping how these projects affect Indigenous Peoples and local communities, and in potentially preventing the recurrence of past harms associated with land-intensive interventions in the Global South. To assess the scope of the Tool, we conducted a benchmarking exercise comparing the SD Tool with various relevant international frameworks and carbon standards (see Appendix: Methods and data).

1.1. Overreliance on national legal frameworks

The benchmarking exercise reveals that, although the SD Tool brings together a broad set of safeguard areas, its overall design remains largely procedural. For instance, it emphasises identifying risks, completing required documentation, and proposing mitigation measures, but does not clearly define the thresholds that would limit or prevent project implementation. In contrast to some other frameworks, safeguards are treated as conditions to be managed rather than rights to be upheld, positioning the Tool closer to a project risk management instrument than to a rights-based accountability framework.

Another core issue is the absence of a clear hierarchy of legal standards. While the Tool recognises human rights and requires due diligence to “identify, prevent and mitigate adverse human rights impacts” (Element 4), it does not clarify that where national or domestic law is weak, exclusionary, or inconsistent with international human rights norms, the higher standard should apply. This departs from the approach reflected in the [United Nations \(UN\) Guiding Principles on Business and Human Rights](#) (Principle 11), which affirms that business enterprises should respect internationally recognised human rights “wherever they operate”. In many contexts where these projects operate, domestic legal systems do not fully recognise customary tenure, collective land rights, or even the legal status of Indigenous Peoples. Without this safeguard, the level of protection available to communities is effectively determined by the limitations of national law.

A prime example of the lack of a clear hierarchy and why it is problematic is the absence of a precise definition of the term “Indigenous Peoples” within the Tool, particularly given how few national legal frameworks clearly define this group either. To mitigate this, many international frameworks and standards adopt broader, more inclusive definitions. So too do private standards in the Voluntary Carbon Market (VCM), such as the Verified Carbon Standard ([VCS 5.0](#)), which refers to “Indigenous Peoples, local

communities, and customary rights-holders". Similarly, relevant [Plan Vivo](#) provisions apply to "Indigenous Peoples and local communities with statutory or customary rights", while the Gold Standard for the Global Goals ([GS4GG](#)) standard states that there is no universally accepted definition of Indigenous Peoples and instead refers to groups with shared identity, regardless of terminology, who satisfy any of the more commonly accepted definitions of Indigenous Peoples. However, unlike the way these standards extend safeguards to a wider set of stakeholders, particularly customary rights-holders such as local communities and other groups who have traditionally occupied or used the land, the notable absence of this category from the SD Tool means many of its safeguards are constrained by the dearth of national definitions for Indigenous Peoples.

1.2. Limited safeguards against involuntary resettlement

The limitations in defining Indigenous Peoples are most evident in the treatment of Free, Prior and Informed Consent (FPIC), which, under the SD Tool, is only required in certain cases involving Indigenous Peoples under Element 9, particularly in situations of displacement, thereby significantly narrowing its application. However, other affected groups, including customary rights-holders such as small-scale farmers and local communities in countries where Indigenous status is not formally recognised, are not afforded the same procedural protections. As a result, many communities that are directly affected by land-use changes fall outside the scope of consent-based safeguards.

There is also a crucial distinction from private standards regarding resettlement. Most VCM standards require FPIC in cases of resettlement, regardless of whether affected communities are formally identified as Indigenous Peoples. The [VCS 5.0](#), for example, stipulates the following if land rights are affected: "Before the project start date, free, prior, and informed consent shall be obtained from customary rights-holders and Indigenous Peoples, consistent with their right to self-determination." In contrast, the SD Tool's narrower focus on Indigenous Peoples means customary rights-holders have significantly less influence on resettlement processes and land disputes. Even though the project proponent would have to implement mitigation measures in cases of physical or economic displacement (Element 8), this still explicitly allows involuntary resettlement.

Even within this narrower focus, FPIC is applied in a restricted way. Firstly, it is triggered only under certain categories of impact, such as relocation or the use of cultural heritage, rather than being framed as a broader right linked to Indigenous Peoples' self-determination or control over development affecting their territories. Further, the Tool does not clearly define key elements of FPIC, including how consent is obtained, the scope of decision-making, or the conditions under which consent may be withheld or withdrawn. Conversely, Article 32 of the [United Nations Declaration on the Rights of Indigenous Peoples \(UNDRIP\)](#) affirms the right of Indigenous Peoples to "determine and develop priorities and strategies for the development or use of their lands or territories". The Tool does not align with the [Association of Southeast Asian Nations \(ASEAN\) Handbook on FPIC](#) either, which frames FPIC as a process of iterative, good-faith engagement in which consent must be "freely given, prior to the commencement of

activities, and based on full and understandable information”, and where communities have the right to approve or reject a project and set conditions for its implementation. On the other hand, the Tool does include requirements for information disclosure and specifies that information should be provided to affected stakeholders in an accessible and understandable manner. However, these provisions are framed primarily as part of consultation processes, focused on informing stakeholders and soliciting their views, rather than enabling them to exercise decision-making authority. Overall, the SD Tool does not establish FPIC as a continuous, iterative process, nor does it recognise the right of Indigenous Peoples to withhold or withdraw consent beyond narrowly defined circumstances, let alone the rights of unrecognised customary rights-holders to do so.

1.3. Narrow compensation logic and limited protection of cultural heritage

The SD Tool’s application of narrow definitions to key topics is also evident in its approach to compensation in cases of land acquisition and involuntary resettlement. For instance, the Tool allows projects to proceed even when communities lose land, as long as they are not considered worse off based on formal economic assessments and livelihood restoration measures, explicitly adopting “restoration of livelihoods and living standards to pre-project levels” as the minimum requirement (Element 8). A compensatory logic is hereby introduced, in which land can be substituted with income, jobs, or other benefits. However, for many smallholders, Indigenous Peoples, and forest-dependent communities, land is not interchangeable with income: it is tied to food systems, identity, social relations, and long-term security. Framing impacts purely in economic terms risks overlooking these dimensions and normalising land loss as long as there are mitigation measures to justify it.

The treatment of cultural heritage reflects a similar limitation. While the Tool recognises both tangible and intangible heritage, and requires that “damage to cultural heritage is avoided” and that impacts are assessed, it remains largely dependent on formal recognition systems and external validation using the [United Nations Educational, Scientific and Cultural Organisation \(UNESCO\) framework](#), rather than fully engaging with how communities themselves define and sustain their cultural landscapes. Here, misalignment with other Rio Convention processes becomes apparent: under the Convention on Biological Diversity, frameworks such as Indigenous and Community Conserved Areas (ICCAs) and Other Effective Area-Based Conservation Measures (OECMs) already recognise that communities are not just stakeholders, but rights-holders and stewards of their territories. These frameworks acknowledge governance systems, knowledge, and cultural relationships that exist independently of formal state recognition, including in areas not officially designated as “protected”. On the contrary, the SD Tool does not accommodate community-defined cultural heritage that lacks formal institutional recognition.

1.4. Top-down approaches dominate the SD Tool

There are multiple other examples of top-down approaches in the SD Tool. Although it requires activity-level indicators, Sustainable Development Goal (SDG) alignment, annual monitoring, and third-party validation, with documentation submitted through prescribed monitoring forms, these systems are primarily defined and managed by project proponents. While communities are consulted, they are not the co-designers of how impacts are measured or assessed. Moreover, indicator-based systems tend to capture what is visible and quantifiable, but often miss more complex issues such as coercion, elite capture, or the erosion of customary governance.

The SD Tool also takes a relatively narrow view of integrity and accountability risks. For example, the provisions do not explicitly identify or address risks associated with applying the Tool's safeguards in practice, such as conflicts of interest, manipulation of consultation processes, or coercive land negotiations, even though these issues are well recognised in broader governance frameworks, including UNDRIP and the ASEAN Handbook on FPIC, particularly in the context of land-based investments. Because these risks are not clearly articulated or operationalised within its current provisions, the Tool could fall short when these risks materialise, particularly in contexts characterised by power asymmetries. To address them, stronger provisions on transparency, accountability, and community-based oversight would be needed.

In sum, the benchmarking analysis found that compared with other relevant international and regional frameworks, the SD Tool places greater weight on due diligence, mitigation, and procedural compliance, but provides weaker guarantees on rights recognition, community control, and accountability. This gap is most evident in contexts where communities already face structural disadvantages in asserting their rights over land, resources, and development decisions. Compared with leading private standards in the VCM, the SD Tool uses more restrictive language in several instances, rather than raising the bar, particularly by confining key safeguards to nationally recognised Indigenous Peoples.

Consequently, the SD Tool will likely be limited in its ability to safeguard human rights in practice, especially given that it has no clear basis for shared decision-making or for communities to influence whether a project should proceed in the first place. This will effectively reduce the participation of people in the project area to a procedural step – a box to be ticked, a form to be completed and validated – rather than an ongoing process of negotiation and power-sharing.

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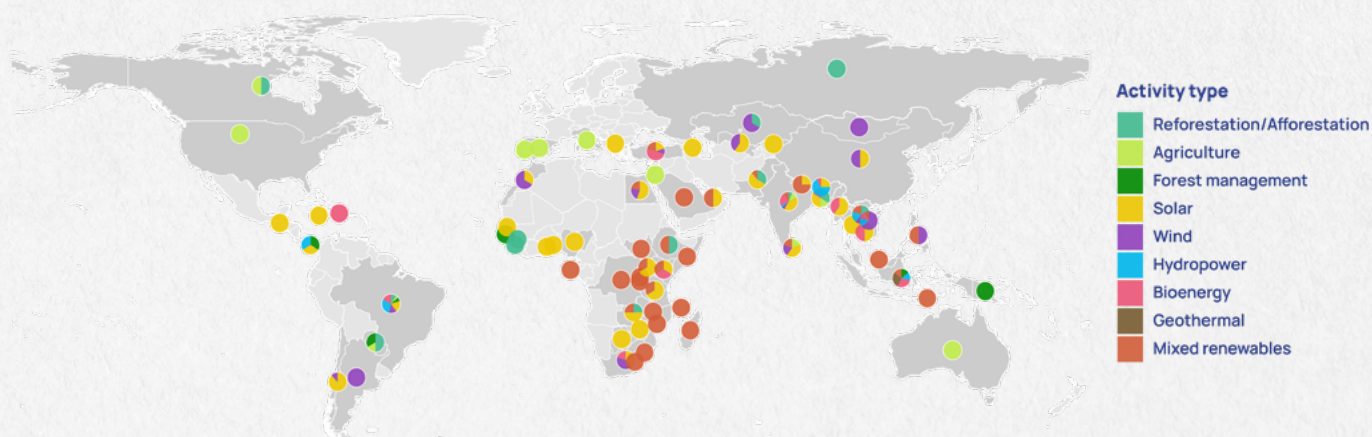
Significant risks to the lands of Indigenous Peoples and local communities from Article 6 pipeline projects

2.1. Measuring overlaps between Article 6 pipeline projects and the lands of Indigenous Peoples and local communities

The identified gaps in the SD Tool are not only theoretical risks for the rights of Indigenous Peoples and local communities. In the [Article 6 Pipeline](#)¹ of the United Nations Environment Programme (UNEP) Copenhagen Climate Centre, for instance, 2,462 Clean Development Mechanism (CDM) projects requested transition to the Paris Agreement Crediting Mechanism (PACM) – as Article 6.4 is often otherwise referred to – and 1,122 projects submitted a prior consideration notification (PCN). This shows that the safeguards of the SD Tool will become essential for thousands of projects worldwide². To determine the extent to which these projects will affect the lands of Indigenous Peoples and local communities in particular, we mapped project locations and overlaid them with maps of known territories of Indigenous Peoples and local communities (see Appendix: Methods and data). Despite the considerable uncertainty regarding the exact boundaries of these territories, this approach provides a useful indication of potential risks.

The dataset used contains 697 PCN projects and 1,450 CDM projects in transition that were categorised as land-intensive. For PCN projects (Figure 1), most in Africa are related to mixed renewables and solar, whereas in Asia, there are more wind energy projects. Projects focused on nature-based solutions or geothermal energy remain relatively scarce. For land-intensive CDM projects (Figure 2), the pattern differs in some sectors. For example, hydropower plays a more prominent role across Africa, Latin America, and Asia, while solar projects are mostly located in Africa. As with PCN projects, initiatives related to nature-based solutions or geothermal energy are also comparatively few.

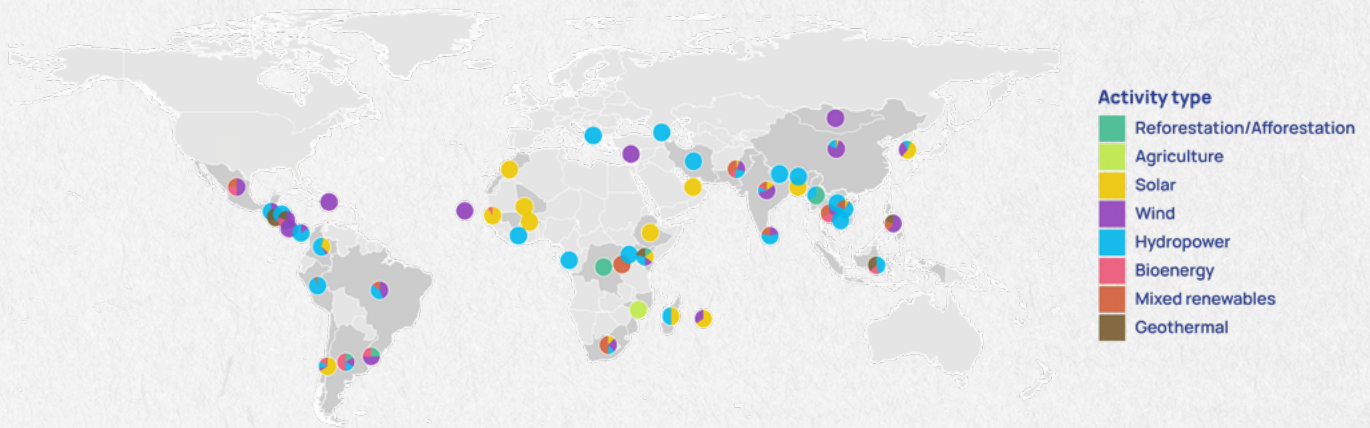
Figure 1 Mapping sectors within land-intensive PCN projects



¹ Based on the last update from 17 February 2026.

² The deadline for host countries to approve requests for CDM projects to transition to the PACM is 30 June 2026; however, the probability of these approvals being granted varies between countries.

Figure 2 Mapping sectors within land-intensive CDM projects

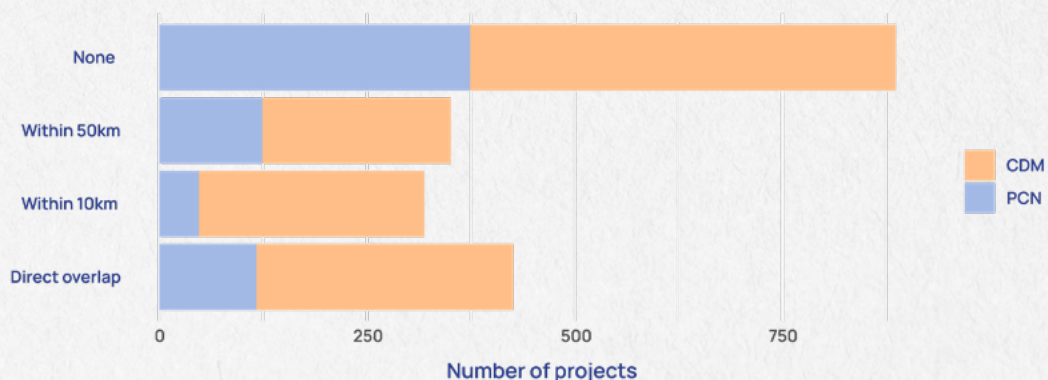


2.2. Regional patterns of Article 6 pipeline projects

By identifying 426 projects that potentially overlap with the lands of Indigenous Peoples and local communities, the spatial analysis indicates that the risks of infringements on the land rights of Indigenous Peoples and local communities are substantial (Figure 3)³. This pattern is not unexpected: land-intensive projects frequently intersect with the territories of Indigenous Peoples and local communities, which are often inadequately recognised in formal land tenure systems and may be misclassified as “idle” or underutilised. Similar dynamics have been documented in other sectors, such as [agriculture](#), where they sparked widespread debate among academics and civil society organisations, particularly during the 2010s, over the issue of land grabbing.

Of the 426 projects with potential overlap, 309 projects fall under the CDM, indicating that risks are particularly pronounced for projects related to this older UN mechanism. A similar pattern emerges when considering projects within a 10 km radius: CDM projects again account for the majority, with 271 cases. The same holds for the 50 km radius. When expanding the radius beyond 50 km and thus with little risk of overlap, CDM projects still constitute the largest share with 521 projects, although their relative dominance decreases compared to the closer-distance categories. This evidence suggests that the risks of land rights infringements are greater in CDM projects than in PCN projects.

Figure 3 Proximity of CDM and PCN projects to the lands of Indigenous Peoples and local communities



³A total of 165 projects were excluded from the analysis due to the lack of precise geolocations (see Appendix: Methods and data).

Beyond aggregated charts, the maps in Figures 4, 5, and 6 illustrate the regional distribution of PCN and CDM projects and their intersection with the lands of Indigenous Peoples and local communities⁴. Based on available data from [LandMark](#), we differentiate between Indigenous Peoples and local communities' land that is formally recognised by governments, land that is not recognised, and land with unknown status. This distinction is especially important in terms of projects that include [land acquisitions](#), since communities are particularly at risk if their territories are not formally recognised. Using these data, we note that most of the land with unknown status is likely to be unrecognised. This includes, for example, a large share of indicative customary land in northern Africa. We also emphasise that the maps classify recognised territories of Indigenous Peoples and local communities in very broad terms, ranging from collective forests in China, where rights recognition is limited, to largely self-governed territories of Indigenous Peoples in South America.

In Africa (Figure 4), the overall number of land-intensive PCN projects is relatively low at 39, with only a small cluster in Egypt and most other countries hosting only one or two projects. A similar spatial pattern is observed for CDM projects, which are likewise relatively scarce, totalling 43 projects, many of which are in South Africa. Regarding potential overlaps with territories of Indigenous Peoples and local communities, 14 PCN projects and one CDM project with high risks were identified. While these numbers are small in absolute terms, they are substantial relative to the overall project count. An additional eight PCN and CDM projects are located in close proximity (10 km radius). Most potential overlaps occur in territories with unknown status in the data, which are likely to be unrecognised. A few overlaps with recognised lands are observed, although these may partly reflect imprecise geolocation data (see Appendix: Methods and data).

In Latin America and the Caribbean (Figure 5), the number of projects is higher, with clusters of PCN projects in Chile and Brazil (74 projects). The 203 CDM projects are more widely distributed, with additional notable clusters in Colombia and Peru. Interestingly, no direct overlaps with the territories of Indigenous Peoples and local communities are observed for PCN projects, while 13 CDM projects have potential overlap. This relatively low number could reflect that many countries in the region may have a more advanced legal framework in which the territories of Indigenous Peoples and local communities are formally recognised, and project development within them is more restricted. This is also reflected in the comparatively large extent of officially recognised territories shown in Figure 5. Nevertheless, many projects are located in close proximity to these territories, which could lead to environmental spillovers. Overall, this spatial pattern in Latin America and the Caribbean, compared to, for example, African countries, is also seen in large-scale [agricultural projects](#).

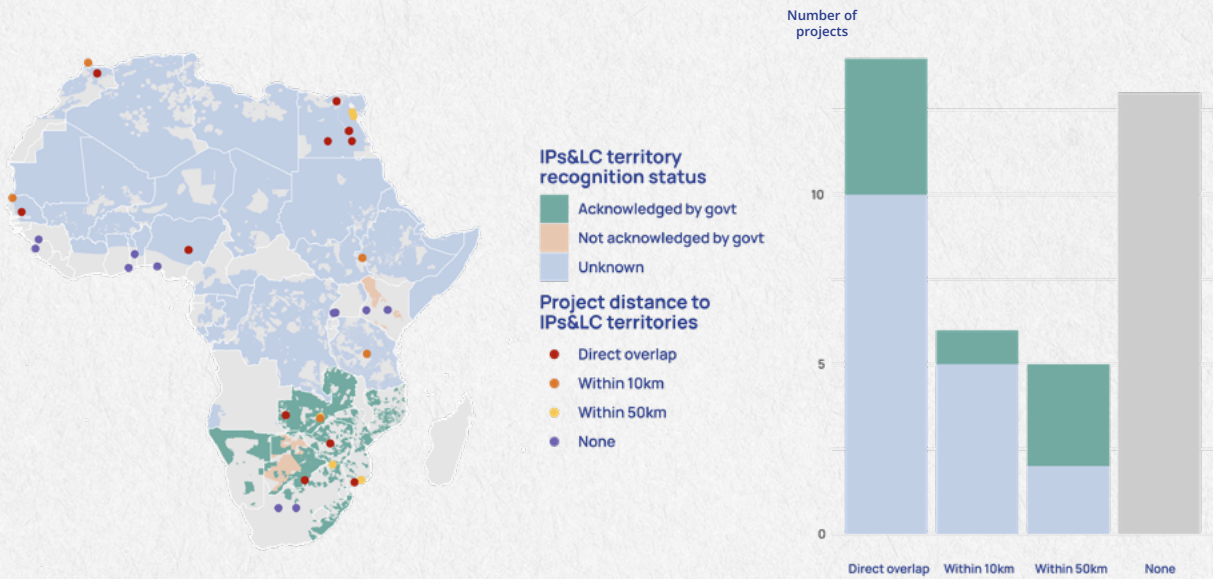
Asia hosts the majority of identified land-intensive projects (Figure 6), with most of the 539 PCN projects located in India and the remaining projects concentrated in Southeast Asia. Outside these regions, relatively few PCN projects are identified, except in Turkey. Among the 1,067 CDM projects, aside from a major cluster in India, projects are particularly numerous in China. In Asia, 103 PCN projects and nearly 295 CDM projects pose a high risk of overlap with territories of Indigenous Peoples and local communities.

⁴Projects in Europe were not mapped due to their limited number.

In addition, many projects are located within a 10 km radius, including around 32 PCN projects and 236 CDM projects. In Southeast Asia, overlaps largely concern the lands of Indigenous Peoples and local communities that lack formal recognition, while in India, they occur on both recognised lands and areas with unclear status. Overall, the most significant overlaps are observed in India, Southeast Asia, and China. In China, even though overlaps are often associated with lands that have some form of government recognition, such as collective forests, these areas are not formally recognised as Indigenous or customary territories, as in South America, and project development aligned with national priorities is common.

Figure 4 Spatial patterns of Article 6 pipeline projects in Africa

Panel A PCN projects



Panel B CDM projects

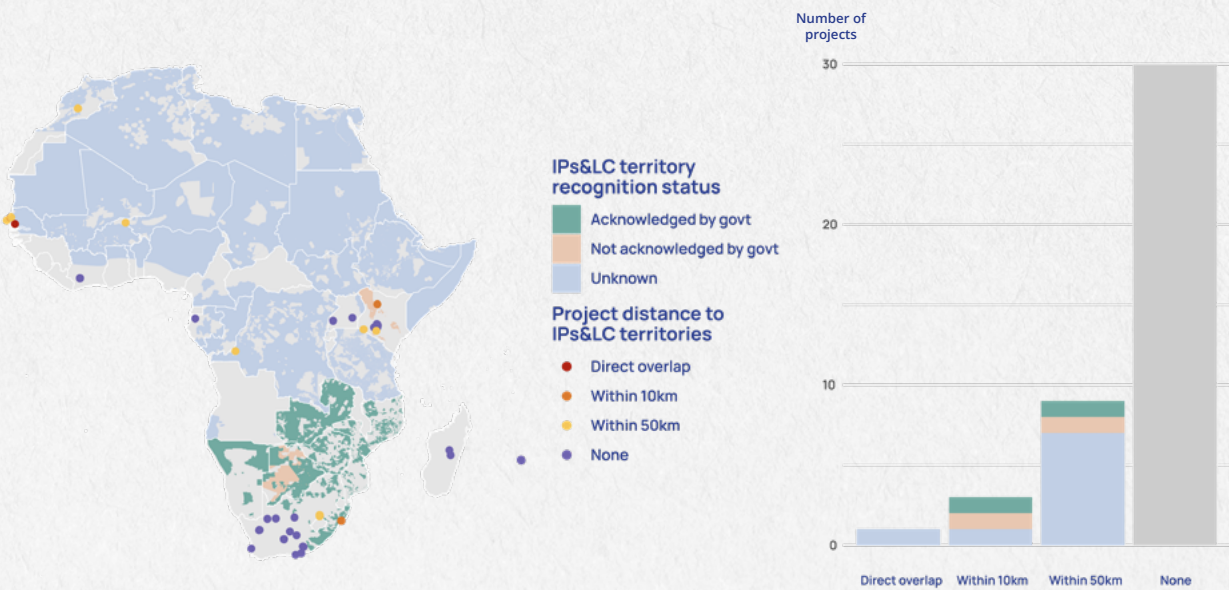
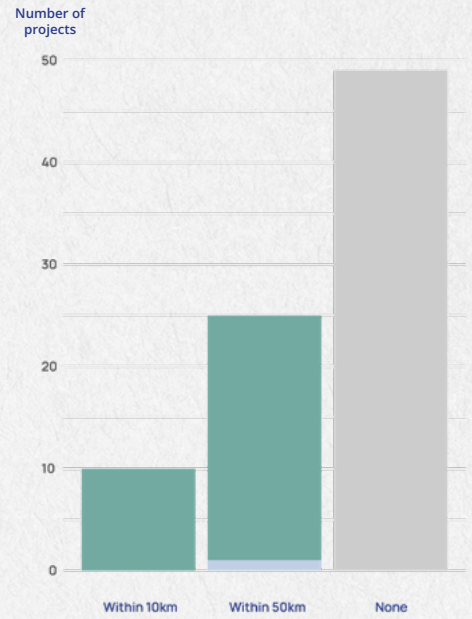
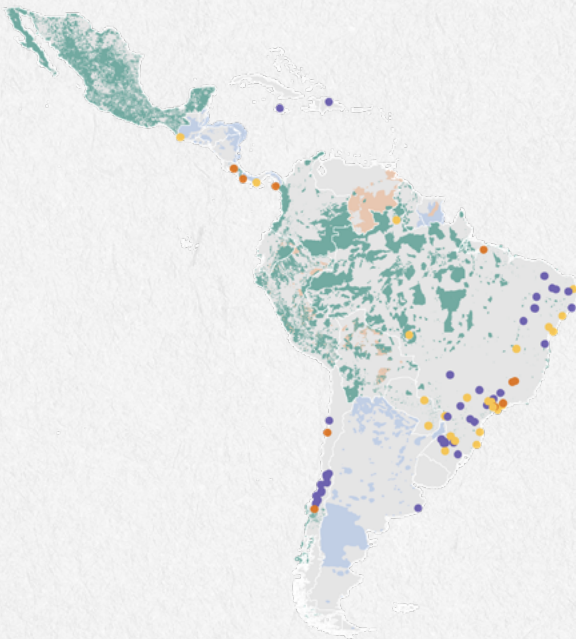


Figure 5 Spatial patterns of Article 6 pipeline projects in Latin America

Panel A PCN projects



Panel B CDM projects

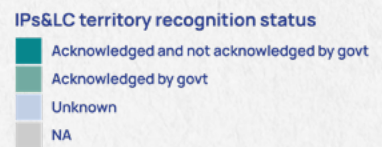
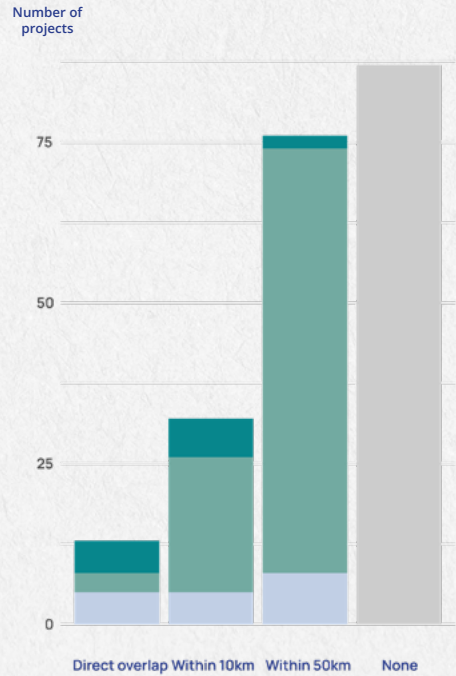
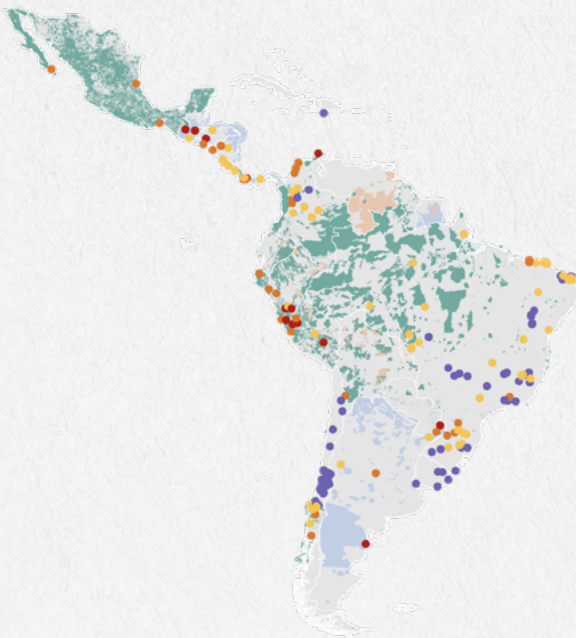
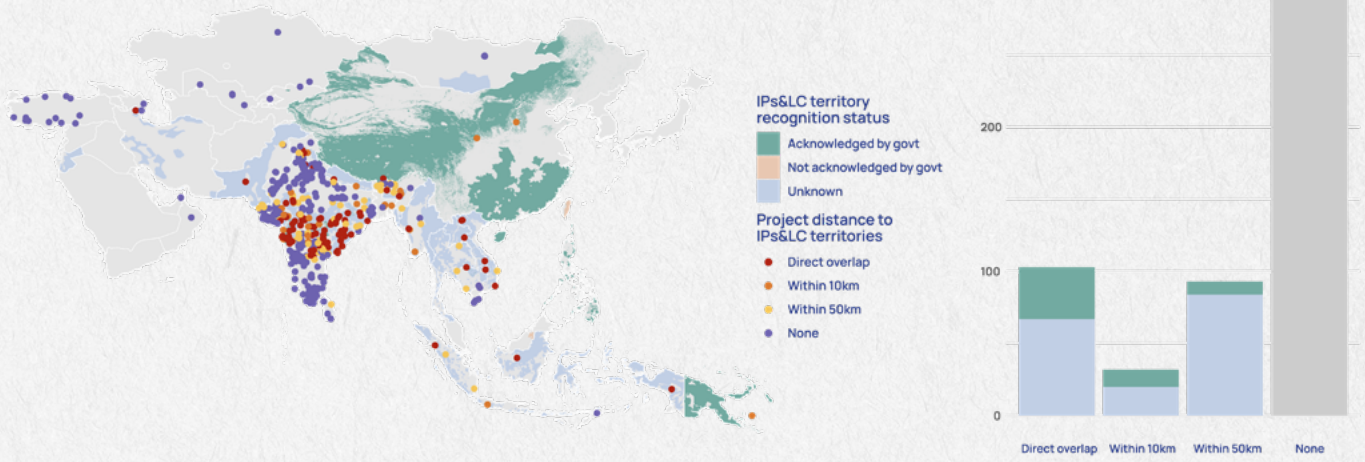
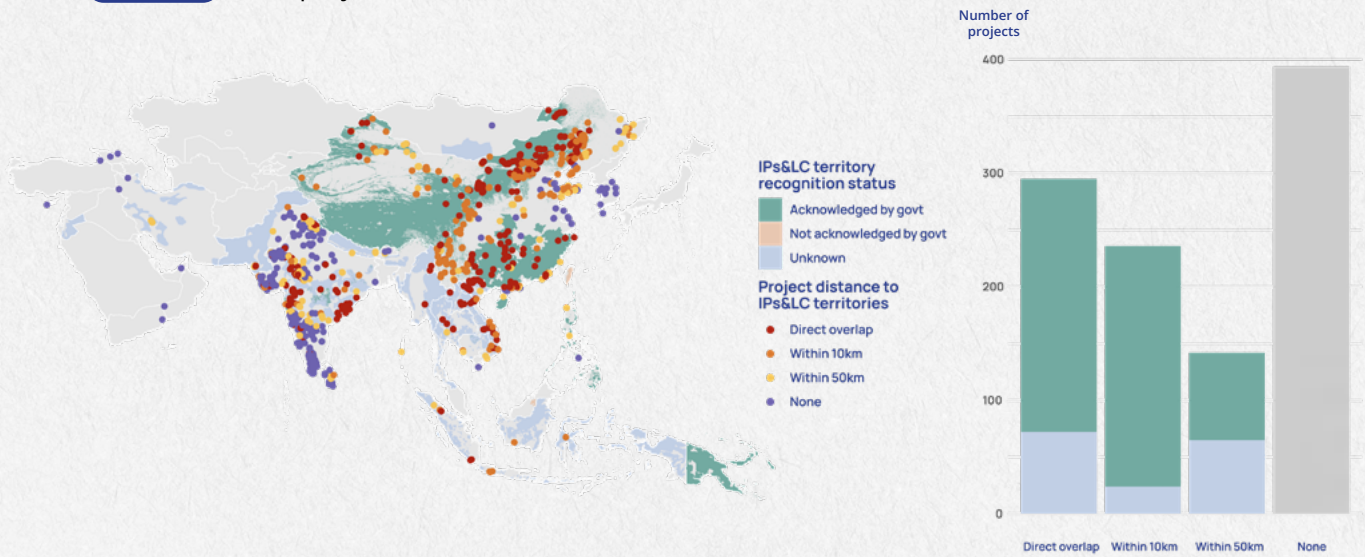


Figure 6 Spatial patterns of Article 6 pipeline projects in Asia

Panel A PCN projects



Panel B CDM projects



Note:

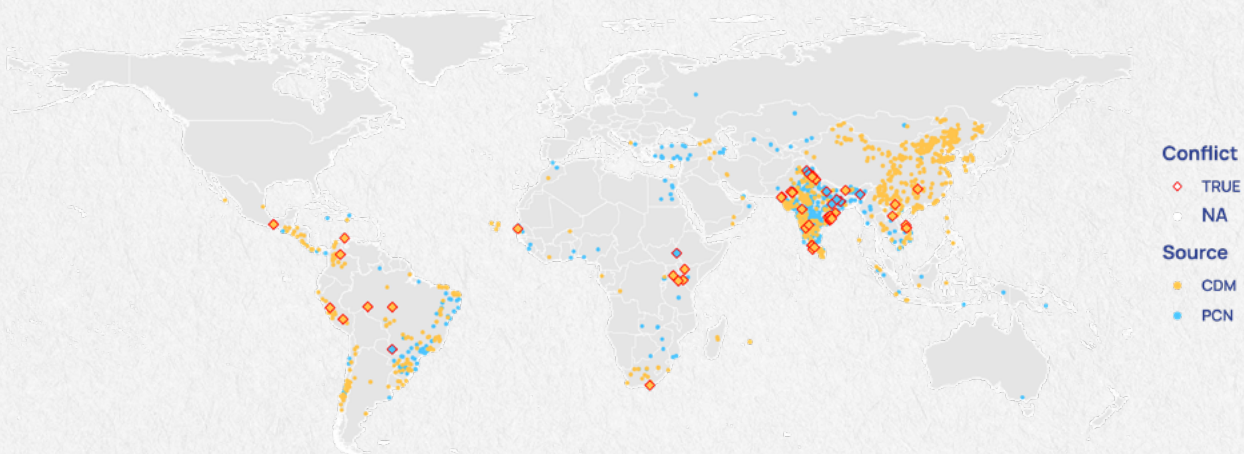
Spatial data for land of Indigenous Peoples and local communities from “LandMark: The Global Platform of Indigenous and Community Lands. Available at: <http://www.landmarkmap.org>” and “Garnett, S. T., Burgess, N. D., Fa, J. E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C. J., ... & Leiper, I. (2018). A spatial overview of the global importance of Indigenous lands for conservation. *Nature sustainability*, 1(7), 369-374”.

03

Documented conflicts and displacements in Article 6 pipeline projects

The risks of infringements on local land rights identified in the geospatial analysis also translate into tangible real-world implications for Indigenous Peoples and local communities. In mapping projects associated with documented conflicts in Figure 7 (see Appendix: Methods and data), we discovered that reports exist for numerous projects currently in the Article 6 pipeline. However, these cases likely represent only the tip of the iceberg, as many conflicts remain undocumented or are reported only in local, non-English-language media and civil society sources, or cannot be directly linked to the projects using a systematic review approach. Still, the distribution suggests that conflict-affected projects occur across continents, with a notable concentration in India, and a high proportion of the (albeit few) projects in Africa.

Figure 7 CDM and PCN projects with documented conflict



3.1. Involuntary resettlements with limited compensation take place across the globe

Across the reviewed projects, reports indicate recurring patterns of resettlement with limited compensation, as well as instances of involuntary resettlement affecting Indigenous Peoples, local communities, and other marginalised communities. While many projects that have submitted a PCN remain in the preparation phase and have not yet resulted in resettlement or displacement, some have already begun operations and are associated with adverse outcomes. For example, in the case of the [Ayodhya solar PV project](#) (PA/pc_00230), media reports indicate that approximately 30 to 35 families, most of them Dalits, previously lived in the area designated for the project. However, many have since been displaced following the demolition of their homes.

The older CDM projects that have applied for transition already have a longer history of implementation and hence, also a longer history of land-related conflicts. For instance, a report published by Mongabay highlights that the [Sogamoso hydropower project](#) (Ref. 10236) has been accused of relocating more than 1,000 people and adversely affecting

the livelihoods of many others, according to Colombia's Ombudsman's Office and local non-governmental organisations (NGOs). The project has also been linked to threats, disappearances, and violence against activists. Similarly, in Kenya, the [Lake Turkana 310 MW wind power project](#) (Ref. 4513) has also caused significant conflict, including involuntary resettlement of an entire village. Many grievances arise around limited compensation as well, such as in the case of the development of the [Ta Trach reservoir](#) (Ref. 6095-0007) in Vietnam. A report by the Asia Pacific Forum on Women, Law and Development notes that nearly 4,000 people were resettled as a result, and the relocation sites proved largely unsuitable, characterised by steep, partially rocky terrain, small plots, and unreliable water sources. In addition, hydropower projects in Laos ([Nam Ngiep II](#) – Ref. 10346), Brazil ([Jirau](#) – Ref. 9226; [Teles Pires](#) – Ref. 9301), Mexico ([Piedra Larga](#) – Ref. 4634; 6877), and a wind farm in India ([Suzlon](#) – Ref. 4437) are associated with involuntary resettlement, limited compensation, or loss of agricultural or river-based livelihoods. For example, one project in Brazil demonstrates how economic displacement has affected local communities and remained unresolved for years (see Box 1), yet such projects continue to proliferate and even apply to the PACM.

Overall, these cases show that involuntary resettlement or even forced evictions in global climate action are not only a theoretical risk but have already affected the livelihoods of many communities across the globe, illustrating the real-life threats posed by current gaps in the safeguards of the SD Tool.

Box 1: Displacement within the Plantar project in Brazil

The "[Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil](#)" project, located in Minas Gerais, was one of the first CDM forestry projects in Brazil. Operated by Plantar S/A, a private company involved in tree-planting efforts across various states in Brazil, the project centers on large-scale reforestation of degraded and pasture lands (11,711.37 ha) through eucalyptus monocultures, with the harvested timber converted into charcoal for use in pig iron production. The project was also among the first to be supported by the World Bank Prototype Carbon Fund.

Historically, Minas Gerais has been home to traditional communities of *geraizeiros*, who are known to have strong collective use of the natural biome, the cerrado, for their livelihoods. While the 1988 Constitution explicitly only recognises Indigenous and *quilombola* peoples, the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT) from 2007 also [recognises](#) *geraizeiros* as part of "traditional peoples and communities". Such recognition provides a policy basis for claims to land, natural resources, and culturally appropriate development, but – unlike for Indigenous and *quilombola* peoples – these rights lack constitutional protection and are less [enforceable](#).

Despite their political recognition, multiple reports indicate that within the Plantar CDM project, some community members were forcibly expelled, while others were persuaded to leave by promises of jobs and improved living conditions. Still others eventually sold their land after becoming increasingly isolated and witnessing their water sources dry up or become contaminated by pesticides. Moreover, large areas converted into eucalyptus plantations were allocated to the company through long-term public land concessions on so-called *terras devolutas* (“vacant land”), which the state classified as empty and unused, even though much of it had in fact long been used as community land by *geraizeiro* communities.

These accusations have frequently resurfaced over the past few decades, and some were summarised in a 2003 [report](#) and [another report](#) in 2006. In addition, dozens of NGOs and social movements from Brazil and around the world submitted a letter to the CDM Executive Board in 2010 to [protest](#) the official registration of the Plantar project as a CDM project. In 2020, a [case study](#) again showed that many conflicts remain unsolved.

The case shows, first, how projects can persist despite ongoing conflict, and second, that the SD Tool’s legal definition of Indigenous Peoples will likely provide insufficient safeguards for communities such as the *geraizeiros* in Brazil.

3.2. Long-term and complex land conflicts underpin many projects

It is noteworthy that the conflicts identified in this report are often neither recent nor clearly demarcated displacement events, but are instead characterised by long-standing, dynamic, and complex contexts. Indeed, several projects involve land conflicts that date back several years or decades, with no current resolutions. For instance, in the case of the [Paracel Carbon Forestry project](#) (PA/pc_01589) in Paraguay, a report by a group of NGOs states that impacts on Indigenous Peoples have not been accurately assessed in the Environmental and Social Impact Assessment, and that consultations within the project were deficient. Crucially, the report also states that the current eucalyptus plantations have been established on former cattle ranch areas, which were in turn established on Indigenous land. While this encroachment predates the commencement of the Paracel Carbon Forestry Project and therefore relates to the former owners, the current owners have still not taken any measures to address the land conflicts on their project site. A similar pattern is observed for the [Panchet-I](#) (PA/pc_00234) and [Panchet-II](#) (PA/pc_00235) solar PV projects in India. Despite protests by previously displaced villagers whose lands were submerged by earlier dam construction, this land is now being repurposed for floating solar installations. The same issues arise with respect to the [Tilaiya solar PV project](#) (PA/pc_00233), where the reservoir used for solar infrastructure had already displaced communities, raising concerns about cumulative injustices.

Projects are also often located in regions in which the development of large-scale infrastructure projects is commonly linked to long-term conflict, and where clear attribution to a single project is difficult. Many of these can be found in India, such as the [Kwar hydroelectric project](#) (PA/pc_00358), which is located in a region where hydropower faced strong opposition from local and Indigenous populations. Likewise, the [Dalmia Cement solar power project](#) in Assam (PA/pc_00934) has been met with fierce resistance from tribal communities in a constitutionally protected area, where villagers have mobilised against land acquisition tied to industrial expansion. CDM projects in Pakistan are also part of a broader, controversial energy corridor often referred to as the [Gharo-Jhimpir wind corridor](#) (Ref 9442-0004; 9442-0002; 9372), while the [Mau Forest project](#) in Kenya (Ref 9785) illustrates a similar case (see Box 2).

Box 2: CDM activities in the Mau Forest Complex: A history of land conflicts

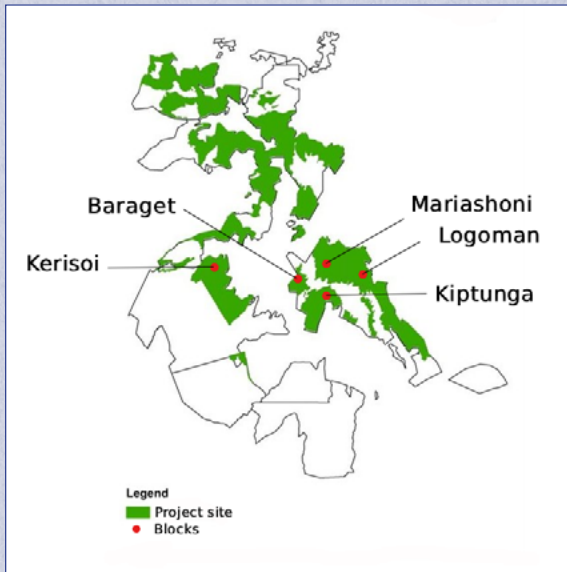
The Mau Forest Complex, located in Kenya's Rift Valley about 170 km northwest of Nairobi, is the country's largest indigenous montane forest and its most important water tower, covering 400,000 hectares. It forms a critical catchment area that feeds major rivers, including the Mara, supporting ecosystems, agriculture, hydropower, tourism, and water supply across the country. The forest is also highly biodiverse, hosting rare and endemic plant and animal species.

Despite its ecological significance, the Mau Forest has experienced decades of degradation driven by logging, agricultural expansion, illegal settlements, and state-led land allocations. Historically designated as Crown Land and later a Forest Reserve, large parts of the forest were nevertheless subdivided and allocated – especially from the late 1990s – leading to increased migration and competing land claims. Today, the forest comprises several blocks and is inhabited by multiple communities, notably the Ogiek, alongside Kipsigis, Kisii, and Kikuyu populations.

Within the forest, there is a [CDM project](#) covering 8,813 hectares that focuses on reforestation and conservation activities, for which Kenya's Ministry of Finance is listed as the sole project participant. According to the project design description, it seeks to restore degraded forest areas and promote environmental and livelihood co-benefits for surrounding communities. To verify these claims, we used the little spatial information available from the project design descriptions to map the project sites (Figure 8). Field consultations were then conducted across five key forest blocks within the project area demarcated in the project design document (Kerisoi, Baraget, Kiptunga, Logoman, and Mariashoni) with over 70 community leaders, primarily from the Ogiek community.⁵

⁵ Interviews were conducted by the Resource Conflict Institute (RECONCILE), which is the Land Matrix Regional Focal Point in Africa.

Figure 8 The Mau Forest Complex and project sites



Note:

The Mau Forest Complex is located in Kenya between 35°20'E-36°20'E and 0°10'N-0°50'S.

Several key findings stand out from this assessment. Across all interviewed communities, there is a clear lack of awareness about the projects taking place on their lands, including the CDM project. Communities report that they were not consulted during project implementation, and there is no indication that FPIC processes were followed. The area has also been subject to forced evictions on several occasions, with the Ogiek first evicted in 2009. This prompted a legal case that culminated in a landmark 2017 ruling by the African Court on Human and Peoples' Rights, which found that Kenya had violated the Ogiek people's rights to land, natural resources, culture, and religion. Despite this ruling, evictions have continued, most notably in July 2020, when over 1,000 Ogiek were displaced without prior notice, resulting in the destruction of homes and heightened vulnerability during the COVID-19 pandemic. While the affected area is outside the CDM project boundary, it remains unclear as to what extent broader tensions have contributed to the conflict. Within the project boundaries, communities in the Logoman and Kiptunga forests experienced evictions in 2020 and 2023, though, again, there is limited clarity regarding which specific project prompted these actions. In Kerisoi, community members report being relocated and loosely associate this relocation with the CDM project, though without detailed evidence or clear attribution.

The negative impacts of these various waves of evictions are far-reaching. Interviews indicate that communities are experiencing increasing strain, even when they are not directly displaced. For example, the relocation of displaced people to other villages often results in heightened tensions and land-related conflicts. Communities also report that their cultural sites are being undermined and that local biodiversity is being negatively affected, as many reforestation efforts rely on non-native rather than native species. It is crucial to give greater attention to community-led restoration efforts to address this concern effectively. In parallel, there is a need to implement the Plantation Establishment and Livelihoods Improvement Scheme (PELIS), as identified in the CDM project, and to put in place benefit-sharing mechanisms to recognise and incentivise community restoration initiatives.

On the whole, while the Mau Forest remains central to Kenya's ecological system, ongoing conservation and reforestation efforts, including the CDM project, are deeply entangled with unresolved land rights conflicts. Indigenous communities, particularly the Ogiek, continue to face insecure tenure, displacement, and exclusion from decision-making processes affecting their ancestral lands. It is important to note, however, that the Ogiek are not recognised as Indigenous Peoples under the Kenyan Constitution, which again limits the applicability of the safeguards of the SD Tool.

3.3. Lack of early stage consultation: the same old story for new projects?

Many of the documented conflicts have their roots in deficient consultation processes with affected communities prior to implementation. This is a recurrent theme in the reviewed projects. Notable examples include the [Guajira I project](#) (Ref. 10623) in Colombia, which sparked conflict with the Indigenous Wayuu community, who feared damage to their culture, spirituality, and environment due to inadequate consultation, as well as the [Lake Turkana 310 MW wind power project](#) in Kenya, which is also accused of inadequate consultation. In the case of the [Rehar-I hydroelectric project](#) (PA/pc_00928) in India, reporting from Land Conflict Watch describes local opposition tied to fears of land on the riverbank being submerged. The project appears to have assessed impact only to a limited extent, ignoring potential submersion of land along the riverbanks and the effects on communities, such as those living in the Jashpur district, which has a predominantly tribal population.

The question remains whether newer projects that submitted a PCN have taken a different route, but case studies suggest that at least some projects have not lived up to this expectation. For PCN projects that are already partially implemented, consultations seem deficient, as in the case of the [Ayodhya solar PV project](#) (PA/pc_00230). In the case of the [Sustainable Forestry project](#) in Gambela, Ethiopia (PA/pc_00307), widespread concern over land grabbing and inadequate consultation has also been reported. Moreover, even though the land belongs to the Anywaa Indigenous community and has been an important source of livelihoods for generations, local organisations claim that the project is making promises of investment to hand-picked community leaders to convince them to support the project, rather than consulting with the local population as a whole. The [Botolan wind farm](#) (PA/pc_01507) further illustrates how limited consultation at an early stage of development can already create uncertainty among communities, leaving them with insufficient information and few opportunities to engage (see Box 3).

Box 3: Developing a large-scale renewable energy project: The case of the Botolan wind farm

In 2025, Monsoon Carbon and Alba Viento Power Corporation (fully owned by Alba Renewables Philippines) submitted a [PCN](#) to the PACM for the Botolan Wind Power project, aiming to generate carbon credits alongside electricity production. The project plans to install 60 wind turbines, with an expected annual output of 630 GWh and an estimated 630,000 tonnes of annual emissions reductions. Separate project disclosures showcase the large scale of the project, covering approximately 4,698 hectares across the municipalities of Botolan and Cabangan, with an estimated investment cost of around \$600 million. Crucially, the project is being developed in areas used and occupied by the Aeta, a formally recognised Indigenous community, whose presence and land use systems are grounded in customary tenure and long-standing relationships with forest and upland ecosystems.

During interviews⁶, community members reported that they had already held several meetings with representatives of the activity participant, at which those representatives indicated that they would seek to minimise environmental impacts, for instance, by exploring alternative methods of transporting construction materials. At the same time, they noted that where impacts cannot be avoided, compensation would be provided, particularly for affected trees and similar assets.

However, the community members indicated that considerable uncertainty remains regarding the project's specific scope and location. For example, while the PCN identifies Barangay⁷ Cadmang Reserva in Cabangan as the project site, community members pointed to overlaps with Barangay Owaog-Nibloc, where their sacred deep forest areas are located, voicing concerns that the development may extend into these areas that are central to the Aetas' existing land use systems, such as foraging, small-scale agriculture, and the collection of forest products that provide both income and food security.

In addition, large-scale construction, including turbines and infrastructure, has raised local fears about impacts on watershed systems – such as erosion, sedimentation, and water quality – in an area that is a key water source. The land also holds cultural significance for the Aeta, with changes in land use or access therefore threatening both livelihoods and cultural practices, such as burials. Lastly, potential benefit-sharing from carbon credit revenues has not been clearly communicated to communities.

Despite these limited consultation processes, project-related approvals are being processed at the local government level. For example, community members report that a pro forma resolution was provided to the Barangay for approval and signature, expressing support for the proposed project. The document includes provisions

⁶Interviews conducted by the authors of the study.

⁷ A Barangay is the basic local government unit.

allowing the company to use forest areas within Barangay Owaog-Nibloc that fall within the project's proposed boundaries. Since these resolutions were already prepared prior to consultations and presented to the Barangay as part of the project's ongoing requirements, this meant that, in fact, there was very limited scope for the consultations to change the content of the resolution or influence the direction of the project.

This case is thus a prime example of a scenario in which project development advances through formal climate policy and local administrative processes, while critical elements are only partially communicated to affected communities, and many of their concerns remain unaddressed. In practice, engagement is being shaped around mitigation and compensation, rather than around full clarity on project implications or the conditions under which it proceeds within an Indigenous territory.

04 | Policy recommendations

Our analysis shows, first, that significant risks exist, with many projects potentially overlapping with the territories of Indigenous Peoples and local communities; and second, that these risks translate into real-world impacts, as numerous projects are already associated with documented conflicts. We propose several recommendations on how the SD Tool should address these findings and prevent high-risk projects from proliferating under the Article 6.4 mechanism.

Establish a clear hierarchy of legal standards

The SD Tool should explicitly require that international human rights standards take precedence over national law where domestic frameworks are weak, exclusionary, or inconsistently applied. This includes alignment with frameworks such as the Declaration on the Rights of Indigenous Peoples (UNDRIP), United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP), UN Guiding Principles on Business and Human Rights (UNGPR), International Covenant on Economic, Social and Cultural Rights (ICESCR), Universal Declaration of Human Rights (UDHR), and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT), as well as regional instruments such as the ASEAN Handbook on FPIC and ASEAN Guidelines on the Recognition of Customary Tenure in Forested Landscapes.

In many contexts where Article 6.4 activities are being developed, national laws either do not fully recognise customary tenure systems and collective decision-making processes, or do so in limited or inconsistent ways. In practice, this allows project proponents to comply with formal national requirements while still undermining community-defined rights to land, territory, and self-determination. This demonstrates that relying solely on national law is often insufficient, particularly when governance systems are fragmented or when government authorities do not fully represent customary institutions.

Establishing a clear hierarchy of legal standards would thus help ensure that safeguards are not reduced to the lowest applicable standard. It would also clarify that where core rights are not respected – including meaningful consent and recognition of customary tenure – projects should not proceed.

Strengthen and extend the consent-based safeguards for all land-related impacts

Consent-based safeguards should apply to all land-related impacts, including economic displacement (Element 8.4 of the SD Tool). Limiting such safeguards to formally recognised Indigenous Peoples creates uneven protection and excludes customary rights-holders who are often affected by these projects. Free, Prior, and Informed Consent (FPIC) should continue to be upheld as a specific right of Indigenous Peoples, but equivalent consent-based protections should be extended to all affected communities, including local communities and customary rights-holders (Elements 8.2 and 9).

In addition, consent should be required prior to project approval and maintained throughout the project lifecycle as a continuous, good-faith decision-making process. This should include the right to withhold consent, set conditions, and revisit decisions where project circumstances change. While the SD Tool references FPIC through external frameworks such as the Food and Agriculture Organization (FAO) FPIC manual and UNDRIP, it does not translate these into clear procedural requirements. Instead, FPIC is framed merely as a basis for consultation and negotiation. The Tool should therefore clarify that consent is also a decision-making mechanism that can influence whether and how a project should proceed, rather than being reduced to a technical step to facilitate project implementation.

Clarify and secure land tenure before project implementation

Project proponents should be required to establish a clear and comprehensive understanding of land tenure before project approval, going beyond consultation with authorities to include the identification and recognition of customary and informal tenure systems through participatory processes with affected communities. This should include documenting community territories and their locations, along with their associated rights and resources, building on practices already found in private standards, such as VCS 5.0.

Since land is often classified as “available” or “underutilised” due to gaps in formal recognition of ownership, project proponents should not rely on the absence of a legal title to assess availability in instances where tenure is unclear, contested, or unrecognised. In these cases, the Tool should require that tenure risks are resolved upfront and not deferred to later stages of project implementation.

Broaden compensation frameworks

Compensation and action plans for livelihood restoration should go beyond “no worse off” economic standards and reflect the social, cultural, and ecological value of land. This includes recognising land as non-substitutable for many communities and incorporating cultural heritage, food systems, and social relations into impact assessments that prioritise avoidance of harm over compensation. Where impacts cannot be avoided, and communities have given consent for the project to proceed, compensation frameworks should be co-developed with the affected communities, based on their own valuation of losses and their priorities for restoration activities. Compensation should reflect both individual losses (such as crops or personal assets) and collective losses, including access to land, forests, grazing areas, water sources, and cultural sites.

The SD Tool’s requirement that “the action plan will be developed in accordance with international best practices (such as the United Nations Development Programme Standard 5: Displacement and Resettlement)” should be made more explicit by including concrete, mandatory guidance to be followed in all cases, rather than relying solely on a general reference to international best practices (Element 8.4).

Shift from consultative to participatory governance and accountability

The SD Tool should strengthen community agency by embedding shared decision-making mechanisms into the various provisions. For example, affected communities should be able to define the scope of consultation and FPIC. Under the Convention on Biological Diversity, frameworks such as ICCAs and OECMs already recognise that communities are not just stakeholders, but rights-holders and stewards of their territories. The Tool should follow these approaches, recognising the agency and rights of communities not only over their lands, but also in shaping and contributing to global climate action. Lastly, more specific sub-criteria should be developed to assess whether each principle is effectively met in practice. In addition, the SD Tool should incorporate robust verification procedures to ensure it does not devolve into a mere box-ticking exercise.

Appendix: Methods and data

Various methods and data were used to conduct the different analyses for this assessment of the Paris Agreement Article 6.4 SD Tool. For Chapter 1, to evaluate the extent to which the SD Tool effectively addresses land-related risks, we benchmarked it against key international and regional human rights and land governance frameworks. These include the UNDRIP, UNDROP, UNGP, UDHR, ICESCR, VGGT, and the African Charter on Human and Peoples' Rights. It was also compared with the relevant ASEAN instruments, such as the ASEAN Guidelines on the Recognition of Customary Tenure in Forested Landscapes and the ASEAN Handbook on FPIC, together with other key standards in the VCM, including Plan Vivo, GS4GG, Verra's VCS, and Climate, Community & Biodiversity (CCB) Standard.

For Chapter 2, we analysed the risks to the territories of Indigenous Peoples and local communities by measuring the distance from the projects' coordinates to their territories using data from [LandMark](#) and [Garnett et al. \(2018\)](#).⁸ To geolocate relevant projects, a detailed workflow was set up. Within the projects that requested transition or submitted a PCN, we focused on land-intensive projects that are most likely to infringe on land rights. We defined land-intensive projects as including afforestation/ reforestation, agriculture, bioenergy, forest management, geothermal, hydropower, mixed renewables, ecosystem restoration, rewilding, rice cultivation, solar, tree plantations, and wind energy, based on the categories provided in the Article 6 Pipeline for the PCN projects. In CDM, this corresponds to the following categories: Afforestation, agriculture, biomass energy, coalbed/mine methane, geothermal, hydro, mixed renewables, reforestation, solar, tidal, and wind. For both the PCN and CDM projects, we aggregated categories for Figures 1 and 2.

Most PCN cases have information on their location within the UNEP Article 6 pipeline. A combination of automated processes and manual computation was used to extract the project's coordinates, accommodating the different reporting formats. Many projects also reported only administrative areas as their locations, and sometimes even provided corrupted coordinates. In most cases, incomplete or erroneous coordinates were corrected; projects for which this was not possible were excluded from the analysis. Ultimately, among the 697 projects, 663 included sufficient location information and could be geolocated. As CDM projects in transition do not have associated coordinates within the UNEP Article 6 pipeline, coordinates were manually extracted from the project design descriptions. In addition, project names were matched with [global databases](#) of geolocations of renewable energy projects. Ultimately, of the 1,450 projects, 1,319 provided sufficient location data to be geolocated.

One important caveat of this approach concerns the precision and interpretation of spatial proximity measures. Project coordinates are typically represented as single points, which may not accurately capture the full spatial extent of a project – especially for large, land-based carbon projects. As a result, distance calculations to territories of Indigenous Peoples and local communities may either overestimate or underestimate

⁸ For LandMark, we used the 2026 update that is not yet publicly available on the website.

actual overlap or proximity. For instance, a project classified as “non-overlapping” based on its centroid could, in reality, extend into the land of Indigenous Peoples and local communities, while conversely, a project whose centroid lies within or near such areas may only marginally intersect in practice. It should also be noted that the data on land of Indigenous Peoples and local communities is constantly evolving and is being refined, due to the lack of official data on their exact extent in many countries⁹. The data should therefore be interpreted as an indication of risk, not as a final count of projects overlapping with Indigenous Peoples’ and local communities’ land.

For Chapter 3, we conducted a systematic review to synthesise the fragmented evidence on conflicts, grievances, and rights-related controversies associated with projects in the Article 6 pipeline, analysing data from academic literature, civil society reports, and media sources. We included sources that reference specific Article 6 pipeline projects (with a PCN or CDM projects in transition). The search strategy combines project names with carbon market terminology and conflict-related keywords using structured Boolean queries, covering materials primarily in English from 1997 onwards to ensure a comprehensive and rigorous identification of relevant cases.

⁹More detail provided by LandMark at <https://landmarkmap.org/data-methods/methodology>

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