

# COLLECTIVE ACTION ON LAND TENURE AND CLIMATE CHANGE



## Restoring ecosystem services led by indigenous peoples in Mt. Kalatungan Range, Philippines

In a technical review conducted in 2021, the World Wide Fund for Nature and its partners concluded that Indigenous Peoples and Local Communities (IPLCs) are vital custodians of the world's remaining natural landscapes. IPLCs own or govern at least 32 percent of global land and associated inland waters, where 91 percent of these lands are in good or moderate ecological condition. Supporting IPLCs as custodians of nature, therefore provides widespread benefits and services for all of humanity (WWF et al., 2021).

Unfortunately, IPLC lands face high development pressure and are subject to commercial interests such as energy production, mining, industrial agriculture, and urbanization. When this happens, ecosystem services are muddled up and can cause environmental disasters. This is crucially alarming given the threats of global warming.

This case study illustrates the experience of IP communities in Mt. Kalatungan Range in Bukidnon, Philippines who had protected and conserved the forest ecosystem for generations. Regrettably, they had been ejected from their lands, and the consequences had been horrendous. The response of the various stakeholders in the landscape highlights the interconnection between land tenure and climate change in care of our common home.

Xavier Science Foundation (XSF) prepared the report, in collaboration with multiple stakeholders in the Mt. Kalatungan landscape, led by indigenous peoples (IPs), government agencies, non-governmental organizations, academe and research institutions, cooperatives, and people's organizations. It utilized information from local research, environmental studies, workshops, and multi-stakeholder forums.

The research aims to contribute in mainstreaming land rights in the climate change discourse, undertaken as part of GFAiR's Collective Action on Land Tenure and Climate Change, coordinated by ANGOC and funded by the European Commission (EC).

### Local context and climate change event

#### *Overview of the Kalatungan mountain range*

The Kalatungan Mountain Range is the fifth-highest peak in the Philippines. It spans through the municipalities of Pangantucan, Talakag, Maramag, and the City of Valencia in the Province of Bukidnon.

Mt. Kalatungan is home to 342 species of plants and 129 species of animals and is considered a Key Biodiversity Area (KBA).<sup>1</sup> It is the dwelling place of Indigenous Peoples and Local Communities (IPLCs) providing them with food, medicine and other basic needs. It offers various ecosystem services such as supply of food, water and timber, the regulation of air quality, climate and flood risk, and opportunities for recreation, tourism, and education.

<sup>1</sup> Sandalo and Lumbres, 2016



Main source of headwaters that hit Cagayan de Oro City flows through Mt. Kalatungan. *Photo by XSF.*

The mountain range is a major water source to households and industries of downstream communities, specifically Cagayan de Oro City, and the provinces of Bukidnon and North Cotabato. Its headwaters supply 35 river systems within the Cagayan de Oro River Basin. Given the steep and narrow ridges of this river system, the force of the running water can propel boats on exciting rafting adventures.

The IPLCs in Mt. Kalatungan had been instrumental in protecting the nature-based landscape. With their

indigenous knowledge and sustainable practices, the forests were maintained, water resources preserved, and biodiversity enhanced while sustaining their needs and those of nearby communities. Unfortunately, in the early days, the IPs had no legal rights to block intrusion and stop land grabbing.

Without recognized land rights, the cutting of trees by logging companies was rampant, which was further exacerbated by small-scale mining activities using hydraulic techniques. Hills were leveled off to mine gold and other minerals. The bald mountains were so enticing for agricultural production that plantations were established even in sloping areas. In addition, there were forest conversions to non-forest uses, timber poaching, charcoal making, and quarrying, resulting in uncontrolled soil erosion, landslides, and flooding. Without the forest ecosystem, parts of the mountain range had become unstable and dangerous, particularly to downstream communities.

### ***Narrative of the climate change event***

Historically, the city of Cagayan de Oro experienced no major flooding, landslides, or typhoon disasters. But with excessive logging and other environmentally foreboding economic activities in Mt. Kalatungan, this previously harmonious and well-balanced environment became threatening. The anticipated unpleasant incident occurred on 16 December 2011. Typhoon Sendong (internationally named Washi) hit the province of Bukidnon and Northern Mindanao with continuous rain pouring in the entire evening that reached up to more than 200 millimeters.

Headwaters from the slopes of Mt. Kalatungan, flowing through the Batang sub-watershed of the Cagayan de Oro River basin has been identified and acknowledged to be the main source of floodwaters. With degraded forests and the steep and narrow ridges of the river system, the running water caused flooding of several meters high in no time.

Flash floods washed out houses, bridges, debris, and people. According to the National Disaster Risk Reduction and Management Council (NDRRMC) report in February 2012, Typhoon Sendong caused more than 1,268 fatalities, injured 6,071 individuals, and 181 persons were reported missing. The damage to properties was estimated at PhP 12 billion. It was considered the world's deadliest storm for that year.

The Mt. Kalatungan ecosystem has now become foreboding and threatening. Initiating adaptation and mitigation measures to restore forest resources was obligatory.

## Impacts of Typhoon Sendong on people's welfare and rights

### **Impacts on land, settlements, and livelihoods, including food security**

Roughly 300 to 400 thousand people (around 70 thousand families) from the cities of Cagayan de Oro and Iligan were rendered immediately homeless or displaced by the storm (Franta, et. al., 2016), uprooting 54 percent of Cagayan de Oro's population and 34 percent of Iligan's population from their communities of origin (Ginnetti, et. al., 2013). In Cagayan de Oro, Sendong affected 40 percent of the population, destroying almost 20,000 houses. Some 12,635 houses were partially damaged, and 7,317 dwellings were demolished (NDRRMC, 2012).

Other than shelter, much of the city lacked food, water, electricity, and telecommunication. With the potential hunger and joblessness, the Department of Social Welfare and Development (DSWD) implemented "cash-for-work" and "food-for-work" programs that focused on debris clearing and clean-up, to help typhoon victims rebuild their livelihoods and ensure their access to food, benefiting 3,293 families.



Aerial photo of Cagayan de Oro City in the aftermath of Typhoon Sendong (Washi). Photo by Reuters.

### **Key affected groups/sectors**

Most of the victims were informal settlers residing near the Cagayan Riverbanks. Some of the devastated areas, such as the neighborhoods of Isla de Oro and Cala-Cala, had earlier been populated through the city's socialized housing ("piso-piso") program (Franta et. al., 2016).

A Shelter Cluster survey of nearly 4,000 affected households in Northern Mindanao revealed that many affected families were highly vulnerable households. Some 77 percent of those surveyed were found to be below the poverty line. The primary livelihoods of affected families were mostly in agriculture and skilled/unskilled labor, with 13 percent reporting no income (Shelter Cluster, 2012).

As can be deduced, agriculture was also gravely affected. Sendong inflicted around Php 304 million worth of damage to crops, livestock, vegetables, and fisheries (NDRRMC, 2012).

### **Impacts on tenure relations, governance, and land rights**

The City Government of Cagayan de Oro disregarded the possibility of being hit by tropical storms as strong as Typhoon Sendong. Having no experience of a devastating disaster and the lack of alternative options for residential areas, it allowed the establishment of formal settlements to be built on hazard zones such as of riversides and coastlines of the city.

In the aftermath of Sendong, the national government, through the Department of Environment and Natural Resources (DENR) declared "no-build zones" in several areas in Northern Mindanao, including the affected

riversides and coastlines of Cagayan de Oro that had been occupied by informal settlers. The decree provides that banks of rivers and streams and the shores of the seas and lakes throughout their entire length and within a zone of three meters in urban areas, 20 meters in agricultural areas, and 40 meters in forest areas, along their margins are subject to the easement of public use.

Residents from these no-build zones were evacuated and prevented from rebuilding their homes in the sites considered unsafe. This new policy, however, was met with protests as some of the affected residents in the no-build zones held legal titles over their lands. On the other hand, those who lost their homes had difficulties being accepted in the relocation sites as they had no proof of ownership or formally written tenancy agreements.

### **Response of community: Piloting Payment for Ecosystem Services (PES) in Mt. Kalatungan**

After Typhoon Sendong, the residents of Cagayan de Oro and nearby cities were determined to end this adversity and revert back to its relished relationship with nature. The battle cry of many was “No more Sendong.” But how can this be assured? After a careful study, reforestation of the Batang sub-watershed of Mt. Kalatungan was recommended.

This in a way reflects the country’s need for massive reforestation. According to the Forest Management Bureau (FMB) of DENR, the country’s current vegetative cover is wanting and inadequate. The remaining forest cover today is less than 24 percent of the forest cover in the 1900s and the country is losing thousands of hectares of forest cover every year.

Moreover, the adoption of a landscape-wide approach was recommended. This would require collaboration among the different sectors and institutions in the Mt. Kalatungan landscape. This recommendation was concretized with the adoption and implementation of the Payment for Ecosystem Services (PES). It is an approach where beneficiaries of ecosystem services (like clean water, carbon storage, or biodiversity) financially reward those who manage, conserve, or restore the ecosystems that provide these benefits.

PES-Kalatungan is a voluntary financing scheme anchored on pricing intangible environmental products and services adapted into a funding mechanism to generate economic return and sustain the ecosystem services. The *Miarayon Lapok Lirongan Tinaytayan Talaandig Tribal Association (MILALITTRA)*, an IP organization in Mt. Kalatungan, had been identified as the “seller” allotting critical watershed in their ancestral domain to be reforested. They will also plant endemic trees and nurture their growth for at least three years. The buyers are individuals and organizations downstream who would benefit from this scheme and include cooperatives, civil society organizations (CSOs), business groups, and government agencies. Xavier Science Foundation (XSF) was requested to act as the intermediary between the buyers and the sellers.

This has become possible with the enactment of a landmark legislation, the Indigenous Peoples Rights Act (RA 8371 or IPRA), in 1997. IPRA recognizes the rights of IPs over their ancestral domains and provided for a process of titling of lands through the issuance of Certificates of Ancestral Domain Titles (CADTs) and Certificate of Ancestral Land Titles (CALTs).

MILALITTRA had been awarded a CADT in 2003 that provides them land tenure security and bestows them the confidence to protect what belongs to them, especially their “*Igmale'ng'en*” (sacred forests). In recognition of the need to protect Mt. Kalatungan and its downstream communities, MILALITTRA allotted part of their ancestral domain as a planting site for PES.

PES-Kalatungan was launched in 2014 with the support of relevant government agencies, local government units and CSOs under the guidance of the Cagayan de Oro River Basin Management Council. Overall, the PES aimed to strengthen Mt. Kalatungan's watershed to ensure sustainable water supply and mitigate the occurrence of flash floods.



PES-Kalatungan is a coming together of IPLCs and residents of Cagayan de Oro and nearby municipalities to prevent another Sendong-type devastation.

*Photo by XSF.*

*Nagkahiusang Manobong Manununod sa Yutang Kabilin (NAMAMAYUK), Inc.*, an IP Organization (IPO) in Pangantucan, Bukidnon with the support from One Meralco Foundation (OMF). OMF supported the PES initiative as it complements its *One for Trees Program* promoting forest protection and preservation, community empowerment, and volunteer education and engagement. In its initial phase of implementation from 2022 to 2024, 30 hectares were planted to endemic and coffee trees involving 47 IPO members with a survival rate of 99 percent.

This commendable output has encouraged other IP communities to participate. It also inspired other partner institutions to assist, including the Mt. Kalatungan Protected Area Management Board (PAMB) led by the DENR.

Other than reforestation and enhancing ecosystem services, PES has strengthened IPs' capacity to protect the forests through the formation of IP Forest Rangers – *Bantay sa Yutang Kabilin* or (BYK). It also provided opportunities to augment their livelihood with the planting of coffee in between the endemic trees.

## Key elements in restoring forest ecosystems

Though still in its learning phase, key elements of PES-Kalatungan have been identified as crucial in restoring forest ecosystems, namely: 1) collaborative engagement, 2) recognition of IP land rights, and 3) taking on a landscape approach.

### ***Collaborative Engagement***

Typhoon Sendong was an appalling experience for everyone, especially those who lost family members or relatives. Preventing another disaster has become everyone's responsibility, whether one is with the

As of November 2019, more than a hundred hectares have been planted with a survival rate of 84 percent. Much more could have been achieved but were constrained by a number of challenges such as financial sustainability, peace and order situation in the area, and difficulty in monitoring. Year 2020, for example, could have been a big year for PES but with the COVID-19 pandemic, all activities were cancelled.

In 2021, XSF resumed the PES activities in Mt. Kalatungan.

This time, it partnered with

government, church, private sector, CSO, or even just an ordinary citizen. With this awareness and openness, it was not so difficult to introduce new schemes such as the PES.

Though already tested in other places, PES is still an evolving tool for innovative financing for potential markets in natural resource management. On valuing ecosystem services, for example, the buyers are asking how the services are valued and how they are computed. At the other end, the sellers, mostly IPs, regard nature conservation as a sacred responsibility, and nature's services are a gift for everyone. With this difference in perspective, coming to an agreement becomes challenging.

And yet, PES, through its intercultural exchanges, had been instrumental in increasing awareness of landscape governance and the need for multi-stakeholder collaboration. Starting in 2017, "buyers" have regularly visited the area for them to understand how they may participate in protecting the watershed. They also had the chance to interact with the IPs to get a better perspective of their situation. Having an emotional bond positively influences the valuing of the environment and the willingness to actively contribute to environmental solutions. Financial transactions, for example, are now taken from a wider perspective and have become acceptable.

A starting point for collaboration is the formation of a shared spirit in a setting where people can jointly reflect on the qualities and potentials of a landscape. In 2019, XSF initiated a collaborative platform called the PES TREElogy. It emphasized the need to have a broader perspective in addressing ecological challenges and overcome socio-cultural and economic differences. It also highlighted the important contributions of women and youth in reforestation so that the young may appreciate better the importance of collaborative resource governance.

In continuing this collaborative learning of PES, XSF organized a PES Forum on October, 2025 to bring together thinkers and gurus on science, policy, indigenous knowledge, financing innovations, and cross-sectoral partnerships to shape a more sustainable future for communities and the environment. In the discussions, it was emphasized that PES should go beyond conservation financing and more in serving as a bridge that reconnects people and communities. Moreover, it was pointed out that it is notable to have people who care for the common good, and that begins with caring for those who are marginalized, the IP who had been pushed to the margins.

### ***Recognition of IP Land Rights***

A major requirement in implementing PES-Kalatungan is the participation of IPs who have protected and conserved the forest ecosystem for generations. Unfortunately, at the height of forest demolition in the 1970s and 1980s, they held no legal rights to their ancestral domains. IPRA, the legislation that recognizes the rights of indigenous peoples over their ancestral domains, was enacted by the Philippine Congress only in 1997.

Ancestral domains cover "all areas generally belonging to ICCs/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied, or possessed by indigenous cultural communities (ICCs)/IPs, themselves or through their ancestors, communally or individually" (IPRA, Chapter II, Sec. 3.b.). As of March 2022, the National Commission on Indigenous People (NCIP) has approved 257 Certificates of Ancestral Domain Titles (CADTs) covering a total area of 5,971,345 hectares, benefitting 1,363,342 IP rights-holders.<sup>2</sup>

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<sup>2</sup> De Vera, et. al. 2022

Among those awarded with CADT is MILALITTRA, a legally recognized association, residing in the slopes of Mt. Kalatungan. MILALITTRA was awarded 11,367 hectares of ancestral lands in 2003, part of which was allocated for PES-Kalatungan. With this recognition and participation in the PES, MILALITTRA is now able to assert its rights and engage other sectors of society.

Today, the MILALITTRA, together with other tribes in Mt. Kalatungan, have formed a coalition giving them a stronger voice. While they had been sidelined and marginalized in the past, they are now officially recognized by other stakeholders in the landscape. The Tribal Coalition, for example, now sits in the Management Board of the Mt. Kalatungan Protected Area (PAMB Kalatungan) with three official representatives.

### ***Taking on a landscape perspective***

It is important to note that PES-Kalatungan covers a broad landscape spanning over three municipalities and one city. In that landscape, various stakeholders exist: indigenous peoples, urban residents, farmers, and fisherfolk, among others. In terms of land use, the landscape encompasses a protected area, agricultural lands, residential areas, and industrial and commercial centers.

Given the wide area coverage and the numerous stakeholders involved, land tenure and land use policies have become particularly relevant, especially in their resulting impacts on the landscape. As chronicled, the lack of unified land polices in Mt. Kalatungan has instigated the flattening of forests, resulting to unregulated water supply. The transboundary river basin management is another example where the river crosses various political territories and may cause conflicts among municipalities. This is predominantly significant in the country, as the proposed National Land Use Bill in Congress has not been enacted after more than 25 years.

This presents a number of challenges, particularly in harmonizing the different perspectives, balancing sectoral interests, and resolving overlapping policies. With these impediments, PES-Kalatungan took on a landscape approach that is generally defined as “a multifaceted integrated strategy that aims to bring together multiple stakeholders from multiple sectors to provide solutions at multiple scales.”<sup>3</sup>

With this perspective, several forums and multi-stakeholder activities were organized. These forums, participated in by scientists, policymakers, Indigenous leaders, practitioners, and advocates, aimed to explore how ecosystem services can drive meaningful climate action.



Land tenure security of indigenous peoples and local communities is crucial in adapting and responding to climate change. *Photo by XSF.*

<sup>3</sup> Bas Arts, et. al. 2017

## Recommendations

The narrative of the IPs in Mt. Kalatungan and the response of the stakeholders in the landscape provides a valuable exemplar on supporting IPLCs as nature's custodians. This is an urgent call given the intimidating global warming. The Intergovernmental Panel on Climate Change (IPCC) in its 2023 Synthesis Report conveyed that global surface temperature in 2011 to 2020 reached 1.1°C above 1850 to 1900. This will affect approximately 3.3 to 3.6 billion people living in vulnerable contexts and the risks will become more difficult to manage if temperature continues to increase.<sup>4</sup>

In responding to these developments, the UN Convention on Biological Diversity (CBD) adopted "*Protected Areas*" as the foundation of national biodiversity conservation. It also added "*other effective area-based conservation measures*" (OECMs) in recognition of areas governed by IPLCs that contributed to the effective and sustained in-situ conservation of biodiversity.

Unfortunately, the implementation of OECMs as depicted in the experience of IPs in Mt. Kalatungan is constrained by complex land tenure policies, limited resources, lack of private sector and citizen engagement, among others. With the increasing climate disasters, there is a need to increase awareness on resource governance where different sectors and institutions can collaborate to address these concerns.

CSOs, together with IPLCs, should consider framing a cultural and community transformation towards an alternative future grounded on ecological principles. With the IPLCs' experiences and commendable outcomes, these alternative viewpoints can serve as a springboard in moving forward.

In pursuing this vision, the following recommendations are forwarded:


- **Support IPLCs in managing and governing Other Effective area-based Conservation Measures (OECMs).** The findings of the World Wide Fund for Nature on the conservation of the world's remaining natural landscapes complemented by CBD's recognition of OECMs direct each one to support IPLCs in asserting their land rights and in collaborative ecological engagements in governing their territorial landscapes. CSOs in Asia and its partner institutions should take this on as a priority program in advocating land rights and tackling climate change.
- **Advocate for a comprehensive land use plan and management.** Given the complex legal framework and the sectoral tenure reforms in the Philippines, a comprehensive land use plan and management is imperative. It should be based on established priorities in pursuit of national agenda and global commitments. Unfortunately, despite several legal and administrative initiatives, this has not been realized.

Relevant government agencies take on diverging priorities in pursuing productivity, resource conservation and social equity. Moreover, with the involvement of local government units, land use planning is heavily influenced by local officials and powerful landowners. Given all these hindrances, advocating for a comprehensive land use plan should be pursued.

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<sup>4</sup> IPCC, 2023

- **Explore and institute the landscape approach.** Land use is influenced by many factors such as socio-cultural preferences, economic interest, political influences and ecological considerations. Ideally, this is best done at the landscape level where the interactions and influences of these varying interests can be understood, governed, and managed.

In the absence of a national policy on land use planning and management, a landscape approach may be promoted and implemented. Landscape approaches embrace an integrated land-sharing philosophy that have been increasingly promoted in science as an alternative to conventional, sectorial land-use planning. It is also advocated to make policy, governance, and management more space- and scale-sensitive. Furthermore, landscape approaches are promoted to better understand the linkages among humans and their surroundings. This resonates well in linking land rights, land use, and climate change.<sup>5</sup> 

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## Disclaimer

The views expressed in this case study do not necessarily reflect those of GFAiR, EC, and IFAD.

<sup>5</sup> Bas Arts, et. al. 2017