CLIMATE ACTION NETWORK

Submission: Inputs to inform the dialogue on the relationship between land and climate change adaptation related matters

March 2020

Climate Action Network (CAN) is the world's largest network of civil society organizations working together to promote government action to address the climate crisis, with more than 1300 members in over 120 countries.
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INTRODUCTION

Following decision 1/CP.25, paragraphs 32 and 33, the Climate Action Network welcomes the request to the SBSTA to convene at its 52nd session a dialogue on the relationship between land and climate change adaptation related matters and the invitation to submit inputs to inform the dialogue.

This document consists of two main parts: Part One outlines recommendations for "Modalities and Procedures" with the purpose of shaping the dialogue's work to be effective, rigorous and relevant; Part Two incorporates a list of themes to be incorporated in the dialogue, building on CAN members' knowledge and expertise on technical issues related to land and climate change adaptation, leading to actions that seek to maximize its potential to address the crisis.

Part 1: MODALITIES AND PROCEDURES

A. Structure of the dialogue

We suggest the dialogue be organized in the following way:

- Open plenary session.
- Presentation on science and communities' perspectives on land and climate change.
- Presentation panel from observers.
- Hold break-out groups for Parties and observers to explore key topics.
- Report back to the plenary.
- Closing session and next steps.

B. Inclusive and balanced participation

The UN Framework Convention on Climate Change must ensure a balanced representation of expertise and knowledge for this dialogue, incorporating participatory processes including, but not limited to, State Parties, observer organizations, and in particular ENGOs, the Indigenous Peoples' Caucus, the Gender Constituency and representatives of rural communities, who are highly vulnerable to climate change. CAN members can provide valuable contributions to these discussions and should be active participants in the process.

The following should be considered:

- A balanced representation from both South and North, reflecting a balance of expertise, knowledge and direct relevant experience.
- Active participation and presentations by observers, science, civil society participation, indigenous people, farmers (particularly women smallholder farmers), gender constituency, youth, practitioners, policy makers and the private sector etc.
- Avoid conflicts of interest when inviting presenters and views.
- The dialogue should be inclusive, transparent, and participatory which provides an opportunity for all stakeholders to contribute to the discussion.
- Use of latest/interactive technology (e.g: slido.com), to allow participation for remote participants.
- Good lessons from the workshop formats developed for the Koronivia Joint Work on Agriculture (KJWA) and the 2019 workshop on Gender, which modelled a more inclusive approach to invite a diversity of perspectives, and which have been widely praised by parties, observers and presenters. We encourage the Land Dialogue to learn from and build upon these experiences.

C. Desired output of the dialogue

There is an urgent need for us to raise the adaptation ambition by including robust policies in and while implementing Nationally Determined Contributions (NDC), National Adaptation Plans (NAPs), and Long-Term Strategies (LTSs) that aim to meet Article 2 of the UNFCCC, as well as the overall ambition of the Paris Agreement under Articles 5, 7.1 and 7.2. This dialogue should focus on how the land sector contributes towards these while at the sametime respecting Indigenous People and Local Community (IPLC) land rights and tenure and ensuring that land management is not only sustainable, but also builds the resilience of people, the climate and nature.

This dialogue should provide recommendations on how the land sector can be integrated into NDCs, NAPs, and LTSs in a way that contributes towards enhancing overall adaptation ambition and the supporting mechanisms that can be channelled towards implementing them.

Furthermore, a set of fundamental principles and criteria could be developed to maximize the benefits and to avoid perverse outcomes when planning and implementing adaptation strategies in the land sector. All too often adaptation that doesn't adequately consider ecological and/or societal requirements leads to maladaptive outcomes, where vulnerability to climate impact increases. A set of guiding principles would help to ensure adaptation actually reduces vulnerability and builds resilience to climate change.

Part 2: KEY THEMES AND TOPICS FOR DISCUSSION

A. The importance of protecting biodiversity and ecosystem integrity

All people rely, to some degree, on natural ecosystems to provide many of their needs, including food. For many of the poorest people this reliance is even greater, as they heavily rely on natural ecosystems, in whole or in part, to supply most of their essential basic resources, such as water, food, feed, fiber and fuel. Their livelihoods, and even lives, depend on conserving and restoring ecosystems.

In addition to providing basic commodities, natural ecosystems play hugely important roles in regulating the climate and hydrosphere. As well as being stores and sequestering of carbon, with obvious implications for climate change, natural ecosystems also play an important role in creating regional climate patterns. For example, much of South America's rainfall patterns occur because organic chemicals released by the Amazon rainforest's trees act as nucleation centers for water in the atmosphere, creating raindrops and rain.

Importantly, especially as the climate system changes, natural ecosystems can provide resilience to extreme weather events and slow onset events. Ecosystems like mangroves can increase community resilience to climate impacts including storm surges and some sea level rise. Forests and grasslands can modulate flooding, by slowing the flow of water entering rivers: many raindrops fall on leaves and organic-rich soils also hold water better than damaged soils or hard surfaces. Evapotranspiration by plants also reduces the absolute amount of water entering the river systems. This slows the rate of the water reaching the land, thereby avoiding a sharp spike in waterload that could result in flooding. By releasing water in the dry season, forests can help to provide clean water and mitigate the effects of droughts. Animals in ecosystems can also play an important role in increasing resilience: for example, by creating dams, beavers can also slow water flow and reduce flooding, and a wide range of species act as pollinators, seed dispersers and other agents that support ecological function and thus the stability of the system (including as a carbon store and thus also supporting climate change mitigation efforts).

Natural ecosystems are themselves more resistant to climate impacts, as a result of their greater biodiversity compared to human-made landscapes. There is a large academic literature supporting the diversity-stability hypothesis, which posits that, in general, the more biodiverse a system is, the more functionally stable it is to impacts, including climate impacts. This means that natural ecosystems are best able to provide ecosystem services, and best able to be resilient to climate impacts.

Biodiversity is therefore fundamental to maximising the resilience and adaptive capacity of all ecosystems. A species-diverse ecosystem increases the ability of that ecosystem to maintain its function while adapting to impacts, such as those resulting from climate change. The benefits humans gain from healthy, functioning (high integrity) ecosystems are many, such as supplying direct services and products, moderating regional climate, and supplying high quality, fresh water, protecting against storm surges and moderating flooding. Protecting and restoring primary ecosystems, including intact forests, peatlands, mangroves and other ecosystems, will improve the stability of ecosystems and produce a range of other benefits,

including strengthening the capacity of low-lying areas to withstand storms and improving resistance and resilience to drought, flooding, and fire. Stable carbon storage and long-lived sequestration are critically important services to humans as we seek to adapt to escalating climate change.

When considering adaptation and resilience to change, it should also be noted that ecosystems are interconnected and interact with one another. Conserving one in particular may not be possible unless others that it relies on for its functioning are also conserved at an adequate scale. For example, one of the most carbon rich-forest ecosystems exists because grizzly bears eat salmon. The bears catch the salmon, take it into the forest to reduce conflict with other bears, eat the most nutritious part and leave the rest in the forest to decompose and provide nutrients to the trees. For this to work, the forests need healthy seas for the marine part of the salmons' life cycle, clear rivers and streams for them to spawn in, and a landscape big enough to support a large enough population of bears to fertilize the forests, outside of the salmon season. There is a nutrient flow from ocean to forest.

The well-being of communities and successful, climate resilient development pathways relies on healthy ecosystems able to adapt and function in the face of locked in climate change, even if emissions reduction strategies succeed in limiting global warming to 1.5 degrees. Maximizing the ability of ecosystems to adapt to a changing climate depends on maintaining and restoring their integrity (or condition) including natural variations in species and composition and on understanding the ecological role of indigenous communities for the long term provision of ecosystem services, including food and clean water.

Key findings from the IPBES 2019 Global Assessment on Biodiversity and Ecosystem Services[1] are worth revisiting particularly in relation to the functional role of biodiversity in underpinning the condition of ecosystems.

B. Ecosystem-based Adaptation: managing ecosystems to protect and restore adaptive capacity.

Ecosystem-based Adaptation (EbA), includes the conservation, sustainable management and restoration of ecosystems as part of an overall adaptation strategy that takes into account the multiple social, economic and cultural co-benefits for local communities. EbA approaches also provide significant mitigation benefits, contribute to reducing climate risks, enhance climate resilience, improve biodiversity conservation, reduce ecosystem degradation, and restore ecosystem integrity.

It should be noted that some development activities based on nature (including many assumed to be sustainable) have contributed to both the climate and biodiversity emergencies where they have not taken an ecosystems-based approach. Nature-based solutions (NbS) to climate change offer a range of options from, for example, ecosystem conservation and restoration to agroecology and blue-green urban designs. Those that follow an ecosystems-based approach, provide multiple benefits for biodiversity and both climate change

[1] https://ipbes.net/global-assessment

adaptation and mitigation. However, some NbS, such as large scale forestry plantations of single-species trees, and when used as a substitute for primary intact ecosystems, have the potential to further harm biodiversity, reduce critical ecosystem services such as water quality and quantity, de-stabilise existing carbon storage, disadvantage indigenous and local communities and ironically do little, if anything in relevant time frames, to limit global warming. It is therefore extremely important that policies and frameworks incentivise an ecosystem-based approach to adaptation and mitigation.

Maintaining and restoring ecosystem services requires overall improvements in ecological condition. Ecosystem condition or integrity is a continuum between primary ecosystems which have the highest condition/integrity and monoculture plantations which have the lowest. At the simplest level, differences in condition between primary, natural production and monoculture ecosystems can be readily identified, as can the respective benefits and costs for the protection of biodiversity; the provision of key ecosystem services; the amount and stability of carbon storage; and adaptive capacity. This continuum should inform priorities for management action and development pathways (where high ecological condition is prioritised), whether based on improved conservation management and protection of primary ecosystems or restoration action in degraded ecosystems[2].

Ensuring that climate action in agricultural and natural ecosystems improves the outlook for biodiversity and ecosystem integrity, EbA approaches would provide an unprecedented and cost-effective opportunity to reverse biodiversity loss and ecosystem decline, improve agricultural productivity and water quality and support climate resilient development pathways. It would also result in substantial, immediate as well as longer-term climate mitigation benefits and vastly improve the ability of ecosystems and communities to adapt to already locked in climate change.

Immediate, large-scale climate, biodiversity and ecosystem benefits could be achieved by encouraging improved conservation management and protection of all carbon dense primary ecosystems, in particular through supporting the land rights and tenure, and livelihoods of indigenous communities. The imperative to improve the stability of primary ecosystems including intact ecosystems through improved conservation management is emphasized by the fact that they are irreplaceable in relevant time frames (2030 and 2050) for climate, biodiversity, ecosystem integrity, stability and contribution to both climate mitigation and adaptation.

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[2] Stoddard JL, Larsen DP, Hawkins CP, Johnson RK, Norris RH 2006. Setting expectations for the ecological condition of streams: the concept of reference condition. Ecological Applications 16(4): 1267 – 1276;

Gibbons, Briggs SV, Ayers DA et al. 2008 Rapidly quantifying reference conditions in modified landscapes. Biological conservation 141: 2483 - 2493;

Mackey B., DellaSala, D.A., Kormos, C., Lindenmayer, D., Kumpel, N., Zimmerman, B., Hugh, S., Young, V., Foley, S., Arsenis, K. and Watson, J.E.M (2015) Policy options for the world's primary forests in multilateral environmental agreements. Conservation Letters 8, 139–147;

Palmer MA and Febria CM 2012. The heartbeat of ecosystems. Science 336: 1393 – 1394.

Therefore, to strengthen adaptive capacity and resilience and at same time address biodiversity objectives for 2030 and beyond, CAN has set out the following recommendations:

- **Adopting Nature-Based Solutions approaches to build climate resilience should prioritise the protection and restoration of natural ecosystems** such as forests, grasslands, peatlands, mangroves and other wetlands. This could be achieved through halting loss and degradation of intact natural ecosystems (including deforestation and forest degradation) and land erosion and improving conservation management and restoration of natural and agricultural ecosystems. In short, actions to conserve and restore ecosystems, including through e.g. national goals for carbon storage in ecosystems, will contribute to reaching goals under the Paris Agreement, the Convention on Biological Diversity (CBD), the UN Decade on Ecosystem Restoration and the Sustainable Development Goals (SDG). The theme will explore the option and various approaches to building climate resilience on land.
- **Land use and forestry must benefit and not harm the climate, biodiversity or human rights**.
    - For example, **avoid replacing primary and intact forest landscapes with monoculture tree plantations** as this devastates biodiversity and ecosystem integrity and leads to severe losses in ecosystem services (including carbon storage), livelihoods and community resilience to climate change impacts.
    - **Replacing high carbon and high biodiversity ecosystems with low carbon and low biodiversity plantations is counterproductive and unnecessary.** Separate production forests can supply a demand for wood products, ensuring these are not replacing high quality ecosystems.
    - **Increase the effectiveness and scope of invasive alien species management.** Climate change is likely to result in invasive alien species having increasingly negative impacts on ecosystems, biodiversity and human wellbeing. Management options for invasive alien species include; more comprehensive and effective biosecurity controls to manual removal of plants and animals which could also provide positive economic benefits to indigenous communities and local peoples.
    - **Strategic land-use planning** can meet the needs of local communities in ways that not only protect key ecosystems, but also provide wood products.
    - The management of production landscapes, including the management of production forests, should aim to **prevent and reduce land degradation, maintain productivity,** and prevent adverse impacts of climate change on land degradation.
    - **Improving the protection and restoration of biodiversity in soils and production landscapes** can contribute to mitigation and adaptation and increase ecosystem resilience.
- **Reconnecting protected areas, primary ecosystems and other high conservation value areas including Key Biodiversity Areas is needed to improve the stability and adaptive capacity of existing and restored ecosystems.** An ecosystem approach is needed that ensures ecological connectivity within and between ecosystems, buffering and connecting core areas to enhance resilience to climate change and other environmental change. This has the potential to be a powerful tool for

delivering integrated solutions to the climate and biodiversity crises. Improving the stability of protected areas through improved conservation management and restoration to buffer and reconnect natural areas will be increasingly important for the long-term persistence of biodiversity and ecosystem function and be particularly important for the capacity of ecosystems to adapt to changing conditions. Less than 10% of protected areas are connected by natural land[3]. Restoring degraded land to re-establish or strengthen ecological connections and their former ecological condition is needed to maintain and enhance adaptive capacity and in particular the ability of plants and animals to move and adapt to climate change.

- By **working with indigenous peoples and local communities**, a range of complementary benefits for ecosystem services, climate mitigation and adaptation and community health and well-being - forming the basis of climate resilient development pathways - could be achieved. Benefits include improvements for ecosystem adaptation; the integrity and stability of ecosystems; water quality and supply and carbon sequestration and stable carbon storage; and enhanced persistence and recovery of biodiversity.
- Immediate benefits for ecosystem integrity and function are also feasible and highly desirable through **promoting agro-ecological practices in farming communities.** Protecting and restoring biodiversity in agricultural soils (and in the crops and trees grown in agricultural landscapes) is an essential component of restoring ecological function and improving productivity in production landscapes. Reducing pesticide and fertilizer use is a global imperative. There are many global examples where the introduction of or return to such practices have increased food production and reduced pressure on intact landscapes, particularly primary forests[4].

C. Indigenous peoples land rights, tenure and land management

The continued contribution of indigenous people to climate adaptation and mitigation through their sustainable management and conservation of intact forest landscapes and other ecosystems is essential if global climate goals are to be achieved. It is vital to protect indigenous land rights and tenure and the key role of indigenous people in forest governance if ecosystems are to maintain their climate stabilising services.[5]

Indigenous people manage or have tenure over ~38 million km2 (over one quarter) of the earth's surface. This land intersects 40% of all protected areas and ecologically intact landscapes, such as boreal and tropical primary forests, savannas and wetlands[6]. Synergistic partnerships between indigenous people, conservationists and governments are fundamental

[3] Michelle Ward, Santiago Saura, Brooke Williams, Juan Pablo Ramírez-Delgado, Nur Arafeh-Dalmau, James R. Allan, Oscar Venter, Grégoire Dubois, James E.M. Watson. Only ten percent of the global terrestrial protected area network is connected via intact land. bioRxiv 2020.01.28.920488; doi: https://doi.org/10.1101/2020.01.28.920488.

[4] IUCN Policy on Primary Forests Including Intact Forest Landscapes. https://portals.iucn.org/union/sites/union/files/doc/c98_ppc51_4_2_policy_statement_-_primary_forests.pdf

[5] Fa et al. 2020. Importance of Indigenous Peoples' lands for the conservation of Intact Forest Landscapes.Front Ecol Environ 2020; doi:10.1002/fee.2148

[6] Garnett, S.T., Burgess, N.D., Fa, J.E. et al. A spatial overview of the global importance of Indigenous lands for conservation. Nat Sustain 1, 369–374 (2018). https://doi.org/10.1038/s41893-018-0100-6

to the continued conservation of these areas and to achieving UN climate and biodiversity goals.

D. Land and Agriculture

The food system is responsible for up to a third of global emissions, which indirectly causes harm to nature by contributing to climate change in addition to the more obvious direct impacts of habitat loss. However, food production is also vulnerable to climate impacts. Rising temperatures, changing rainfall patterns and more extreme weather events have a severe impact on crop production and are already causing reductions of some crops due to increased extreme weather events such as droughts, floods and cyclones. This will have a negative impact on food security, particularly for poor people.

This thematic group should complement the work of the Koronivia Dialogue with an adaptation-specific focus on what type of measures are required in the land sector (e.g: land policies, food policies, securing land tenure, sustainable land use management, etc) and what kinds of international/national policies and legislation would be required to help adaptation by reducing food insecurity as well as reducing overall vulnerability and building climate resilience of people and nature.

Agroecological agriculture techniques which reduce/avoid the use of synthetic chemical fertilisers and pesticides, and enhance agro-biodiversity, are an extremely effective technique for adaptation (as well as mitigation) that is also highly appropriate and accessible, particularly for poor and climate-vulnerable farmers. A key reason for this is that agro-ecological techniques improve soils through the use of composting and manure, which increases the water-carrying capacity of soils, thus leading to greater resilience in the face of both droughts and floods. Agroecological approaches also empower food producers to access decision-making, and prioritize local knowledge and resources over reliance on external inputs. Agroecology thus increases resilience and productivity in the face of climate change and addresses equity and inequality issues often missing in other agriculture paradigms. As agroecology involves mixed cropping, it also delivers a higher land-efficiency ratio, and thus greater nutritional impact per area of farmland than conventional monocropping. CAN invites Parties to carefully consider the report of the Committee on World Food Security (CFS) High Level Panel of Experts (HLPE) on Agroecological and other innovative approaches (July 2019).

Several studies looking at agricultural performance after extreme weather events (droughts and hurricanes) in Central America have shown that resilience to climate disasters is closely identified with farms with diverse locally-adapted cropping systems in combination with soils rich in organic matter, water conservation techniques and increased levels of biodiversity.[7]

Following the deadly Hurricane Mitch in Central America in 1998, a survey showed that farmers using diversification practices such as cover crops, intercropping and agroforestry suffered less damage than their conventional monoculture neighbors. Similarly, researchers found that 40 days after Hurricane Ike hit Cuba in 2008, diversified farmers experienced losses

[7] ttp://www.fao.org/agroecology/database/detail/en/c/452669/

of 50%, compared to 90 or 100% in neighboring monocultures, and that agro ecologically managed farmers showed a faster productive recovery after the hurricane.[8]

Participation & women's rights: We note that adaptation efforts will almost always be specific to locations, and that the unique context and combination of geology, ecosystems, weather patterns, local livelihood opportunities, crop patterns, culture, economy, power dynamics and gender relations can all shape a community's specific adaptation needs and opportunities. A key principle for adaptation must therefore be to ensure active and gender-balanced community participation in the design, development, implementation, and monitoring and evaluation (M&E) of appropriate adaptation strategies.

Women make up more than half of farmers and yet are all too often left out of policy and decision-making processes for reasons of culture, empowerment, literacy and childcare responsibilities. Programmes must therefore make specific and extra efforts to ensure gender-responsiveness and the inclusion of women and marginalized communities in adaptation planning and delivery processes, if they wish to address the real – and often unspoken – challenges that communities face as a result of climate change. Even as women farmers face gender-specific burdens and responsibilities, they often do not even have legal rights for secure access to land. This means that they do not have much incentive to make investments in land that can increase the resilience to climate change, or reduce the greenhouse gas footprint, if they are at risk from being moved on from the land after they have made those investments. Therefore, as the 2019 IPCC special report on Land and Climate highlighted, if agriculture systems are to increase the uptake of sustainable land management techniques that enable adaptation, securing women's secure access to land must be a key policy intervention.

Soil carbon, soil health, soil fertility and water management: these considerations should be treated together, in order to avoid side effects or perverse incentives. (e.g. "no-till" monocultures of genetically modified crops that use high inputs of glyphosate herbicide and pesticides that negatively affect soil health, biodiversity and water.) When combining the objectives of soil carbon, soil health, soil fertility and water management, Parties can identify adaptation measures that may also provide mitigation co-benefits.

Priority should be given to the preservation of soil carbon under grassland and cropland as well as integrated systems, particularly in consideration of the fact that global warming may increase CO_2 losses.[9] Agroecological practices such as applications of manure, compost, mulches and cover crops, are the most effective techniques for building up soil carbon and soil health, and bring multiple adaptation co-benefits.

However, Parties should also recognize that an over-reliance on soil carbon sequestration as a mitigation strategy must be avoided due to the risk of reversals and the extreme challenges of monitoring, reporting and verification (MRV) of soil carbon. It is impossible to guarantee

[8] https://foodfirst.org/wp-content/uploads/2016/02/Farming-Matters-28-2-Agroecological-approaches-to-enhance-resilience.pdf

[9] Crowther T. et al. 2016; FAO 201

the permanence and irreversibility of carbon stored in soils. Temporarily sequestering carbon in agricultural soils will never be as effective for mitigation purposes as permanently reducing or avoiding non-CO_2 emissions. More attention should therefore focus on avoiding or reducing the release of emissions from agriculture, than attempting to temporarily sequester these back from the atmosphere through soil carbon sequestration.

Recent studies further suggest that increases in soil carbon sequestration may unfortunately be counteracted by concurrent increases in nitrous oxide emissions, so unless soil carbon sequestration strategies are guaranteed to avoid nitrous oxide emissions, they should not be assumed to be a foolproof mitigation approach. To date, there is no standardized approach for measuring soil carbon concentrations, and the MRV of soil carbon can be complex, expensive and ineffective. A set of fundamental principles and criteria could be developed to avoid perverse incentives with regard to good practice in soils, and to ensure that decision-making is led by farmers with regard to soil-improvement practices. These principles could feed into safeguards/ criteria/ guidelines on action in the land sector.

E. Finance

The need for climate adaptation is global, but it is developing countries that are the most vulnerable. According to UNEP (2016), the cost of adaptation in developing countries could range from USD 140 to 300 billion per year by 2030. On the global scale, adaptation costs are likely to be between USD 280 to 500 billion per year by 2050, with even higher costs possible under higher temperature scenarios. The priority of investment in climate adaptation can differ from country to country. But they generally include the land sector, agricultural sector, health systems, freshwater supplies, physical infrastructure, reducing risk from extreme weather events, etc. This theme could explore how much and what type of climate finance is available and provided in the land sector for building climate resilience, including through NbS. The theme could also explore certain criteria/benchmarks/pointers to funders, contributor agencies and investors to adopt during fund allocation towards the land sector so that it will minimize climate risk, build social-ecological resilience and avoid mal-adaptation.

F. National policy linkages and support

NDCs, NAPs, National Biodiversity Strategies and Action Plans (NBSAPs), and LTSs are some of the key national processes that help to tackle climate change challenges (mitigation and adaptation) as well as address biodiversity loss. The land sector is a landscape where human actions have either positive or negative to climate change mitigation and adaptation. It is, therefore, crucial to see how the land sector is being reflected in these national adaptation target setting processes and how the support could be mobilised to implement these targets. The dialogue should make a recommendation on how the land sector contributing towards adaptation targets can be better integrated into various national policies/targets settings and which supporting mechanism can be channelled for implementing it.

CONCLUSION

The discussions during this dialogue on land and adaptation should emphasise the need to:

- Improve the **conservation management of primary and other natural ecosystems**, including through addressing 1) the causes of decline (e.g. pollution, deforestation, water security management); 2) the need to enhance ecosystem function[10] and 3) the need to enhance natural ecosystems by buffering, and reconnecting key areas for carbon and biodiversity and managing invasive alien species.
- **Restore degraded and destroyed natural ecosystems**, especially taking into account when such restoration can enhance the provision of ecosystem services and resilience to climate impacts. The IPCC, in its two 2019 special reports on Climate Change and Land (SRCCL) and the Ocean and Cryosphere in a Changing Climate (SROCC), points out that ecosystem-based adaptation can, in some contexts, promote nature conservation while alleviating poverty and can even provide co-benefits by removing GHGs and protecting livelihoods. A concrete example is the work on peatlands for both mitigation and adaptation [11].
- **Improve ecological connectivity across landscapes** to facilitate permeability for plants, animals and ecosystems and genetic variation and mixing between populations, building in resilience to climate and other environmental change.
- **Prioritise the adoption and scaling up of agroecological agriculture techniques** to strengthen the resilience and reduce the contribution of agriculture to climate change.
- **Ensure participation of smallholder farmers and indigenous peoples** in the development of strategies and policies relating to land, farming and ecosystems, and ensure the security of their tenure and access to land.
- **Ensure planning for adaptation in the land sector is integral to each country's LTSs** as required under the UNFCCC and ensure involvement of IPLCs in the design and implementation of restoration, connectivity and biodiversity conservation projects to avoid the risk that even well-meaning adaptation efforts will have socio-economic costs such as displacement of people. As with every planned transition, the transition needs to be just.

[10] https://link.springer.com/chapter/10.1007/978-3-030-02318-8_16;

[11] http://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/Graham%20Wynne,%20Peatlands%20and%20climate%20change%20adaptation_0.pdf