

Addressing the Triple Emergency: Poverty, Climate Change, and Environmental Degradation

Delivering coherent policy outcomes in 2020-2021

Bond
Development
and Environment
Group (DEG)
Report

April 2020

In collaboration with:



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Acknowledgements:

This paper has been produced by the Bond Development and Environment Group (DEG) and funded by Christian Aid, WWF, Oxfam, Tearfund, Mercy Corps, ActionAid, Practical Action, Bond, WCS, and Plan International UK.

Thanks go to the following people for their contributions to this report:

Alison Doig, Richard Ewbank, and Kat Kramer, Christian Aid; Dominic White, Ruth Fuller, and Katherine Elliott, WWF-UK; Beatriz Luraschi, RSPB; Tom Evans and Tom Clement, WCS; Colin McQuistan, Practical Action; Kiri Hanks and John Magrath, Oxfam GB; Adrianna Hardaway, Mercy Corps; Amiera Sawas, ActionAid; Chiara Ambrosino, Plan International UK; Jason Garrett, World Vision UK; Paul de Zylva, Friends of the Earth; Sheri Lim, CARE International UK; and Fatma Wakil, CARE Nederland.

About Bond:

The Bond network is made up of over 450 organisations working across the international development and humanitarian sectors. Bond's over 40 working groups bring together international development professionals to take joint action and share learning on policy and practice areas.

About DEG:

The aim of DEG is to ensure that the UK international development community recognises the environmental imperatives underpinning development policy and related policy areas. DEG provides a forum where NGOs working at the interface of environmental and poverty issues can exchange information, enhance their analysis, and coordinate their advocacy towards the UK Government and other relevant institutions.

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Cover photo:

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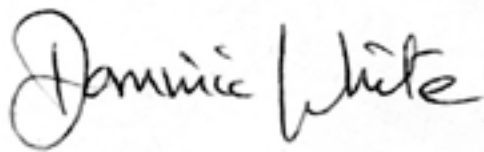
Foreword

2020 was set to mark an unprecedented opportunity to address the existential threats of our time; the triple emergency of poverty and inequality, climate change, and environmental degradation. But in 2020 we face another global emergency; the covid-19 pandemic. This emergency is urgent and immediate, and requires our collective global action as well as our personal responsibility, to address it. We stand in solidarity with governments, communities, and health workers around the world at this most difficult of times.

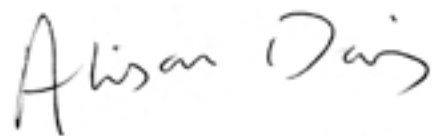
While all efforts at this time must be oriented towards the covid-19 pandemic, the content of this paper is none-the-less still important and timely. The challenges outlined in this paper remain, and are now also linked to the impacts and responses to the pandemic. Those living in poverty are the most vulnerable as we respond to the pandemic and are most likely to suffer longer term impacts on their lives and livelihoods; those who rely on natural resources during times of hardship will need these precious resources more than ever; and those who have suffered climate change impacts will have fewer resources and opportunities available to them to get through these difficult times. Support is urgently needed. That support must keep us on track and where relevant make further progress towards achieving the Sustainable Development Goals, the Paris Agreement, and the Convention on Biological Diversity, so that we can build sustainable and resilient healthcare systems, economies, and communities for now, and into the future.

Covid-19 is an immediate and apparent emergency right now. However, it does not lessen the reality of the other global emergencies that we face, that might be harder for us to comprehend as an emergency due to the lower and slower visibility of impacts and response measures. For all global emergencies, we must work together as a united global community, cognisant of the impact that our actions have on vulnerable people at home and abroad. Indeed, perhaps the global solidarity fostered by this common threat can usher in new, lasting forms of joint action, and the enormous capacity of people to support each other and the most vulnerable evident during this crisis, can become echoed and amplified globally.

It is for these reasons that we will continue to work throughout 2020 and beyond on these important issues, alongside colleagues and friends in government and civil society working on the covid-19 pandemic, towards a thriving and resilient future for everyone.



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2020: A Call to Action

2020 marks the start of a series of major global summits on **poverty and development, the state of nature, and the changing climate**, to address these three huge challenges: the 'triple emergency'. UN high-level meetings on oceans, the Sustainable Development Goals (SDGs), nature, and climate change will all take place in 2020 and into 2021.

But in 2020 everything has changed and nothing has changed. The world is suffering a global pandemic – an immediate and devastating emergency – yet the triple emergency continues. Therefore 2020 remains a critical year for action to address the triple emergency, but now also the year in which **the foundations must be set for sustainable, inclusive, and resilient recovery**.

2020 marks the start of a decade in which we must collectively limit climate change, restore nature, and make

our societies more equal and just. Otherwise, we will emerge from this global pandemic locked into a climate emergency, a nature emergency, and a poverty emergency. We will undermine our and future generations' ability to produce food, to have enough water, to remain healthy, and to thrive.

The world is at a crucial juncture; a moment in history when the actions taken now to respond to the pandemic and to rebuild our economies – at these global summits and beyond - will determine whether humanity succeeds in our goal to limit global temperature rise to 1.5°C, halt and reverse the decline of nature, and build the resilient and inclusive future envisioned in the Paris Agreement and the SDGs. **Coherent and integrated solutions are now more important than ever.**

'Achieving human well-being and eradicating poverty for all of the Earth's people is still possible, but only if there is a fundamental—and urgent—change in the relationship between people and nature, and a significant reduction in social and gender inequalities between and inside countries.'¹

Declaring an Emergency

Across the world, countries and communities have declared emergencies, and it is clear to see why. In the last year, Australia has burned, Mozambique suffered a cyclone of a magnitude considered impossible prior to 1994, and homes and businesses across the UK flooded. 1,496 jurisdictions in 30 countries have declared a climate emergency.² The world is waking up to the existential threats facing humanity. Report after report on climate change, poverty and inequality, and nature loss describe in stark detail the scale of the problems faced, and the need for and benefits of urgent action.

People

There has been progress on reducing poverty in recent decades. The number of people living in extreme poverty declined from 36% in 1990 to 8.6% in 2018; but the pace of poverty reduction is starting to decelerate as the world struggles to respond to entrenched deprivation, violent conflicts, and vulnerabilities to natural disasters.³ Progress has been uneven, and the number of people in extreme poverty remains unacceptably high; the world is not on track to meet the SDG to end extreme poverty by 2030.⁴ Even where people manage to escape poverty, progress is often temporary: economic shocks, conflict, food insecurity, and climate change are robbing people and nations of their hard-won development gains and pushing them back into poverty. At the same time, the gap between rich and poor is increasing: the world's richest 1% have more than twice the wealth of 6.9 billion people, while almost half of humanity is living on less than \$5.50 a day.⁵ However, the social injustice that people all around the world face is not just

about absolute poverty. It is also about growing inequality; poor access to basic services; marginalisation, lack of voice, and representation; a democratic deficit; and human rights abuses - all of which are urgent and devastating.

Climate Change

Climate change impacts are already happening at pace. The current more than 1°C of global warming since the pre-industrial era is having severe impacts and causing damage, including through extreme and dangerous weather and climate change-related events such as the global heatwave last summer, floods, expansive wildfires, coral reef die-off, and deadly hurricanes. Slow-onset impacts, such as rising sea levels and ocean acidification, will also have devastating consequences for people and nature. All communities and ecosystems will need to adapt to the climatic changes; but the question is whether this can happen quickly enough and completely enough - and indeed, whether humanity is willing and able to limit climate change to levels that can be adapted to.

Nature

All over the world, nature is in decline: habitats and species are being lost, land degraded, and the seas overexploited. There are an estimated 8 million animal and plant species around the world and about 1 million of them are threatened with extinction, many within decades - more than ever before in human history. Current extinction rates have been found to be 1,000 times higher than natural background rates of extinction, and future rates are likely to

be 10,000 times higher.⁶ Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human activity. Forests are being destroyed at a rate of around one football pitch every two seconds.⁷ Demand for products containing palm oil is driving deforestation in Southeast Asia; while in the Amazon, activities such as road construction, logging, cattle ranching, and soy plantations continue alongside devastating forest fires. The use of chemical fertilisers and pesticides for agriculture is driving land and water degradation, eliminating pollinators that are needed for over one-third of all crops, and damaging human health through the reduction of essential vitamins and minerals, and toxic agrochemical residues, as well as emitting greenhouse gases that cause climate change. The highest rates of current nature decline are occurring in the tropics - areas that have high rates of poverty and are likely to be hardest hit by climate change.



WHY NATURE MATTERS

Ecosystems provide a wide range of environmental services from which people benefit and upon which life depends. These include watershed management, carbon sequestration, maintenance of biodiversity, and landscape beauty.

Despite this, watersheds, forests, and land continue to be degraded, and their benefits lost or put under enormous pressure. The rural poor suffer the effects of this the most, since they are most reliant on water sources, forests, and land for their livelihoods, food, health, and overall wellbeing.

Ecosystem services are the benefits that people and communities obtain from ecosystems. These include:

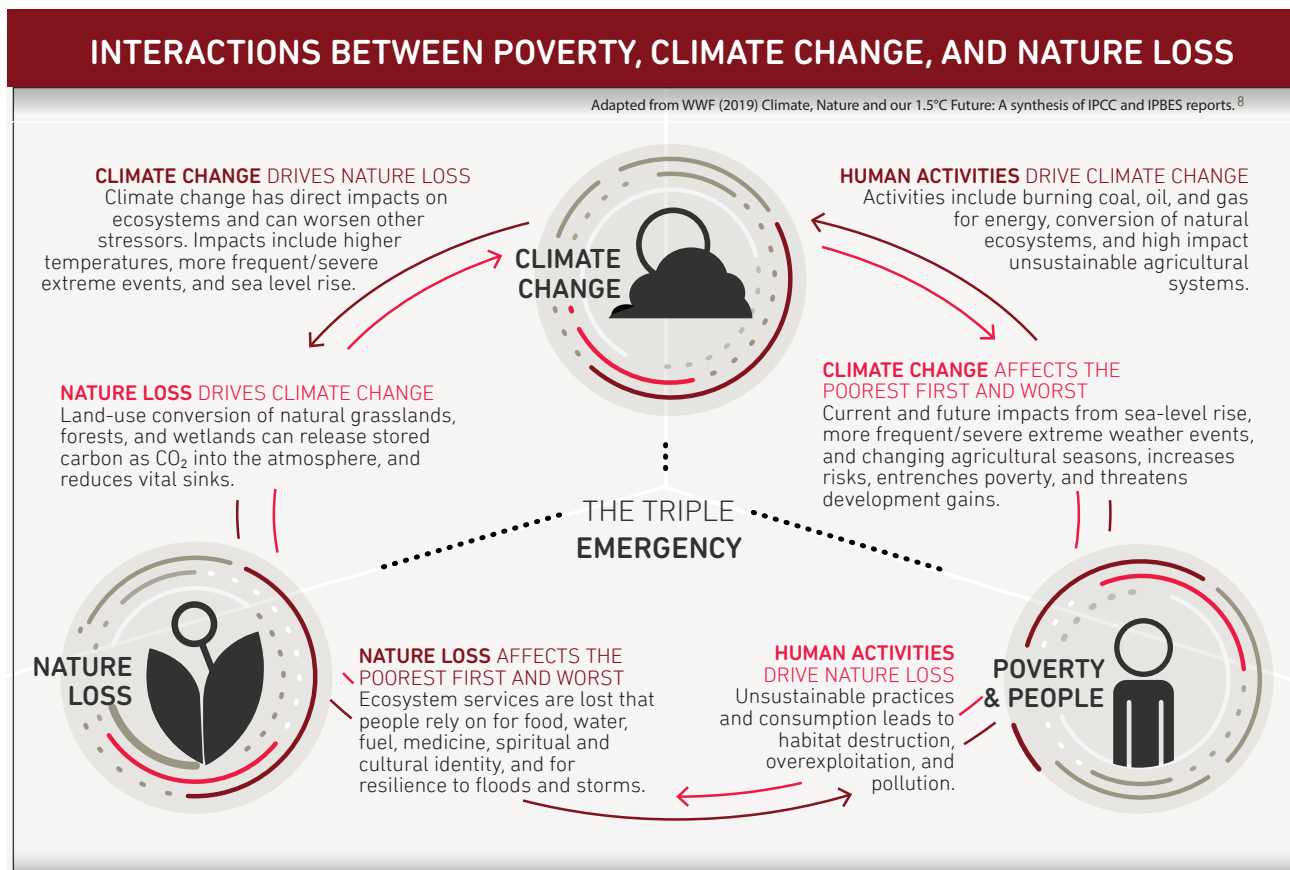
- **Regulating services** such as regulation of floods, drought, land degradation, and disease outbreaks;
- **Provisioning services** such as food and water;
- **Supporting services** such as soil formation and nutrient cycling; and
- **Cultural services** such as recreational, spiritual, religious, and other non-material benefits.



Photo: © Fabeha Monir/Oxfam

The Interdependent Triple Emergency

Our world is under greater pressure than at any point in human history, and humanity faces some truly daunting challenges. The interaction between climate change, people, and nature shows the need to understand and address this triple emergency in an integrated way. We need to take action which provides economic prosperity to a growing global population; limits global temperature rise; and halts and reverses the loss of nature, increasing resilience. Working urgently, concertedly, and coherently on these emergencies together promises great rewards for our health and prosperity.



People and the Triple Emergency

The last two decades have seen global improvements in important human development indicators and reduced rates of poverty. However, climate change and nature's decline are putting development gains at risk.

All of us depend on nature for the food we eat and the air we breathe; but more than 1 billion of the world's poorest people directly depend on the free flow of nature's goods and ecosystem services. In the case of forests, these include flood prevention and drought control; nutrient cycling and freshwater regulation essential for subsistence farming; fuel wood for cooking; fodder for cattle; construction materials; and fruit and other marketable foods. All are benefits that are generally freely available. The World Bank calculates that nature provides 47% of GDP low-income countries,⁹ and The Economics of Ecosystems and Biodiversity initiative has shown that ecosystem services comprise 40% to 80% of the household incomes of people living in poverty. Replacing these benefits that the poor rely on when there is large-scale destruction of natural ecosystems such as forests (either through disasters such as wildfires, or from capture of the resources by commercial interests with benefits accruing to companies and not to

these poor communities) is an almost insurmountable development challenge.

The poorest people on the planet are the most directly reliant on natural resources and as a result are most directly affected by climatic changes and the destruction of nature:

- As many as **90% of the world's poorest people** depend on biological resources for food, fuel, medicine, shelter, and transportation.
- **75% of the world's poorest households** depend directly on subsistence farming or fishing, both under serious threat from climate change. What limited support is available to them tends to encourage the adoption of conventional agricultural approaches that increase land degradation and greenhouse gas emissions, rather than sustainable systems that reverse both of these.
- Water scarcity and declining access to fresh water are increasingly significant problems for **1 billion to 2 billion people** worldwide.
- In South Asia, **75% of families** rely on biomass fuels; and in sub-Saharan Africa, these are the primary source of energy for cooking for 753 million people, which is 80% of the population.¹⁰ Each year, close to 4 million

people die prematurely from illnesses attributable to household air pollution.¹¹

- People living in poverty often cannot afford substitutes for previously freely available natural resources and services (such as food and fuel, natural fertilisers, and flood defences provided by natural ecosystems).
- At least half of the world's **smallscale farmers are poor women**. They are particularly vulnerable to environmental change and shifting livelihoods, because they are much less likely to have formal land tenure; they face mobility restrictions and societal exclusions; and they have a significant burden of unpaid care, which increases in times of crisis. Poor women and girls are ultimately the 'societal shock absorbers' in times of crisis and change.¹²

However, while millions of people live in appalling deprivation, humanity as a whole is consuming the Earth's resources beyond what it can provide. Overconsumption in developed countries, and unsustainable practices in developing countries to service that consumption, are driving both climate change and nature's decline. We now take 50% more each year from nature than the planet can replenish, and on current trends we will need three planets to support us by 2050.¹³ But resources are not consumed equally, and high-income countries are effectively outsourcing loss of species and habitats to lower-income countries. For example, increased demand for soy products, used primarily for animal feed in Europe and the US up to the mid-2000s, resulted in forests being cleared in the Amazon and Cerrado to make way for soy plantations.¹⁴ Such degradation of ecosystems is widespread, and is driving poverty, inequality, climate change, and biodiversity loss.

Climate and the Triple Emergency

In 2018, the Intergovernmental Panel on Climate Change (IPCC) advised that there is little more than a decade left in which action can be taken to avoid an average global temperature rise exceeding 1.5°C, beyond which life for hundreds of millions of people will significantly worsen, resulting in increased droughts, floods, extreme heat, food insecurity, and entrenched poverty. Yet currently, the world is still on course for over 3°C of warming. The consequences of not limiting global temperature rise to 1.5°C are profound. Some differences between staying within 1.5°C of warming, and reaching 2°C are outlined below.

| | 1.5°C | 2°C | 2°C Impacts |
|--|-------|-----|-------------|
| Extreme heat: Global population exposed to severe heat at least once every five years | 14% | 37% | 2.6x worse |
| Crop yields: Reduction in maize harvests in tropics | 3% | 7% | 2.3x worse |
| Vertebrates loss: Vertebrates that lose at least half of their range | 4% | 8% | 2x worse |
| Plant loss: Plants that lose at least half of their range | 8% | 16% | 2x worse |
| Insect loss: Insects that lose at least half their range | 6% | 18% | 3x worse |

| | | | |
|---|-----------------|---------------|-----------------|
| Ecosystems: Amount of Earth's land area where ecosystems will shift to a new biome | 7% | 13% | 1.86x worse |
| Coral reefs: Further decline in coral reefs | 70-90% | 99% | up to 29% worse |
| Fisheries: Decline in marine fisheries | 1.5 mil. tonnes | 3 mil. tonnes | 2x worse |

Adapted from World Resources Institute's Half a Degree of Warming Makes a Big Difference: Explaining IPCC's 1.5°C Special Report¹⁵

At the same time, the latest IPCC and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) reports highlight the role that intact, resilient ecosystems can play in meeting the 1.5°C goal of the Paris Agreement. Intact ecosystems on land already absorb over one-quarter of humanity's emissions each year, and will continue to do so for many years as long as they are not degraded.¹⁶ Furthermore, new nature-based solutions, with appropriate safeguards, are estimated to offer 30% of the additional efforts required to meet the 1.5°C target by 2050.¹⁷

Nature and the Triple Emergency

All our lives depend on healthy, stable, and functioning ecosystems; but IPBES warned in 2019 that the world's biodiversity and nature 'safety net' has stretched almost to breaking point. Human actions and climate change are both rapidly driving this decline in ecosystems and species resilience. Water sources are becoming increasingly polluted; land is deteriorating more rapidly than ever; populations of vital insects and pollinators have crashed; and 1 million animal and plant species are now threatened with extinction, many within decades. This has far-reaching repercussions for people everywhere - especially those in the poorest countries who are most dependent on the local environment and natural resources.

Therefore, halting and reversing biodiversity loss is important both for limiting global warming to 1.5°C and for ending poverty. Protecting remaining primary and intact ecosystems, restoring degraded lands - in particular, forests and wetlands - and mainstreaming sustainable land management practices are urgent priorities for international climate change and biodiversity cooperation, and the basis for the survival of humankind. Biodiversity loss - including forest loss and degradation, converted mangroves, and lost coral reefs - contributes to climate change through the release of greenhouse gases and contributes to poverty through the collapse of livelihoods. By contrast, a healthy environment provides the resources needed for people to survive and thrive. It provides resilience against climate shocks and the building blocks for adapting to climate change: for example, mangroves provide protection against storm surges; and large intact forests, such as in the Amazon basin, provide fresh water by creating rain. It can also limit and even reduce greenhouse gas emissions. For example, reforestation and the restoration of marine and coastal ecosystems have the potential to remove carbon from the atmosphere and therefore contribute to efforts to limit global temperature rise to 1.5°C.



Photo: © Christian Aid

How is it that we are living so far beyond the planet's means, consuming resources faster than they can replenish, and all the while many millions of people live in appalling deprivation?¹⁸

First, despite efforts under first the Millennium Development Goals (MDGs) and now the SDGs, the Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC), many governments have for decades failed to effectively tackle domestic and international poverty, understand and respect the need for sustainable natural resource use and the protection of nature, and rapidly decarbonise their economies. Instead, the economic interests of the few have been allowed to dominate over the interests of marginalised communities and humanity as a whole, with devastating results.

Second, economic policies have so far failed to deliver inclusive and sustainable development, and policy makers continue to rely on indicators such as GDP growth that are blind to the social justice and environmental integrity necessary for communities to survive and thrive within ecological boundaries. As a result of the dominance of economic discourse, wealth has a stranglehold on power, and the voices of the majority and the marginalised are ignored, while decisions are made in the interests of the few. This has resulted in many being left behind by so-called development - particularly women, ethnic minorities, indigenous peoples, refugees, people with disabilities, and children.

Finally, a coherent action plan needed to achieve sustainable development has not been put into practice in a way that can drive change in the real economy. In 1987, the Brundtland Commission's report *Our Common Future* paved the way for far-reaching international commitments, some of which have been taken up separately within the UNFCCC, the CBD, and the SDGs. However, still today, all too frequently environmental, social, and economic concerns are handled in silos by separate government ministries, championed by separate NGOs, and debated by separate journalists in the media. The triple emergency we all now face forces us to understand that this separate approach is not working, and that these issues - which are unavoidably interconnected - must be tackled together.

Opportunity 2020

2020 is the start of a momentous opportunity. Over the next 12 to 18 months, governments will come together multiple times in order to take historic action to address the existential threat faced by the triple emergency of climate change, poverty and inequality, and biodiversity loss and nature's decline.

The climate-poverty-nature interrelationship does not just represent three pressing challenges to humanity; they are interconnected in their causes and consequences, but therefore also in their solutions. Through concerted action working on these interdependencies, the world has a once-in-a-generation opportunity to fundamentally shift the course of human development to secure a lasting, prosperous, safe, and just future for all.

In 2020 and now 2021, due to the postponement of global events, progress on climate change, sustainable development, and nature will be reviewed at three major summits, for the UN's SDGs, the UNFCCC, and the CBD.

The United Nations 2030 Agenda for Sustainable Development, signed by 193 countries, is the most comprehensive global agreement that integrates environmental, social, and economic issues, with a specific commitment to leave no one behind. 2020 marks the first comprehensive review of the SDG indicators and the start of the final decade to deliver on the SDGs. Twenty-one of the 169 SDG targets expire in 2020, but sadly will not be met – most of them are environmental targets. Securing commitments and action to meet the 2020 and 2030 targets is now urgent, and can be achieved only through truly integrated action across the goals, rather than standalone initiatives.

The 15th Conference of Parties (COP 15) of the Convention on Biological Diversity will be hosted by China now in

2021. The CBD's vision is a world living in harmony with nature. In 2020, the Aichi Biodiversity Targets expire and a new framework will be adopted to spur the action needed during this crucial decade to 2030, in order to halt and reverse nature loss.

The 26th Conference of Parties (COP 26) to the UN Framework Convention on Climate Change will be hosted by the UK now in 2021. 2020 is the year that parties should come forward with more ambitious Nationally Determined Contributions (NDCs) in order to change humanity's future from a devastating 3°C or more of global warming, and instead pursue efforts to limit warming to (a more manageable, but still damaging) 1.5°C – the target in the Paris Agreement. 2020 is also the crunch year for delivering on the global goal of providing \$100 billion a year in support to developing countries to tackle climate change.

While each UN process is an important outcome in itself, in combination they should amount to more than the sum of their parts. Taken together, they offer the potential for a cohesive global response and the identification of synergies and opportunities that will facilitate sustainable development.

However, while some progress has been made towards achieving poverty and inequality reduction, and climate change goals, we are still very far from limiting global temperature rise to 1.5°C and most nature-related goals in 2020 will not be achieved. Without high-level political leadership in all three of these areas - translated into urgent, robust, and accountable action – the future looks bleak. A concerted effort to ensure success on all three fronts is needed to ensure that people everywhere, as well as future generations, can thrive.

2020 TO 2021: A MOMENTOUS OPPORTUNITY

**SDG Summit,
High-Level Political
Forum for Sustainable
Development,
UN New York, USA.**

7-16 July
2020

**UN Biodiversity
Summit at 75th UN
General Assembly,
UN New York, USA.**

22-23
September
2020

**UN Oceans Conference,
4th Session of the
Intergovernmental Conference
on Marine Biodiversity of Areas
Beyond National Jurisdiction,
UN New York, USA.**

To be
confirmed


**UN Biodiversity COP 15,
Convention on Biological
Diversity, Kunming, China.**


To be
confirmed,
2021

**UN Climate COP26,
UN Framework Convention
on Climate Change, Glasgow,
UK (joint presidency by UK
and Italy).**


To be
confirmed,
2021


Targets ending and new targets coming into force in 2020:

 DRR: Reporting on 2020 targets under the Sendai Framework for Disaster Risk Reduction.

 SDGs: First comprehensive review of SDG indicators. Twenty-one SDG targets expire in 2020.

 CBD: Reporting on 2020 Aichi Biodiversity Targets and setting new targets for 2030 and a framework for action to 2050.

 UNFCCC: Revised NDCs to increase ambition on limiting global temperature rise to 1.5°C.

 Forests: Reporting on New York Declaration on Forests target to halve natural forest loss by 2020 and to eliminate forest loss from supply chains no later than 2020, and setting new targets for 2020-2030.

Tackling the Triple Emergency

Principles to tackle the triple emergency

Tackling the triple emergency means that, in concert, we must:

- **Achieve social justice, gender equality, and human wellbeing for all** in the context of permanently altered natural planetary systems, including the climate system and landscape scale ecosystems.
- **Limit warming of the climate system to 1.5°C** in order to prevent extreme human suffering and catastrophic loss of nature.
- **Halt and reverse biodiversity loss and nature's decline** - a prerequisite for limiting warming of the climate system to 1.5°C, preventing mass extinctions, and achieving social justice and human wellbeing for all.

These fundamental principles must inform what is done separately under each of the international conventions, but must also be a blueprint for integrated action across everything that we do and invest in. As such, actions to limit warming of the climate system, and halt and reverse biodiversity loss and nature's decline, must be socially just and protect human rights, and must not exacerbate poverty, inequality, and marginalisation, but instead contribute to gender equality and human wellbeing for all. Likewise, poverty reduction and development actions must not exacerbate climate change or nature loss, but instead contribute to limiting global warming and restoring nature. These principles cannot be separated from each other or undermine each other.

The case studies in the final section of this report clearly illustrate the interconnected nature of the triple emergency, and demonstrate that sustainable solutions are those that reflect this and work across all areas in a meaningful way. Simply focusing on climate or nature challenges with climate or nature solutions, and not considering the socio-economic, gendered, and political context for the communities whose lives and livelihoods depend on the local environment, will fail to deliver positive outcomes. Development solutions that do not consider how the climate and natural resources will change, and are not designed around creating sustainable, productive, and inclusive landscapes, will fail. But it is not only a fear of failure of efforts that should motivate us; it is also the opportunities that will otherwise be missed if we do not take integrated approaches that inspire action.

These opportunities include:

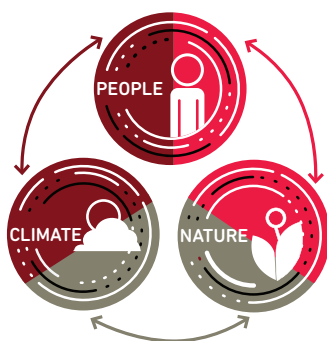
- Both agriculture and tourism, where farming and wildlife can thrive side by side, and contribute meaningfully to addressing climate change.
- Improved fishing, flood defences, and health and sanitation where mangroves are restored.
- Enhanced provision of critical ecosystem services - including water regulation, nutrient cycling, and pollination - at local and regional scales where forests are protected effectively.
- Conflict resolution where land and resource users work together to manage resources sustainably and distribute benefits equitably.
- Agroecology and sustainable practices that can increase productivity and resilience of food production while reversing the degradation of land, increasing biodiversity, reducing emissions, sequestering more atmospheric carbon in soils and trees, and reducing demands on other land and ecosystems to convert to agricultural land.
- Livelihood, health, water access, and disaster risk reduction improvements where communities have rights to their lands and forests, and can manage them sustainably for climate change mitigation, biodiversity, and livelihood benefits. Findings by the Royal Society confirm that ecosystem-based options are the most affordable and have positive additional consequences, scoring more highly than either engineering or hybrid approaches for protection against multiple hazards.¹⁹
- Affordable and sustainable technologies that can be locally adapted for livelihood and other benefits, that reduce pressure on natural resources and actively enhance them, and that do not contribute to further climate change, using approaches tailored to the resilience and sustainable development priorities of vulnerable people and their communities (participatory research, use of local knowledge and wisdom, risk assessment and planning, and technology development).
- Off-grid renewable energy that can increase energy access and reduce poverty, while at the same time reducing deaths and improving health, and reducing pressure on forests and other ecosystems compared to biomass use.

The 2030 Agenda and the Paris Agreement share the purpose of creating a more resilient, productive and healthy environment for present and future generations. Nations must seize the opportunity to raise their ambition, realize synergies and minimize trade-offs.'

- UNFCCC Executive Secretary Patricia Espinosa and UN Under-Secretary-General for Economic and Social Affairs Liu Zhenmin²⁰

Integrated solutions for people, climate, and nature work in the following way:

Development activities and livelihoods that are inclusive and sustainable in a changing climate (adapt and do not contribute to the causes of climate change).



Communities that are empowered to equitably and sustainably manage the ecosystems on which they rely for food, water, livelihoods, medicines, and materials.

Healthy and diverse ecosystems that protect biodiversity, act as carbon sinks (mitigating greenhouse gases), regulate the climate, and increase resilience by providing natural buffers.

Choices and Trade-Offs

While there is no question that integrated solutions are best, and that greater 'bang for your buck' can often be achieved by working across the climate-nature-people nexus, a note of caution is needed about the ease of win-win-win scenarios, which can often be overplayed. Many win-lose-lose initiatives have unfortunately been implemented, even when there have been the best of intentions. While win-win-win solutions are urgent and important, they are not necessarily easy, and difficult choices are often required. There are no silver bullets, and simplistic or poorly thought-through actions can undermine what is trying to be achieved. Examples of such failures include replacing diverse grasslands with vast plantations of exotic tree species driven by an incentive to absorb carbon; converting tropical peat swamps to oil palm plantations to produce biofuels; and trading off people's land rights in the name of conservation or for an offset. In the race to maximise the opportunities presented by interdependencies, there is a high risk that the fundamentals are overlooked - for example, in the case of nature-based solutions for climate change, before all else, they must work for nature. This would appear to be a given; but sadly, it is often overlooked.

At the very least, a 'do no harm' approach to people, nature, and climate is needed across all policies and investments in order to avoid exacerbating the triple emergency. Next, a requirement to fully understand the implications and opportunities is needed, in order to identify when acting on one priority would undermine another and when actions designed differently could have a greater impact. There are obviously very real challenges that governments and communities face in meeting even basic needs, and win-win-win is not possible in every circumstance; but by understanding and recognising the interdependencies and trade-offs, policy pathways can be developed towards the 'best' solution. There is a responsibility to be aware of the choices being made, and where and how they fall short, and to address those shortcomings in other ways.

This requires:

- Significantly increased technical expertise and capacity working together across these agendas.
- Political will to make economic outcomes conditional on social justice and environmental integrity, and to pursue

alternative economic models that drive a green and fair economy.

- Policy coherence, to ensure that perverse incentives are eradicated and to ensure safeguards.
- Ownership and leadership by communities that know their context best, rely on the resources, and are most affected.
- Landscape and seascape scale planning and management that enable multiple uses to co-exist, while maximising benefits and minimising trade-offs.

Done well, there are significant benefits to be enjoyed. The Food and Land Use Coalition's (FOLU) 2019 Growing Better report highlights that \$300 billion to \$350 billion of investment would deliver \$5.7 trillion in benefits across 10 critical agriculture and land use transformations by 2030, including restoring 300 million hectares of tropical forest, reducing food waste, and supporting regenerative agriculture. While none of this comes cheap or easy, part of the choices concerns where the money comes from and where it goes. Therefore abolishing fossil fuel subsidies and using that money to make these changes is just one example of where investment could be moved away from that which is causing the harm to fund solutions and their many co-benefits.

Areas of Action

This all requires fundamental changes in how we approach climate change, nature, and development solutions, and the prioritisation of new approaches to:

1. Food and Agriculture: Creating sustainable, productive, resilient, and equitable land and food systems.

Transforming the world's food and land use systems is absolutely necessary to address the triple emergency. From the local to the global level action is needed. Global systems and agricultural norms need to change, and smallscale farmers in developing countries, including those in fragile states, need support to be at the forefront of the transformation since they have the most to gain from the benefits that sustainable approaches offer for poverty reduction, food and nutrition security, health, conflict management, and resilience. The Global Commission on Adaptation has called for improved access to and use of

adaptation technologies and agroecological practices for 100 million smallscale producers, and the FAO has launched a 'Scaling Up Agroecology' Initiative.

FOLU's Growing Better report lays out the scientific and economic evidence for the transformation that is needed, and demonstrates that by 2030, food and land use systems can help bring climate change under control, safeguard biological diversity, ensure healthier diets for all, drastically improve food security, and create more inclusive rural economies.²¹ FOLU calculates that this can be achieved while reaping a societal return that is more than 15 times the related investment cost (estimated at less than 0.5% of global GDP), and creating new business opportunities worth up to \$4.5 trillion a year by 2030. FOLU estimates the 'hidden' environmental, health, and poverty costs of the current chemical agricultural system at almost \$12 trillion per annum, whereas the investment requirements to transform the system are estimated at \$300-350 billion.²²

Delivering such a transformation will be challenging, but will ensure that food and land use systems play their part in achieving the goals set out in the SDGs, CBD, and Paris Agreement. By contrast, leaving these systems to continue on current trends drastically undermines our ability to address all aspects of the triple emergency. Transformation of food and land use systems urgently needs to become a priority globally. FOLU has put forward a reform agenda that can deliver for people, climate, and nature.

2. Consumption and Footprint: Sustainable consumption and reducing environmental footprint.

Human consumption has caused and continues to drive climate change and nature loss, and therefore transformation of this is central to realistic, lasting, and equitable solutions. Building on and supporting the transformation the food and agricultural system, a transformation of production and consumption is needed related to all areas of our lives. The products we consume, the supply chains behind them, the materials they use, and how these are extracted and manufactured have myriad impacts on the world around us. The consumption patterns of more than 8.5 billion people by 2030 – what they buy, consume, and waste, and how they make those choices – are critical factors that shape our collective ability to tackle poverty, climate change, and nature loss over the next decade. As well as a transition to a more healthy, low emissions, and largely plant-based diets, a transition to more considered and less wasteful consumption is needed, which builds on growing movements away from fast fashion, single use plastics, and a throwaway society.

Recent research suggests that consumer food waste, previously estimated at 8% globally, is actually closer to 19%.²³ When this is combined with commercial waste and post-harvest loss, it is estimated that 30% to 40% of all food is lost or thrown away. Given that the food system produces enough to feed 10 billion people, this represents a substantial failure. However, there are many opportunities to encourage new consumption patterns that meet human needs while using fewer, more sustainable, and equitably shared resources. They require political will to move far enough, fast enough. New approaches and responsibilities,

including through robust social and environmental audits and commitments to 'do no harm' to people or nature, are required throughout value chains, from the cradle to the grave of each and every thing produced, consumed, and disposed of.

3. Nature-based Solutions: Halting nature's decline and harnessing its potential for climate change adaptation and mitigation, and sustainable development.²⁴

Halting and reversing the decline of nature is important in and of itself, but, without this, addressing poverty, inequality, and climate change will all be beyond reach. This requires an end to the conversion and degradation of forests and other natural ecosystems, and massive investment in restoration at scale.²⁵

Protection of remaining intact ecosystems and key areas for biodiversity is an absolute imperative in order to prevent further damaging loss and degradation. Saving existing ecosystems and biodiversity, and the services they deliver, is not only the most effective nature-based solution, but the most cost-effective, reliable, and resilient. But protection alone is not enough, and this must be done alongside rehabilitation of what has already been lost and degraded, in order to increase resilience and opportunities for sustainable development for all. Integrated landscape approaches are needed to increase resilience to climate change impacts, maximise carbon sequestration, and enhance biodiversity and the ecosystem services on which we all depend.

It is often assumed that conversion of land for agriculture is a necessary trade-off for food production and economic development, however, FOLU's modelling shows that it is both possible – and necessary – to halt tropical deforestation and protect other natural ecosystems while setting aside hundreds of millions of hectares of land for forest and ecosystem restoration, and to produce affordable, nutritious food for the global population. The conversion of natural landscapes to produce food is not a necessity, but a result of failures in markets and governance. Protection and restoration of nature can actually support agricultural productivity and food security, and also has considerable benefits for nature, mitigating climate change, building resilience, and inclusion.²⁶


From Promises to Implementation


To achieve this, the world must turn from negotiation to implementation. The necessary finance must be mobilised - and fast - to be able to take action in time and harness the opportunities presented by integrated approaches. Policies and investments that are not compatible with tackling the triple emergency must end; and alternatives must be found that support a just transition to sustainable models.


Investment for known solutions - such as renewables, nature-based solutions, sustainable agriculture, and climate change adaptation - must be ramped up. All supply chains and donor investments must have at the very least a 'do no harm' approach to people, nature, and climate; and communities must be empowered to be at the heart of solutions that are just, inclusive, and transformational.

Commitments to Address the Triple Emergency

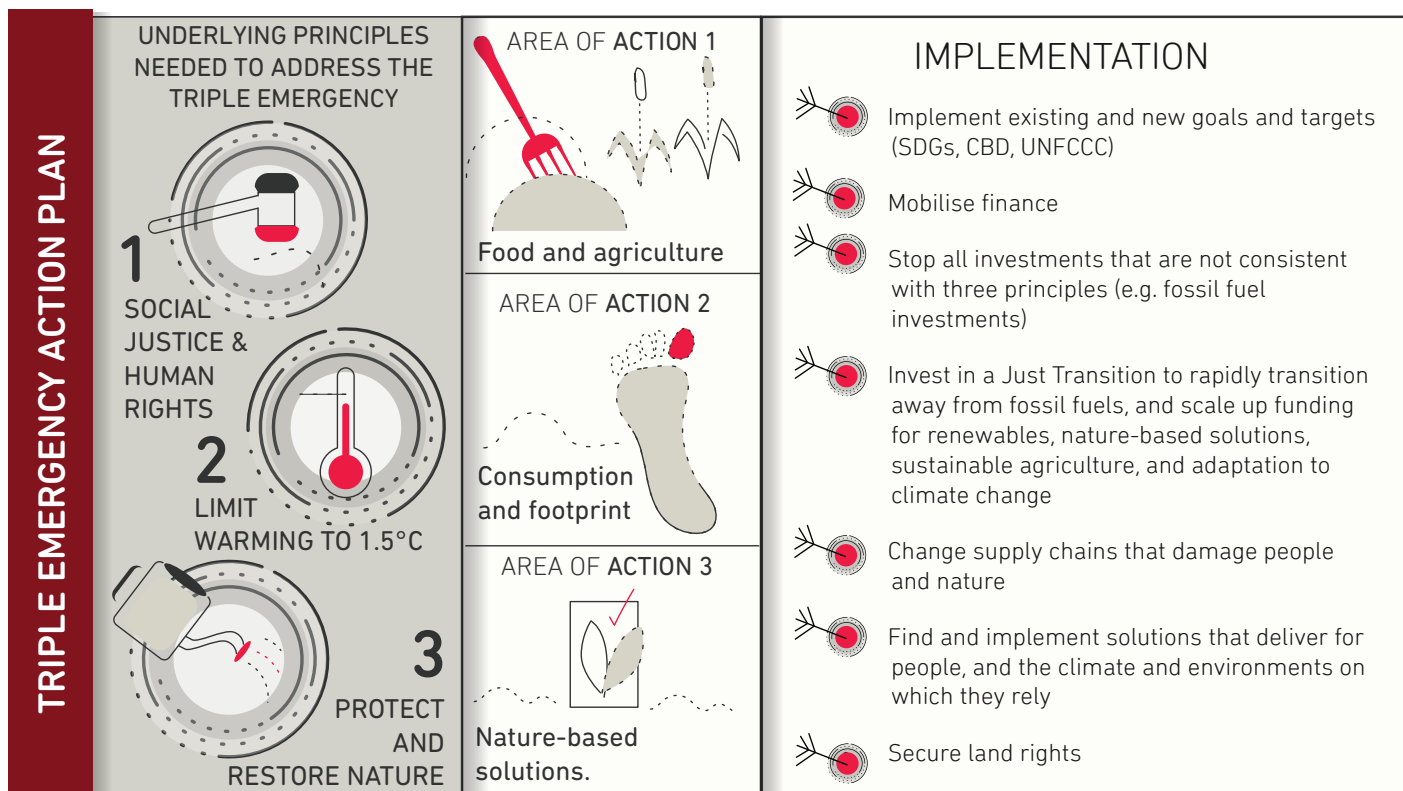
Governments, businesses, and civil society must work together in 2020 and 2021 to recognise and support the interdependency of people, nature, and climate, and implement the Triple Emergency Action Plan. This requires the following commitments:

 **Increase ambition:** In each of the three major UN conventions, current actions are not matching what the science demands. We know what is needed, and now it must be delivered. Ambition must be ratcheted up and implementation started in earnest. If that happens across all three conventions, they will add up to more than the sum of their parts.

 **Increase coherence:** It is no longer acceptable for governments and businesses to do 'good' or make empty commitments in the name of these conventions, while continuing with business as usual that is driving the triple emergency. All areas of domestic and international policy must be consistent with all the conventions, and accompanied by measures that drive real world change. These conventions must not just be about what is done and reported under each, but must be seen as the guiding principles that direct all domestic policy making, decision making and investments. There are opportunities to be found from exploring these linked challenges in an integrated manner, where multiple benefits may arise. For example, regeneration of degraded natural woodlands and sustainable reforestation to reconnect fragmented woodlands could provide a nature-based solution for climate change mitigation, job creation, and habitats for plants and animals.

 **Achieve balance:** Social and environmental factors must urgently become 'equals' to economics in all policy making, decision making, and investments. The prioritisation of economic interests over social and environmental considerations has led to climate change and environmental decline at a global scale. The triple emergency is a result of unsustainable development; truly sustainable development – development that meets the needs of the present, without compromising the ability of future generations to meet their own needs through the balancing of different needs against an awareness of the environmental, social, and economic limitations we face as a society - is the only viable option left on the table.

Translating these three commitments into UNFCCC, CBD, and SDG opportunities in 2020 and 2021, we call on all governments to work towards the following for people, climate, and nature across these processes:



UNFCCC: In order to achieve the Paris Agreement goal of limiting global warming to 1.5°C and adapt to that change in the global climate system, COP 26 must deliver for climate, people, and nature in the following ways:

| Climate | People | Nature |
|--|--|--|
| <p>Increase ambition with revised NDCs that limit global warming to 1.5°C.</p> <p>Align finance with the Paris Agreement, and scale up finance for developing countries to adapt to climate change and pursue low-carbon development pathways.</p> | <p>Support those most vulnerable to climate change, especially women and girls, include them in the process, and ensure inclusive and just solutions.</p> <p>Act on loss and damage, and deliver financial sources additional to official development assistance to support developing countries to manage climate change impacts that cannot be adapted to.</p> <p>Ensure that human rights and gender equity are central to the implementation of the Paris Agreement.</p> <p>Align with achieving SDGs.</p> | <p>In addition to ambitious decarbonisation, integrate nature-based solutions into all NDCs, long-term strategies, and adaptation plans, and provide safeguards against commercial greenwashing and for human rights.</p> <p>Secure existing intact natural carbon sinks against degradation and loss.</p> <p>Align with CBD outcomes.</p> |
| <p>Ramp up investment in sustainable agriculture for smallscale women and men farmers.</p> | | |

CBD: In order to protect and restore the biodiversity and ecosystems on which human life depends, COP 15 must deliver a transformative and comprehensive post-2020 global biodiversity framework:

| Nature | People | Climate |
|---|--|--|
| <p>Ambitious new targets to prevent species extinctions, restore the abundance and diversity of life, and retain and restore ecosystem quality and extent.</p> <p>Ambitious new targets that agree actions to tackle the drivers of biodiversity loss, and encourage sustainability of production and consumption.</p> <p>Ambitious new targets on biodiversity finance.</p> <p>Ambitious commitments and accountability mechanism to ensure results that can be ratcheted.</p> | <p>Include human rights, gender, shared but differentiated responsibility, and the precautionary principle.</p> <p>Ensure the fair and equitable sharing of the benefits arising from nature, and protect human rights and land rights, knowledge and ownership.</p> <p>Align action on CBD with achieving the SDGs.</p> | <p>Promote nature-based solutions to climate change and nature loss that integrate and support biodiversity, conservation, and restoration of natural ecosystems.</p> <p>Align action on CBD with the Paris Agreement.</p> |

SDGs: In order to overcome poverty, inequality, and all forms of social marginalisation, SDG action must deliver for people, nature, and climate in the following ways:

| People | Nature | Climate |
|--|--|---|
| <p>Deliver on 'leave no one behind', and accelerate progress for the furthest behind first.</p> <p>Ensure that people have a meaningful voice in policies and inclusive participation in the planning, implementation, and review of the SDGs.</p> <p>Ensure integrated implementation of the SDGs (rather than standalone initiatives) and rights-based approaches.</p> | <p>Continue action on the expiring 2020 SDG targets that contribute to reversing the catastrophic loss of nature and deliver on environmental sustainability in the SDG Decade of Action.</p> <p>Ensure that actions towards all SDGs, but particularly SDGs 1, 2, 3, 6, 8, 11, 12, 13, 14, and 15, address the nature decline currently undermining progress.²⁷</p> <p>Drive and demand sustainable production and consumption.</p> <p>Align action on all SDGs with CBD outcomes.</p> | <p>Enhance actions on SDGs 7 and 13.</p> <p>Ensure that actions towards all SDGs, but particularly SDGs 1, 2, 6, 7, 8, 9, 11, 12, 14, and 15, address climate change mitigation and adaptation.</p> <p>Recognise the importance of healthy natural ecosystems to climate resilience for people.</p> <p>Align action on all SDGs with the Paris Agreement.</p> |
| <p>Deliver the SDGs in an integrated manner, rather than standalone initiatives, to avoid inadvertently undermining others and missing opportunities to address the triple emergency.</p> | | |

ADDRESSING THE TRIPLE EMERGENCY IN PRACTICE

Case Studies

Tackling the triple emergency means that, in concert, we must:

- Achieve social justice, gender equality, and human wellbeing for all.
- Limit warming of the climate system to 1.5°C.
- Halt and reverse biodiversity loss and nature's decline.

These principles are just as important at the local level as at the global level. The following case studies illustrate the interconnected nature of the triple emergency, and demonstrate that sustainable solutions are those that reflect this and seek to support people, climate, and nature.

Opportunities for Farmers and Wildlife

Given the reliance on natural resources of the rural poor, there is often a conflict between farming and wildlife. While simply increasing the area of land under cultivation seems like the right solution for poor farmers, this can often be detrimental to their own productivity, as well as damaging to local biodiversity. Instead, farming and wildlife need to thrive side by side, for the benefit of people, nature, and the climate.



PREDATOR DETERRENT LIGHTS

Together with local partners, WWF-Kenya has supported the installation of over 200 flashing LED 'predator deterrent lights' on livestock bomas (enclosures). These lights deter predators, such as lions and hyenas, from attacking valuable livestock at night – and they are working, because so far not a single animal has been lost from these enclosures.

The lights are powered by a solar panel, which also provides sustainable lighting for households without electricity, providing benefits for communities and allowing children to do their homework in the evening during darkness. This simple initiative is proving very successful in terms of reducing livestock losses, improving tolerance of living alongside predators, and reducing retaliatory killing of lions. By addressing the problem in a holistic way, this has provided benefits for wildlife and people, using renewable energy as a solution.

Photo: © Juozas Cernius / WWF-UK

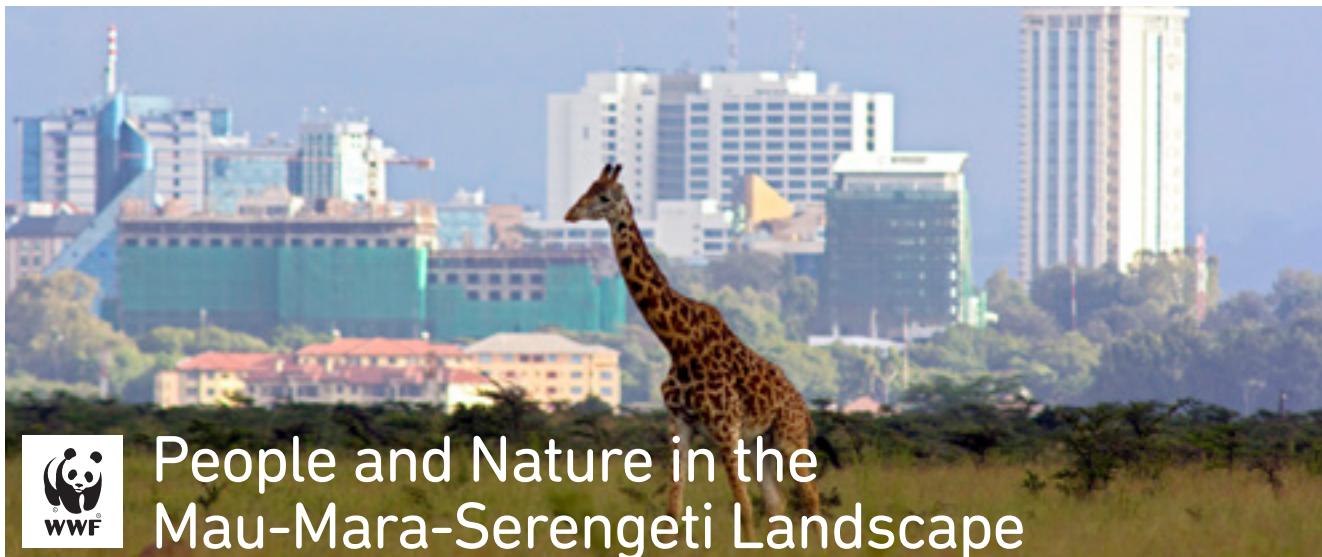


Photo: © Istockphoto.com / WLDavies / WWF

People and Nature in the Mau-Mara-Serengeti Landscape

In Kenya and Tanzania, the Mara and Serengeti regions are well known as home to a huge variety of wildlife, including elephants, rhinos, lions, and wildebeest - whose annual migration is considered one of the great natural wonders of the world. The region's savannas, forests, and woodlands are also home to hundreds of thousands of people who farm, herd livestock, and earn their living off the land.

But in these landscapes, the delicate balance between land, wildlife, and people is at risk, under pressure from growing populations and surging development, expanding agriculture, and international demand for resources. Habitats are being degraded, and wildlife populations are in decline. Conflict between people and wildlife destroys crops, kills livestock, results in injury and death of local people, and the retaliatory killing of predators and elephants. Forests are an essential part of the landscape, storing and releasing the water that nourishes land, wildlife, and people, as well as regulating the

climate. But the increasing stresses of climate change are also taking their toll.

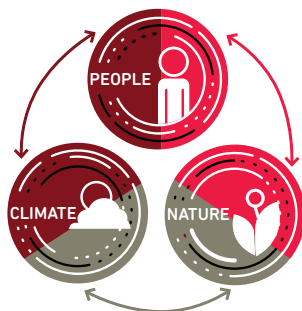
For several years WWF has worked closely with partners, local communities, governments, and businesses on a holistic approach in the Mau-Mara-Serengeti landscape, to protect wildlife, strengthen habitats and secure ecosystem services, while supporting sustainable local livelihoods, all within the context of a changing climate. Working on a transboundary programme has been a challenge, particularly in terms of different legal and policy contexts; but it is essential to plan and implement strategies at this landscape level, as wildlife and ecosystem functions cross boundaries. This integrated programmatic approach in the Mau-Mara-Serengeti forms part of a wider vision to better connect and protect wildlife, secure ecosystem services, and support sustainable livelihoods throughout the Southern Kenya, Northern Tanzania (SOKNOT) transboundary area that stretches

from Lake Victoria to the Indian Ocean. Addressing the triple emergency of climate change, poverty, and the destruction of the natural environment is key to the evolving SOKNOT programme, ensuring that local communities and national economies can benefit from sustainable landscape management, and that wildlife and the environment on which they depend can thrive.

Key challenges have included the sheer scale of environmental degradation and destruction, poverty, and geographic area; high levels of deforestation across multiple priority forests; unsustainable use of freshwater resources across river basins; continuing high demand for bushmeat locally and for illegal wildlife trade products internationally; increasing populations of livestock; increased frequency and intensity of droughts and floods; and a lack of capacity, coordination, and collaboration between agencies and local stakeholders.

Landscape scale climate vulnerability and capacities assessment has helped inform programme activities.

Energy-efficient stoves and solar lights for homesteads prevent greenhouse gas emissions, reduce the pressure on natural resources, and improve health, education, and wellbeing.



Community conservancies have secured wildlife habitats and increased the rights and capacity of local communities to manage their resources and ensure equitable benefit sharing.

Community-business partnerships (including tourism lodges) have generated new sources of income.

Bee keeping for honey production has generated income and helped deter elephants from community areas. 'Predator deterrent lights' protect livestock at night.

Protection and restoration of the Mau Forest Complex sequesters carbon, moderates local microclimates, and enhances ecosystems services. Climate smart agriculture and rangeland management have improved carbon sinks and increased resilience.



Wildlife-friendly Ibis Rice Project, Cambodia

Photo: © WCS

In northern Cambodia, farmers have worked the land around the forests for generations. Many of the people who live there are indigenous peoples or those forced to move from cities to the countryside during the notorious Khmer Rouge period. After the fall of the regime they stayed on, but they had no legal rights to the land. These farmers eked out a meagre existence growing rice, cutting trees from the forest, and hunting wildlife. Yet this region in Cambodia is the only place in Southeast Asia where extensive open deciduous forests – wooded areas with a patchwork of savanna grasslands – still survive. It is the only place left on Earth where species specific to this habitat can live and prosper, and as a result, several large protected areas have been created.

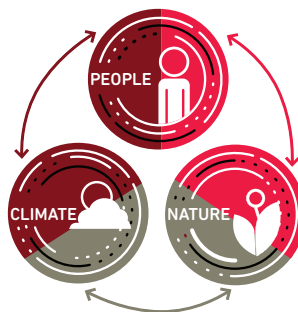
To secure the future for farmers, the giant ibis, other forest species, and the carbon-rich ecosystem, a programme was established to secure villagers’ legal land rights within these protected areas for the first time, and for the community to work collaboratively on agreeing land use plans that protect key species and habitats, while at the same time ensuring sufficient land for farming. The programme also supported farmers to produce, market, and export high-quality organic and wildlife-friendly jasmine rice by following wildlife-friendly practices including zero hunting, zero deforestation, and organic principles. Farmers also work as guides for birdwatchers coming to the area and receive additional payments if rare birds are spotted, incentivising the

wildlife and landscape protections further. Ibis Rice now works with over 1,000 farming households, buying 1,400 MT of paddy in 2019. This brings 4,000 hectares of rice production under wildlife-friendly management, helping to secure the surrounding wildlife sanctuaries comprising more than 800,000 hectares of unique forest habitat.

'I used to see wildlife poachers before, but now I don't see them anymore. I'm hoping that wildlife-friendly practices continue and that more people join Ibis Rice to make a better living while protecting wildlife from harm.'

Khat Sokkhea

Farmers have been supported to produce and market high-quality wildlife-friendly organic jasmine rice, achieving prices 50% above the market rate, through reducing harmful farming methods, deforestation, and hunting, and through access to better-quality seed.



Legal land rights have been secured for local smallscale farmers in these protected areas for the first time, which has enabled them to think more long term and secure the benefits of supporting their natural environment.

Farmers also earn income through tourism as guides for visiting bird watchers, incentivising their protection – and value – of nature.

The protection of forest and natural grasslands as a result of livelihood benefits from tourism and organic farming helps to regulate both the climate globally (through sequestered carbon) and the local microclimate, and increases the resilience of local communities and ecosystems.

Agroecology

Fertile soils are being lost due to overexploitation, the use of chemical fertilisers and pesticides, and unsustainable farming practices, threatening the world's most productive carbon sinks, biodiversity, and the food supply systems on which we all depend.

The shift towards industrial farming and monoculture to sustain the world's complex food systems has severely degraded soils, with some now unable to grow crops. The Food and Agriculture Organisation of the United Nations estimates that, due to soil degradation, the global amount of arable and productive land per person in 2050 will be only one-quarter of what it was in 1960. This will have serious consequences for food security, unless new approaches are adopted.

By contrast, agricultural systems based on agroecology maintain or increase biodiversity in the soil, and better protect and restore soil carbon than intensive, industrial-scale agricultural systems. Healthy soil contains millions of microbes that help the soil to form and nutrients to decay. The microbes help to regulate the climate, as well as controlling disease and pest outbreaks.



Photo: © Christian Aid



Photo: © Christian Aid

Climate Resiliency Field Schools, Philippines

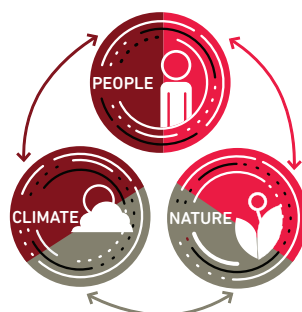
Rice Watch Action Network (R1) has been implementing Climate Resiliency Field Schools (CrFSs) since 2007, expanding to 33 local government areas across the Philippines. Each CrFS receives a season-long training programme with a focus on sustainable, agroecologically based on-farm training and experimentation, and increased access to weather and climate forecasts across a range of timescales, from early warning of tropical cyclones and drought to long-term climate change. The approach is implemented by local government agricultural staff, with training and mentoring support from R1. This ensures buy-in by municipalities - facilitated by national legislation on organic agriculture and decentralised decision making - which also commit to providing their support and resources to continue the initiative. The strong relationship between these stakeholders is an important part of making the CrFS approach a success.

Environmental sustainability is central to the CrFS approach, supporting farmers to transition away from land-degrading inputs such as chemical fertilisers and pesticides, towards an agroecological approach that delivers enhanced productivity, profitability, and resilience to climate change. On-farm trials of rice, for example, have focused on improved selection of local rice varieties, System of Rice Intensification (SRI), and increased use of organic fertilisers. This has delivered yields of 8 to 11.7 metric tonnes (MT) per hectare, compared to the regional average of 4 MT per hectare using conventional hybrids, cultivation techniques, and chemical inputs. These varieties also attract prices that are typically 30% to 40% higher on local markets, due to consumer preferences for taste and quality. Agrobiodiversity is increased, as CrFS farmers grow 29 improved local varieties of rice developed through on-farm multiplication and seed banking, compared to just two

hybrids that dominate conventional rice production in the region, as well as diversifying into other crops.

This approach achieves better outcomes for people, nature, and climate change. If agricultural investments contribute to environmental decline and climate change, people will suffer and go hungry. Through the CrFS approach, farmers are supported to reverse the decline in soil health, which improves agricultural production, resilience, and sustainability. Healthy soil also has the potential to store and sequester more carbon, and agroecology reduces emissions compared to conventional agriculture. By supporting smallscale farmers to take up agroecological practices, this project achieves this triple win; and by combining this with local climate information services, it further supports farmers to manage their productivity and the risks they face in a changing climate.

Communities extremely vulnerable to cyclones and droughts now receive early warning, 10-day seasonal forecasts, and long-term climate scenarios. By combining forecasts with agroecological advisory services, resilient outcomes that reduce the impacts of climate shocks and stresses, enhance recovery, and increase productivity can be achieved.



Agroecological practices increase food and nutrition security and reduce household food expenditure, while at the same time reducing land degradation and water pollution. Benefits include increased agrobiodiversity, improved soil quality, and reduced environmental degradation, by replacing toxic agrochemicals with natural fertility sources.

Increased productivity through practices such as SRI reduces the pressure for land conversion, preserving more intact ecosystems and increasing resilience. Agroecological practices reduce emissions, enhance ecosystem services such as water security, and promote biodiversity as part of sustainable soil management strategies, integrated pest management, and crop pollination.



Agroecology in Brazil: addressing chronic water scarcity, building resilience and supporting women's empowerment

One of the most pervasive aspects of the poverty emergency is gender inequality. Poor women make up at least half of the smallholder farmers in the world – but they face systemic barriers to their resilience due to patriarchal norms. These norms make it very difficult to have secure land tenure, to benefit from programming that is being implemented in gender-blind ways, and to be included in developing equitable and sustainable solutions to the triple emergency. ActionAid advocates that gender transformation should be at the heart of all solutions to poverty and inequality, nature loss, and the climate crisis. ActionAid has worked for decades with women, smallholder farmers, and indigenous groups to develop appropriate solutions to address the triple emergency. One key solution – which can spearhead a just transition in agriculture – is a feminist Agroecology. Agroecology accepts ecological and sociocultural biodiversity, and recognises and values diverse kinds of knowledge that differ from the dominant scientific ideology—such as the traditional knowledge and techniques of farmers. Furthermore, agroecology considers alternative assumptions based upon holistic, systematic, contextualising, subjective, and pluralist knowledge and skills. The practical knowledge and skills of traditional cultures—such as indigenous and rural farmers— is equal to scientific Western knowledge, because it is based on what has worked for many centuries.

Millions of smallholder women and men farmers using agroecological practices are already doing great work to produce food in ways that benefit the climate, communities, and nature, while strengthening resilience to climate change. But policies tend to penalise these farmers instead of rewarding them as the guardians of our food, land, nature, and climate stability. Women farmers - who must deal with specific barriers and burdens - are particularly ignored by policy makers, in spite of their huge contribution to feeding the world. These communities need and deserve more support from governments.

ActionAid-supported Network of Women producers in Pajeú in the semi-arid Pernambuco region of northeast Brazil has successfully adopted agroecological practices to deal with chronic water scarcity as well as empower socially isolated women under the threat of domestic violence. The network – made up of 10 women's groups – follow a process of collective construction of knowledge through farmer-to-farmer exchanges and participatory planning. The process enabled women farmers to shift from dependence on external inputs and to increased climate resilience. They did this by adopting sustainable alternatives, such as the use of water harvesting cisterns, flower beds, local seed varieties, improved poultry husbandry and better-quality animal fodder, soil preparation, and fertilisation. Knowledge and experience gained through agroecology and access to local agroecology fairs and markets improved the women's standing within family relationships and the wider community.

BIODIVERSITY, SEEDS, AND RESILIENCE

Supporting the rights of local and indigenous communities and farmers to continue to conserve and develop plant genetic resources safeguards biodiversity for food and agriculture, which is gradually being shut out worldwide by large-scale monoculture farming. In Zimbabwe, the locally adapted small grains that are alternatives to hybrid maize tend to be more nutritious, do not require expensive inputs (pesticides and fertilisers), and grow better in the face of climate change.

'Sometimes it pours with rain and other times it's dry for weeks or even months. By exchanging seeds, we can sow more diversely. That way, the chances are higher for yields to succeed. Due to diversity, no one needs to be hungry; it is our weapon against hunger. If you compare my situation to two years ago, it has changed tremendously. Just look at what is growing on my land. And look at me. I am much more confident.'

- Marjory Jeka (58) Zimbabwean smallholder farmer and participant in Oxfam/CTDT Farmer Field Schools.

SRI: INCREASED INCOME, WITH REDUCED EMISSIONS AND DEGRADATION

Rice production is the largest source of employment and income for rural people throughout the world, and rice is a staple food for least half the world's population. Rice production is also a major contributor to the climate emergency: half of all emissions of methane, one of the most potent greenhouse gases, come from cattle and rice fields. The System of Rice Intensification (SRI) manages plant densities, soil, and nutrients so that farmers can produce 20% to 50% more rice using 50% less water and 80% to 90% less seed. It also reduces methane emissions by 20% to 60%.

Since its development in the early 1980s in Madagascar by Father Henri de Laulanié, more than 10 million smallscale farmers in over 55 countries in Asia, Africa and Latin America are now applying the methodology.

Farmer-Managed Natural Regeneration

Farmer Managed Natural Regeneration (FMNR) is a low-cost land restoration technique used by smallscale farmers to increase food and timber production, and resilience. The approach was developed in Niger in the early 1980s, and pioneered by Tony Rinaudo, who continues to champion FMNR at World Vision Australia. Tony observed that underneath farmers' cleared fields, lay extensive networks of still-living roots and stumps. Farmers could choose useful trees and regenerate them through coppicing and pollarding drawing on traditional practices and sensitive to local variations, and grow crops among them.

Through this restoration of vegetation, FMNR addresses multiple problems simultaneously, including land degradation; soil infertility and erosion; biodiversity loss; food insecurity; fuel wood, building timber, and fodder shortages; and water-related risks including flood and drought events, and depletion of water resources. It therefore contributes to more sustainable livelihoods, increased resilience and climate change mitigation potential, and ecosystems restoration. Women and children also benefit from reduced burdens associated with fuel wood and water collection, enabling them to pursue other economic, domestic, educational, or social activities, as well as from nutritious fruits. Through these impacts, and its low-cost nature, FMNR is an effective means of reducing poverty even of those furthest behind.



Photo: © World Vision



Combating Desertification and Re-greening the Sahel²⁸

The Sahel – the belt of land that stretches across Africa on the southern edge of the Sahara – has always been a tough place to farm. Rainfall is low, droughts are frequent, the soil is hard, and harsh winds blow away everything in their path. It is also one of the poorest regions in the world. From 1968 to 1973 a severe period of drought resulted in countless deaths of people, animals, and trees. It was a human, economic, and environmental crisis with effects that lasted for years. Groundwater levels plummeted, yields for staple crops of sorghum and millet declined, and families began leaving the region in droves, unable to produce what they needed from the severely degraded land.

Despite efforts throughout the 1970s, very little improved for farmers in Burkina Faso's Yatenga Province until around 1980, when several Yatenga farmers began to experiment with traditional planting pits or zai. Their innovation was to increase the depth and diameter of the pits, and to add organic matter, which resulted in remarkable increases in yields. The use of the pits spread rapidly, and with it came a wave of Sahelian farmers ingeniously modifying traditional agroforestry, water, and soil management practices in order to restore the fertility of their land.

In Niger, farmers developed innovative ways to regenerate and multiply valuable trees whose roots already lay under their land. In southern Niger, it is estimated that FMNR has regenerated over 5 million hectares of land, producing more than 600,000 additional tons of food a year – the same amount as Niger's national food deficit in the 2011-12 drought, and enough to feed more than 2.5 million people. The trees

that are now grown among the crops also have enormous value. Baobab or gao provides fodder, firewood, fruit, and medicine, and the World Bank estimates that the new trees generate \$260 million a year in cash and produce for farming families in Niger. The zai and stone bunds used in Burkina Faso are estimated to have helped to rehabilitate up to 300,000 hectares of land and produce an additional 80,000 tons of food per year – enough to feed half a million people. The innovations have also improved the supply of fuel wood, with considerable benefit for women who traditionally had to put a lot of time into collecting wood, and now have more time for other economic, domestic, and social activities. Women in the Zinder Region who own baobab trees earn substantial annual income (up to \$210) from selling the leaves for the daily porridge.

As a result, food security has increased for approximately 3 million people; household incomes have increased; environmental degradation and desertification have been reversed across roughly 6 million hectares (three times the size of Wales); and approximately 200 million new trees (with a production value of over \$260 million) have grown. The changes have resulted in decreased soil erosion, reduced wind speed, decreases in local temperatures, and increases in rainfall, along with greater biodiversity.

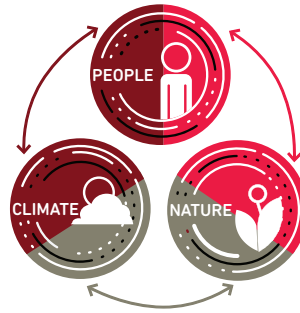
The FMNR process has also reduced conflict, since village farmers must reach agreement with other land users, such as cattle herders, in order to protect seedlings from 'cattle and axe' – especially during the first three or four years of growth. The benefit of such collaboration has been a growing resource base for

all: pastoralists gain access to more fodder, while farmers gain access to the herds' manure. By working together in this way, conflict between different resource uses has been reduced.

Many organisations, local, national, and international have supported farmers' efforts. Changes to forestry laws and reforms of government structures to enable greater decentralisation and local control of natural resources have been significant enablers.

What farmers have achieved in 30 years across the Sahel – one of the most fragile zones on the planet – has been the greatest agroecological success story in Africa, and perhaps anywhere. It demonstrates how environmental health is the basis of sustainable development, including continued food security and poverty reduction; without fertile soil, no life is possible. But while it is a fundamental basis, often more support is needed to reach the poorest and most vulnerable. Such measures – especially in such fragile and climate change vulnerable areas – must be matched by enhanced social protection and markets that work for all. Some of the soil and water conservation techniques – notably zai and lines of stone – require considerable labour, which poorer households cannot afford and which often increases the work burden on women. As a result, relatively better-off farmers are better placed to implement these techniques. To reach the most vulnerable and leave no one behind, additional resources are needed to include those who have the greatest need and secure their right to land.

Uptake of agroecological farming approaches has increased production and income for farming communities, and improved soil quality, ensuring the resilience and sustainability of their farming long term. Trees have been part of this solution and also provide an additional profitable source of income, particularly for women, while also reducing the burden on them for firewood collection.



The approaches spread quickly farmer to farmer, and catalysed local innovation and collaboration. Communities and different resource users work together to sustainably manage natural resources, which results in more abundant resources.

Reversing large-scale environmental degradation and desertification provides benefits for climate and nature, and has increased the natural resources available to communities, strengthened their resilience to climate change impacts, and helped to moderate the local microclimate, including reducing temperatures and wind speeds locally.

Restoring Forests and Agriculture in Humbo, Ethiopia

World Vision has been using FMNR to restore badly degraded land in the Humbo district of Ethiopia. Humbo is 420 kilometres southwest of Addis Ababa. The forests surrounding Humbo had been largely cleared during the 1960s. World Vision began working in Humbo in 2006, with a project designed to restore native vegetation to approximately 2,700 hectares through the use of FMNR, alongside livestock management to prevent further degradation of the landscape, and the closing of degraded areas to human and livestock intrusion.

The project was managed by seven community cooperatives which established a system to monitor the restoration. By 2012, the project had resulted in an increase in the availability of domestic firewood, an increase in the presence of wildlife, and a reduction in flooding, erosion, and siltation. There was a surplus of fodder, leading to a substantial hay market; and wild fruits began to appear, having been absent for four decades. Agricultural production improved to the extent that in 2012, the local cooperatives began selling grain to the World Food Programme.

World Vision®



Photo: © World Vision

Forests and Communities that Depend on Them

Natural forests are home to an incredible diversity of plant and animal species, provide immense ecosystem services benefits for communities, and safely store and sequester far more carbon than plantations or secondary forests. As such, forests are recognised by the IPCC as essential for efforts to limit global warming to 1.5°C. Forests are vital for local, regional, and inter-regional water supply; climate regulation; filtering pollutants; cycling nutrients; providing pollination services, food, medicines, and materials; and generating income from tourism and the sale of forestry products. Protecting natural forests before they are lost is urgent in order to retain biodiversity, critical ecosystem services, and these important carbon stores. Furthermore, degraded forests and intensely managed forest systems such as monocultures are much more vulnerable to loss and degradation from pests, disease, drought, and fire.



Photo: © Bjorn Horvath, RSPB



Photo: © Björn Horvath, RSPB

The Greater Gola Landscape, Sierra Leone-Liberia border

The Upper Guinean Forest of West Africa is one of only three forested biodiversity hotspots in Africa. Until the end of the nineteenth century, it covered most of Sierra Leone, Liberia, Southeast Guinea, Southern Ivory Coast, and Southwest Ghana. Less than one-fifth of this rainforest remains today.

The Greater Gola Landscape, straddling the Sierra Leone-Liberia border, comprises the largest remnant of this critical ecosystem: over 350,000 hectares in a mosaic of protected areas, community forests, and smallholders' agricultural lands. The RSPB has been working with BirdLife International and government partners across the Greater Gola Landscape programme for over 30 years. Joint efforts have focused on rebuilding lives after over a decade of civil war and, more recently, the worst-ever recorded Ebola outbreak, while also delivering significant biodiversity and

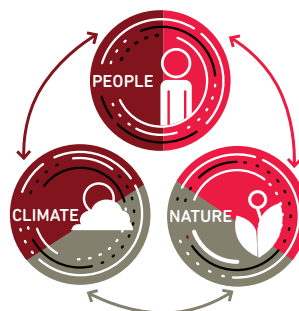
climate change mitigation benefits for the entire planet. Millions of tonnes of carbon are stored and sequestered within Gola's trees and in the earth below them, which can be safeguarded only through landscape scale management and effective forest protection.

But the demands on the forest are great. Sierra Leone and Liberia are among the world's least developed countries, respectively ranked 181 and 178 out of 189 on the Human Development Index. In remote areas such as Gola, forest-edge communities are highly dependent on natural resources, and subsistence agriculture accounts for 90% of livelihoods. The civil war destroyed homes and road networks, but also decimated a whole generation, whose knowledge and skills – such as in cocoa farming – have been affected. The results have been the degradation of agricultural lands and extreme poverty, driving local

communities to clear further forest for agricultural land.

In Sierra Leone, the Gola Rainforest National Park – the country's first national park – was inaugurated in 2011. It covers an area of 70,000 hectares, agreed upon through consultation with communities living in and around the park. In 2015, the park and surrounding seven chiefdoms established the first REDD+ project in West Africa, validated under both the Verified Carbon Standard, and the Climate, Community, and Biodiversity Alliance standard. It was awarded Double Gold certification for its exceptional contribution to climate change adaptation and biodiversity. The Gola Rainforest Conservation partnership manages the national park, protects the forest and its wildlife, and funds initiatives that develop sustainable and improved livelihoods for 25,000 people across 120 participating communities.

Communities have been supported to manage the forest in ways that benefit them, nature, and the climate. Community and livelihood initiatives have included training on sustainable agriculture, provision of processing equipment including a rice mill for women producers, community savings schemes, scholarships for secondary education for girls and boys, improvements to local health services, and the establishment of a gender-inclusive cocoa producers' organisation comprising 500+ members to rehabilitate cocoa farming and market high quality, sustainably grown forest-friendly cocoa to international markets.



The Gola Rainforest Conversation Partnership has empowered communities to protect and manage habitats for 327 bird species, 650 endemic plant species, and 49 specific of larger mammals, including the iconic pygmy hippopotamus, the western chimpanzee, Jentink's duiker, and the African forest elephant, which are all under threat.

In the years from 2015 to 2018, the project avoided 800,000 tonnes of carbon emissions per year, as well as sequestering 500,000 tonnes of carbon for the period 2012 to 2018.

Climate resilience of local communities has been strengthened as a result of the healthy forest ecosystems and locally appropriate infrastructure development.

Land, Land Rights, and Communities

Indigenous peoples and local communities own, manage, or occupy 25% of the world's land area – far more than is covered by formal parks and protected areas. Much of the world's wildlife lives outside protected areas on these communal or private lands, and therefore needs local support and stewardship to survive. Empowerment of and respect for local communities are vital parts of the solution; but nature's decline and climate change are global problems, the solutions to which lie beyond the control of local communities alone. However, IPBES highlights that biodiversity is declining more slowly on land managed by indigenous peoples and local communities than elsewhere, indicating the importance of empowering communities to achieve the local solutions needed.



Photo: © Daniel Martínez / WWF-Peru



Photo: © CARE International, Somalia/Somaliland



Your Environment is Your Life, Puntland

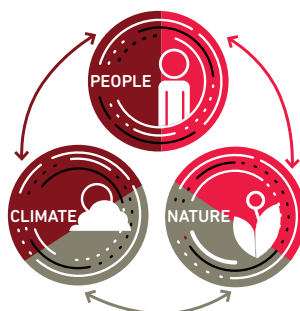
In Puntland and Somalia, CARE International’s Deegaankaagu waa noolshaada (Your Environment is Your Life) programme worked with pastoralist communities to reduce hunger and food insecurity through addressing rangeland degradation. Climate change has contributed to degrading rangelands in Puntland and wider Somalia – both directly through the impacts of more frequent and prolonged droughts, and indirectly through human activities of affected communities to cope with more frequent and prolonged drought. This compounded an already shrinking

space for pastoralist communities, resulting in fewer resources being used more intensively than ecosystems could regenerate.

In 2017, the programme reached 36,000 women and men in 20 communities in Nugaal and Karkaar in Puntland State, Somalia. The programme provided for greater ownership of local land and resource management by communities, and resulted in the uptake of natural rehabilitation strategies which promoted regeneration and healthier ecosystems, increased productivity,

and reduced conflict over natural resources. In total, over 500 square kilometres of land were rehabilitated by the programme. The programme also achieved a decline in charcoal making and poaching of wildlife as a result of increased environmental awareness and more sustainable improvements to livelihoods and incomes. Seeing the benefits, communities are continuing with more activities to reverse land degradation on their own initiative, such as tree planting.

Regenerated rangeland has improved livestock health and productivity of milk, and increased honey production, increasing incomes. Village savings and loans associations have been established to enable women to pool resources to invest in new economic activities, to save for times of hardship or specific household expenditures, and to provide a community social fund for those in need.



Cash for work provided income and catalysed community-led rehabilitation activities to reverse land degradation.

Communities were put in charge of local land and resource management following local customary law (Xeer), the constitution, and the decentralisation policy of Puntland. As a result, communities have been able to negotiate benefit sharing mechanisms and practices with other communities, which has reduced tensions, and enabled regeneration and more sustainable management of natural resources.

The programme has reversed the decline in nature that was driven by climate change impacts and by unsustainable responses to climate change impact by communities. Regeneration has increased the resilience of communities and ecosystems to impacts.

Locally Managed Coastal Ecosystems

Coastal ecosystems, including mangroves, are hugely important both for climate change mitigation as carbon sinks and stores, and for climate change adaptation as natural defences against erosion, storms, and floods, and in guaranteeing food, materials, and water supply.



Photo: © Chiara Ambrosino/Plan International UK



Photo: © Harriet Osimbo/Plan International Kenya

The Future Plan Fund is a 30-month programme implemented by Plan International in coastal areas in Kenya, Timor Leste, and Colombia. The programme is working to enhance biodiversity in coastal regions, by restoring natural ecosystems and carbon sinks through community-led initiatives, and improving governance of protected coastal areas. Alongside this, the programme is promoting the sustainable economic empowerment of the most marginalised communities and groups, particularly women, through alternative

livelihood strategies and responsible fishing methods, and improving the resilience of local communities to climate-related threats.

While there are contextual differences across the three project areas, all are suffering from a decline in fish stocks due to multiple factors including unsustainable fishing practices, weak governance structures of marine resources, and mangrove destruction. The impacts are felt through diminishing incomes and livelihood options; increased

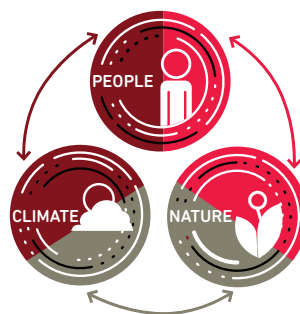
exposure to coastal erosion, storm surges and flooding; and health impacts relating to water, sanitation, and gender-based violence.

The Future Plan Fund is an integrated programme working across these factors and their interdependences on mangrove restoration, marine governance, community natural resource management and education, and inclusion and empowerment of women. By working in concert across these areas, the outcomes have been more impactful and longer lasting.

The decline of fishing livelihoods has been addressed by the restoration of mangroves that provide a breeding ground for fish, and the adoption of sustainable fishing practices.

Seaweed farming provides a sustainable additional source of income and reduces stress on coastal and marine resources.

Health benefits have been achieved as a result of reduced saline intrusion and flooding, increasing access to healthy and clean water for communities



Replanting of native species has restored the natural ecosystem on which local livelihoods rely. Livelihood improvements have reduced the need for unsustainable charcoal production and mangrove cutting.

Participatory natural resource management has increased communities' awareness of the value of healthy ecosystems for their lives and livelihoods, and empowered them to work together to equitably and sustainably manage their natural resources.

Restored mangroves provide a natural defence and have reduced communities' exposure to coastal erosion, flooding, and storm surges. Regrowth of the native species has restored natural ecosystems and increased their ability to sequester carbon (carbon sinks).

Conflict and Fragility

More and more frequently, communities with which NGOs work are coping not only with the effects of climate change (such as more frequent weather-related disasters and more erratic rainfall) and environmental decline (as a result of overexploitation of natural resources and unsustainable practices), but also with high levels of violence and displacement. A USAID 2018 study looking at the intersection of fragility and climate risks, found that a majority of highly fragile states – 26 out of 39 states with the highest or high fragility – have a large number of people or large proportion of the population facing high climate risks. In India for example, more than 118 million people live in high exposure areas, followed by Nigeria with 41 million, Egypt with 33 million, DRC with 19 million, and Burma with 15 million.²⁹

As the climate changes and nature declines, human security is progressively threatened. The consequences of the triple emergency do not affect everyone equally. It will always be the poorest and most vulnerable who suffer most; and often this plays out through instability, insecurity, conflict, and violence – factors which also prevent access to durable solutions.



Photo: © Mercy Corps



Food Security and Inclusive Access to Resources for Conflict-Sensitive Market Development (FARM) Programme, Democratic Republic of the Congo

The Democratic Republic of the Congo, despite having vast mineral and natural resources, continues to be plagued by protracted humanitarian crises – particularly in the east, which has experienced more than two decades of violence and mass displacement. The North Kivu province is still suffering from this conflict today. A combination of ethnic discrimination, poor governance, weak institutions, and corruption has left the region devastated. Seven out of 10 households are living in poverty, 26% of the population are highly vulnerable to climate change impacts, and 60% of the population is food insecure. Over 1.5 million internally displaced people (IDPs) were located in North Kivu Province in December 2019, according to the Comité de Mouvement de Population.

The large population of IDPs living on the margins of Virunga National Park, one of the most precious environmental sites in Africa, is causing unprecedented demand for

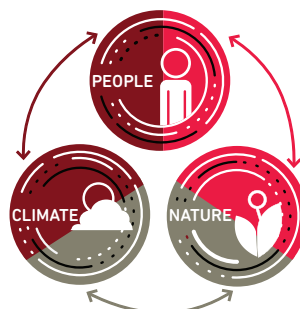
water, forest products, and other natural resources. FARM is a conflict-sensitive programme designed to improve food security and socio-economic conditions in 19 villages in North Kivu, and alleviate pressures on the local environment.

The programme is improving stability for men, women, boys, and girls through the development of more inclusive economic growth, and improved access to land for 44,000 households in Masisi and Rutshuru Territories. People are helped to secure ownership documents for their land, and traders and farmers from different areas who have previously been in conflict are brought together to seek mutually beneficial opportunities for their cattle and small businesses through value chain development. All activities are implemented according to equitable access and participative approaches for women, men, youth, and members of different ethnic groups.

FARM’s area of intervention comprises approximately 5,000 square kilometres within North Kivu, a large part covered by Virunga National Park. The western portion of FARM’s intervention area is primarily in Masisi Territory, and the eastern portion within Rutshuru Territory. Within both territories, a mix of conflict and weak governance, and limited income-generating options, is directly and indirectly impacting on natural resources, degrading ecosystem services, and ultimately hurting communities’ livelihoods. These negative outcomes lead to increased competition for increasingly limited resources. This competition, exacerbated by the lack of clear and enforced rules and regulations including on land ownership, and the absence of alternative economic opportunities, repeatedly leads to conflict, which leads to further resource degradation.

Climate-smart agricultural value chains have been developed, working with women and men on production, processing, storage, and transportation. Improved soil and water management has enhanced the storage potential of carbon in soils, trees, and vegetation, and has increased productivity without the need for more land, reducing pressure on forests.

Governance improvements mean that communities have greater access to essential state services related to land use, agricultural production, and markets, as well as connections to other market actors.



Barriers to land ownership have been addressed - with 1,173 customary titles registered - and 48 land-related conflicts have been resolved.

Communities work together to sustainably manage their natural resources as a result of joint community mapping, planning, and conflict resolution progress.

Reversal of degradation and more climate-friendly agricultural practices have increased the productivity of local farming, even in the context of changing rainfall patterns and more unpredictability in the timing of the dry and rainy seasons.

Locally Appropriate Sustainable Technologies

Technology is at the heart of human development. It enables us to produce food, access water and energy, and keep in good health. But access to technology and its benefits is not equally shared, and the environmental impact of highly polluting technologies is contributing to the triple emergency. The rich world enjoys more than its fair share; whereas for people living in poverty, the lack of technology is a defining feature of their hardship. The UN estimates that women in sub-Saharan Africa spend 40 billion hours a year collecting water, which is equivalent to one year's labour of the entire French workforce. Imagine the potential that could be unlocked by freeing up these 40 billion hours for other economic, household, or social activities, and by saving 5 million lives every year by introducing clean energy for cooking, a clean water supply, and toilets.

Technology justice is needed to address the triple emergency. Existing technology needs to be more accessible to those who need it most; increased investment is needed for local innovation to meet basic needs; and all technology must be socially and environmentally appropriate. Low-cost, low-tech solutions are needed that improve the wellbeing of women, men, girls, and boys, and ensure their involvement in decision making, respects indigenous knowledge, builds technological skills, and are sustainable in the long-term.



Photo: © Practical Action



Practical ACTION

Bio-dykes in Nepal

Photo: © Practical Action

As part of a wider programme of people-centred climate change adaptation interventions, Practical Action worked with flood-prone communities in the Karnali River Basin in Nepal to construct bio-dykes. A bio-dyke is a bio-engineering structure designed to manage and control flooding, to protect the lives and assets of the community. It combines biological and structural concepts to raise and stabilise key sections of the river banks. Bio-dykes are constructed in key locations; they do not prevent flooding 100%, but mitigate the destructive flood pulse. Vegetative and structural measures (such as sandbags made from hessian sacks) are combined in the initial construction; and as the plants mature, the biological measures take over, thus minimising

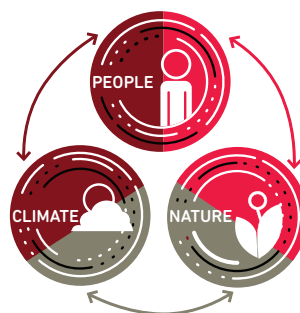
maintenance. The approach is nature-friendly and is constructed from locally available resources such as sand, rocks, soil, shrubs, bamboo, and other plant species, usually selected based on their use by the community. The technology is low-cost and low-tech, which means it can be implemented by communities themselves, without requiring external technical assistance. Indeed, this is a key component of the approach, bringing people together to identify locations, and implement and sustainably manage the bio-dykes. Construction and subsequent management require organisation, ownership, and commitment from the community, thus reinforcing social capital. Bio-dykes require a significantly lower level of investment compared to traditional

flood mitigation infrastructure, are more environmentally friendly, use local and natural materials for construction, unlock the potential for alternative livelihoods, and avoid regular and potentially costly maintenance.

In the Karnali River Basin, the bio-dyke was implemented with communities at risk of loss of life, homes, infrastructure, and crops due to flooding. They also faced degradation of productive agricultural land due to extensive debris deposits. The river is a key component of these communities, providing water and a place to wash clothes; therefore, the bio-dyke is designed to maintain access to the river - something that hard infrastructure often limits - thus preventing an additional work burden being placed on women.

The bio-dyke protects communities' land, homes and other infrastructure (roads, bridges, drinking water, drainage, schools, health posts, community shelters). Reversing the cycle of flood-related losses is vital for sustainable development. It has also increased the confidence level of the communities to invest in the long-term productivity of their land and farming.

Women's heavy workloads have been reduced as a result of increased availability of fodder and fuel from the bio-dyke, and reduced impacts on families from flooding.



Construction of the bio-dyke has encouraged communities to work together to plan, implement, and monitor sustainable community development activities and the management of their natural resources. The bio-dyke does not disturb natural processes and ecological systems in the river, and has created habitats for local wildlife and increased biodiversity.

Once established, the bio-dyke provides additional plant products for fodder, fuel, and construction materials.

The bio-dyke uses a nature-friendly approach to manage the increasing flood risks caused by climate change. It increases communities' resilience while increasing the space for nature. It avoids the need for infrastructure that is not climate or nature friendly.

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