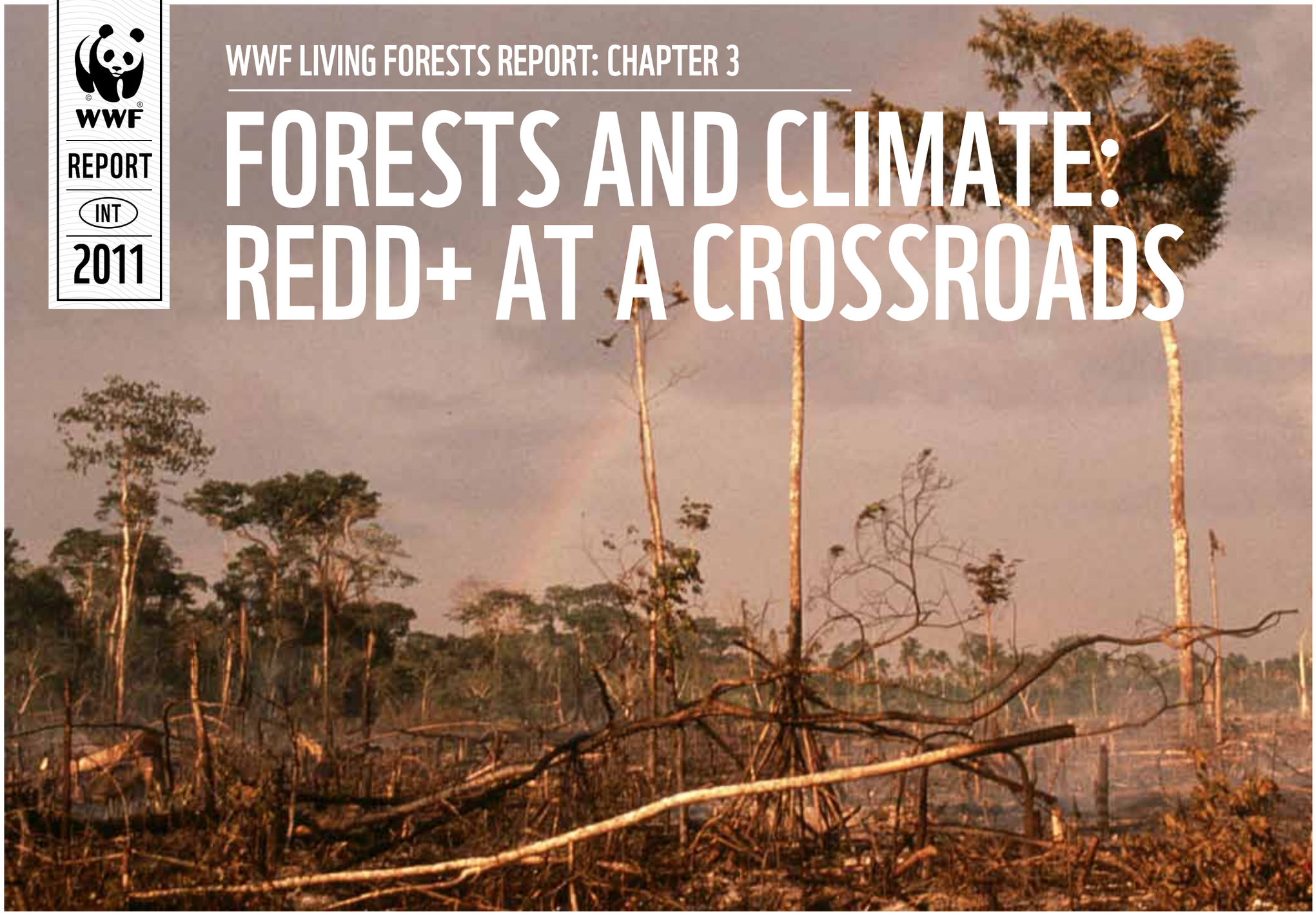
WWF REPORT INT 2011

WWF LIVING FORESTS REPORT: CHAPTER 3

FORESTS AND CLIMATE: REDD+ AT A CROSSROADS



CLIMATE AND LIVING FORESTS

Forests and climate are intrinsically linked: forest loss and degradation is both a **cause** and an **effect** of our changing climate.

Deforestation and forest degradation drive climate change, representing up to 20 per cent of global anthropogenic **CO_2** emissions[1]. And **climate change** in turn can damage forests, for instance by drying out tropical rainforests and increasing fire damage in boreal forests. Inside forests, climate change is already harming biodiversity, a threat that is likely to increase[2]. Furthermore, degraded, fragmented forests are less able to withstand rapid shifts in temperature and rainfall patterns[3]. Deforestation and climate change have devastating impacts on many human communities, ranging from food, water and fuelwood insecurity to more frequent and severe weather-related disasters.

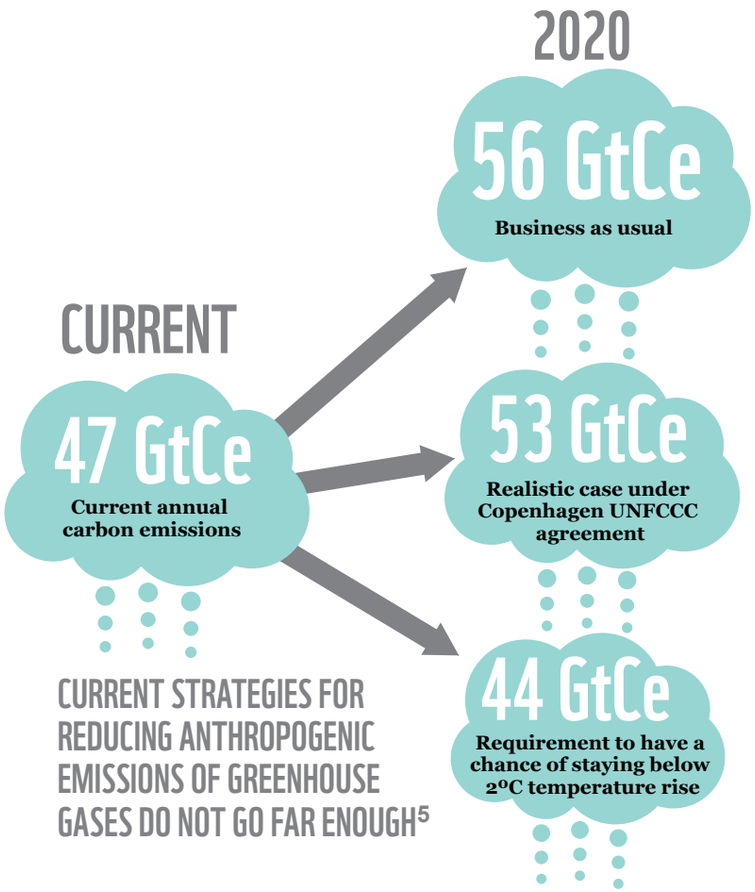
As deforestation and forest degradation have such an important impact on climate change, reducing forest loss can have multiple benefits for ecosystems and people. These include cutting greenhouse gas emissions, sequestering carbon, providing other ecosystems services, and maintaining intact, functioning forests that have the best chance of withstanding climate change.

WWF's envisions a world where humanity lives within the Earth's ecological limits and shares its resources equitably. We advocate **zero net deforestation and degradation (ZNDD)** by 2020 as a critical milestone on the road toward this goal (see chapter 1 of the Living Forests Report). With the International Institute for Applied Systems Analysis (IIASA), we developed the **Living Forests Model**[4], to consider a range of possible forest scenarios over the next half century, and to project the effects of changes in diet, bioenergy, conservation policy, and fuelwood and timber demand. The Living Forests Model shows that with better forest stewardship and more productive use of arable land, the current and projected demand for food, fuel and fibre could be met without further loss of forests. Several of these scenarios are referred to in the text and defined in more detail in the glossary.

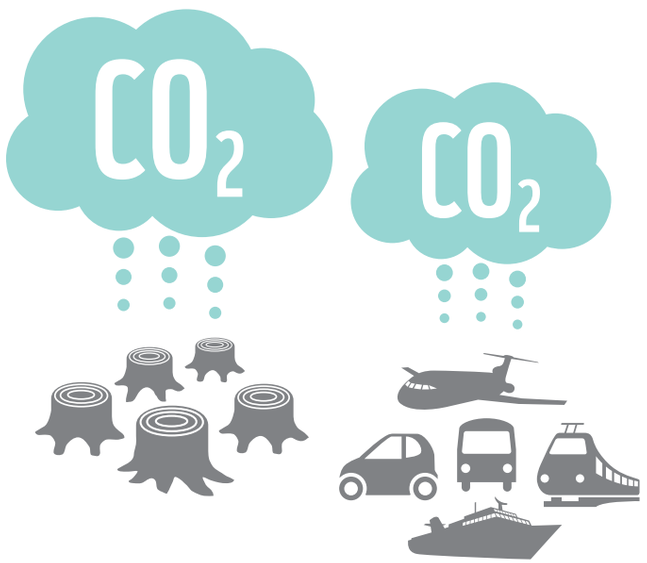
Critically, achieving ZNDD by 2020 depends on preventing **"unnecessary" forest loss**: forests squandered as a result of poor planning and governance, including the absence or weak enforcement of land-use planning laws, inequitable or insecure land tenure and user rights, unregulated or illegal forest clearing, poor forest management, inefficient agriculture, overuse of fuelwood, and other impacts that can be reduced using existing technologies. Creating incentives to keep forests alive, and/or penalizing those who destroy them, is critical if we are to achieve ZNDD and cut carbon emissions.

THE LINK BETWEEN FOREST AND CLIMATE

Climate change is one of the greatest threats humankind has known. Forests can be part of the solution.

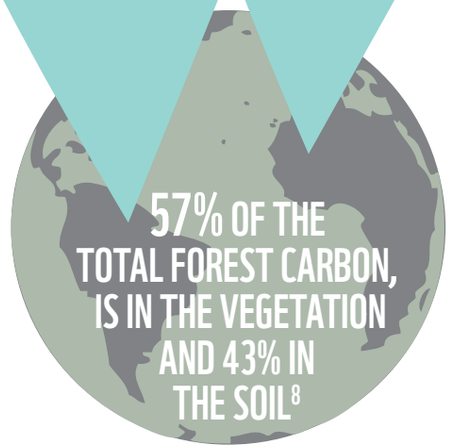


CURRENT STRATEGIES FOR REDUCING ANTHROPOGENIC EMISSIONS OF GREENHOUSE GASES DO NOT GO FAR ENOUGH[5]



DEFORESTATION AND FOREST DEGRADATION REPRESENT UP TO 20% OF GLOBAL ANTHROPOGENIC CO_2 EMISSIONS[6], MORE THAN THE ENTIRE GLOBAL TRANSPORT SECTOR (WHICH ACCOUNTS FOR 13%)[7]

FORESTS IN DEVELOPING COUNTRIES CONTAIN 538 GtC – EQUIVALENT TO 40 YEARS' WORTH OF ANTHROPOGENIC GREENHOUSE GAS EMISSIONS AT 2004 RATES



ANY FUTURE CLIMATE DEAL THAT DOES NOT FULLY INTEGRATE FORESTRY WILL FAIL TO MEET THE NECESSARY TARGETS

LORD NICHOLAS STERN[9]

FOUR WAYS IN WHICH CONSERVING FORESTS HELPS FIGHT CLIMATE CHANGE

Forest conservation can both slow the rate of climate change and help adapt to changes that are already occurring.

Conserving forests is the single largest and relatively cheapest thing we can do to limit the impact of climate change.

Carbon storage

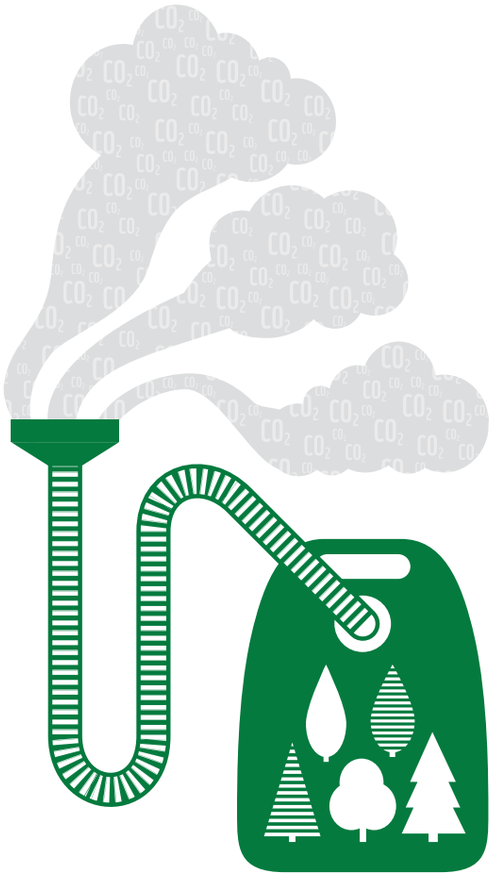
Carbon storage helps to slow climate change, and forests are by far the largest terrestrial carbon stores. Although estimates vary, tropical forests are agreed to have the largest living biomass (170-250 **tC/ha**[10]) while many boreal conifer and broadleaved forests in sub-polar regions grow on huge below-ground carbon stores in the form of peat[11]. Temperate forests have been decimated over the centuries[12], but are now expanding in many areas[13], and actively building carbon stores.

Resilience

Ecosystem resilience – the capacity of an ecosystem to continue to function and restore itself during or after disturbance – is critical for security of supply of food, water and many other resources. Evidence suggests that ecosystems with high levels of biodiversity are more resilient[14], and high carbon ecosystems often have high biodiversity[15]. Investment in maintaining resilience is in effect a cheap and effective way of ensuring vital ecosystem services.

Adaptation

Intact forest systems provide a variety of ecosystem functions that could help protect against many stresses that will increase under climate change[16]. These include water purification, flood control, coastal protection, slope stabilization, providing food, energy, materials and medicinal products, and protecting against erosion and desertification[17].



Carbon sequestration

Most forests **sequester carbon**. In Europe, forests absorb 7-12 per cent of European carbon emissions from the atmosphere[18]. Tropical moist forests continue to sequester carbon in old-growth stage, as shown by research in the Amazon[19] and Africa[20]. Old-growth boreal forests also sequester carbon[21] although increased fire and other human disturbances[22] mean that individual boreal forests may be carbon neutral or even a source of emissions. Natural regeneration, managed restoration and reforestation also sequester carbon.

THE NEED FOR A MECHANISM TO STOP DEFORESTATION

How REDD+ can support the Cancun agreement to slow, halt and reverse the loss of forest cover and carbon[23].

Chapter 1 of the Living Forests Report compared land-use change scenarios in the quest to achieve and sustain ZNDD. This chapter looks at ZNDD from the perspective of carbon emissions, and the resulting impacts on climate. More specifically, it explores how the proposed **REDD+** (Reducing Emissions from Deforestation and Degradation plus) mechanism can help achieve a radical reduction in deforestation. REDD+ aims to make tropical forests more valuable standing than cut down by providing financial incentives to developing countries to maintain their forests. It consists of five integrated activities agreed at the Cancun UNFCCC meeting[24]:

1. Reducing emissions from deforestation
2. Reducing emissions from forest degradation
3. Conservation of forest carbon stocks
4. Sustainable management of forests
5. Enhancement of forest carbon stocks

REDD+ is at a crossroads. It has the potential to mitigate climate change, conserve biodiversity and reduce poverty, but at the international level, discussions on REDD+ are complex and support is fragmented, with a huge funding gap from 2012 to 2020. The challenge is to get REDD+ right by deciding upon methodologies that benefit the climate, people and nature. Issues to be resolved include how to set reference levels, monitoring, reporting, verification, and social and environmental safeguards. There are also challenges at national and local levels around when and how REDD+ should be implemented, which is why WWF advocates a phased approach[25].

This chapter will focus on two higher level priorities: a ***clear vision and target*** and ***adequate funding***. These are two critical enabling conditions that need to be in place at the international level for REDD+ to move forward. The key question is: ***What urgent actions do REDD+ stakeholders need to take now to make REDD+ work for people and nature?*** We return to this in the conclusions.

Achieving ZNDD by 2020 depends on preventing “unnecessary” forest loss: forests squandered because of poor planning and governance, including unregulated or illegal forest clearing, poor forest management and inefficient agriculture. Amazon forest fire, Acre State, Brazil. © Mark Edwards / WWF-Canon

WHY DOES REDD+ MATTER?

REDD+ offers the best prospects of reducing global forest loss and maintaining forest productivity.

International climate change policy now fully recognizes the critical role of forests in achieving the objective of limiting average global temperature rise to 2°C. **UNEP**[26] calculates that reductions in deforestation could cut carbon emissions by at least 2.5 billion tC/year.

REDD+ provides a potentially powerful tool for halting forest loss and achieving low carbon development. It offers the prospect of fresh incentives for managing forests to reduce carbon emissions and to maintain the fullest range of values (such as biodiversity, water supply, soil protection, economic productivity, sustenance and indigenous territories).

REDD+ is, then, a major opportunity to address the drivers of deforestation. It's a chance to transform forest governance, legal frameworks, land use, trade chains and investment patterns to mitigate climate change, curb biodiversity loss and reduce poverty – the very challenges posed by chapter 1 of the Living Forests Report[27].

Reducing forest degradation

Along with reducing forest loss, important additional, cost-effective carbon savings are possible from reducing and reversing forest degradation. Controlling illegal logging, managing forests more sustainably (for example through the reduced impact logging practices promoted by the **FSC**) and introducing measures to limit forest fires can all reduce carbon emissions. Management improvements can also sometimes increase carbon sequestration in managed forests[28]. Research in Sabah, Malaysia, found that improved management increased carbon by 54 tC/ha[29] and multiple studies found average carbon emissions from forestry could be reduced by 30 per cent[30] through management changes. One overview suggests at least 0.16 GtC/year could be saved from tropical forests designated for management as production forests[31], although reduced impact logging can also reduce forestry profits[32].

REDD+ OFFERS FRESH INCENTIVES FOR MANAGING FORESTS TO REDUCE CARBON EMISSIONS AND TO MAINTAIN THE FULLEST RANGE OF VALUES SUCH AS BIODIVERSITY, WATER SUPPLY, SOIL PROTECTION, ECONOMIC PRODUCTIVITY, SUSTENANCE AND INDIGENOUS TERRITORIES

TALKING POINT: THE CBD'S VIEW ON REDD+ AND BIODIVERSITY

WE WILL ONLY ACHIEVE TARGETS WITHIN THE CURRENT UNITED NATIONS DECADE ON BIODIVERSITY IF WE ACHIEVE SYNERGIES BETWEEN THE INTERNATIONAL AGREEMENTS THAT DEAL WITH FORESTS, AND IF WE DEVELOP A WELL-DESIGNED, WELL-FUNDED REDD+ MECHANISM THAT MAINTAINS AND ENHANCES BIODIVERSITY, AND SUPPORTS LOCAL AND INDIGENOUS COMMUNITIES

BIODIVERSITY IS AN ESSENTIAL ENABLING CONDITION FOR REDD+

THE CBD HAS WELCOMED REDD+ AS A POTENTIAL CONTRIBUTION TO THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY

© Y.-J. Rey-Millet / WWF-Canon

The Convention on Biological Diversity (CBD) has welcomed REDD+ as a potential contribution to the conservation and sustainable use of biodiversity. In turn, biodiversity is an essential enabling condition for REDD+.

We support our Parties and sister Rio Convention, the UNFCCC, by developing advice for appropriate biodiversity safeguards for REDD+ and by helping Parties to enhance REDD+ benefits for biodiversity and for indigenous and local communities. The need to harness the full potential of REDD+ for biodiversity, and the need for better coordination at national, regional and international level between biodiversity and climate change agendas are key messages we have heard repeatedly in consultations with over 100 Parties.

The new Strategic Plan for Biodiversity 2011-2020 aims to:

- **at least halve deforestation and bring it close to zero where feasible;**
- **manage all forests sustainably; conserve at least 17 per cent of all land; and**
- **restore at least 15 per cent of all degraded forests – all by 2020.**

We will only achieve these targets within the current United Nations Decade on Biodiversity if we achieve synergies between the international agreements that deal with forests, and if we develop a well-designed, well-funded REDD+ mechanism that maintains and enhances biodiversity, and supports local and indigenous communities.

Dr Ahmed Djoghlaf, Executive Secretary, CBD secretariat

ZERO NET DEFORESTATION AND DEGRADATION

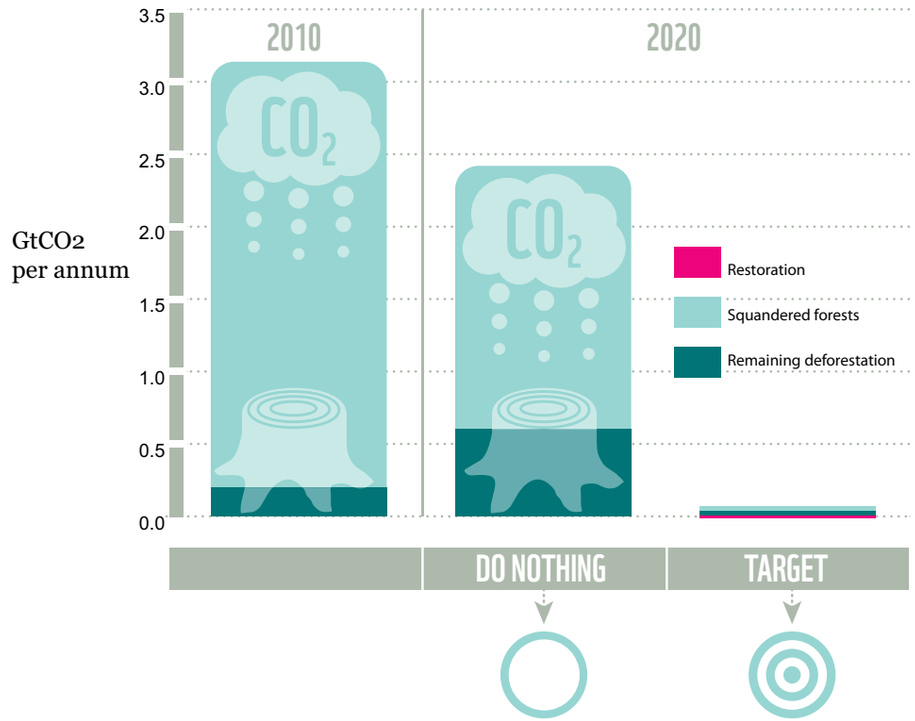
The Living Forests Model shows that ZNDD by 2020 is possible without critical repercussions on food, energy and biodiversity, and is needed to sustain vital ecosystem services. But how can this be achieved?

According to the Living Forests Model, the key challenge in achieving ZNDD by 2020, and thus cutting carbon emissions from forests, is improving governance and planning. Major institutional reforms are needed to remedy perverse incentives, corrupt licensing, disputes over land tenure, land-use decisions driven by poverty and inefficiencies, all of which are leading to the squandering of vital forest resources[33]. Two enablers – a global target and financing – are needed if REDD+ is to be applied at the scale and pace needed to achieve ZNDD by 2020.

An inspiring vision and target: A clear, ambitious and measurable global target for reduced emissions from deforestation and forest degradation is a vital step towards limiting warming to well below 2°C[34], alongside an overarching target for curbing global emissions. WWF has two global targets for 2020 – ZNDD, and no net greenhouse gas emissions from deforestation and degradation – that together provide a framework for countries to formulate ambitious national visions and targets*. These are needed to translate the preamble of the Cancun agreement – "Parties should collectively aim to slow, halt and reverse forest cover and carbon loss, according to national circumstances" – into action and finance on a sufficient scale.

New and additional, predictable and adequate financing, now: One factor that will make or break efforts to reduce forest loss is financing. ZNDD can only be achieved with a major and immediate scaling up of investments in maintaining tropical forests. The proposed REDD+ mechanism is the most feasible vehicle currently available to encourage and channel the necessary public and private finance.

*These targets are set within a context of WWF's overall mission; of particular relevance here is the objective of converting to 100 per cent renewable energy (www.panda.org/**energy**report), discussed in chapter 2 of the *Living Forests Report*.



Emissions ($GtCO_2$ per annum) from deforestation in 2010 and projected in 2020 under the Do Nothing and Target Scenarios.

Emissions from deforestation in the Do Nothing Scenario continue at high levels. The projections show that a major proportion of this deforestation, and resulting CO_2 emissions, are from 'squandered forests': that is, they are driven by poorly planned and governed exploitation of forest resources, rather than by actual global need for those resources. In the Target Scenario (ZNDD), loss of natural forests is reduced to near zero and emissions from any remaining deforestation are compensated for by restoration.

WHAT IS THE RELATIONSHIP BETWEEN CARBON EMISSIONS AND DEFORESTATION?

THE RELATIONSHIP BETWEEN FORESTS AND CARBON BECOMES COMPLICATED WHEN TARGETS ARE PURELY EMISSIONS-BASED AND FALL SHORT OF ZERO NET EMISSIONS

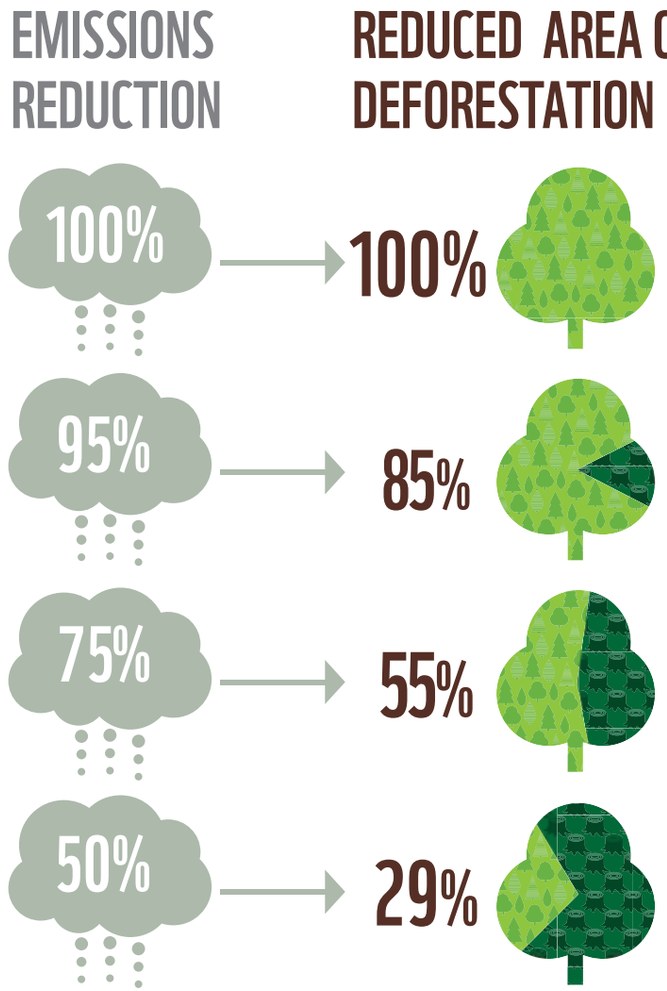
ZNDD will likely change forests from being a net source of carbon to a net sink.

In Cancun in 2010, the parties to the UNFCCC agreed to "slow, halt and reverse forest cover and carbon loss" to reduce climate change. **WWF believes both *area* and *emission*-based targets are needed**. Area-based targets should come first, followed in the longer term by monitoring, reporting and verification (MRV) of emission reductions and the carbon elements of UNFCCC forest targets. The area of forest lost or retained does not always translate to equivalent losses or gains in forest carbon emissions. Emissions can continue for years after deforestation due to decay and soil erosion; there is also a lag due to the slow rate at which carbon accumulates in restoration forests.

ZNDD is likely to cut carbon emissions to zero, albeit with a time lag. ZNDD also allows for an expansion of the area of forests that are managed for production, provided there is no net loss of quality (degradation) in these forests. Achieving zero emissions in newly managed forest areas will depend on the extent to which management practices are carbon neutral or even increase carbon sequestration.

But the relationship between forests and carbon becomes complicated when targets are purely emissions-based and fall short of zero net emissions. A narrow aim to cut carbon emissions will logically focus on high-carbon forests, with the likely result of less intervention to decrease loss and degradation in extensive, low-carbon forests. Some of these low-carbon forests, like Brazilian **cerrado** and African **miombo**, are rich in biodiversity and provide important ecosystem services. As an example of the non-linear relationship between area- and emissions-based accounting, the Living Forests Model projects that a 50 per cent reduction in emissions from forests would only reduce deforestation by 29 per cent (see figure).

This means that, if REDD+ is truly going to support biodiversity conservation and other goals that depend on preventing forest loss, it needs ambitious area-based targets for reducing deforestation. Additional biodiversity safeguards, along the lines of the **Pro-Nature Scenario**, which assumes protection for the highest biodiversity ecosystems outside forests, are also needed.



The relationship between targets to reduce emissions from deforestation and the area deforested.

The figure shows how different targets for reducing emissions from deforestation (expressed as a percentage reduction on projected emissions from gross deforestation in 2030 in a Do Nothing Scenario) impact the area deforested (expressed as a percentage reduction on the projected gross deforestation rate in 2030 in a Do Nothing Scenario).

Boreal forests sequester carbon, although increased fire and other human disturbances mean that individual boreal forests may be carbon neutral or even a source of emissions. Oulanka, Finland. © Wild Wonders of Europe /Staffan Widstrand /WWF

IMPLEMENTING REDD+ IN BRAZIL

Brazil provides a powerful example of how REDD+ might operate to reduce climate change, conserve forests and promote low-carbon economies.

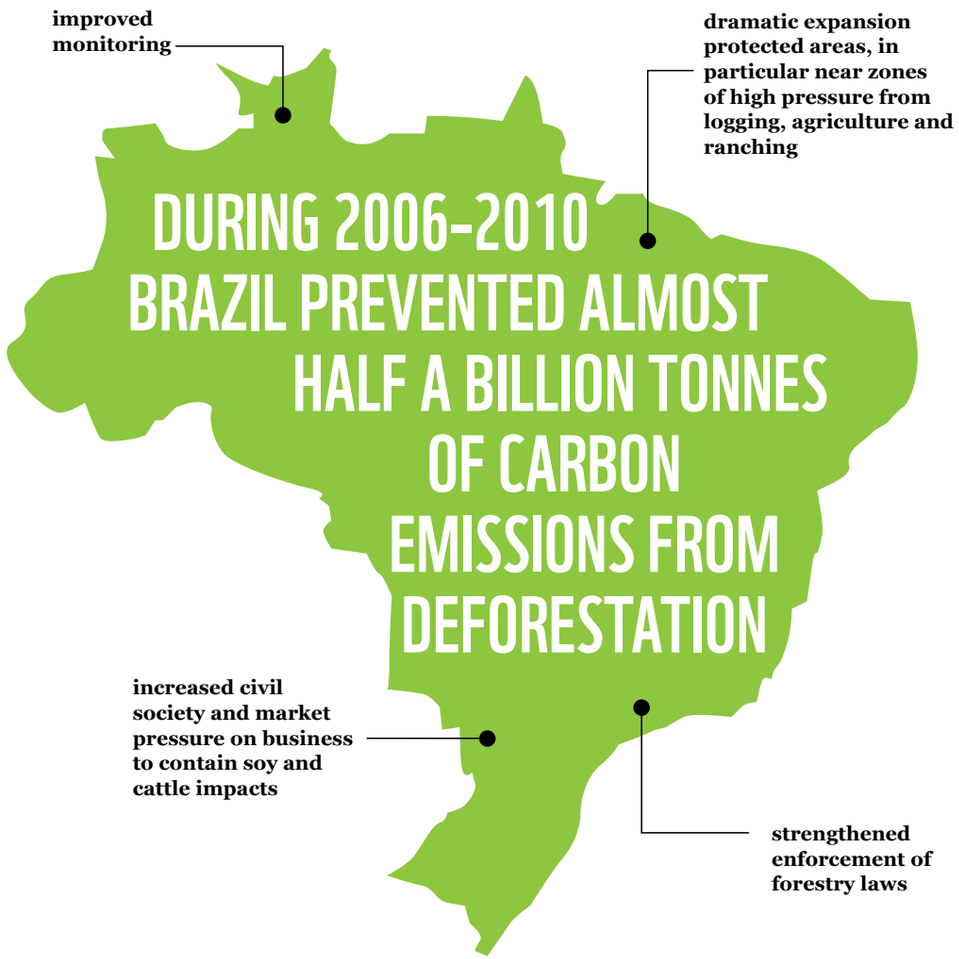
Brazil has had remarkable success in reducing deforestation. During 2006-2010, it more than halved the rate of deforestation in the Amazon region compared to the previous five years, preventing almost half a billion tonnes of carbon emissions. Significantly, this was achieved while increasing agricultural production and reducing poverty. Several actions combined to produce this result:

- a dramatic expansion protected areas, in particular near zones of high pressure from logging, agriculture and ranching
- strengthened enforcement of forestry laws
- increased civil society and market pressure on business to contain soy and cattle impacts
- improved monitoring.

Within this context, the recent emergence of financing for REDD+ based on a payment-for-performance principle is especially timely[35].

Acre state, the home of the murdered rainforest activist and rubber tapper leader Chico Mendes, stands out for its innovative Payment for Ecosystem Services (**PES**)-REDD+ programme[36], designed through extensive consultation involving diverse governmental and civil society organizations, including WWF. Instead of a project-by-project approach as followed in other jurisdictions, the government of Acre first embarked on defining a state-wide, programmatic approach to REDD+. The programme aims to reduce deforestation by 80 per cent by 2020, diminishing CO_2 emissions by up to 133 million tonnes.

By the end of 2010, over 2,000 families were participating. In exchange for protecting forests, they receive financial incentives, in the form of annual payments based on verified performance, and support to develop sustainable livelihoods, including technical and marketing assistance for agricultural products. A zoning system has identified the most threatened forests, and expanding the programme is a priority in these areas. The PES-REDD+ programme links financial flows and services directly to those providing environmental services in priority areas, and to national goals. It is part of a larger system that aims to value other environmental services such as biodiversity and hydrology. The premise is that REDD+ works best within a wider set of incentives for low carbon sustainable development[37].



CASE STUDY: ELEMENTS OF REDD+ IN BRAZIL

Brazil demonstrates the components of a successful strategy to use forest conservation to meet global climate targets. However, changes to the Forest Code threaten this progress.

Brazil has developed new policy frameworks around PES and low-carbon development which have helped to conserve forests. The approach is based on rewarding performance and outcomes, simplifying administration, managing impacts at scale and focusing on the root causes. Five key components are:

Brazil's 1965 Forest Code establishes a percentage of rural properties that should be maintained permanently in forest ("Legal Reserves"), and also prohibits clearing of vegetation on steep slopes and along the margins of rivers and streams ("Areas of Permanent Protection"). In 2011, the House of Representatives passed a bill that would drastically reduce the requirement for Legal Reserves and essentially dismantle the concept of Areas of Permanent Protection. Despite opposition by civil society groups including WWF, the House passed the bill with a substantial majority and it is currently under review in the Senate. Studies[38] estimate that, under a worst case scenario, the natural vegetation could be cleared or not restored over an area of 71.0-76.5 million hectares (roughly equivalent to Germany, Italy and Austria combined), resulting in emissions of 26-29 billion tonnes of CO_2e or about four times the goal for global emissions reductions under the Kyoto Protocol during 2008-12.

At the heart of these concepts is a significant shift toward: (1) an approach based on rewarding performance and outcomes (2) new policy frameworks around PES/low carbon development designed to increase effectiveness and simplify administrative complexity and (3) managing impacts at scale and at the root causes.

Even with these components in place, the Brazilian achievements remain fragile, and could be reversed if proposed amendments to the Brazilian Forest Code come into force (see Box). This experience shows that improved governance can have a rapid impact in reducing deforestation – but also that governance reforms are vulnerable to political forces and can just as easily be undone.

Globally, the challenge remains enormous. During the period that Brazil was achieving impressive reforms, Indonesia and Peru increased their deforestation by almost 50 per cent. REDD+ must walk a fine line – accelerating reform in forest and land management at the pace and scale needed to achieve ZNDD by 2020, while recognizing that rushed processes may not achieve effective and enduring improvements in governance if they do not ensure adequate stakeholder involvement and capacity building.

The burden of climate change is expected to fall disproportionately on the poorest communities; REDD+ should provide benefits to local and indigenous communities, such as payment for their forest stewardship and empowering them to assert their rights to forest resources. Baka family, Cameroon. © Martin Harvey / WWF-Canon

PRINCIPLES FOR SUCCESS IN REDD+

With CARE and Greenpeace, WWF proposes five principles that should be embodied in REDD+ readiness frameworks and projects.

1 CLIMATE TARGETS

REDD+ demonstrably contributes to greenhouse gas emission reductions, with national goals working toward a global objective

Countries like Brazil and Indonesia have set deforestation reduction targets, but there is no time-bound global target under the UNFCCC. In 2008, delegates to the CBD from 67 countries pledged support for WWF's call for zero net deforestation and degradation by 2020. The CBD has since resolved to halve forest loss by 2020 and where feasible bring this to zero: not enough, but the sort of language needed in a REDD+ agreement.

2 BIODIVERSITY

REDD+ maintains and/or enhances forest biodiversity and ecosystem services

REDD+ presents a key opportunity to finance conservation and natural forest restoration, yet current REDD+ efforts do not always identify biodiversity conservation as an explicit goal. REDD+ should: *prioritize forests with high biodiversity, endemism and threatened species* (such as in the Amazon, Congo basin, African miombo woodlands, Sumatra and Borneo, New Guinea and the Mekong Annamite Range)*; focus on areas of greatest forest loss and take action at an ecosystem scale*[39].

3 LIVELIHOODS

REDD+ contributes to sustainable and equitable development by strengthening the livelihoods of forest-dependent communities

Forests support 1.6 billion people and provide a home for 300 million[40]. Developing countries face 75-80 per cent of the potential damage from climate change[41], with a disproportionate burden on the poorest communities. REDD+ should provide benefits to local and indigenous communities, such as remuneration for their forest stewardship and empowering them to assert their rights to forest resources.

4 RIGHTS

REDD+ recognizes and respects the rights of indigenous peoples and local communities

This includes promoting land tenure, self-determination, free, prior and informed consent for any REDD+ projects, and strong social safeguards. Care is needed to manage the tension between the need for speed in scaling up REDD+ and the time required to respect traditional decision-making processes and implement social safeguards.

5 FAIR AND EFFECTIVE FUNDING

REDD+ mobilizes new and additional, predictable and adequate finance for action in priority forest areas in an equitable, transparent, participatory and coordinated manner

Disbursing large sums of money, particularly in countries with a history of weak governance and corruption, presents major institution-building challenges. These challenges should be addressed through a phased approach to REDD+: funding should initially support "readiness" activities at national or sub-national level[42], leading to performance-based payments once projects are put into practice[43]. But the sums required are tiny compared to climate change costs.

TALKING POINT: REDD+ AND FOREST-DEPENDENT COMMUNITIES

COORDINADORA DE LAS ORGANIZACIONES INDÍGENAS DE LA CUENCA AMAZÓNICA

TRADITIONAL COMMUNITIES AND INDIGENOUS PEOPLES MUST HAVE THE POWER TO DECIDE WHAT HAPPENS TO THE LAND WITH WHICH THEY ARE LINKED

THE PRESENCE OF INDIGENOUS COMMUNITIES IN THE AMAZON FOREST HAS PREVENTED DEGRADATION AND DEFORESTATION

TRUE SOLUTIONS REQUIRE CHANGING THE OLD "DEVELOPMENT" PARADIGM, WHICH IS IN CONTRADICTION WITH NOT ONLY INDIGENOUS RIGHTS BUT THE PRINCIPLES OF REDD+

Contemporary economics rarely considers the multiple benefits that forest-dependent communities derive from ecosystems, or the institutional principles and organizational processes of indigenous peoples. Gaining respect for, and strengthening, our rights and institutions has been, and will continue to be, the foundation of our struggle, even though they are now recognized in the United Nations Universal Declaration on the Rights of Indigenous Peoples.

The presence of indigenous communities in the Amazon forest has prevented degradation and deforestation[44]. There are many reasons for this: our worldview, our social organization, our sustainable production systems. However, communities are being overwhelmed by the pressures, incentives and "temptations" of industrial agriculture. If no changes in legislation or public policy reverse this trend, indigenous lifestyles will inevitably favour market-oriented behaviour, increasing the risk of deforestation.

It seems only rational and effective for national economies to strengthen the livelihood of forest-dependent peoples. Whatever the structure of REDD+ in terms of actors, rights or distribution of benefits, if local stakeholders do not see a significant improvement in their livelihoods, the risk of deforestation and degradation will remain high.

The fundamental right of indigenous peoples is the right to their territory. In some countries this right, and access to natural resources, is accepted, recognized, established and formalized as law. In the vast majority there are still conflicts between ancestral rights, customary law and "modern" rights granted by governments. Of equal importance, the right to consultation and free, prior, informed and binding consent (ILO Convention 169, UN Declaration on the Rights of Indigenous Peoples) has become law in a few – but not enough – countries. Traditional communities and indigenous peoples must have the power to decide what happens to the land with which they are linked.

REDD+ is based on access to carbon, which is an intrinsic part of the forest. The fact that REDD+ requires new legal processes to make explicit this service should not undermine the rights of indigenous communities to their territories, the forest and its natural resources. If proper discussion does not take place, or problems arise from ambiguous definitions, or indigenous rights are ignored, conflicts will perpetuate.

True solutions require changing the old "development" paradigm, which is in contradiction with not only indigenous rights but the principles of REDD+. Indigenous peoples are in a unique position to help change this paradigm. We are actors with rights. So despite existing differences, indigenous organizations should participate in the discussions, design and development of strategies for REDD+. Our full and effective participation can highlight inconsistencies and help implementation move forward with new, effective and equitable approaches.

Coordinator of the Indigenous Organizations of the Amazon Basin – COICA

WHAT IS NEEDED TO MAKE REDD+ WORK FOR PEOPLE?

REDD+ has major implications for poor, marginalized forest-dependent peoples[45].

SOME INDIGENOUS LEADERS QUESTION WHETHER MARKET MECHANISMS CAN CONTROL DEFORESTATION

Some indigenous peoples and communities living in forest regions are engaging in REDD+ schemes; others oppose the concept. All share some concerns. REDD+ might reduce security of land and resource tenure, encourage land grabs[46] and lead to increased state control and exclusionary forest conservation[47]. Indigenous peoples' organizations have protested against limited participation and influence in negotiations at UNFCCC and for national frameworks[48]. They fear that weak resource rights may prevent them from receiving expected benefits, and "forest destroyers" may gain more than forest stewards. REDD+ could create conflicts within communities. Some indigenous leaders question whether market mechanisms can control deforestation[49] and worry that REDD+ will allow industrialized nations to continue "business as usual" rather than cut emissions.

The International Indigenous Peoples Forum on Climate Change proposed some key conditions (abbreviated)[50], which WWF supports and believes can address these concerns:

REDD+ MUST RECOGNIZE AND RESPECT THE RIGHTS OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

KEY CONDITIONS

1

Recognize and respect the rights of indigenous peoples and local communities, while ensuring gender equality, in particular rights to lands, territories and resources. REDD+ should encourage the development of these rights where they do not exist.

2

Ensure the full and effective participation of indigenous peoples and local communities, in accordance with the right to free, prior and informed consent.

3

Recognize the fundamental role and contribution of indigenous peoples' traditional knowledge, innovations and practices.

OTHER USEFUL STEPS

4

Ensure that safeguards are built into all REDD+ readiness frameworks and projects, in accordance with WWF's Statement of Principles on Indigenous Peoples and Conservation

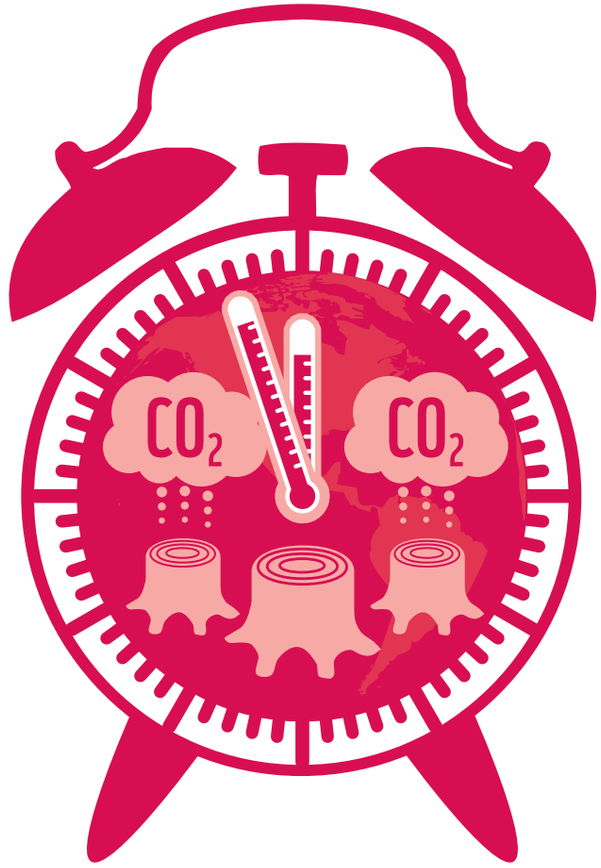
5

Collaborate proactively with indigenous organizations and communities on specific and agreed national processes and/or projects.

WWF is supporting the first community forestry concession test case in Kutai Barat, Indonesia. With 40,000 hectares under community management, the project is helping strengthen land tenure, as well as provide opportunities for increased income for the people of Kutai Barat. Long Tuyo, Indonesia. © WWF-Canon / Simon Rawles

INVESTING IN REDD+ TODAY

Delays are dangerous; if we are serious about keeping average temperature rise below 2°C, we need to start now.



Couldn't we wait a few years and see if other options emerge before deciding to invest big money in REDD+? There are good arguments for investing now.

- **The longer we wait the more forests we lose…**
  The Living Forests Model projects that waiting until 2030 before achieving ZNDD (**Target Delayed Scenario**) would sacrifice another 69 million hectares of forest worldwide[51], along with the associated natural, social and cultural capital. Local and indigenous communities' livelihoods would be destroyed. Species would go extinct. Purely economic calculations do not take account of these huge costs.

- **…and the more CO_2 is emitted…**
  Our projections suggest that delaying ZNDD until 2030 would mean emitting at least an additional 24 $GtCO_2$ into the atmosphere, not counting losses from forest degradation or the carbon stored below ground; as the area of deforested land increases, additional carbon is emitted through soil respiration.

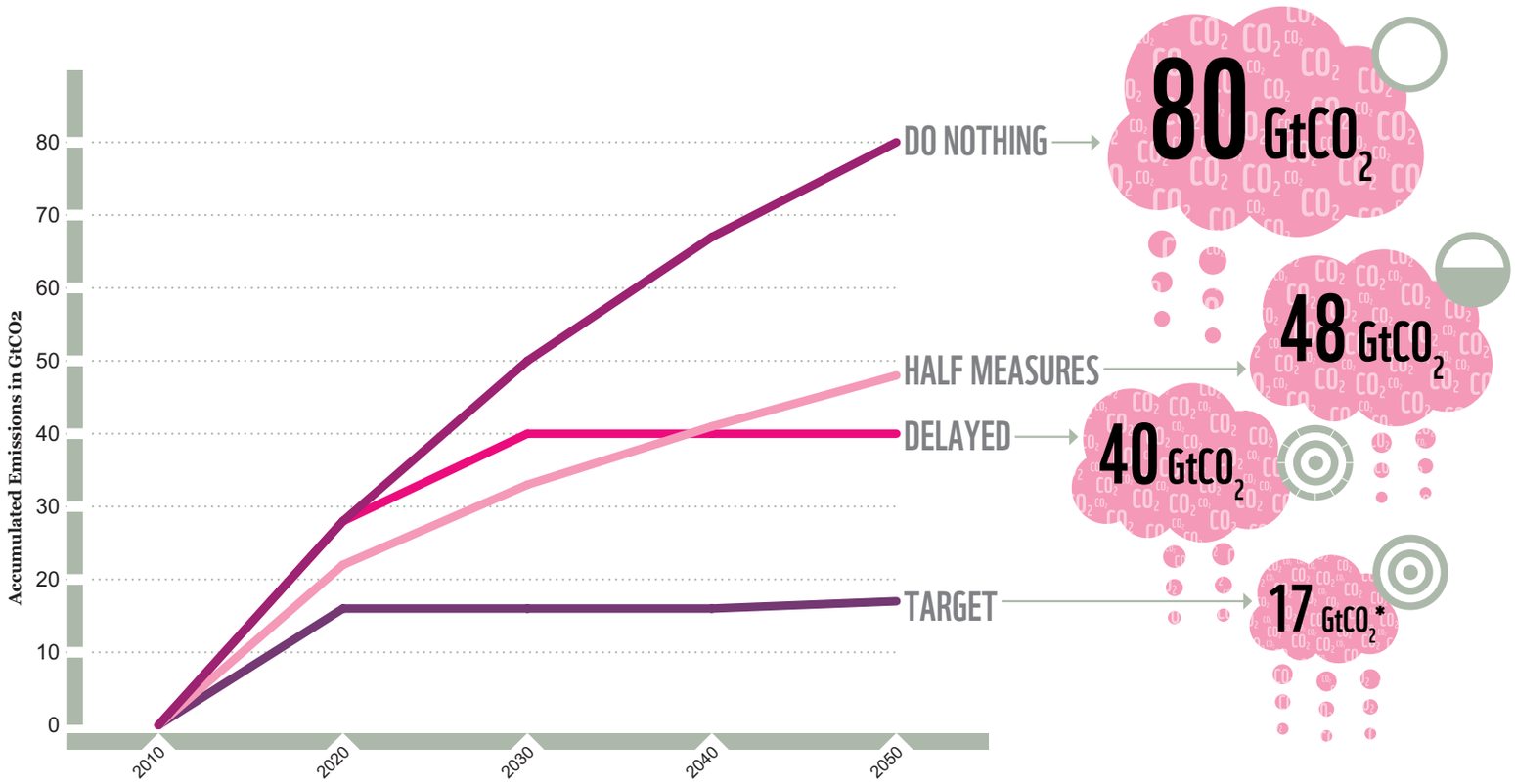
- **…increasing the risk of runaway climate change**
  For instance, a combination of high temperatures and water stress could lead to widespread forest loss in boreal regions, triggering a sudden, massive release of carbon from Arctic peat[52].

- **We cannot plant our way out of the problem**
  The Living Forests Model projects a major expansion of short rotation plantations, but shows that new plantations would not begin to sequester enough carbon to offset emissions from deforestation until more than 30 years from now; in the meantime vast areas of natural forest would be lost and a total of 54 $GtCO_2$ would be released.

- **Acting now will reduce long-term costs**
  Authoritative overviews such as the Stern Report[53], Eliasch Review[54] and McKinsey Report[55] into the consequences of climate change all agree that delaying action will create major increases in the total costs of mitigation and adaptation.

- **The REDD+ moment has arrived**
  Although there has historically been a link between development and deforestation, there is no longer any compelling reason why this should be the case. There are many reasons to promote a development model that retains extensive natural forests. REDD+ has arrived at an ideal time to help "flip" countries from being major forest carbon emitters to being forest carbon savers – the Brazilian state of Acre has shown how this can be achieved.

INVESTING IN REDD+ TODAY

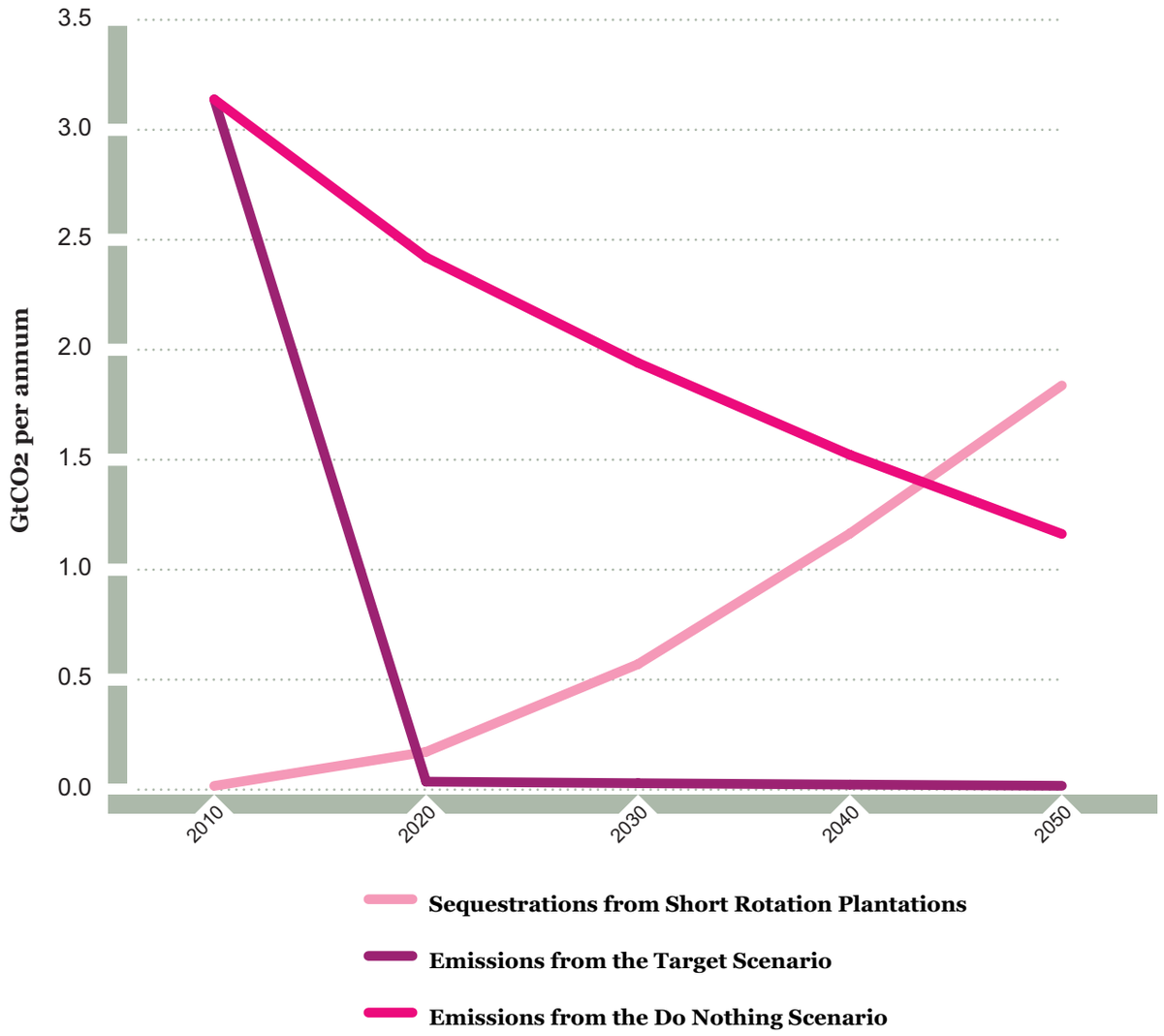


Cumulative emissions of above-ground carbon from deforestation (GtCO2)

Soil emissions are also hugely important, but we lack at present suitable data sources to model their significance accurately over the next 40 years. Including them in the Living Forests Model would increase emissions substantially. It is estimated, for example, that in addition to storing around 160 tC/ha in above-ground biomass, tropical forests store some 40tC/ha below ground and 90-200tC/ha as soil carbon[56]; some 50-80 per cent of the total carbon stock in miombo forests is in the top 1.5 metres of soil[57] and boreal forests store major amounts of carbon in soil and leaf litter.

*This is primarily from emissions between 2010 and 2020 before the target of ZNDD is reached.

INVESTING IN REDD+ TODAY



Projected annual emissions of $GtCO_2$ 2010 to 2050. The figures, for above ground carbon only, show that under the Do Nothing Scenario, the annual rate at which carbon is sequestered in short rotation plantations planted from 2010 onwards will not exceed the rate at which carbon is emitted through deforestation (gross emissions) until 2045; this "break-even" point would most likely be even further delayed if soil carbon were included in the calculation, as soil in areas already deforested continues to lose carbon.

COSTS OF REDD+

Achieving ZNDD and zero forest carbon emissions through REDD+ means a major increase in investment.

REDD+ financing needs to cover a wide range of costs:

- designing and implementing policies
- opportunity costs
- activities to address drivers of deforestation, improve traditional subsistence agriculture and clarify carbon tenure and user rights
- monitoring, reporting and other transactions
- implementing safeguards and strengthening governance.

How much will it cost?

Most available figures on REDD+ implementation are top-down (international) estimates. REDD+ finance should instead be based on actual country financing needs. WWF encourages countries to derive bottom-up estimates, and we support a process under the UNFCCC to develop a common methodology and assumptions to help them do this. Various estimates have been derived, mainly based on opportunity costs alone. WWF supported an NGO estimate of a minimum US$42 billion per year by 2020[58]; the latest UNEP estimates show US$17-33 billion per year is needed to achieve a 50 per cent reduction in deforestation by 2030[59]. These are minimum estimates: they tend not to include additional costs of conserving standing forests and avoiding leakage, which is necessary to comply with REDD+. Transaction costs (which mainly address governance) could be of the same magnitude as opportunity costs, at a minimum doubling current financing estimates.

SOURCES OF REDD+ FUNDING

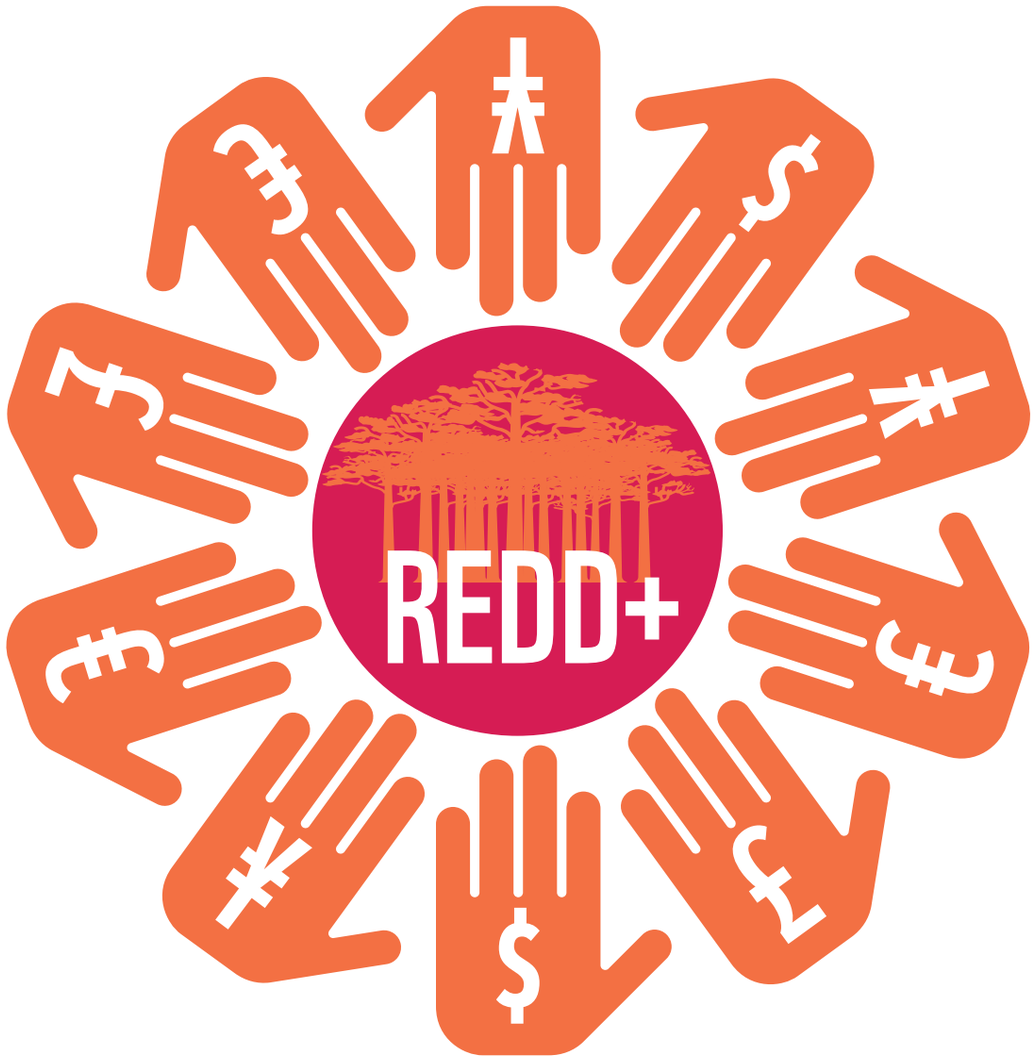
REDD+ will require new and additional, predictable and adequate funding from multiple sources.

Multiple funding sources are crucial to scale up REDD+ finance and to close the funding gap between current financial commitments and the resources required. Governments will not be able to do this on their own, and a proportion of public money needs to be used to help leverage a rapid and substantial increase in private investments. WWF supports REDD+ financing coming from multiple sources, including national budgets (domestic and international development aid), new sources such as financial taxes and mechanisms to generate finance from the international aviation and shipping sectors, and carbon markets. However, we believe REDD+ financing should be additional to international development aid commitments.

Available public funds pledged for REDD+ (though not yet fully disbursed) from donor countries stand at US$7 billion until 2012, but pledges up to 2020 are not yet in place. This gap between long-term needs and pledges should be closed by scaling up public investments to mobilize the additional private sector investments required.

In particular, new and innovative sources of public finance for REDD+ are needed. The reality of national and international politics combined with the stretched state of global public finances will make it difficult to generate sufficient, reliable public financial flows from existing sources. We need to look to new sources, including REDD+ finance from forest bonds[60] and other innovative climate adaptation and mitigation financing opportunities, such as measures to address emissions from international aviation and shipping[61].

How appropriate different sources are will ultimately be determined by how effectively they deliver the core objectives of REDD+: reducing deforestation and forest degradation, avoiding dangerous climate change, and respecting social and environmental safeguards.



TALKING POINT: NORWEGIAN GOVERNMENT'S VIEW ON FINANCING REDD+

FOR REDD+ TO SUCCEED WE MUST CREATE A "PRICE SIGNAL" FOR FOREST CARBON – A VALUE ON STANDING FORESTS AND A COST ON EMISSIONS

THE LION'S SHARE OF REDD+ SUPPORT SHOULD BE PAYMENTS FOR VERIFIED EMISSION REDUCTIONS

ADEQUATE AND PREDICTABLE FINANCE IS CRITICAL BUT IN ITSELF INSUFFICIENT TO REDUCE DEFORESTATION

SUSTAINING FORESTS IS IN DEVELOPING COUNTRIES' INTERESTS, AND SEVERAL KEY COUNTRIES HAVE PLEDGED TO FINANCE A SUBSTANTIAL PORTION OF EMISSION REDUCTIONS THEMSELVES

Adequate and predictable finance is critical but in itself insufficient to reduce deforestation. For REDD+ to succeed we must create a "price signal" for forest carbon – a value on standing forests and a cost on emissions that is internalized in private and public sector decision-making through an incentive structure that provides payments for verified emission reductions. Without this, REDD+ would be nothing new, and would certainly fail to "slow, halt and reverse forest cover and carbon loss". Of course, sustaining forests is also in developing countries' interests, and several key countries have pledged to finance a substantial portion of emission reductions themselves.

Perhaps even more significant, a results-based incentive structure would also redirect a significant chunk of the investment currently driving deforestation into conservation and sustainable use.

While support is needed for upfront REDD+ "readiness" reforms, the lion's share of REDD+ support should be payments for verified emission reductions.

While development aid can finance initial REDD+ preparation, it will offer neither the volume nor predictability needed. The international incentive structure must be financed through global or regional carbon markets and/or credible, predictable international "compliance finance" under the UNFCCC.

REDD+ payments need not necessarily match opportunity costs. Addressing governance challenges, for instance, does not mean compensating for lost illegal revenues. Incentives are needed for governance reforms and to compensate legitimate costs. Direct pricing mechanisms at project level only would risk missing key elements of a national strategy such as land-use planning, regulation and law enforcement. International REDD+ payments must move both political reforms and discrete investment decisions towards sustainability on a systemic scale. National monitoring is needed to avoid leakage and the high transaction costs of project-based mechanisms.

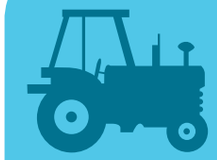
Per Fredrik Ilsaas Pharo, Director, government of Norway's International Climate and Forest Initiative

A RESULTS-BASED INCENTIVE STRUCTURE WOULD REDIRECT INVESTMENT CURRENTLY DRIVING DEFORESTATION INTO CONSERVATION AND SUSTAINABLE USE

TALKING POINT: IS THERE A SILVER BULLET FOR REDD+ FINANCE?

THE ANNUAL COST OF ADDRESSING THE DRIVERS OF DEFORESTATION IS ESTIMATED TO BE US$17-42 BILLION TOTAL COMMITMENTS TO DATE FROM DONOR GOVERNMENTS AMOUNT TO APPROXIMATELY US$7 BILLION

SUCCESS DEPENDS ON SAFEGUARDS THAT ENSURE THE RIGHTS OF INDIGENOUS AND LOCAL COMMUNITIES, AND STRONG PROVISIONS FOR PROTECTION OF BIODIVERSITY



TODAY, THE MARKET REWARDS TURNING FORESTS INTO FARMS AND PLANTATIONS, AND PUTS LITTLE VALUE ON NATURAL FORESTS

Stopping deforestation worldwide would produce significant emissions savings – equivalent to a doubling of global nuclear energy generation capacity[62] – while at the same time have the potential to deliver conservation and livelihood outcomes at scale. Despite the complexity behind drivers of forest loss, many can be addressed in a manner that is economically efficient, relative to other sectors. Nevertheless, the cost is estimated to be US$17-42 billion annually[63], raising the question of whether public sector funding on its own is sufficient.

Total commitments to date from donor governments amount to approximately US$7 billion. While improvement in governance and reduction of perverse incentives are imperatives for success, asymmetries in political will and capacity limit their effectiveness. Addressing root causes of deforestation can only be effective if the private sector is engaged. From the smallholder in the Amazon to a multinational conglomerate operating in several markets, private actors of all descriptions (legal or illegal) comprise the smallest unit of production.

Today, the market rewards turning forests into farms and plantations, and puts little value on natural forests. The absence of an incentive for conserving forests determines the behaviour of landowners, land users and government ministries. When it comes to finance for REDD+, there is no "silver bullet": an effective mechanism will require policy that is wide-ranging, harnessing the power of capital markets while delivering incentives to communities operating at subsistence level. Its success depends on safeguards that ensure the rights of indigenous and local communities, and strong provisions for protection of biodiversity. Rather than window-dressing or co-benefits, these should be viewed as enabling factors for a mechanism that transforms land use in the tropics.

Christian del Valle, Managing Partner, Althelia Climate Fund

CONCLUSIONS

Unless we act now to halt deforestation, the opportunity to keep global temperature rise below 2°C will be lost forever.

Achieving ZNDD would be a major factor in reducing CO_2 emissions into the atmosphere. The Living Forests Model projects that ZNDD by 2020 is technically *feasible;* having a REDD+ regime widely implemented will help make this target *realistic*. As we illustrated in chapter 1 of the *Living Forests Report*, forest degradation and deforestation in tropical countries is a major environmental, social and economic problem, and will continue to be so unless action is taken[64]. Along with improved management of temperate and boreal forests, a sustainable increase in agricultural productivity, the reduction of wasteful consumption and changes in diet, REDD+ is an effective strategy for ZNDD.

REDD+ is currently high on the political agenda. Governments, the private sector and all stakeholders need to take this opportunity to develop REDD+ *right now* – before we deplete our natural resource base further and release more CO_2 into the atmosphere.

First and foremost, international drivers of deforestation must be addressed as an essential enabling condition for REDD+; otherwise, REDD+ projects could encourage perverse results such as land grabbing for bioenergy, thus undermining their overall effectiveness[65]. Then, REDD+ regimes must follow the principles set out on page 14 and operate under strict environmental and social safeguards, or the full potential benefits will not be realized.

WHAT YOU CAN DO TO HELP REDD+ SUCCEED

GOVERNMENTS CAN

- **Integrate REDD+ into programmes for low-carbon sustainable development**.
- **Use REDD+ as a major opportunity to address the underlying drivers of deforestation** and transform forest governance, legal frameworks, land use, commodity trade chains and investment patterns to address the combined threats from climate change, biodiversity loss and poverty.
- **Use REDD+ to develop clear rights to lands, territory and resources** for indigenous peoples and local communities.
- **Base land-use decisions affecting forests on transparent planning processes** to achieve an optimal distribution of natural forests, plantations, agricultural areas, urban areas and other land uses in a given landscape. Such processes should include well-informed negotiations among a wide range of stakeholders to balance ecological, social and economic dimensions of natural resource use across the landscape.
- **Adopt responsible public procurement policies to help reduce carbon footprint** for all products made from raw materials potentially linked to deforestation. Such policies should recognize credible voluntary certification schemes for wood and paper products, bioenergy, and agricultural commodities such as palm oil, soy and others.

THE PRIVATE SECTOR CAN

Develop ZNDD policies in forestry, agriculture and extractive industry and commodity trade chains. Producers can develop and implement best management practices that are consistent with environmental and social safeguards and certification standards. Further up the supply chain, **manufacturers**, **traders and end-users** can procure from these responsible suppliers and reject products linked to deforestation and forest degradation. The financial sector can also apply investment screens based on these safeguards and certification standards.

EVERYONE CAN

Live within the planet's sustainable limits. Individuals, businesses and governments need to assess and reduce their ecological footprints. In particular, the way the richest proportion of the global population lives will have to adapt.

Evidence suggests that ecosystems with high levels of biodiversity are more resilient, and high carbon ecosystems often have high biodiversity. Sumatran forest elephant (*Elephas maximus sumatrensis)*, Indonesia. © naturepl.com /Nick Garbutt / WWF

WWF'S DURBAN CALL FOR ACTION

WWF wants governments and leaders meeting at the UN climate convention (COP 17) in Durban to:

1

Close the REDD+ finance gap through a rapid and dramatic increase in investment from multiple sources. Developed countries need to provide leadership in demonstrating that, even under current economic conditions and fiscal pressures, concrete, feasible and cost-effective sources can be mobilized, and reaffirm their commitment to provide *new and additional, predictable and adequate* REDD+ funding. This will require:

- **an agreement to scale up REDD+ finance** based upon estimates of actual country assessments
- **scaled-up funding for REDD+ phase one and two** from bilateral and multilateral sources, urgently needed to assist developing countries to reach the full implementation phase for REDD+ and achieve the pre-conditions necessary for results-based actions
- **commitments for adequate and predictable funding to support results-based actions** from a flexible combination of public and private sources, including market-based sources as well as scaled-up bilateral and multilateral sources
- **a dedicated REDD+ window created under the Green Climate Fund** to secure a flow of scaled-up, new and additional public finance for REDD+.

2

Estimate global REDD+ finance needs from the "bottom up". More realistic national estimates associated with clear actions, targets and timescales are needed. Durban should start a process under the UNFCCC to develop a common methodology and set of assumptions to derive these "bottom-up" estimates.

3

Scale up REDD+ efforts to demonstrably address climate change through agreement on a process to define a measurable, time-bound, global REDD+ target by COP18.

4

Get REDD+ right by deciding upon REDD+ methodologies that benefit the climate, people and nature.

- **Maximize REDD+ co-benefits for people and nature** through agreement on a common framework for national information systems on safeguards, guided by a harmonized international structure that includes measurable indicators, guarantees transparency and full and effective stakeholder participation, and provides for comparisons between national systems.
- **Avoid "hot air" and reward countries equitably** through agreement on modalities for setting reference levels / reference emission levels to be aligned to principles that ensure additionality, avoid displacement, leakage and double-counting, are based on historic data and provide incentives for countries with low deforestation rates to conserve existing forest carbon stocks.
- **Agree on measuring, reporting and verification (MRV) to be an instrument to generate credibility and public trust** that REDD+ works through demonstrably contributing to: a) significant and permanent greenhouse gas emission reductions, b) addressing the underlying causes of deforestation and forest degradation, c) maintaining and/or enhancing biodiversity and ecosystem services, d) sustainable and equitable livelihoods, e) recognizing and respecting the rights of indigenous peoples and local communities and f) full and effective participation of indigenous peoples and local communities.

5

Develop methodologies to effectively reduce and ultimately reverse the drivers of deforestation including the reform of ineffective legal and governance frameworks, harmonization of land-use policies across different sectors (e.g. agricultural, mining, public infrastructure and forests), the negative footprint of national and international markets and trade, perverse subsidies that result in forest clearing, and the absence of clear land use rights and responsibilities, in time for adoption by COP 18.

GLOSSARY AND ACRONYMS

Carbon sequestration: Carbon sequestration is a biochemical process by which atmospheric carbon is absorbed by living organisms, including trees, soil micro-organisms and crops, and involving the storage of carbon in soils, with the potential to reduce atmospheric carbon dioxide levels.

CBD: Convention on Biological Diversity.

Cerrado: The largest savannah region in South America and biologically the richest savannah in the world.

Climate change: The slow variations of climatic characteristics over time at a given place. Usually refers to the change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is, in addition to natural climate variability, observed over comparable periods.

CO_2: Carbon dioxide.

Do Nothing Scenario: A Living Forests Model projection of what the world could look like if our behaviour continues in line with historical trends. The Do Nothing Scenario anticipates land-use change due to: (a) demands for land to supply a growing global human population with food, fibre and fuel; and (b) continuation of historical patterns of poorly planned and governed exploitation of forest resources. Key assumptions in this scenario are:

- By 2050, world population reaches 9.1 billion and per-capita GDP almost triples.
- Demand for commodities is driven by changes in affluence (measured by GDP) and human population growth.
- Aggregate historical trends in agricultural productivity gains continue.
- The average human diet in a country changes according to historically observed relationships with per-capita GDP.
- Forestry and agricultural production does not expand into protected areas, but unprotected natural habitats can be managed for production of timber or converted to timber plantations, cropland and pasture.
- Total primary energy use from land-based biomass feedstocks doubles between 2010 and 2050 due to projected energy demand and the competitiveness of bioenergy technologies and supply chains.

FSC: Forest Stewardship Council. WWF considers the FSC to be the most credible certification system to ensure environmentally responsible, socially beneficial and economically viable management of forests.

Greenhouse gases (GHG): Those gaseous constituents of the atmosphere, both natural and artificial, that absorb and re-emit infrared radiation and that are responsible for global warming66.

Living Forests Model: Developed for WWF by the International Institute for Applied Systems Analysis (IIASA) the model draws on G4M and GLOBIOM models[67] to show geographically explicit land-use change under different scenarios. The G4M model projects future deforestation and land-use change by extrapolating from historical trends and taking into account future projections for population, GDP and infrastructure. GLOBIOM is an economic model that allocates land and resources optimally based on projected commodity and ecosystem service demands under future GDP, population and policy scenarios.

Miombo: Sparse, dry woodlands of Africa important for their high diversity of large mammals, including populations that make up the well-known East African savannah mammal fauna.

PES: Payments for Environmental Services.

Pro-Nature Scenario: A scenario of the Living Forests Model which projects that the remaining natural ecosystems are conserved (i.e., no further conversion of these ecosystems to cropland, grazing land, plantations or urban settlement) in areas identified as important for biodiversity by at least three separate conservation mapping processes using a UNEP World Conservation Monitoring Centre (UNEP-WCMC) dataset. This scenario assumes that current land uses (e.g., cropland or forestry) in these areas remain constant and continue to produce food or timber[68].

REDD+: A package of actions aimed at (1) reducing emissions from deforestation and forest degradation (REDD) in developing countries; (2) conservation and sustainable management of forests; and (3) enhancement of forest carbon stocks.

Target Delayed Scenario: A projection of the Living Forests Model which projects ZNDD (with near zero gross rate of loss of natural and semi-natural forest) by 2030 and maintained at that level indefinitely.

tC/ha: Tonnes carbon per hectare.

UNEP: United Nations Environment Programme.

UNFCCC: United Nations Framework Convention on Climate Change.

Unnecessary forest loss: Deforestation resulting from poor governance and planning which means we are failing to optimize land use in ways that the Living Forests Model suggests are technically possible (see chapter 1 page 18 for a more detailed discussion of unnecessary forest loss).

Zero Net Deforestation and Forest Degradation (ZNDD): WWF defines ZNDD as no net forest loss through deforestation and no net decline in forest quality through degradation. ZNDD provides some flexibility: it is not quite the same as no forest clearing anywhere, under any circumstances. For instance, it recognizes people's right to clear some forests for agriculture, or the value in occasionally "trading off" degraded forests to free up other land to restore important biological corridors, provided that biodiversity values and net quantity and quality of forests are maintained. In advocating ZNDD by 2020, WWF stresses that: (a) most natural forest should be retained — the annual rate of loss of natural or semi-natural forests should be reduced to near zero; and (b) any gross loss or degradation of pristine natural forests would need to be offset by an equivalent area of socially and environmentally sound forest restoration. In this accounting, plantations are not equated with natural forests as many values are diminished when a plantation replaces a natural forest.

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Please note: new estimates for variables such as carbon emissions, forest area and consumption levels emerge very regularly. In this report we have taken the latest authoritative statistics available, drawing on analysis and opinions of specialists at WWF and IIASA.

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