

Paige McClanahan
Advisor: Erika Weinthal, PhD
December 2008

Avoided Deforestation in the Democratic Republic of Congo

ABSTRACT

Deforestation and forest degradation account for one fifth of greenhouse gas emissions around the world, second only to fossil fuel combustion. While the Kyoto Protocol has no mechanism that aims to stop forest loss, climate negotiators have begun to devise a program – to be built into Kyoto’s successor – that would reward developing countries for “avoiding deforestation” that otherwise would have occurred. Reduced Emissions from Deforestation and Forest Degradation, or REDD, certainly offers a lot of promise: by allowing poor forested countries to earn, and then sell, tradable carbon credits on a global carbon market, the program could generate a substantial amount of revenue. And many observers have argued that these funds could be used to help fight poverty in forest-dwelling communities.

But REDD implementation would not be easy: it would require the technical capacity to measure and monitor forest cover and the governance capacity to both stop forest loss and distribute REDD-derived income. These challenges would be particularly daunting in countries that already struggle to govern effectively. To consider this issue in greater depth, this paper uses the Democratic Republic of Congo as a lens through which to examine the challenges of REDD implementation, especially with regard to how the program might impact the country’s poor forest dwellers. The paper concludes that, in the face of such governance challenges, the DRC should take concrete steps to create a facilitating environment for the program’s implementation. These steps include increasing investment in the forest sector, strengthening land tenure among forest-dwelling people, devolving more control over forests to local actors, and taking measures to increase transparency and combat corruption.

Introduction

Deforestation and forest degradation account for one fifth of greenhouse gas emissions around the world, second only to fossil fuel combustion. The vast majority of forest loss occurs in developing countries, where agriculture, cattle-raising, illegal logging, mining, and urbanization, among other factors, are causing deforestation to spread. While the Kyoto Protocol has no mechanism that aims to stop forest loss, climate negotiators have begun to devise a program – to be built into Kyoto’s successor – that would reward developing countries for “avoiding deforestation” that otherwise would have occurred. Reduced Emissions from Deforestation and Forest Degradation, or REDD, certainly offers a lot of promise: by allowing poor forested countries to earn, and then sell, tradable carbon credits on a global carbon market, the program could generate a substantial amount of revenue. And many observers have argued that these funds could be used to help fight poverty in poor forest-dwelling communities.

But REDD implementation would not be easy: it would require the technical capacity to measure and monitor forest cover and the governance capacity to both stop forest loss and distribute REDD-derived income. These challenges would be particularly daunting in countries that already struggle to govern effectively. To consider this issue in greater depth, this paper uses the Democratic Republic of Congo as a lens through which to examine the challenges of REDD implementation, especially with regard to how the program might impact the country’s poor forest dwellers.

Background on Deforestation

Forests play a critical role in regulating global temperatures through their capacity to store vast amounts of carbon dioxide. As countries begin to negotiate the international climate treaty that will succeed the Kyoto Protocol, a great deal of attention has focused on trying to monetize forests’ capacity to sequester carbon by allowing heavily forested developing countries to earn tradable carbon credits for preventing deforestation. Many analysts argue that such a policy, known as Reduced Emissions for Deforestation and Forest Degradation in Developing Countries (REDD), has the potential to provide local-level financial incentives to combat illegal logging.¹

Scientists have estimated that the world’s forests may contain up to 600 gigatons of carbon, significantly more carbon than is currently found in the atmosphere.² The destruction of forests has a doubly negative impact on climate change, since deforestation both eliminates potential carbon reserves and results in substantial carbon emissions as the trees are cut down. Indeed, deforestation from burning and cutting alone accounts for as much as one fifth of greenhouse gas emissions (GHG) worldwide, making it the second-largest source of greenhouse gas emissions after fossil fuel combustion.³ In many developing countries, deforestation is in fact the leading source of GHG emissions. Deforestation in developing countries is particularly harmful because tropical forests, which are concentrated in the developing world, have the capacity to store, on

¹ e.g., Ebeling and Yasue, 2008; Saunders and Nussbaum, 2008; Riggs, 2008; Environmental Defense, 2008.

² Kasting, 1998.

³ Denman et al, 2007.

average, about 50 percent more carbon per unit area than temperate forests.⁴ According to a recent study, tropical deforestation worldwide releases 1.5 billion metric tons of carbon into the atmosphere every year.⁵ Up to 50 percent of that forest loss is the result of poverty-driven forest conversion – both legal and illegal – primarily for subsistence agriculture.⁶

And deforestation is continuing apace. Between 2000 and 2005, forest loss worldwide averaged roughly 7.3 million hectares annually – equal to losing an area the size of Panama or Sierra Leone each year. Western and Central Africa lost an average of 1.3 million hectares of forest per year between 2000 and 2005, giving the region an average annual deforestation rate of -0.48%.⁷ Average annual loss of forest cover worldwide was actually lower between 2000 and 2005 than between 1990 and 2000. But the drop does not necessarily indicate that deforestation has actually slowed, as the average net change in forest cover includes gains made through afforestation and reforestation projects, which have increased since 2000.⁸

But in terms of climate change, simply looking at whether forests are still standing does not tell the whole story. Land degradation – a reduced quality of the forest landscape – also makes a significant contribution to anthropogenic GHGs worldwide, especially in many poor countries. Land degradation does not entail a reduction in forest cover, but rather a decrease in forest function and condition, which translates into a reduced capacity to capture and store atmospheric carbon. But addressing land degradation from a climate change perspective can be difficult, namely because the process is difficult to measure, and because the effect of forest quality on GHG emissions is highly variable.⁹

Drivers of forest loss

While the immediate causes of deforestation vary widely across the globe, the most commonly cited drivers of forest loss include the conversion of forested land to agriculture, cattle-raising (that is, turning forest into pasture), urbanization, mining, oil drilling, logging, acid rain, woodfuel harvesting, and forest fire.¹⁰ In much of the developing world, small-scale migratory farmers have been a primary cause of forest loss. These farmers clear patches of land along forest roads – often using slash-and-burn techniques – to grow crops, either for themselves and their families or to be sold on the market. On a large scale, such practices can rapidly degrade the soil in tropical regions, where forest soil is not rich enough to sustain agriculture for very long. The farmers, as a result, then push further into the forest and clear even more land.¹¹

⁴ Houghton, 2005.

⁵ Gullison et al, 2007.

⁶ Saunders and Nussbaum, 2008.

⁷ FAO, 2005.

⁸ Ibid.

⁹ Lanly, 2003.

¹⁰ The Prince's Rainforests Project, 2008.

¹¹ World Rainforest Movement, 1998.

The global forest regime

Despite the environmental importance of maintaining the world's forest resources, as well as the ongoing threats to their survival, there is currently no broad, multilateral treaty or convention that governs forest management or trade. After years of failed negotiations of such an agreement, most of the major timber-producing countries now stand in strong opposition to a global forest convention.¹² This resistance largely stems from the fact that many states' domestic forestry programs were established as a means to ensure the continued harvesting of timber and were not concerned with the environmental impacts of logging.¹³ Moreover, especially in heavily forested developing countries, forests are considered a vital national resource, and for good reason: forests are sources not just of timber but also jobs, foreign capital, and economic stability. Finally, those who have a direct interest (financial or otherwise) in timber production often have access to key decision makers, while those who might oppose increased harvest, such as environmental and community groups, are usually less politically connected.¹⁴ Thus, in many countries, forest owners and timber production firms have a strong voice in the development of national forest policy and oppose involvement in a legally binding international agreement.¹⁵

But in the absence of a binding international treaty to regulate the world's forests, a set of international norms, rules, and procedures has emerged over the past two decades. This has had at least a normative influence on nations' understandings of sound forest management. At the 1992 UN Conference on Environment and Development, participants agreed to The Forest Principles, a set of non-legally binding guidelines that reflected a global consensus on the values of sustainable forest management.¹⁶ Five years later, the UN's Intergovernmental Panel on Forests issued a set of Proposals for Action that outlined a number of pragmatic steps that states could take to improve their management of forests.¹⁷ In 2000, the UN established its Forum on Forests (UNFF) to promote "the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end."¹⁸

Despite the critical role that forests play in regulating global temperatures, the concept of "avoided deforestation" was not acknowledged by the UNFCCC until relatively recently. The Kyoto Protocol allows developing countries to earn saleable carbon credits for reforestation and afforestation projects under the Clean Development Mechanism's Land-Use, Land-Use Change, and Forestry (LULUCF) sector; however, due to technical complexities, political disagreements, and uncertainty about how such credits would be earned, only one forestry project was ever undertaken under the CDM; the concept of "avoided deforestation" was not acknowledged anywhere in the treaty.

¹² Bernstein and Cashore, 2004.

¹³ Lipschutz, 2000.

¹⁴ Ibid.

¹⁵ Gulbrandsen, 2004.

¹⁶ United Nations, 2002.

¹⁷ United Nations, 1997.

¹⁸ United Nations Forum on Forest, 2007.

An Introduction to REDD

The idea of “avoided deforestation” has recently gained significant political momentum: at the 13th Conference of the Parties to the Kyoto Protocol, held in Bali in December 2007, delegates adopted a set of “approaches to stimulate action” towards developing a REDD policy that would allow developing countries to earn credits for preventing deforestation and forest degradation. These “approaches” call for more research into such a policy, known as Reduced Emissions from Deforestation and Forest Degradation in Developing Countries (REDD), but do not outline the specific form that the scheme should take. In fact, that question is the subject of much debate: a number of countries and non-governmental actors have put forward proposals as to how a REDD program should be structured. These proposals differ significantly in terms of, among other things, how and where emissions credits would be earned, where those credits would be traded, and how the money earned from selling credits would be distributed.

REDD was a major focus of discussion at the UN climate conference in Accra, Ghana in August 2008. Further action on REDD will be taken at the 14th Conference of the Parties, which is to be held in December 2008 in Poznan, Poland. The ultimate aim of these negotiations is to develop a workable REDD policy before the conclusion of COP 15 in Copenhagen in December 2009, when delegates hope to negotiate the final details of the agreement that will succeed the Kyoto Protocol.

How REDD would work

REDD is a compensated emissions reduction scheme under which countries with binding emissions targets would buy credits from heavily forested developing countries that “prevent deforestation” within their borders. Under most proposals put forward to date, credits would be granted on a post-hoc basis – after the actual reduction in deforestation has been verified. Monitoring would be done through a combination of satellite remote sensing and ground-truthing.¹⁹

While some argue that REDD could operate on a project basis, much like the CDM under the Kyoto Protocol, most observers now agree that it should incorporate some form of national baselines in order to prevent the “leakage” of deforestation from one part of a country to another. However, others favor a “nested” approach that would include both national baselines as well as incentives for local actors to engage in REDD activities independent of their federal government.²⁰

Arguments for REDD

REDD has garnered a huge amount of attention recently at the UNFCCC because many argue that such an avoided deforestation program represents the most viable policy option for delivering significant emissions reductions in the near-term, thanks to the potentially quite significant amount of money that REDD credits could be worth on an international carbon-

¹⁹ Riggs, 2008.

²⁰ Ibid.

trading market. Indeed, according to Nadine Laporte, a scientist at Woods Hole Research Center, “carbon credits represent the largest potential flow of revenue to support sustainable development in tropical forest regions.”²¹

Part of the reason why REDD could have such an impact is because the world’s forests still contain huge amounts of carbon reserves – in fact, scientists estimate that roughly 350 billion tons of carbon are now sequestered in the world’s tropical forests.²² If current deforestation rates continue, the clearing of tropical forests could release 87 to 130 billion tons of carbon into the atmosphere by the end of this century. Preventing the release of those gases would have a measurable impact on the earth’s temperatures.²³

REDD proponents also argue that funds generated from the sale of REDD credits could be used to help reduce poverty in heavily forested developing countries. A briefing paper put forward by the Poverty Environment Partnership, a coalition of rich-country governments and international NGOs, argued that “the integration of REDD in carbon market systems under a future international climate framework would appear to have enormous potential income and growth benefits for developing countries.”²⁴ The paper goes on to claim that those benefits can be passed on to poor citizens of forested developing nations, albeit only “under certain conditions, and in certain contexts.”²⁵

Arguments against REDD

Skeptics of avoided deforestation argue that there are many significant challenges to the design and implementation of an effective REDD program. Many civil society actors also argue that REDD would mute the voices of local-level actors, and that it might even threaten the rights of indigenous groups. Indeed, it should be remembered that avoided deforestation was excluded from the Kyoto Protocol because many of the hurdles to implementing such a program were considered too high to overcome.²⁶ Several of these hurdles are considered in turn below.

Design Challenges

One of the primary concerns of designing an effective REDD strategy is figuring out how to avoid the “additionality” problem, or how to ensure that countries are not paid for “preventing” deforestation that would never have happened anyway. Furthermore, REDD skeptics wonder how fair and accurate baseline levels (against which deforestation rates would be compared) would be determined. Many countries, particularly in Africa, lack the kind of detailed information that is needed to set an accurate baseline.²⁷ Another significant concern is making sure that countries that have already taken strong action to prevent deforestation, such as Costa

²¹ Mongabay, 2008^a.

²² Laporte et al, 2007.

²³ UN Environment Program, 2008.

²⁴ Peskett et al, 2008, p 8.

²⁵ Ibid.

²⁶ Riggs, 2008.

²⁷ Laporte et al, 2007.

Rica, would not be effectively penalized under a REDD program for their already-low rates of deforestation.

Another significant challenge for REDD implementation is ensuring that deforestation that was “avoided” in one region is not simply displaced to another region. This phenomenon, called “leakage” could manifest itself directly, with loggers shifting their activities from one region or country to another. Or it could come about indirectly: if a REDD program were to drive up the market price of timber, livestock and food crops, then commercial forestry and agriculture could become more lucrative, and the financial incentives for deforestation would become that much stronger.²⁸

Thus, to completely avoid leakage, *all* heavily forested countries would have to be part of a REDD program. In the absence of universal membership, however, analysts say that careful project design could curtail the problem. Specifically, some have argued that if countries are required to keep a certain percentage of their credits in reserve, those saved credits would “offset or neutralize the leakage that was assumed to have taken place.”²⁹

Because both humans and nature itself can quickly and easily reverse the forest carbon storage gained under REDD activities, the designers of an avoided deforestation program need to think carefully about how long REDD credits should last, and how developing countries might be encouraged to continue to participate in the program over an extended period. Some suggest that tying REDD activities to a stream of long-term benefits could help achieve this goal.³⁰ Others have argued that a system of banking credits for future use could encourage long-range planning, while also helping to prevent large fluctuations in the market price for carbon.³¹

Finally, policy designers need to carefully consider how the sudden influx of a large number of REDD credits might affect global carbon markets. Riggs has envisioned a number of ways in which REDD could cause turmoil in global carbon markets. For one, a rapid influx of new credits could drive prices down in some regions, destabilizing the trading system overall. Moreover, inaccurate baselines or market rejection of the ways in which avoided deforestation is measured could undermine the market. Such uncertainties could result in very high discount rates, or rates that vary dramatically by project or by country.³² However, Riggs also notes that the financial institutions needed to manage the acquisition and trading of REDD credits already exist, although it has yet to be determined how the credits would be introduced to the global carbon market.

Implementation Challenges

Even assuming that a REDD program is designed as well as possible, its effective implementation is another matter, and depends wholly on whether international, national and local governance and financial institutions have the capacity to put its policies into practice.

²⁸ Myers, 2008.

²⁹ Ibid.

³⁰ Peskett and Harkin, 2007.

³¹ Ebeling and Yasue, 2008; Environmental Defense, 2008.

³² Riggs, 2008.

The monitoring and verification challenges associated with REDD are significant, but have diminished in recent years as remote sensing imagery has become more sophisticated. Indeed, remote sensing technologies are significantly cheaper and more easily available than they were ten years ago.³³ And it is important to keep in mind that satellite imaging alone is not considered sufficient verification of the maintenance of carbon stocks; ground-truthing will also be necessary. Thus, climate negotiators must consider both how remote sensing technology will be transferred to developing countries, as well as whether those countries might require financial or technical assistance to conduct verification on the ground.

But effective REDD implementation goes far beyond accurate monitoring. Especially if the funds generated from the sale of REDD credits are to be used to combat poverty among forest-dwelling people, governments must have the capacity to distribute the carbon income accordingly. This means being able to, among other things, fight corruption, enforce property rights, and promote and manage investment in the forest sector. As the Poverty Environment Partnership explained in a paper entitled “Making REDD Work for the Poor,” these governance challenges are significant, and a failure to overcome them could have important impacts on local populations:

“The potential risks to the poor from REDD, such as elite capture of benefits, potential loss of access to land and lack of voice in decision-making, are also large. This is because of the likely scale of the systems envisaged, the complexities of monitoring and tracking carbon in the landscape, and the strong environmental, private sector and developed country interests to establish REDD mechanisms quickly.”³⁴

And given that success under a REDD program is largely a function of the strength of each countries’ governance institutions, it is possible that REDD could discriminate against those countries that lack strong governance capacity.

Indeed, developing country governments vary significantly in terms of their capacity to put REDD into action. Some countries have already shown that they can implement new programs in their forestry sectors. Cameroon, for instance, has recently reformed its forest sector, with an impressive level of success.³⁵ In Honduras, the World Bank has been able to work with local officials to help grant local communities control over forest management and production. And Nepal has made drastic changes to its forest management programs over the past two decades, giving stronger rights to rural people, who – for the most part – have enjoyed more stable livelihoods as a result.³⁶ Similar successes can be found in Brazil, India, Mexico, and Tanzania.³⁷ Thus, in some areas, the prospects for an effective REDD program seem promising.

But REDD implementation challenges would be especially daunting in developing countries that are in the midst of conflict, that are still suffering from its effects, or that might soon fall back

³³ Ibid.

³⁴ Peskett et al, 2008.

³⁵ Oyono et al, 2006.

³⁶ Springate-Baginski et al, 2001.

³⁷ Milne, 2008.

into violence. The designers of an avoided deforestation program must thus carefully consider how they might be able to facilitate the involvement of states with weakened infrastructure and governance institutions, such as the Democratic Republic of Congo (this scenario is discussed in more detail below).

Civil Society Opposition

Some of the most virulent opposition to a REDD program has come from civil society, particularly indigenous groups, based in forested developing countries. Indeed, such groups protested loudly on the sidelines of REDD discussions at the Bali COP in December 2007.³⁸

Specifically, many civil society actors, especially Indonesian groups, have claimed that a REDD mechanism would increase the economic value of the forests they inhabit, which could attract more private sector investment, and ultimately push local and indigenous people off of the land. Indeed, the groups say that REDD would ultimately deliver no benefits whatsoever to people on the ground, many of whom occupy the forestland under customary land-use rights. Instead, civil society actors argue that REDD would reverse any progress that has been made toward devolving forest management to the local communities and effectively “recentralize” the control over forests at the federal level, since any money generated from the sale of carbon credits under a program with national baselines would end up in the coffers of national ministries.³⁹

Civil society groups have also expressed concern that REDD could compel national governments to create a slew of new national parks and conservation areas, and then forcibly remove the people living in those areas. Many indigenous communities in Africa have already been subject to this sort of forced migration.⁴⁰

At a philosophical level, though, some civil society REDD opponents consider the program a form of “carbon colonialism” – just one more excuse for the continued exploitation of developing countries so that rich countries can continue their heavy reliance on fossil fuels.⁴¹

The World Bank’s Forest Carbon Partnership Facility

No one doubts that much work needs to be done to lay the groundwork to support a successful REDD policy. But who is going to coordinate all of that work, and, more importantly, who is going to fund it?

One potential source of funding is the World Bank’s recently launched Forest Carbon Partnership Facility, which is aiming to raise \$300 million from donors to be put towards building capacity for REDD implementation through pilot projects and other programs.⁴²

³⁸ Riggs, 2008.

³⁹ Ibid.

⁴⁰ IPACC, 2008.

⁴¹ Riggs, 2008.

⁴² World Bank FCPF, 2008.

World Bank President Robert Zoellick came to the Bali COP in December 2007 to announce the launch of the facility, which is meant to help developing countries participate effectively in a REDD program. According to the World Bank, the FCPF “would have the dual objectives of building capacity for REDD in developing countries [the readiness mechanism], and testing a program of performance-based incentive payments in some pilot countries, on a relatively small scale, in order to set the stage for a much larger system of positive incentives and financing flows in the future [the carbon finance mechanism].”⁴³

But the facility has not received a warm welcome from all quarters. Indeed, civil society groups from both developed and developing countries protested loudly on the sidelines of the World Bank’s launch of the facility at the Bali COP. Their chief concern was that the project, which is ultimately about the Bank donating money and other forms of support to national governments, would serve to further marginalize the role of forest-dwelling people in the debate over how forestlands should be managed.

In a paper titled “The FCPF – Facilitating the weakening of indigenous peoples’ rights to lands and resources,” the Forest Peoples Program, a UK-based NGO, argued that “the draft arrangements for the FCPF ensure that consultation – if and when it occurs – will continue to be required only once plans are already well-developed.”⁴⁴ Moreover, the group held that the FCPF works solely with national governments, “ignoring the presence of traditional and customary rights.”⁴⁵

And there might be some evidence that those concerns are justified: the Bank has hesitated to commit to upholding certain internal “safeguard policies” – which aim, among other things, to protect human rights, respect indigenous groups, and ensure prior-informed consent – in the operation of the facility. In fact, one of the lead designers of the facility said publicly at the Bali COP that “high safeguards increase transaction costs, and for the FCPF to work, transactions costs need to be brought down.”⁴⁶

While the FCPF is not the only source of REDD funding, it is certainly the single most important donor. Other sources of funds include the national governments of Australia, France, the Netherlands, Switzerland, and the United Kingdom, as well as one NGO, The Nature Conservancy. In October 2008, these donors and others made a combined pledge of \$100 million to be put towards REDD.⁴⁷

⁴³ Ibid..

⁴⁴ Forest Peoples Program, 2008.

⁴⁵ Ibid.

⁴⁶ Riggs, 2008.

⁴⁷ Mongabay.com^b, 2008.

A Closer Look: REDD in the DRC

To further focus my analysis, I will draw up a case study of a country that has much to gain, in theory, from REDD, but that faces significant challenges to being able to cash in on those benefits.

Why study the DRC?

The potential implementation of REDD in the DRC merits close study for two major reasons. First, the country could – in theory – benefit hugely from a REDD program. The DRC is incredibly rich in forest land and deforestation pressures, though growing, are still lower than they are in other heavily forested tropical areas, such as Brazil and Indonesia. Second, ongoing civil conflict in the DRC poses potentially quite significant challenges to REDD implementation. Especially as much of the violence in the region has been linked to the control of natural resources, the possible impacts of raising the value of the DRC's forests should be carefully considered.

Country / Area	Annual change rate 1990-2000, %/yr	Annual change rate, 2000-2005, %/yr
Indonesia	-1.7	-2
Brazil	-0.5	-0.6
Philippines	-2.8	-2.1
DRC	-0.4	-0.2
All of West and Central Africa	-0.6	-0.5

Table 1. Deforestation rates in select heavily forested developing countries/regions.⁴⁸

Conflict

Fighting broke out between the national army and the insurgents of the self-declared general Laurent Nkunda in December 2006, and worsened the following year. In January 2008, the signing of the Goma agreement – which came after negotiations involving the government, Nkunda, and Mai Mai militias – led to a ceasefire, the withdrawal of troops from critical regions, and the establishment of a UN buffer zone. But militia groups have clashed repeatedly since the agreement was signed; indeed, the UN reported that there were at least 200 violations of the ceasefire between January and July 2008. There are 17,000 UN peacekeepers in country, making it the largest UN mission anywhere in the world.⁴⁹

And fierce fighting broke out again in October 2008, when rebel forces took over a major army base near the regional capital of Goma in the eastern part of the country. Some 20,000 people fled as the conflict intensified and rebel forces advanced. Nkunda declared a ceasefire after

⁴⁸ FAO, 2005.

⁴⁹ International Crisis Group, 2008.

several days of intense fighting.⁵⁰ But after making that proclamation, the rebel leader said that he wanted to meet with government officials to explain his objections to a \$5 billion agreement that allows China to exploit DRC's rich mineral resources, including gold and coltan.⁵¹

This brand of conflict has long plagued the country, thanks in large part to the combination of its vast natural resources, lack of strong government control over those resources, and history of strife among ethnic groups, both in the DRC and in neighboring Rwanda.⁵²

Thus, the region obviously has a history of resource-driven conflict – a fact that no doubt must be accounted for in the design and implementation of an avoided deforestation scheme. Indeed, policy-makers must account for the possibility that a project that effectively monetizes the DRC's forests could be laying the groundwork for future clashes over who gets to manage those lands, and who gets to pocket the money derived from the sale of carbon credits.

Forest Resources

The Democratic Republic of Congo has more than 145 million hectares of forest, more than half of which is rainforest.⁵³ The country contains roughly one quarter of all forests in Africa and close to half of the continent's tropical moist forest.⁵⁴ DRC's forests are home to roughly 35 million people, most of whom are indigenous and depend directly on the forest for their livelihoods.⁵⁵

Loss of forest cover in the region constitutes 90 percent of all anthropogenic carbon dioxide emissions. While this number may seem daunting, it also indicates that the region has much to gain from avoided deforestation: the vegetation of the Congo Basin Forest may contain between 25 and 30 billion metric tons of carbon.⁵⁶ DRC has the eighth-fastest deforestation rate in the world; it lost an average of 319,000 hectares of forest per year between 2000 and 2005. (The highest was Brazil, which lost an average of 3.1 million hectares per year over that period.)⁵⁷ Deforestation pressures in DRC are predicted to increase in the years ahead, thanks in part to increasing government stability and a recent influx of investment in the forest sector, as well as to a global surge in the demand for biofuels, which some say could drive palm oil plantations into the forests of the DRC, much as they have in Southeast Asia.⁵⁸ Indeed, in October 2007 the Chinese corporation ZTE International signed a contract to turn 3 million hectares of DRC forest into oil palm plantations.⁵⁹ Similar projects could lead to rapid and widespread forest clearing in years ahead.

⁵⁰ BBC News, 2008.^a

⁵¹ Agence France Presse, 2008.

⁵² BBC News, 2008.^b

⁵³ Chatham House, 2008.

⁵⁴ Laporte et al, 2007.

⁵⁵ Chatham House, 2008.

⁵⁶ WWF, 2007.

⁵⁷ FAO, 2005.

⁵⁸ Chatham House, 2008.

⁵⁹ Laporte, 2007.

For the moment, however “by far the most significant use of forests in the DRC is in the informal sector, including subsistence farming, hunting and gathering, and artisanal logging.” Roughly 80 percent of all of forest-related revenues in the DRC come from the informal sector, and the great majority of the country’s rural population heavily depends on those incomes.⁶⁰ Other contributors to deforestation include illegal logging (fueled by corruption), civil strife, and mining.⁶¹

Forest degradation in the DRC – and in tropical countries as a whole – has not been as closely tracked as deforestation.

Forests and Conflict

The International Crisis Group says that two of the “root causes” of conflict in the DRC are “unequal access to land and unfair sharing of revenues from exploitation of natural resources.”⁶² Although the majority of resource-driven conflict has been over the country’s mineral wealth, forests have certainly played a part, and they could potentially contribute to even more conflict if a REDD program makes them that much more lucrative, and if the gains made off forests continue to accrue to a relatively small group of people. Beyond REDD, though, a recent study noted that sustained peace and increased infrastructure could also increase the value of forests and spur conflict in the region, “unless the rights to use and benefit from forests are better defined and gain legitimacy, and effective mechanisms are developed to resolve disputes.”⁶³

Forest management in other post-conflict settings is always a challenge, no matter the country or region. In countries as diverse as Cambodia, Guatemala, Lao PDR, Mozambique, and Myanmar, the destruction of forests increased post-conflict. The greater loss of forest cover may be linked to a resumption of conflict itself (40% of countries that have suffered from a civil war fall back into violence within a decade),⁶⁴ or to the fact that governments and international donors focus their money and efforts on humanitarian interventions in post-conflict settings, rather than on sustainable forest management. Moreover, in heavily forested countries, the government may promote timber harvesting as a means of stimulating the economy after conflict has ended, and logging often grows more quickly than the public sector’s ability to regulate the sector. And finally, forests are often perceived as potential hide-outs for rebels and displaced people once a conflict has ended; thus, an influx of new inhabitants post-conflict can also contribute to increased forest destruction.⁶⁵

Many of these consequences of conflict have already played out in the DRC: conflict has resumed, thousands have been displaced, and Nkunda’s forces have withdrawn into the depths of the dense tropical forests. But, at least at this point, logging remains limited, and the international community – namely the World Bank, but also international NGOs such as the Wildlife Conservation Society and the Rainforest Foundation – have devoted many resources to the examination of the region’s forests.

⁶⁰ Chatham House, 2008.

⁶¹ Mongabay.com, 2008.^c

⁶² International Crisis Group, 2008.

⁶³ Center for International Forestry Research, 2007, p. 4

⁶⁴ Collier, Hoeffler and Soderbom, 2006.

⁶⁵ Center for International Forestry Research, 2007.

Forest Governance

Forest governance in DRC must be seen in the context of the country's overall governance capacity, which has been seriously weakened by many years of civil conflict. Indeed, DRC ranks in the lowest ten percent in all categories of the World Bank's governance indicators: political stability, voice and accountability, rule of law, control of corruption, regulatory quality, and government effectiveness. The country has seen little to no improvement on these indicators over the past decade; some parts of the country are still under rebel control and continue to experience violent conflict.⁶⁶

The Environment Ministry, which is the primary manager of the country's forests, has very limited capacity. The majority of the ministry staff are based in Kinshasa, and many have either ill-defined or redundant responsibilities. Ministry officials at the provincial and local levels lack necessary training and equipment. Civil servants at all levels are paid irregularly and are often not informed of the latest national forest legislation.⁶⁷

A 2007 World Bank report concluded that there is now "widespread awareness that DRC lacks basic institutional, technical and field capacity to address social, environmental and other issues relating to logging in its forests."⁶⁸ In a separate report, the Bank found that there are no existing land-use plans in the DRC and that post-conflict forest recovery is often accomplished under individual and uncoordinated projects. The report warned that such a scenario leaves open the possibility that land managers acting alone could make ill-informed and irreversible forest management decisions, potentially with significant negative effects on forest-dwelling peoples.⁶⁹

A report by the Woods Hole Research Center found that the forest-related government structure in the DRC needs "rehabilitation."

"Perhaps the most daunting task at hand for the DRC is continued progress towards adequate governance...The rapid design and implementation of an effective system of government-run distribution is the biggest hurdle in the efficient distribution of income derived from a carbon market in the DRC. The basis of functional governance is present in the DRC, but filling in the structure with effective implementation and oversight is a work in progress."⁷⁰

Another critical governance indicator – the level of civil society influence – has been limited with respect to the DRC's forests. While the government allowed some NGOs to sit on a steering committee that was charged with reviewing presidential decrees for the forest code, this group has not met since March 2007. Civil society has also played little to no role in land-use planning and the legal review of forest contracts.⁷¹

⁶⁶ World Bank, 2007.

⁶⁷ Chatham House, 2008.

⁶⁸ World Bank Inspection Panel, 2007.

⁶⁹ The World Bank, 2007.

⁷⁰ Laporte et al, 2007, p. 18.

⁷¹ Chatham House, 2008.

Forest Law

The DRC passed a promising new forest code in August 2002, but many of the programs have yet to be implemented, or even funded. Indeed, a World Bank report concluded in 2007 that the forest code still had not been sufficiently disseminated. Moreover, 16 additional decrees and regulations have been enacted since the code was passed, and seven more were awaiting executive approval as of the fall of 2007.⁷²

But the text of the 2002 code, at least, does hold some promise. The legislation introduces the concept of sustainable management of production forests to the DRC body of law, and calls for 15 percent of the national territory to be set aside under protected areas. Moreover, the code calls explicitly for greater community-based forest management, including local consultation before the granting of new timber concessions. But with regard to the implementation of such measures, the DRC, like many other Central African countries, has virtually no experience, and little progress has been made to strengthen local voices in management decisions.⁷³

Perhaps most significantly, the 2002 law put in place a moratorium on the allocation of new forest concessions including the exchange, relocation or rehabilitation of old titles. The government reiterated the moratorium with a presidential decree in 2005, and introduced new criteria for the legal review of logging contracts.⁷⁴

But logging has continued in spite of the moratorium. Some loggers have gotten around the ban by reshaping and trading old permits – essentially making them new concessions, and thus illegal.

Forest tenure

Land ownership in the DRC is characterized by a complex and (in some cases) overlapping system of formal use rights and traditional ownership. Traditional property rights in the country, and especially among the pygmy minority, are based on kinship and descent. In many cases, forest dwellers have usufruct rights, meaning that they are allowed to use the land and derive benefits from it, even though it does not technically belong to them.⁷⁵

In many forested tropical countries, the DRC among them, states often do not recognize the collective customary rights of indigenous peoples. Instead, they deem the forests public land and manage it accordingly. This issue is critical with respect to REDD implementation, since the distribution of benefits under avoided deforestation contracts would be at least partially based on who has a legal claim to the land in question. Griffiths notes that there is “a real risk that governments, companies and conservation NGOs will ‘zone’ (carve up) forests” for REDD purposes, and that credits for avoided deforestation will be awarded “to the exclusion or disadvantage of indigenous and traditional communities.”⁷⁶

⁷² The World Bank, 2007.

⁷³ Ibid.

⁷⁴ Global Witness, 2008.

⁷⁵ Chatham House, 2008.

⁷⁶ Griffiths, 2007, p.12.

Recommendations for successful REDD implementation in the DRC

The DRC faces a significant uphill battle in implementing an effective REDD program in the aftermath – or perhaps even amid – violent civil conflict. But while the challenges are many, REDD could bring many benefits to the country – and its forest-dwelling citizens, especially if the program is accompanied by significant international money and attention.

In some respects, a REDD program in the DRC would have certain advantages. Although forests are not currently well managed, they at least have not been one of primary “root causes” of significant violence in the region. Thus, the management of forest land could be less controversial than, say, mineral resource governance. But if the sale of carbon credits from avoided deforestation gives forests a real value, which is certainly a possibility, then this scenario could change dramatically – all the more reason to think carefully about the design and implementation of the program.

Other factors that favor successful REDD implementation include the fact that such a program could bring a significant influx of international funds, from both international donors and – eventually – the sale of carbon credits on the world market. That money could be used to reinforce REDD reforms, promote better governance, and support the livelihoods of the country’s forest-dwelling poor. And those outside funds will be accompanied by a significant amount of international attention, and perhaps pressure, with regard to how the DRC manages its forest resources and the money it generates from them.

But for REDD to work in this post-conflict setting, the program must – at every level – be woven into the post-conflict peace-building process. Specifically, a successful REDD program must ensure that the income derived from the sale of carbon credits does not end up in the hands of rebel leaders. And the devolving of power to local actors should only occur once the institutions at that level, which may have been weakened during conflict, are strong enough to handle their new responsibilities. These and other conflict-related issues are discussed in more detail in the section that follows.

But if well designed and implemented, REDD might even serve as a positive example for the management of other natural resources in the DRC. But many reforms indeed must be made before REDD can be successfully implemented. The following sections outline some of the policies that will be needed.

Forest sector investment

A stronger forest sector, in both the public and private realms, is critical to successful REDD implementation in the DRC. Although logging has earned a bad reputation in many ways, sustainable forest management for timber production could actually go a long way toward helping the country achieve the twin goals of carbon stock maintenance and economic development.⁷⁷ Indeed, the technology for practices such as Reduced Impact Logging are now well developed and widely available. But to achieve that goal, the DRC will need greater funding

⁷⁷ Laporte et al, 2007.

and technical support for sustainable forest management, and will need to build the proper oversight structures and provide adequate training, while still being careful to ensure to account for the voices of a wide variety of stakeholders.⁷⁸

On a smaller scale, the DRC also needs to make efforts to engage people who operate in the informal sector, helping them build small businesses that can take advantage of the income opportunities made possible under REDD. Efforts on this front can be an important contributor to poverty reduction.⁷⁹

Greater investment in the forest sector should begin slowly and gradually increase in step with the sector's capacity to absorb new influxes of financial and technical support.

Strengthen land tenure

According to a Chatham House report on the potential for sustainable forest management in the DRC, projects around the world have proven that “ensuring security of tenure for communities is the crucial first step to any sustainable model of forest management.”⁸⁰

The DRC needs to develop a more secure system of land tenure for its forest-dependent people. Securing strong property rights for forest dwellers goes hand in hand with promoting systems of community-based forest management that give those people a voice. But, as noted earlier, the DRC has virtually no experience with implementing such local initiatives. Therefore, policy makers should conduct studies and consultations at the grass-roots level, evaluate customary rights and land tenure systems, draw lessons from other countries, and provide support for pilot projects and information campaigns. At all stages, steps should be taken to ensure that personal interests – at whatever level of the political hierarchy – will not be allowed to obscure community goals.⁸¹

Secure commercial property rights are also critical if the forests are to be used to generate tradable carbon credits, which could potentially be used as collateral in loans.

Continue decentralization of forest management

Whether the DRC has ability to successfully devolve power to the provincial and local levels remains to be seen, but the promotion of community-based forest management would be an essential component of REDD reform.

⁷⁸ Chatham House, 2008.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ The World Bank, 2007.

Broad recommendation	Specific actions to be taken	Connections to REDD
<i>Increase forest sector investment</i>	<ul style="list-style-type: none"> • Promote sustainable management of production forests through greater funding and technical support • Increase training in public and private sectors • Strengthen ties between the formal and informal sectors 	<ul style="list-style-type: none"> • Increases REDD's chances of success by developing ways that standing forests can be profitable • Establishes a forestry infrastructure that can help facilitate REDD implementation • Helps locals tap into REDD benefits
<i>Strengthen land tenure</i>	<ul style="list-style-type: none"> • Develop a system of land tenure under REDD that can account for both formal use rights and traditional ownership systems • Establish institutions that give local and indigenous communities a voice in the distribution of REDD benefits 	<ul style="list-style-type: none"> • Could build support for REDD among local and indigenous people, critical users of the DRC's forests • Ensures that REDD does not discriminate against indigenous groups
<i>Decentralize forest management</i>	<ul style="list-style-type: none"> • Promote community-based forest management (as outlined in the 2002 forest code) by granting more decision-making power to the local level, but not before reliable institutions have been established • Draw from the experiences of Cameroon and other countries that have given more power to locals • Run pilot programs and surveys at the grassroots level to develop a stronger understanding of the local context 	<ul style="list-style-type: none"> • Helps guarantee that REDD revenues are shared, which can promote long-term sustainability of an avoided deforestation program • Reduces the risk of REDD violating indigenous people's rights
<i>Increase transparency, fight corruption</i>	<ul style="list-style-type: none"> • Establish mechanisms to disseminate information about government policies and activities • Strengthen the financial services sector, especially in rural areas 	<ul style="list-style-type: none"> • Helps ensure that REDD revenues are not lost to corruption, but can be used to help reduce poverty among forest-dwelling poor • Prevents more money from falling into the hands of rebel leaders, which is critical for political stability

Table 2. Key recommendations for REDD implementation in the DRC

But decentralization should only come after local-level institutions have developed the capacity to take on the additional governance capacities. This may prove to be a significant challenge, especially as the country's banking system does not exist outside of urban centers. How, then, can money be funneled to the local level? Moreover, to ensure against corruption, a system

would need to be created to monitor the transfer and expenditure of federal funds. Steps would also need to be taken to guarantee that local people have a say in how that money is disbursed.⁸²

To help with the decentralization process, local forest authorities should be given access to accurate and up-to-date information from Kinshasa. Those authorities should also have the capacity – and the mandate – to communicate that information to the general public. A recent report found that “many local administrative officials, including those of the Environment Ministry, do not even know of the existence of the Forest Code.” The situation among indigenous peoples is even worse.⁸³

Although the challenges to decentralization are significant, the DRC could learn from Cameroon, another heavily forested Congo Basin country, which has successfully devolved many aspects of forest management to local actors. Although Cameroon is still working to help the rural poor benefit financially from decentralization, the country has succeeded in establishing local-level councils that make forest management decisions and receive a cut of the country’s annual forestry fees. Such progress is certainly worthy of close study by policy makers in the DRC.⁸⁴

Decentralization reforms in the forest sector could represent a fundamental step forward in the peace-building process in the DRC, as the federal government’s control over the country’s natural resources has been the source of significant violence.

Increase transparency, combat corruption

Increased transparency and greater dissemination of information about government activities would go along way toward helping to make sure that traditional and indigenous communities can have a voice in the decision-making process.

The creation of public institutions to facilitate the involvement of local and indigenous groups can also help increase government accountability. And ensuring greater policy space for civil society at all levels of intervention is an important step in this process.⁸⁵

Successful REDD implementation requires a robust and reliable financial services sector. Because those buying carbon credits will be looking for sound investments, the DRC should develop a credit scoring system for its small and medium forest enterprises. Such a service would go a long way towards reducing the perception of risk among potential investors.⁸⁶ Moreover, the government should work to create links between the formal and informal sectors. This would be an important step to helping REDD work for the poor, as the vast majority of the Congolese population that currently derives its income from the forest operates outside formal channels.

Improving the financial services sector will be critical to successful REDD implementation in post-conflict DRC, since the consequences could be quite severe if the revenues from the sale of

⁸² Chatham House, 2008.

⁸³ Counsell, 2006.

⁸⁴ Center for International Forestry Research, 2007.

⁸⁵ Chatham House, 2008.

⁸⁶ Ibid.

carbon credits ended up in the hands of rebel leaders such as Laurent Nkunda. In a study of the ultimate causes of civil conflict, Paul Collier concluded that economic factors – even more than social or political measures – predict whether nations will fall into internal violence. If rebel organizations can find significant amounts of funding – through drug trafficking, money laundering, or other activities – then they stand a decent chance of creating instability: “Civil wars occur where rebel organizations are financially viable,” Collier argues.⁸⁷

Thus, while REDD offers significant opportunities in the DRC with regard to the international funding that it could bring into the country, it is important to remember that the program, if improperly managed, could ultimately serve to exacerbate post-conflict tensions.

Where will the funding come from?

The DRC currently receives about \$800 million per year in international aid; experts from the Woods Hole Research Center estimates that a REDD program could help bring in another \$120 million to \$400 million annually.⁸⁸

In July 2008, the World Bank announced that it had chosen the DRC, along with 13 other developing nations, to receive funds through its Forest Carbon Partnership Facility.⁸⁹ But civil society will no doubt keep a close eye on the Bank’s activities, as its track record on respecting indigenous rights in the DRC is less than stellar. Indeed, a 2007 report by the World Bank’s Inspection Panel found that recent Bank-sponsored forestry projects in the DRC had failed to live up to the institution’s own standards for the treatment of indigenous peoples, and that entire populations of forest-dwelling Pygmies had been ignored during project design and implementation.⁹⁰

But a lot of good could come from the influx of funds. “The carbon market represents a lifeline for poor families that have struggled through more than a decade of war in the DRC,” Frank Merry, an economist and co-author of the Woods Hole report on REDD in the DRC, said in a statement. “If we can tie reducing greenhouse gasses to moving people out of abject poverty, we will really have achieved something.”

Conclusions

REDD has the potential to bring about significant reductions in greenhouse gas emissions, while also creating a substantial new source of revenue for many of the world’s poorer nations. But ensuring the success of REDD on the ground will be a difficult task, especially in countries like the DRC that already struggle to govern effectively. In the face of such governance challenges, concrete steps can be taken to create a facilitating environment for the program’s implementation. These include, as noted above, increasing investment in the forest sector,

⁸⁷ Collier, 2006, p. 1.

⁸⁸ Laporte et al, 2007.

⁸⁹ World Bank Information Center, 2008.

⁹⁰ World Bank Inspection Panel, 2007.

strengthening land tenure among forest-dwelling people, devolving more control over forests to local actors, and taking measures to increase transparency and combat corruption.

As the DRC's sector gets back on its feet in the aftermath of conflict, an avoided deforestation program could spur reforms that ensure that "the paradox of an economically poor people in a naturally rich country" does not intensify.⁹¹

⁹¹ Center for International Forestry Research, 2007.

Post-Script: Recent fighting in the DRC

UN Special Envoy Olusegun Obasanjo negotiated a ceasefire in mid-November, but the country's hold on peace remains weak. Laurent Nkunda has been saying that if he is not allowed to negotiate with the president of the DRC, Joseph Kabila, then all-out war will result. Nkunda has proposed a meeting in Nairobi, to be chaired by Obasanjo, but so far government leaders have refused to engage in talks with the rebel leader, insisting instead that he abide by the peace agreement that was negotiated in January. The outcome of this standoff remains to be seen.

Despite the recent lull in conflict, refugees continue to flee the DRC's North Kivu province, where the fighting has been concentrated. Since August, some quarter million people have been forced to leave their homes as a result of the violence.

The UN presence in the region is set to increase soon: the Security Council recently voted to add another 3,000 peacekeepers to the 17,000 who are already on the ground. The UN forces are operating under a Chapter Seven mandate, which allows them to use force to protect both civilians and themselves.⁹²

⁹² BBC News, 2008.^b

Bibliography

- Agence France Presse. 2008. "Congo rebel leader's demands include review of China contracts," Press release, November 17, 2008. Available at <http://www.monuc.org/news.aspx?newsID=19124>.
- BBC News^a. 2008. "Timeline: Democratic Republic of Congo." Page updated November 20, 2008. Available at http://news.bbc.co.uk/2/hi/africa/country_profiles/1072684.stm.
- BBC News^b. 2008. "Q&A: DR Congo Conflict." Page updated November 21, 2008. Available at <http://news.bbc.co.uk/2/hi/africa/3075537.stm>.
- Bernstein, S. and B. Cashore. 2004. "Non-State Global Governance: Is Forest Certification a Legitimate Alternative to a Forest Convention?" in *Hard Choices, Soft Law*, Kirton, J. and M. Trebilcock (eds.), Ashgate Publications.
- Center for International Forestry Research. 2007. "Forests in Post-Conflict Democratic Republic of Congo: Analysis of a Priority Agenda." With The World Bank and CIRAD. Available at http://www.cifor.cgiar.org/publications/pdf_files/Books/BCIFOR0701.pdf.
- Chatham House. 2008. "Towards sustainable management and financing of the Democratic Republic of Congo's forests." June 2008.
- Collier, P. 2006. "Economic Causes of Civil Conflict and their Implications for Policy." Department of Economics, Oxford University. Available at <http://users.ox.ac.uk/~econpco/research/pdfs/EconomicCausesofCivilConflict-ImplicationsforPolicy.pdf>.
- Collier, P., A. Hoeffler, and M. Soderbom. 2006. "Post-Conflict Risks." United Nations Department of Peace Keeping Operations and The World Bank. Available at <http://users.ox.ac.uk/~econpco/research/pdfs/Post-Conflict-Risks.pdf>.
- Counsell, S. 2006. "Forest Governance in the Democratic Republic of Congo: An NGO Perspective." Produced for FERN. Available at http://www.fern.org/media/documents/document_3663_3664.pdf.
- Denman, K.L., G. Brasseur, A. Chidthaisong, P. Ciais, P.M. Cox, R.E. Dickinson, D. Hauglustaine, C. Heinze, E. Holland, D. Jacob, U. Lohmann, S. Ramachandran, P.L. da Silva Dias, S.C. Wofsy and X. Zhang. 2007. "Couplings Between Changes in the Climate System and Biogeochemistry. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change" [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Ebeling, J. and M. Yasue. 2008. "Generating carbon finance through avoided deforestation and its potential to create climatic, conservation and human development benefits." *Philosophical Transactions of the Royal Society of Biological Sciences*, Vol 363, Number 1498.
- Environmental Defense. 2008. "Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD): Implications for the Carbon Market." Available at http://www.edf.org/documents/7975_REDDandCarbonMarketAnalysisReport_EDF_0508.pdf
- Food and Agricultural Organization of the United Nations (FAO). 2005. "Global Forest Resources Assessment 2005." Available at <http://www.fao.org/forestry/fra2005/en/>.
- Forest Peoples Program. 2008. "The Forest Carbon Partnership Facility: Facilitating the weakening of indigenous peoples' rights to lands and resources." Available at http://www.forestpeoples.org/documents/forest_issues/fcpf_fpp_briefing_feb08_eng.pdf

- Global Witness. 2008. "Millions of acres of African rainforest threatened as Congolese government moves to 'legalise' felling for timber." Press release, September 24, 2008. Available at http://www.globalwitness.org/media_library_detail.php/667/en/millions_of_acres_of_african_rainforest_threatened_as_congolese_government_moves_to_legalise_felling_for_timber
- Griffiths, T. 2007. "Seeing 'RED'? 'Avoided deforestation' and the rights of Indigenous Peoples and local communities." Forest Peoples Program. Available at http://www.forestpeoples.org/documents/ifi_igo/avoided_deforestation_red_jun07_eng.pdf
- Gulbrandsen, L. 2004. "Overlapping Public and Private Governance: Can Forest Certification Fill the Gaps in the Global Forest Regime?" *Global Environmental Politics* 4:2, pp 75-99.
- Gullison, R., P. Frumhoff, J. Canadell, C. Field, D. Nepstad, K. Hayhoe, R. Avissar, L. Curran, P. Friedlingstein, C. Jones, C. Nobre. 2007. "Tropical Forests and Climate Policy." *Science*, Vol. 316. no. 5827, pp. 985 – 986.
- Houghton, R. 2005. "Tropical Deforestation as a Source of Greenhouse Gas Emissions," in *Tropical Deforestation and Climate Change*. Moutinho, P. and S. Schwartzman (eds.), Amazon Institute for Environmental Research.
- Indigenous Peoples of Africa Co-ordinating Committee. 2008. "Dialogue Between the World Bank and Indigenous Peoples in Central and East Africa on the Forest Carbon Partnership Facility." Available at http://www.ipacc.org.za/uploads/docs/World_Bank_Redd_Report_English.pdf
- International Crisis Group. 2008. "Conflict in Congo." Accessed October 31, 2008. Available at <http://www.crisisgroup.org/home/index.cfm?id=2829>.
- Kasting, J. 1998. "The Carbon Cycle, Climate, and Long-Term Effects of Fossil Fuel Burning." *Consequences*, Vol. 4 Number 1.
- Lanly, J.P. 2003. "Deforestation and Forest Degradation Factors." Paper submitted to the XII World Forestry Congress, Quebec City, Canada. Available at <http://www.fao.org/DOCREP/ARTICLE/WFC/XII/MS12A-E.HTM>.
- Laporte, N., F. Merry, A. Baccini, S. Goetz, J. Stabach, M. Bowman. 2007. "Reducing CO₂ emissions from deforestation and degradation in the Democratic Republic of Congo." The Woods Hole Research Center. Available at http://www.whrc.org/policy/BaliReports/assets/Africa_Bali_Booklet.pdf.
- Lipschutz, R.D. 2000. "Why is there no international forestry law? An examination of international forestry regulation, both public and private." *UCLA Journal of Environmental Law and Policy* 19:1, pp. 153-179.
- Milne, G. 2008. "Global trends in community forestry and India's potential." The World Bank. Presentation to India Farm Forestry Advisory Program Launch Workshop. Available at [http://www.ifc.org/ifcext/southasia.nsf/AttachmentsByTitle/grant+milne/\\$FILE/Milne_IFC+Farm+Forestry.pdf](http://www.ifc.org/ifcext/southasia.nsf/AttachmentsByTitle/grant+milne/$FILE/Milne_IFC+Farm+Forestry.pdf).
- Mongabay.com^a. 2008. "Despite financial chaos, donors pledge \$100M for rainforest conservation." October 23, 2008. Available at <http://news.mongabay.com/2008/1023-fcpf.html>.
- Mongabay.com^b. 2008. "Forest carbon credits could help development in Congo: Interview with Nadine Laporte, remote sensing expert." Available at <http://www.climateark.org/shared/reader/welcome.aspx?linkid=100689&keybold=climate%20change%20Mars>
- Mongabay.com^c. 2008. "Deforestation in the Congo Rainforest." Available at <http://rainforests.mongabay.com/congo/deforestation.html>.

- Myers, E. 2008. "Climate change and forestry: a REDD primer." Ecosystem Marketplace. Available at http://ecosystemmarketplace.com/pages/article.news.php?component_id=5797&component_version_id=8792&language_id=12
- Oyono, P., J. Ribot, and A. Larson. 2006. "Green and Black Gold in Rural Cameroon: Natural Resources for Local Governance, Justice and Sustainability." World Resources Institute: Institutions and Governance Program.
- Peskett, L., D. Hubermann, E. Bowen-Jones, G. Edwards and J. Brown. 2008. "Making REDD work for the poor." Poverty Environment Partnership. Available at http://www.povertyenvironment.net/pep/?q=making_redd_work_for_the_poor_october_2008_draft.
- Peskett, L., and Z. Harkin. 2007. "Risk and responsibility in Reduced Emissions from Deforestation and Degradation." Overseas Development Institute, Forest Policy and Environment Program.
- The Prince's Rainforest Project. "Drivers of Deforestation." Accessed October 9, 2008. Available at <http://www.princesrainforestsproject.org/rainforest-nations/africa/drivers>
- Riggs, P. 2008. "Foundations for REDD?: The Debate on 'Avoided Deforestation' at the Bali UNFCCC Conference of Parties."
- Saunders, J. and R. Nussbaum. 2008. "Forest Governance and Reduced Emissions for Deforestation and Degradation." Chatham House Publications.
- Springate-Baginski, O., P. Blaikie, O. Prakash Dev, N. Yadav and J. Soussan. 2001. "Community forestry in Nepal: a policy review." UK Department for International Development.
- United Nations. 1997. "IPF Proposals for Action," Available at <http://www.un.org/esa/forests/pdf/ipf-iff-proposalsforaction.pdf>
- United Nations. 2002. "Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992" Available at <http://www.un.org/documents/ga/conf151/aconf15126-3annex3.htm>.
- United Nations Environment Program. 2008. "UN and Norway united to combat climate change from deforestation." UNEP press release. Available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=545&ArticleID=5930&l=en>
- United Nations Forum on Forests. 2007. "About UNFF." Available at <http://www.un.org/esa/forests/about.html>.
- The World Bank. 2007. "Democratic Republic of Congo: Economic Recovery Project and Development Policy Operation." Annex 2: Priority Reform Agenda. Available at http://siteresources.worldbank.org/CONGODEMOCRATICINFRENCHEXTN/Resources/DRC_IP-Mngmt_Report_Oct-31_Annexes.doc.
- The World Bank Forest Carbon Partnership Facility. 2008. "The World Bank Carbon Finance Website." Accessed September 9, 2008. Available at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,menuPK:4125909~pagePK:64168427~piPK:64168435~theSitePK:4125853,00.html>.
- The World Bank Inspection Panel. 2007. "Inspection Panel Report." Released September 2007. Available at <http://siteresources.worldbank.org/EXTINSPECTIONPANEL/Resources/EXECUTIVESUMMARYFINAL.pdf>
- The World Bank Information Center. 2008. "World Bank announces countries eligible for avoided-deforestation credits." Press release, August 18, 2008. Available at <http://www.bicusa.org/en/Article.3878.aspx>

World Rainforest Movement. 1998. "What are Underlying Causes of Deforestation?" in *The World Guide 1999/2000*, edited by Third World Institute and New Internationalist Publications Ltd. Available at <http://www.wrm.org.uy/deforestation/indirect.html>

WWF. 2007. "Congo Basin Forests." Available at http://assets.panda.org/downloads/congo_forest_cc_final_13nov07.pdf

The Itombwe Massif, Democratic Republic of Congo: biological surveys and conservation, with an emphasis on Grauer's gorilla and birds endemic to the Albertine Rift.Â Multi-Scale Forest Governance, Deforestation, and Violence in Two Regions of Guerrero, Mexico. World Development, Vol. 39, Issue. 4, p. 611.Â Quantifying forest cover loss in Democratic Republic of the Congo, 2000â€“2010, with Landsat ETM+ data. Remote Sensing of Environment, Vol. 122, Issue. , p. 106. CrossRef. Google Scholar. Nielsen, Martin Reinhardt Pouliot, MariÃ“ve and Kim Bakkegaard, Riyong 2012. Combining income and assets measures to include the transitory nature of poverty in assessments of forest dependence: Evidence from the Democratic Republic of Congo.