Exploring the case for a green development mechanism

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January 2010

Prepared for the
International Workshop on Innovative Financial Mechanisms
First meeting, Bonn, Germany, 27-29 January 2010

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[1] This paper has been drafted to stimulate discussion at the Bonn workshop. The views expressed are only those of the authors and do not necessarily reflect the views of the GDM 2010 Initiative Steering Committee or the Government of the Netherlands which has generously provided financial support for the Initiative.

Contents

Executive summary

In this discussion paper, the possibility of establishing an international 'green development' financial mechanism in support of the Convention on Biodiversity is explored. The paper is divided into two parts. Part 1 discusses current challenges facing the biodiversity agenda and existing efforts to address these issues in support of making the case for a green development mechanism. Part 2 examines the scope, nature, and modalities for a green development mechanism to enhance international efforts to reverse biodiversity loss and protect ecosystem services. Finally, the paper postulate critical questions for consideration at the January 2010 Bonn workshop in order to build a basis for further development.

Part 1 on the need for a gdm

Biodiversity represents the variety, and variability, of living organisms. It includes diversity between species, within species, and between ecosystems. Biodiversity is vital to human life and prosperity. Ecosystems– a key element of biodiversity – provides essential sevices such as the supply of food, safe water, fuel and protection against natural disaster. Ecosystem services also contribute to the mitigation of climate change. Loss of biodiversity undermines the ability of ecosystems to provide such functions, and invariably impacts on the poorest in society.

The evidence of biodiversity loss is alarming: the current rate of species loss is up to 1000 times higher than that experienced throughout history. While current efforts to conserve biodiversity are slowing such loss, they are not reversing it. The consequential impact of this loss is also disproportionate since the richest biodiversity is concentrated in developing countries, particularly those around the Equator.

Biodiversity loss arises from destruction of or damage to natural habitats and ecosystems, primarily to satisfy human needs. Pollution and the impact of climate change are other important contributing factors. The fundamental problem is that the full societal cost of degrading biodiversity stocks is rarely captured in equilibrium market pricing systems. Biodiversity and ecosystem services are **public goods** whose true value is not reflected because of the failure of markets to deal with **externalities**: thus the private returns accruing from reducing biodiversity may be heavily outweighed by the public benefits lost. But the opportunity costs of preserving biodiversity invariably fall to societies least able to bear the burden. Recognition of this dynamic was a major driver towards the creation of the **Convention on Biological Diversity** in 1993.

There are very strong **economic**, **political**, and **development** reasons to conserve biodiversity. On the **economic** front, while estimation is problematic, there is a huge body of empirical evidence which suggests that

the true value of local ecosystem services is well in excess of that recorded in local incomes, perhaps up to 10 times as much. The difference lies in the unrecorded value of the functionality of ecosystems such as the provision of safe water; avoidance of productivity losses associated with soil erosion; and coastal protection. There is also evidence that the true value of such ecosystem services is considerably higher than the perceived value of benefits accruing from alternative exploitation for directly productive or consumption purposes.

The **political** case for addressing biodiversity loss rests on both rational and moral grounds. It has long been widely accepted, that the State, either acting alone, or with others on an international basis, is best placed to take action to protect the common good, particularly that imperilled by market failure. Current efforts to combat global warming are a classic example of such rational behaviour. Governments, particularly those of a liberal democratic nature, have also generally accepted that the needs and aspirations of future generations are an important moral consideration in policy formulation.

Nevertheless, the fact that governments have a responsibility to act in this way does not lead to the conclusion that public funds alone should be mobilised to finance the necessary policy response to the biodiversity challenge. Indeed since consumers, and the private corporate sector, are currently benefitting from the present under-pricing of biodiversity resources, it is right that these groups should also bear the responsibility to contribute to solutions.

The **development** case for addressing biodiversity loss is also compelling. Many of the poorest, often most marginalised, sections of society depend, critically, on biodiversity and ecosystem services for their basic livelihood needs: fisheries is the most striking example. And there is no doubt that biodiversity conservation is a key enabler to the achievement of almost all of the **Millennium Development Goals (MDGs)**, whether it is poverty alleviation (MDG1), or those related to health (MDGs 4, 5 and 6). This fundamental nexus between biodiversity and poverty alleviation is recognised in MDG7 which calls on the need to "ensure environmental sustainability".

The development case is reinforced by the fact that extreme poverty is, in itself, a barrier to sustainable habitat management and ecosystem protection. Thus there is a strong need for development strategies which promote biodiversity protection through supporting alternative economic activities. Such strategies probably need to be community-based, and, as appropriate, sensitive to socio-economic, cultural, and gender issues.

There is a very wide biodiversity funding gap at present, though its quantification varies widely. This is true, despite the steady growth in the range of both national and international instruments designed to slow, or reverse, biodiversity loss. This paper provides a survey of a number of these initiatives, and analyses their potential interface with the establishment of a

green development mechanism (gdm). The range of instruments considered is not exhaustive, but includes: the Global Environment Facility (GEF), LifeWeb, the Clean Development Mechanism (CDM), and REDD-plus.

This survey suggests that there is considerable scope for potential synergies between many of these schemes and a gdm, and that the setting up of a gdm could, itself, benefit from the experience that has already occurred. But it is also clear that the specific mandates of some of these schemes would inhibit their ability to address the waterfront of biodiversity challenges that exist today. In addition, it is suggested that a gdm could mobilise private sector resources in an innovative manner so far not yet fully explored.

Part 2 on setting up a gdm

In considering the role, and nature, of a gdm, it would be helpful to have a common understanding on a set of overarching principles. These emphasise the need for a new mechanism to support the aims of the CBD; to be development oriented, and operate in a flexible manner, subject to proper verification and supervision.

The paper is not prescriptive in terms of the exact financing mechanism (of which there is a rich menu of options). However it draws attention to the difficulties of replicating carbon 'cap and trade' models given the heterogeneity of biodiversity and ecosystem resources, and suggests a pragmatic solution, based on existing standards and best practice to the challenge of measurement. It also suggests that early consideration is desirable on whether a new mechanism should be publically-funded, private-sector financed, or some combination of both. It highlights the fact that the private sector is deeply divided on whether any private-sector oriented mechanism should be voluntary or compulsory. Some private sector stakeholders strongly favour the voluntary route on the basis that companies should retain the freedom to determine their own strategies; others prefer a compulsory approach because they believe this best provides for a stable regulatory framework, under which all can compete on an equal footing.

The paper develops criteria that would guide the eligibility of activities for gdm funding and describes the range of programmes and projects that might benefit. It is suggested that both non-profit and commercial projects would qualify albeit, of course, on differing support terms. The paper also provides a brief survey of some of the existing tools which might be used to judge eligibility.

It is also argued that the potential to exploit further private sector engagement is substantial, especially given the growing evidence that some parts of the corporate sector already see it as in their long term commercial (and reputational) interests to invest in biodiversity conservation. At present private sector initiatives are uncoordinated, and possibly sub-optimal: a gdm offers the possibility, through verifying the myriad of extant standards, to

recognise existing best practice behaviour by individual companies, and thus incentivise an increased mobilisation of private sector finance for the biodiversity cause.

In discussing the institutional aspects of a gdm, it is suggested that any arrangement will play an important verification role. The mechanism itself could be based in an existing international organisation; a private bank; or, alternatively, in an internationally recognised NGO or some possible combination of institutions. Irrespective of its location, or the status of the institution, the governance structure will need to be multi-stakeholder in nature, reflecting the private sector, biodiversity, development, and political dimensions of the initiative.

The paper concludes that there is a real opportunity now to establish a new gdm, under the CBD, which would both complement existing financial arrangements, and enable the private sector to play a more dynamic role in filling the biodiversity funding gap. But, in order to realise this ambition, there are a number of key questions that need now to be addressed.

In 2010, there is a real opportunity to move forward from the January Bonn meeting on innovative financial mechanisms to the CBD COP10 in Nagoya in October, to secure endorsement by the COP of the case for a gdm, and to agree on some key elements, and a timetable for its development. In this respect, the Bonn meeting may want to provide guidance on a gdm to the Third Meeting of the Working Group on the Review of the Implementation of the Convention which will take place in May in Nairobi, particularly with respect to questions 9 and 12 above.

Part 1: The need for a gdm

1.1 The biodiversity case

Biodiversity is "life on earth," vital to human life and its prosperity. Biodiversity represents the number, variety, and variability of living organisms. It includes diversity within species (genetic diversity – important to recent research into cancer care); between species (species diversity – potentially important to climate change adaptation strategies) and between ecosystems (ecosystem diversity – vital to the welfare of local communities).[2]

An important dimension of biodiversity is the notion of ecosystem services – the functions by which biodiversity supports life systems including the basic necessities of life: food, energy, clean water, protection against natural disasters, and health – by regulating climate, watersheds, floods, and pests. Fundamentally, all economies, and all businesses, depend, directly or indirectly, on biodiversity and its component resources. Further, a growing body of research provides strong evidence that biological diversity increases economic productivity in a range of sectors; enhances the direct non-use benefits of nature; reduces ecological and health risks; and reduces resilience in the face of shocks, not least climatic, the frequency of which are increasing. These considerations are not only of direct importance for today's global population, but also for future generations.

Conversely, loss of biodiversity weakens the resilience of ecosystems, and thus undermines the ability of such systems to provide ecosystem services which are often vital to local people, particularly the poorest living in rural areas: the loss of wetlands can cause severe water shortage; whilst loss of coral reefs has led to coastal flooding.

Biodiversity loss impacts at the local, national and global level. The economic value of biodiversity at the **local** level may be small in proportion to global values, but may be extremely important to local populations, often amongst the poorest, dependent on biodiversity as a source of food, fuel wood, and other vital consumables.

At the **national** level, biodiversity loss may impact, directly and indirectly, on sustainable water management, land stewardship, and the food chain. Of course, some adverse consequences of biodiversity damage may be amenable to amelioration through regulatory intervention or through a market-based approach at the national level. At the **global** level, biodiversity loss includes the loss of genetic information, contributions to strategies to reduce global

[2] Biological Diversity is defined in the Convention on Biological Diversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." See: http://www.cbd.int/convention/articles.shtml?a=cbd-02.

warming, and important non-use values (in particular, existence values) such as the preservation of individual species and ecosystems which are deemed to be of global importance. In addition, the maintenance of the resilience of ecosystem represents a global public good that is fundamental to life.

1.2 The challenge of biodiversity loss

1.2.1 The extent of biodiversity loss

There is alarming evidence of biodiversity degradation and loss. While no single measure can fully capture the pace, and extent, of biodiversity loss, numerous scientific studies point to a rate of biodiversity decline which is unsustainable. For example, the 2005 Millennium Ecosystem Assessment (MEA) reported that the current rate of species loss is up to 1000 times higher than that experienced, at an average rate, over the earth's history. Land conversion has caused a 40% decline in the world's forest reserves. Mangrove forests, once covering more than 200,000 Km of coastline, have suffered losses of up to 86% in certain locations and continue to disappear at a rate of 1-2% per year. 20% of the world's coral reefs have been effectively destroyed, with a further 24% considered at risk of imminent collapse.[3] Further compelling evidence of the continuing loss of biodiversity is to be released in the Global Biodiversity Outlook 3 (GBO-3) which is currently under review and will be officially launched in May 2010.[4]

The evidence also suggests that current efforts to conserve biodiversity are at best slowing, rather than reversing, the global erosion of biodiversity. The IUCN Red List5 suggests that 25% of mammals and 12% of birds are Critically Endangered or Vulnerable to Extinction, in addition to 22% of conifers and 32% of amphibians. It is thus unlikely that the goal of achieving "a significant reduction in the current rate of biodiversity loss by 2010", as agreed by Leaders at the 2002 World Summit on Sustainable Development, will be met. (In this respect, it may also be useful to explore the relevance of a gdm to the current discussions of a setting post-2010 biodiversity target.6)

Biodiversity is not evenly spread throughout the world either in terms of species diversity or ecosystem values. Diversity is most concentrated around the Equator, particularly in moist tropical forests. These cover 7% of the world's surface, but may account for around 90% of the world's total species. The majority of the world's remaining biodiversity is thus located in developing countries, a factor which has important policy implications.

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[3] For more information on the Millennium Ecosystem Assessment, see: http://www.maweb.org/.

[4] For more information on GBO3, see: http://www.cbd.int/gbo3/.

[5] The IUCN Red List is another excellent source of information on the current status of biodiversity. See: http://www.iucnredlist.org/.

[6] See the Aichi-Nagoya International E-Conference on the post 2010 Biodiversity Target (ANIEC 2010): http://www.cbd.int/aniec2010/.

The recently released report on The Economics of Ecosystems and Biodiversity (TEEB) for National and International Policy Makers[7] (also known as the D1 report) provides a succinct overview of the extent of biodiversity loss which we are currently experiencing, as well as the likelihood of continuing loss in the future. This section summarises some of the main observations in Chapter 1 of this report.

The loss of biodiversity – or what the TEEB report refers to as "our natural capital" – is occurring across the planet:

> **"Damage to global ecosystem services and biodiversity is acute and accelerating.** In the last century we have lost 35% of mangroves, 40% of forests, and 50% of wetlands. 60% of ecosystem services have been degraded in fifty years. Species loss is 100 to 1,000 times than in geological times and will get worse with climate change. 80% of the world's fisheries are fully- or over-exploited. Critical thresholds are being passed: for example, coral reefs risk collapse if CO^2 emissions are not urgently reduced." (page 2)

The report highlights particular challenges in all the major ecosystems as follows:

- **Forests:** "…forests have completely disappeared in 25 countries… about 12 million hectares are lost to deforestation each year… global net loss of forest area between 2000 - 2005 was 7.3 million hectares/year…" (page 8)

- **Natural and semi-natural grasslands:** "…3.2 million hectares are currently degraded every year… over 50% of flooded grasslands and savannahs and tropical and sub-tropical grasslands and savannahs, and nearly 30% of montane grasslands and shrublands, have been destroyed…" (page 8)

- **Agricultural land:** "Significant local risks are generated by loss of agricultural production or productivity…" (page 9)

- **Freshwater systems:** "All continents unsustainably exploit freshwater resources… Water withdrawals from rivers and lakes for irrigation, urban uses, and industrial applications doubled between 1960 and 2000… construction of dams and other structures along rivers have moderately or strongly affected flows in 60% of the world's large river systems…" (page 10)

- **Wetlands:** "…Since 1900, the world has lost around 50% of its wetlands… since 1980, 20% of mangrove area (3.6 million hectares) has been lost…

[7] For more information on the TEEB report for policy makers, see: http://www.teebweb.org/ForPolicymakers/tabid/1019/language/en-US/Default.aspx.

but some countries have lost up to 80% through conversion for aquaculture, overexploitation and storms…" (page 10)

- **Tropical coral reefs:** "…20% of reefs have been destroyed… 30% have been seriously damaged… 58% of the world's reefs are potentially threatened by human activities at the global scale…" (page 10)

- **Marine systems:** "…since industrial fishing began, the total mass of commercially exploited marine species has been reduced by 90% in much of the world…" (page 11)

- **Species and genetic diversity:** "…nearly a quarter (22%) of the world's mammal species and a third (32%) of amphibian species are known to be globally threatened or extinct… 12% of the world's bird species are under threat…" (page 12)

And, worryingly, the future does not look any better:

> "The assessments are unanimous that **significant biodiversity loss will continue under all considered policy scenarios**, with the rate of loss projected to accelerate and exceed that of the last century." (page 13)

The evidence presented in the TEEB report supports the case for a green development mechanism (gdm). However, as discussed in the following sub-section, it is also critical for us to better understand the underlying drivers of biodiversity loss in order to direct new investments in conserving biodiversity and maintaining ecosystem services.

1.2.2 The causes of biodiversity loss

Biodiversity loss arises from destruction of or damage to habitats and ecosystems, often as part of human economic activities. Other causes include overexploitation of resources, pollution, and the impact of climate change. The value and socio-economic importance, of biodiversity and ecosystem services are almost never captured in economic and development policies, investment decisions and consumption patterns. At the local level, the full societal cost of degrading biodiversity stocks is rarely borne exclusively by the parties involved. These effects result from the fundamental problem associated with *the failure of markets to deal with externalities*.

Ecosystem services – and the underlying biodiversity - are essentially public goods. As such, those who exploit them rarely pay the true economic value of the resource consumed leading to the inevitable consequence that private economic activity may ignore the wider public interest (for example, the private returns accruing from land conversion may be heavily outweighed by the public benefits lost); or that the quest for short term gain may be detrimental to the sustained supply of benefits that accrue over time (the most glaring example is over-exploitation of fisheries stocks).

The exception to the systematic undervaluation of ecosystem services is where an economic agent's business needs depend directly on biodiversity. Nature-based tourism is the most obvious example, but other commercial sectors, including agriculture and the pharmaceutical industries, have all begun to understand that biodiversity maintenance can reduce costs and improve profitability. Even some fisheries developers have begun to understand the importance of sustained stock management.

Biodiversity conservation implies opportunity costs at the local, and/or national, level. Since much of the world's biodiversity exists in **developing countries**, the onus of preserving biodiversity falls, potentially, to societies least able to bear such costs. It is thus no surprise that the Preamble to the Convention on Biological Diversity (CBD) recognises that developing countries will need assistance in fulfilling their obligations under the Convention.

Indeed, it is the shortcomings of national institutions – both economic and political – to conserve biodiversity and maintain ecosystem services which prompted the adoption of the CBD and the need for "new and additional financial resources"[8] to enable developing countries to meet the objectives of the CBD in the context of poverty alleviation and sustainable development. A gdm could potentially generate resources from the private sector to support these obligations and in so doing help to reduce biodiversity loss.

1.3 The economic case[9]

Given that the true value of biodiversity, and ecosystem services, are rarely reflected in equilibrium market pricing mechanisms, it follows that the real costs (of their destruction) and benefits (of their conservation) are difficult to calculate in a systematic manner. The equation is also complicated by the fact that values are often location specific, or may depend on the density of the local population affected by incremental changes in the ability of ecosystems to fulfil particular functions of public benefit (e.g. safe water supplies). While much work needs to be done, there is now an impressive body of empirical evidence which provides insights into the value of a wide range of ecosystem services in their specific contexts.

The real value of an ecosystem should include both its direct use value, in terms of its ability to provide essential life support such as food, energy, and shelter, as well as indirect use values such as water, prevention of soil erosion, protection of coastlines, etc. While the former is reasonably

[8] From the CBD Article 20 on Financial Resources; see: http://www.cbd.int/convention/articles.shtml?a=cbd-20.

[9] The authors wish to acknowledge that much of the evidence cited in this section is drawn from the TEEB study, in particular, the document TEEB for Policymakers Summary: Responding to the Value of Nature. See: http://www.teebweb.org/.

amenable to calculation, the latter is extremely difficult to capture and to value.

The evidence that is available points clearly to the premise that the value of local ecosystems is significantly higher than that suggested by recorded local incomes; and that very often, the true value of such systems is considerably higher than the benefits accruing from alternative land, or marine, use.

A wetland in North Sri Lanka offers a good example of the divergence between true, and recorded, economic value of an ecosystem. The study[10] found that the provisioning services of the wetland (agriculture, fisheries and fuel wood) generated a recorded income of US$150 per hectare per annum (phpa). However the value of the area's flood attenuation properties was estimated to be $1907 phpa, while its function as a means of safe wastewater disposal was calculated as $654 phpa. A study on a shrimp project in Thailand found that the economic return on the product was $1220 phpa, compared to a value of $12392 that would have been generated by the destroyed mangrove had it continued to fulfil its traditional role as supplier of fuel wood, fisheries nursery and coastal protection services.[11]

More generally, there is much evidence that conservation of biodiversity raises productivity. A study in Costa Rica[12] found that forest-based wild pollinators boosted coffee yields by 20% compared to coffee yields more distant from the forested area. And an investigation[13] into the benefits of the establishment of the Mombasa Marine National Park concluded that, after 8 years, fish catches near the park's perimeter were 3 times higher than those enjoyed in more distant catch areas.

The evidence also suggests that investments in ecosystems produce highly attractive returns. The case for investment in services that contribute to combating climate change is well documented,[14] and is reflected in the ongoing debate about the possibility of developing the REDD+ initiative. But there are numerous other examples, unrelated to the issue of climate change, where investing in the maintenance of ecological infrastructure makes a compelling case. In New York State, a now famous case study estimated[15] that the preservation of the Catskill watershed, costing around $1-1.5bn, was a significantly cheaper option to ensure safe water supplies compared to the

[10] Emerton, L and Kekulandala, LDCB (2003) Assessment of the Economic Value of Muthurajawela Wetland. Occasional Papers of IUCN, Sri Lanka, No. 004, cited in TEEB.
[11] Barbier, EB (2007) Valuing Ecosystem Services as Productive Inputs. Economic Policy 22 (49).177-229, cited in TEEB.
[12] Ricketts et al (2004) Economic Values of Tropical Forests to Coffee Production, Proceedings of the national Academy of the USA (PNAS101 (34) 12579-12582, cited in TEEB.
[13] McClanahan, T and Mangi, S (2000) Spillover of exploitable fishes from a marine park and its effect on the adjacent fishery. Ecological Applications 10: 1792-1805
[14] See The Economics of Climate Change: The Stern Review, HM Treasury (2007)
[15] Perrot-Maitre, D and Davis, P (2001) Case studies on Markets and Innovative Financial Mechanisms for Water Services from forests, cite in TEEB.

alternative of constructing a new filtration plant which would have cost $6-8bn.

The above represents a very brief overview of the evidence that the economic case for preserving biodiversity and ecosystem services is very strong. To put the issue into its overall context it is noteworthy that one recent study[16] has suggested that the total unrecorded value of externalities, excluding the impacts of climate change, could represent 3.5% of global GDP; around 10% of the GDP of the European Union.

1.4 The political case

Society has grappled with the dilemma inherent in the so- called *Tragedy of the Commons* throughout history. Aristotle (384BC- 322BC) commented that:

> "for that which is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest."

Responses to this challenge have generally taken one of two forms. First, policies to privatise common goods in the expectation that individuals, having ownership of an asset, will exploit it responsibly: the English Enclosure Acts of the 18th and 19th centuries are probably the most classic example of this approach. Secondly, some form of (generally) state-sponsored, or international, intervention to regulate private behaviour in order to make it compatible with wider social, or economic, desired outcomes. In the case of concern for biodiversity, regulation dates back to the late 19th century, and typically took the form of the establishment of Protected Areas. Since then, there has been a steady growth in local, and national, initiatives to conserve ecosystems and protect ecosystem services. The importance of such efforts, and the need to co-ordinate an international strategy, was formally recognised in 1993 when the **CBD** finally entered into force.

Governments have long accepted that the needs of future generations represent an important moral and political consideration. Where such needs are imperilled due to *market failure associated with externalities,* governments have generally accepted the responsibility to act. The current climate change debate is the most obvious current example of recognition by individual governments, and, indeed, the international community, that collective intervention in the market is necessary.

In one particular area – that of sustainable forest management – the powerful linkages between climate change mitigation strategies, and biodiversity conservation policies, have been clearly recognised. Thus the recent UNFCCC COP15 in Copenhagen witnessed considerable discussion and debate on the

[16] Addressing externalities through collaborative shareholder engagement, Trucost Plc in partnership with the UN Principles or Responsible Investment (unpublished).

need to protect forests as a valuable sink for carbon capture through development of the Reduced Emissions from Deforestation and Forest Degradation in developing countries (REDD-plus) concept. But, outside the specific field of forestry, the need for an integrated approach to retarding global warming and biodiversity loss are less well understood. A pertinent example is the controversial issue of bio fuels, where the search for alternative, non-fossil, sources of energy has, in the view of some commentators, led to an unacceptable loss of natural habitats and/or directly led to the increase in the price of food staples seen in recent years.

The key point is that, even if international climate change mitigation strategies succeed in containing global warming at a given level (say 2%), there is still a separate requirement to address biodiversity loss amongst ecosystems and species which remain under intense pressure from human exploitation. Indeed climate change intensifies this requirement for two reasons:

- Many species will be stressed, possibly to the point of extinction, by global warming: the need to preserve genetic diversity is thus even greater, and;

- The role of ecosystems (e.g. mangroves) to provide valuable protection to human settlements against natural disasters will become even more important as climatic conditions become more volatile as a result of global warming.

But more generally, many causes of biodiversity loss, leading to ecosystem degradation, which are commonly associated with global warming, are in reality a direct result of human economic activity not directly to the emission of carbon, such as soil depletion from over grazing. They therefore need to be addressed separately in a targeted manner. These include a decline in agricultural productivity leading (given expected population growth trends) to an increased incidence of food insecurity and poverty (see Section 1.5); significant population movements, including an increase in "economic" migration, as a result of severe, if localised, pressure on scarce water supplies, and; increased social instability as indigenous communities compete with industrial-sized producers for scarce land and marine resources.

That governments have a responsibility to act does not lead to the conclusion that public funds alone should be mobilised to finance the necessary response. Both consumers, and the corporate sector, are currently enjoying the free ride associated with sub-optimal pricing of public goods such as biodiversity and many ecosystem services (not all, since some services are amenable to pricing regimes). It follows that the costs of remedial action should probably be borne, on an equitable basis, by all beneficiaries, including the private sector consumer.

Indeed the flow of official funding from rich countries (who, at present reap the greater share of the benefits) to suppliers of biodiversity benefits (which are, generally, to be found in the developing world) will not necessarily provide an optimal solution, because it potentially fails to alter consumer behaviour. A more durable approach might be one which both builds on growing consumer concern about long-term sustainability, and which seeks to introduce market mechanisms designed to encourage, and ensure sustainable production practices, supply chains, and conservation. That is the challenge for governments today. Future generations will not thank us for failing to grasp this political imperative, but **do we have the political mandate and sufficient political will to introduce market mechanisms for halting the loss of biodiversity?**

1.5 The development case

Hilary Benn, the UK's Environment Secretary (and formerly the International Development Secretary) commented recently that 1 billion people in the world depend on fish as their principal source of protein.[17]Yet, according to the FAO, half of the world's marine fisheries stocks are already fully exploited. This underlines the deep-seated linkage between the needs to protect ecosystems and alleviate poverty. Indeed this fundamental relationship is explicitly recognised in the Millennium Development Goals (MDGs), which represent the world's current response to global poverty and inequality. [18] MDG7 calls for the need to "ensure environmental sustainability" with specific targets relating to the imperatives of reducing biodiversity loss; and of reducing the proportion of the world's population who do not have access to safe drinking water (specifically, a 50% reduction, by 2010).

The biodiversity conservation/poverty reduction nexus is, however, complex, and has several strands. The most direct linkage relates to the very large number of poor, and often marginalised, populations whose livelihoods are jeopardised by the destruction of ecosystems that result from the conversion of land for large-scale commercial gain. Habitat destruction, or degradation, can, as described above in Section 1.2.1, have devastating effects on water availability, and quality; agricultural productivity, and; on the supply of traditional sources of food and energy (e.g. fuel wood).

One recent study in Haiti[19] demonstrated how the almost total destruction of the island's forests has led to very serious land erosion, leading to a decline in arable land by 40%, and a decline in rainfall by 40%. When the rain does come, the hillsides can no longer retain, or filter, the water leading to devastating floods. The resultant decline in agricultural output has made

[17] Interview, BBC Radio 4 Today Programme, 14 December, 2009, quoting Millennium Ecosystem Assessment, 2005
[18] For more information on the MDGs, see: http://www.un.org/millenniumgoals/.
[19] Amor, D and Christensen, N (2008) Environmental Degradation and Poverty a Vicious Cycle: Haiti, cited in TEEB Interim Report.

poverty alleviation impossible (MDG1), while the deterioration in water quality has severely affected health, including a significant rise in the incidence of children suffering parasitic intestinal disease (MDGs 4, 5 and 6). While this may be an extreme example of the vicious cycle of environmental degradation leading to extreme poverty, the literature provides many other similar stories, whether it is the damage to coastal populations caused by loss of mangrove habitats, or the loss of non-timber forest products or ecosystem services for local communities due to forest degradation.

Extreme poverty is also, in itself, a barrier to sustainable habitat management and ecosystem protection. There is little point in bemoaning the historical loss of rainforests or the depletion of marine life. If environmental damage has inhibited efforts to meet the MDGs, it is also vital to recognise that coherent development strategies provide the most robust means of retarding, or reversing, such damage. If the critical challenge is, as set out in Section 1.2.2, the need to incentivise communities not to destroy, or over-exploit, biodiverse-rich habitats and ecosystems, then delivering alternative sustainable development strategies is vital. So, while developing countries have a responsibility to mainstream biodiversity conservation into National Poverty Reduction Development Strategies (NPRDSs), developed countries, whose citizens are the main beneficiaries of biodiversity protection, have a clear incentive to ensure that combating biodiversity loss is given due weight in their own development assistance priorities.

This requires, inter alia, strategies aimed at offering target populations alternative forms of income generation; increasing the productivity of land already under cultivation (or used for animal grazing); and the provision of education and technical assistance to help communities understand the holistic value of their own ecosystems and on how to preserve local ecosystem services. It will be important that such strategies are community based, and integrate a strong gender element given the pivotal role of women, in many societies, as both guardians of food production and gatherers of fuel wood. There are, of course, many current examples of best practice in both bilateral, and multilateral, assistance programmes.

But there is also a tendency amongst some donors to argue that, important as it is, biodiversity conservation does not contribute, in a directly visible sense, towards poverty elimination. This is myopic. As the interim TEEB report[20] released in 2008 has shown, there are very strong, albeit indirect, links between habitat preservation and the achievement of almost all the MDGs. Apart from the undeniable role that ecosystems play in ensuring food security (MDG1), the provision of safe water (which for rural communities in developing countries is invariably a product of efficient ecosystem management) is a vital enabler to the attainment of MDG4 (reduced child

[20] The Economics of Ecosystems and Biodiversity Interim Report, see: http://www.teebweb.org/InformationMaterial/TEEBReports/tabid/1278/language/en-US/Default.aspx.

mortality), MDG5 (improvement in maternal health), and MDG6 (reduction in the prevalence of endemic diseases). The relevance of MDG3 (gender equality) has already been mentioned.

Another example is the role that well-managed ecosystem can play in conserving biodiversity, mitigating climate change and supporting local communities. A recent background paper[21] for a conference on disaster risk reduction noted:

> "There is growing consensus that environmental degradation, poverty and disaster risk remain interlinked and share common consequences for human security and well-being. Disaster events erode hard-earned development gains and contribute to natural resource degradation, while pre-existing social, economic, political and environmental problems often influence the magnitude of disaster impacts.
>
> The role of ecosystem services is therefore increasingly valued for reducing disaster risks and protecting livelihoods. Healthy ecosystems provide natural defences to human communities by regulating hazards, while degraded ecosystems can increase exposure and reduce community resilience."

There is, however, also concern amongst some development practitioners that strategies to preserve biodiversity will "crowd out" weak and vulnerable communities unable to compete with the introduction of new, more demanding, product certification standards designed to protect ecosystems. Such concerns are legitimate, but risk leading to the perverse conclusion that "business as usual is best". A more appropriate response is to recognise this issue, which has an important equity dimension, and put in place development strategies that help suppliers to meet the challenge of higher standards.

In conclusion, it is worth recalling the definition of sustainable development as enshrined in *Our Common Future*, the Brundtland Commission Report. It says:

> "Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."

These sentiments are as relevant today, arguably more so, than when they were first expressed over 20 years ago. However, **are biodiversity policy**

[21] Investing in ecosystems management for sustainable livelihoods and disaster reduction: Challenges and solutions (June 2009), see: http://www.preventionweb.net/globalplatform/2009/programme/special-events/v.php?id=42.

makers able to commit to conserving biodiversity in ways which ensure development outcomes, especially for the very poor?

1.6 The biodiversity funding gap

1.6.1 Biodiversity funding requirements

A 2007 review of the implementation of the financial articles of the CBD, noted that, at the time of its negotiation in the early 1990s, the estimated funding needs of "biodiversity conservation ranged from $500 million to $50 billion per year."[22] The range of funding requirements was, and remains, very broad in part because of the complexity of interventions needed to support the objectives of the CBD at national, regional and international levels.

In the light of the broad and probably high level of funding required for biodiversity, A CBD review in 2007 surveyed existing funding resources at the national and international levels, including multilateral support from the Global Environment Facility (GEF) and biodiversity-related programmes of the World Bank and the United Nations Environment Programme (UNEP). Clearly, there is now a diverse array of funding initiatives for biodiversity, but together they have not provided adequate finance to reduce the loss of biodiversity.

Hence, the 2007 review also included a concluding section on the possibility of innovative international financing (pages 47-49) which highlighted various international instruments and measures – many of which might be considered under a green development mechanism. These included:

- "Solidarity contribution on air travel tickets;
- International Finance Facility;
- Advanced market commitments;
- Remittances;
- Special drawing rights for development;
- Global lottery and global premium bond;
- Global environmental taxes;
- Tobin tax; and
- Voluntary contributions."

Current estimates of biodiversity funding needs still vary, but the general consensus is that there remains a significant funding gap and new financial flows are needed, including policies to encourage private sector investment. This consensus is reflected in the OECD Experts' Workshop on Innovative Financing to Support Biodiversity Protection and Sustainable Use in July 2009[23]

[22] Review of implementation of Articles 20 and 21: Review of the availability of financial resources, UNEP/CBD/WG-RI/2/INF/4, 28 June 2007. See: http://www.cbd.int/doc/meetings/wgri/wgri-02/information/wgri-02-inf-04-en.pdf.
[23] www.oecd.org/env/biodiversity

which concluded that "There is a large biodiversity financing gap.New and additional investments and financial flows are needed –including policies to encourage private sector investment."

In the light of the current biodiversity funding gap, it is worth exploring whether a green development mechanism could complement the current funding provided by the GEF and others through generating new international resources, in particular from the private sector for biodiversity. Specifically, as discussed further in the following sub-sections, **could a gdm enhance current sources of international finance for biodiversity through encouraging and leveraging private sector investment through international contributions, payments and trades?**

1.6.2 The GEF and a gdm

The Global Environment Facility (GEF) is the major source of multilateral funding for the environment, including biodiversity. Established in 1991 just before the 1992 Rio Summit where the Conventions on Biodiversity, Climate Change and Desertification were launched, the GEF has played a key role in transferring funds from developed countries to less development countries for national, and regional, environmental projects. Today, the GEF describes itself as follows:

> "The Global Environment Facility (GEF) unites 179 member governments — in partnership with international institutions, nongovernmental organizations, and the private sector — to address global environmental issues. An independent financial organization, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. These projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods."[24]

Compared to a gdm, which is intended to focus specifically on biodiversity, the GEF clearly has a much broader scope in the environmental issues it addresses. As highlighted in the quote above, in addition to biodiversity, the GEF also support projects in the areas of climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Also, in addition to being the official financial mechanism for the CBD, the GEF is also the official financial mechanism for the UN Framework Convention on Climate Change (UNFCCC), the Stockholm Convention on Persistent Organic Pollutants (POPS), and the UN Convention to Combat Desertification (UNCCD). And it has a partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances for economies in transition. Nevertheless, where there are potential biodiversity benefits from GEF

[24] For more on the GEF, see: http://www.gefweb.org/interior_right.aspx?id=50.

projects focused on other environmental issues, a gdm might find some opportunities for collaboration.

The GEF also has a particular methodology for allocating finance to environmental projects: it "funds the 'incremental' or additional costs associated with transforming a project with national benefits into one with global environmental benefits."[25] A gdm, on the other hand, could ensure that **'non-incremental' costs** of biodiversity projects – **such as core support needed at the national level** – are also supported. Likewise, while the GEF provides grants to deliver global environmental benefits, a gdm could invest in projects which explicitly deliver **local, national or regional biodiversity benefits**. As discussed further in Section 2.3 below, these benefits could also include development impacts. Finally, while the GEF provides grants to projects, a gdm could also support the **ongoing revenue requirements** of biodiversity institutions and programmes – such as protected area authorities or watershed management systems – to conserve biodiversity and maintain ecosystem services. Such flexibility would enable a gdm to **complement** the GEF's approach to funding; somewhat analogous to the way in which the CDM complements the GEF (see Section 1.6.4 below).

Traditionally, the source of funding for the GEF has been limited to contributions from developed country member governments. Currently, negotiations are underway with donor governments for a 5th replenishment of the GEF for a proposed amount of $4.5 billion to $6.5 billion. It is hoped that this replenishment will be finalised early in 2010 as the 4th replenishment runs out midyear.[26] A gdm, on the other hand, could harness **new and additional private sector funds for biodiversity through market-based processes,** again perhaps somewhat analogous to the formal carbon market developed under the CDM.

As a market-based mechanism, however, a gdm should be structured to complement the recently established private sector partnership initiative of the GEF known as the Earth Fund.[27] Originally conceived as a public-private partnership (PPP) initiative, the first pilot project of the Earth Fund has been set up in partnership with the International Finance Corporation (IFC). It is described as follows:

> "The GEF Earth Fund (pilot project) was established with separate trust fund arrangements to promote projects, technologies and business models that will contribute to the protection of the global environment and promote thereby environmentally sound and sustainable economic development. This pilot project allows the GEF to demonstrate ways to more systematically engage with the private sector in order to reach beyond its traditional boundaries (in a number of ways), foster

[25] For more on incremental costs, see: http://www.gefweb.org/interior.aspx?id=80.
[26] For more on the 5th replenishment, see: http://www.gefweb.org/interior_right.aspx?id=48.
[27] For more on the Earth Fund, see: http://www.gefweb.org/interior_right.aspx?id=120.

innovation and open new markets, and demonstrate the potential for strategic partnerships to achieve greater scale of investment than generally achievable through working with the private sector on individual projects through the normal GEF project cycle."

Going forward, the GEF plans to increase the size and broaden the scope of the Earth Fund. In their 'Revised GEF-5 Programming Document'[28] prepared for the November 2009 meeting on the 5th replenishment, the GEF Secretariat has proposed "that resources be earmarked for an expanded and recapitalized Earth Fund in GEF-5, with the aim of leveraging additional resources from the private sector." The document further explains that they expect the private sector will be interested in co-financing GEF projects:

> "The GEF Earth Fund is not a purely commercial vehicle. This is consistent with the GEF Instrument which provides for grant and concessional funding… A key to the success of the Earth Fund is attracting investment partners at the Platform level who are not seeking a full commercial rate of return on their investments… Attracting such investors is not considered to be difficult in the context of the concessional funding being offered by the Earth Fund…" (page 69)

Roughly $100 million of the 5th replenishment is to be earmarked to the Earth Fund which in turn would fund up to 10 'platforms' for investments based on public-private partnerships. With respect to biodiversity, these platforms could include the following:

- "Promoting business participation in sustainable forest management (SFM) initiatives…

- Deploying market-based instruments for biodiversity protection and the provision of ecosystem services in developing countries. This may include initiatives under the Business, Biodiversity and Offsets Program (BBOP) which generates measurable conservation outcomes through biodiversity offsets associated with extractive industry project development…

- Combining development and conservation by means of a nature-based 'BioDevelopment Fund,' a concept to promote the utilization of the emerging tools of genomics, proteonomics and even biomimetic applications to tap into the massive biodevelopment potential of the global protected areas system...

- Engaging in carbon finance activities through the Earth Fund where this will complement other programs…" (page 70)

Clearly all these biodiversity-related platforms are relevant to a gdm. For example, carbon finance activities which complement other programmes,

[28] GEF/R.5/22 (October 30, 2009).

could include REDD plus projects (see Section 1.6.5 below). **Could a gdm support the GEF and its Earth Fund as a platform for scaling up market-based biodiversity financing building on the Fund's public-private partnerships approach – notably by going beyond the GEF's mandate to finance the incremental costs of projects to deliver global environmental benefits?**

1.6.3 LifeWeb and a gdm

LifeWeb is a new financial mechanism in support of the CBD whose "goal is to increase funding for the creation and management of protected areas, as powerful tools to address climate change, strengthen ecosystems, and sustain livelihoods."[29] The LifeWeb Initiative was launched in May 2008 at the CBD's 9th Conference of the Parties (COP9) held in Bonn. LifeWeb's activities include:

- "Providing a clearing-house of protected area funding needs;
- Connecting recipient expressions of interest with interested donors;
- Co-convening donor coordination meetings in support of comprehensive national protected area strategies;
- Encouraging and recognising donor support for protected area solutions."

Since June 2009, LifeWeb has had a Coordination Office located at the CBD Secretariat in Montreal. The role of this office is to:

- "Design and manage a web-based information clearing-house to profile needs articulated by CBD Contracting Parties as well as indigenous and local communities.
- Strengthen the LifeWeb donor base to support these needs.
- Facilitate funding partnerships among donors and with recipients.
- Improve understanding of the contributions of protected areas to livelihoods and as solutions to the climate crisis, as well as enable their integration into sustainable development planning, and climate mitigation and adaptation strategies."

LifeWeb is now fully operational with a new website listing donors, recipients, matches as well as a pipeline of potential investments. Though its committed donors include the governments of Finland, Germany and Spain, LifeWeb's match-making efforts are already generating new interest from the private

[29] For more information on LifeWeb, see: http://www.cbd.int/lifeweb/.

sector.[30] In this respect, **could a gdm collaborate with LifeWeb to generate market-based support for biodiversity projects, programmes and institutions, particularly with respect to protected areas?**

1.6.4 The CDM and a gdm

The Clean Development Mechanism (CDM) is one of the three market-based, flexible mechanisms established under the Kyoto Protocol of the UNFCCC to facilitate the reduction of greenhouse gas emissions from developed countries (Annex I Parties) through financing carbon offsets in developing countries.[31] The CDM website provides a succinct explanation of how it operates:

> "The CDM allows emission-reduction (or emission removal) projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO2. These CERs can be traded and sold, and used by industrialized countries to a meet a part of their emission reduction targets under the Kyoto Protocol.
> The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets.
> The projects must qualify through a rigorous and public registration and issuance process designed to ensure real, measurable and verifiable emission reductions that are additional to what would have occurred without the project. The mechanism is overseen by the CDM Executive Board, answerable ultimately to the countries that have ratified the Kyoto Protocol.
> In order to be considered for registration, a project must first be approved by the Designated National Authorities (DNA).
> Operational since the beginning of 2006, the mechanism has already registered more than 1,000 projects and is anticipated to produce CERs amounting to more than 2.7 billion tonnes of CO2 equivalent in the first commitment period of the Kyoto Protocol, 2008–2012.
> The mechanism is seen by many as a trailblazer. It is the first global, environmental investment and credit scheme of its kind, providing a standardized emissions offset instrument, CERs."

Though the recent UNFCCC COP15 which took place in December 2009 in Copenhagen ended with a non-binding statement – the Copenhagen Accord[32] – this statement maintained a commitment to the "emission reductions initiated by the Kyoto Protocol" and "existing and further guidance adopted by the Conference of the Parties" which by implication appears to be a

[30] In November 2009, LifeWeb organised a meeting in Jakarta between the co-authors of this paper and the proponents of a project on Ecological Mangrove Rehabilitation, Sustainable Livelihoods Adaptive Collaborative Management and Carbon Finance in Critical Mangrove Systems in Indonesia to explore opportunities for funding from the Danone Fund for Nature.
[31] For more information on the CDM, see: http://cdm.unfccc.int/about/index.html.
[32] See: http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf.

commitment for a continuation of the CDM beyond 2012. (The Accord also addresses REDD-plus which is covered in the following sub-section.)

Hence, a gdm would benefit from exploring both insights from the establishment of the CDM, and opportunities for possible collaboration in the future. Despite some weaknesses, including a perception of a rather heavy bureaucracy, the CDM has succeeded in generating significant new private sector finance for environmental projects. An independent review[33] by the Smith School of Enterprise and the Environment of the University of Oxford concludes as follows:

> "Overall, the CDM has been surprisingly successful at delivering vast numbers of emission-reduction projects in key countries around the world. It has mobilized substantial amounts of private capital, and… it will deliver substantial emission reductions. Furthermore, anecdotal evidence suggests the CDM has stimulated many emission-reduction projects that ultimately never went on to receive carbon finance because, after financial analysis, it turned out that the projects were already profitable without the CDM." (page 7)

Many insights might be gleaned from the establishment of the CDM which would provide guidance for a gdm. These include an understanding of how a gdm might be similar to or different from a CDM. Importantly, there are some basic similarities between the CDM and a gdm including:

- Both focus on a specific environmental issue – climate change or biodiversity;
- Both include a sustainable development objective alongside an environmental objective;
- Both focus on securing private sector finance through international market-based mechanisms, and;
- Both require metrics, methodologies, and monitoring, to verify or certify environmental performance.

There are, of course, also fundamental differences between a CDM and a gdm which are, to a large degree, determined by the very different environmental challenges of climate change and biodiversity. This can be seen in the concepts, and the objectives, of the UNFCCC and the CBD which differ substantively, making the design of a gdm much more challenging than simply setting up a CDM-like system for biodiversity. As these differences are critical, it is useful to contrast the key concepts, and objectives, of the two

[33] Hepburn, C (2009) International carbon finance and the Clean Development Mechanism. Smith School Working Paper Series, University of Oxford. See: http://www.smithschool.ox.ac.uk/research/smith_school_working_papers.

Conventions. The following table presents the actual text from the Conventions:

UNFCCC	CBD
Article 2: Objective	**Article 1: Objectives**
The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, **stabilization of greenhouse gas concentrations in the atmosphere** at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.	The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the **conservation of biological diversity**, the **sustainable use of its components** and the **fair and equitable sharing of the benefits** arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.
Article 1: Definitions	**Article 2: Use of Terms**
"**Climate change**" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.	"**Biological diversity**" means the variability among **living organisms** from all sources including, inter alia, terrestrial, marine and other aquatic **ecosystems** and the **ecological complexes** of which they are part; this includes diversity within species, between species and of ecosystems.
"**Emissions**" means the release of **greenhouse gases** and/or their precursors into the atmosphere over a specified area and period of time.	"**Sustainable use**" means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.
"**Adverse effects of climate change**" means changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed **ecosystems** or on the operation of socio-economic systems or on human health and welfare.	"**In-situ conservation**" means the conservation of **ecosystems** and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

The CDM focuses on a single objective – the stabilisation of greenhouse gases in the atmosphere, through offsetting emissions in developed countries by sequestration in developing countries. As noted above, this has been operationalised by the establishment of a regulated international trading scheme for CER credits – "each of which is equivalent to one tonne of CO2."

A gdm, on the other hand, would have to focus on an interrelated trinity of objectives – biodiversity conservation, sustainable use of biological resources

and equitable benefit sharing.[34] Furthermore, biodiversity itself consists of "ecological complexes" made up of ecosystems, species and genetic resources. These concepts are not easy to grasp and so to explain what we mean by biodiversity and what we are supposed to do about it, the CBD website explains that biodiversity "forms the **web of life** of which we are an integral part and upon which we so fully depend." and so it must be conserved, used sustainably and shared equitably.[35]

Hence, setting up a regulated international market-based scheme for biodiversity will require addressing three interrelated objectives with respect to the ecological complexes of life on Earth. Even if we focus only on the first objective to conserve biodiversity, it is not easy to conceptualise a CDM-like scheme which would enable international trading in so-called 'biodiversity conservation credits' each of which be equivalent to a 'tonne' of biodiversity.[36]

Furthermore, a gdm could differ from a CDM in that a gdm would generate private sector revenues to ensure a net positive impact on biodiversity, through the conservation or restoration of ecological complexes, or through the sustainable and ethical use of biological resources, while the CDM generates revenues to reduce a net negative impact on climate change. Hence a gdm could perhaps focus as much on the business opportunities from biodiversity conservation as it would on the business risks from biodiversity loss. A more thorough understanding of how the private sector has responded to the CDM – as a means to mitigate environmental risk or as a means to enhance environmental opportunity – particularly in the context of strategic corporate social responsibility could provide guidance on designing a gdm embraced by the business community.

Yet another critical difference between a gdm, and the CDM, is the role that development could play. Though CDM certified projects take place in developing countries, and must be approved the Designated National Authorities (DNA) of these countries, it is not at all clear that they are actually contributing to sustainable development. By way of example, one study[37] published in 2007 of 16 CDM projects concludes as follows:

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[34] Regarding the third objective of the CBD, under a gdm this could either strictly focus on the equitable sharing of benefits arising out of the utilisation of genetic resources or, as it common today within the CBD community, it could focus more broadly on the equitable sharing of benefits arising out of the sustainable use of biological resources; the latter of which would enable more opportunities for development impacts from gdm funding activities.

[35] See: http://www.cbd.int/convention/guide.shtml.

[36] The complexity of this challenge is evidenced in the excellent and extensive efforts of the Business and Biodiversity Offset Program (BBOP) to develop and operationalise the concept of biodiversity offsets. See: http://bbop.forest-trends.org/.

[37] Sutter, C & Parreño, JC (2007) Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? Climatic Change 84:75–90. See: http://www.cleanairnet.org/caiasia/1412/articles-72508_resource_1.pdf.

> "While a large part (72%) of the total portfolio's expected Certified Emission Reductions (CERs) are likely to represent real and measurable emission reductions, less than 1% are likely to contribute significantly to sustainable development in the host country. According to our analysis, there are currently no UNFCCC registered CDM projects that are likely to fulfill the Kyoto Protocol's twofold objective of simultaneously delivering greenhouse gas (GHG) emission reduction and contributing to sustainable development." (page1)

A gdm, on the other hand, with its emphasis on conserving or restoring ecological complexes and ensuring the biological resources are used sustainably, and equitably, is likely to have a much more significant opportunity to support biodiversity projects which also deliver net positive development impacts. These could range from responsible wild harvesting and sustainable farming, to ecotourism in protected areas and maintaining critical ecosystem services for the poor such as watersheds and non-timber forest products. Hence, a gdm might be of particular interest to the least developed countries and poorer rural areas particularly in Africa – most of which have not yet benefited much from the CDM.

Nevertheless, a gdm would face the same challenges as a CDM in measuring development impact. The above-mentioned 2007 study explains that:

> "Designed as a market mechanism, the CDM intends to make use of market forces. However, so far, only one of the two CDM objectives is measured by the market: emission reductions are given a price per reduced ton of CO2 equivalent. Currently, contributions to sustainable development are not well reflected in CER prices." (page15)

Though a gdm might provide a real opportunity to harness private sector finance for biodiversity projects which actually promote development and alleviate poverty, just as it is difficult to speak of 'tonnes' of biodiversity, it is equally, if not more difficult, to speak of 'tonnes' of development. Metrics, monitoring and verification will be major challenges for designing a gdm which aims to have positive impacts on biodiversity and development. In this respect, **what lessons and insights could be gained from the pioneering work of the CDM – particularly with respect to metrics and certification – for the construction of a gdm?**

1.6.5 REDD-plus and a gdm

The Copenhagen Accord of the December 2009 UNFCCC COP15 called for "substantial finance to reduce emission from deforestation and forest degradation (REDD-plus)" to be made available under a new "Copenhagen Green Climate Fund" which is to be established as "an operating entity of the financial mechanism of the Convention." This Fund will be supported by a commitment from developing countries to "mobilizing jointly US$ 100 billion a year by 2020 to address the needs of developing countries" of which REDD-

plus projects will receive a substantive level of support. In short, REDD-plus now looks to become a major part of the UNFCCC programme of work.

With respect to a gdm, REDD-plus (also written as REDD+) is particularly interesting because it links a critical ecosystem service – carbon storage – to biodiversity conservation. The useful 'Little REDD+ Book'[38] explains as follows:

> "REDD is primarily about *emissions reductions*. The Bali Action Plan decided at the Conference of the Parties (COP) at its thirteenth session states that a comprehensive approach to mitigate climate change should include:
>
> > 'Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.'
>
> More recently, the '+' in REDD+ has drawn increasing attention towards the activities after the semicolon, related to the conservation and enhancement of carbon stocks. A future REDD mechanism has the potential to deliver much more. REDD could simultaneously address climate change and rural poverty, while conserving biodiversity and sustaining vital ecosystem services." (page14)

The opportunity to increase support for biodiversity conservation through REDD-plus activities has, most recently, been recognised by the TEEB study. A whole section of Chapter 5 of the TEEB for National and International Policy Makers is devoted to REDD-plus.[39] This section explores the possibilities for designing REDD projects with biodiversity co-benefits explaining that:

> "A well-designed REDD mechanism that delivers real, measurable and long-term emission reductions from deforestation and forest degradation is expected to have significant positive impacts on biodiversity since a decline in deforestation and degradation implies a decline in habitat destruction, landscape fragmentation and biodiversity loss…
>
> **A REDD-Plus mechanism could have additional positive impacts on biodiversity if achieved through appropriate restoration of degraded forest ecosystems and landscapes.** Aforestation and reforestation (A/R) activities can provide incentives to regenerate forests in deforested areas and increase connectivity between forest habitats." (page 25)

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[38] Parker, C et al, (2009) The Little REDD+ Book. Oxford: Global Canopy Foundation. See: http://www.theredddesk.org/sites/default/files/lrb_en.pdf.

[39] See Section 5.2 International PES: REDD and beyond of the TEEB D1 report for policy makers at: http://www.teebweb.org/ForPolicymakers/tabid/1019/language/en-US/Default.aspx.

Following the recognition that REDD-plus received in the Copenhagen Accord, it can be expected that, at the very least, voluntary efforts to implement REDD-plus project will accelerate. As noted in the TEEB study, this could include projects financed by the World Bank Forest Carbon Partnership Facility (FCPF), the UN-REDD Programme, or through the voluntary carbon market. Regarding the latter, the TEEB study explains that the Climate, Community and Biodiversity Alliance (CCBA):

> "has established voluntary standards for forestry projects, including REDD demonstration activities. The criteria relevant to biodiversity are: 1) net positive biodiversity impacts; 2) offsite biodiversity impacts; and 3) biodiversity impact monitoring. Projects are audited by independent third party certifiers and each project is subject to a 21 day public comment period."

Such REDD-plus developments in the voluntary market are particularly relevant for the design of a gdm as they provide insights into how market-based responses to climate change can be linked to responses to biodiversity loss within forest ecosystems. In this respect, a gdm could in part serve as a mechanism for private sector financing of biodiversity conservation and restoration projects which store carbon and maintains other ecosystem services in various ecosystems - and does not just support carbon storage in tropical forests - the primary focus of REDD-plus.

One example of how new eco-carbon opportunities are already developing is the emerging market for 'wet carbon' supported by the Danone Fund for Nature – a partnership between Danone, IUCN and Ramsar. The Fund is seeking to invest in projects which deliver certified carbon credits, enhances the livelihoods of local communities and conserves wetland ecosystems.[40]

Just as REDD-plus links aims to help address the carbon-related ecosystem services provided by tropical forest conservation and restoration, a gdm could link the conservation or restoration of ecosystems to the provision of other ecosystem services such as watershed protection. In short, **could the work undertaken to develop an financial mechanism for REDD-plus activities provide substantive insights and even pilot projects for the further development of a more extensive gdm which links biodiversity conservation and the maintenance of ecosystem services to sustainable development?**

1.6.6 The value-added of a gdm

As explored further in Part 2 of this paper, a gdm could collaborate with existing financial mechanisms such as the GEF and LifeWeb, gain critical

[40] For more information on the Danone Fund for Nature's call for wet carbon projects, see: http://wetcarbon.com/.

insights from others such as the CDM, and even begin pilot projects in the context of new mechanisms such as REDD-plus. The political challenge, however, is to find an appropriate way forward to engage the private sector in filling the biodiversity funding gap.

Clearly existing funding mechanisms – including the recently established Earth Fund under the operational framework of the GEF – are not able to tap sufficient resources from the private sector to fill the biodiversity gap. In this respect, a gdm could be structured in such a way that it directly builds on the strengths of market processes including profit maximisation, corporate social responsibility and third-party verification of corporate performance, and in so doing is able to tap into private sector finance in a fundamentally different way than existing government-funded financial mechanisms. By developing an explicit private sector approach to international biodiversity finance, a gdm would add substantive value to the existing array of multilateral and bilateral biodiversity and development funding mechanisms. But **can we convince biodiversity policy makers that there is a case for a gdm?**

In this respect, further support for a gdm is evidenced in the outcomes of an international experts meeting which took place in February 2009 in Amsterdam[41] which included "some general points of agreement among the Meeting participants" as follows:

- "There is a clear need for an international mechanism that will help to generate trans-boundary payments to compensate hosts of biodiversity for their opportunity costs of conservation…

- Habitat conversion is the primary driver of biodiversity loss. However, other factors such as overexploitation of resources, pollution and climate change impacts are also important. A gdm should therefore focus on reducing rates of conversion, but may also need to address other drivers. This could include providing incentives for sustainable resource use or non-polluting production methods.

- Some form of regulatory mechanism will be required in order to achieve the scale of financial flows necessary to effectively deliver biodiversity protection. However, this may be preceded by voluntary activities as part of a demonstration phase of implementation.

- A GDM will need to be compatible with existing policy instruments. This applies to both voluntary and national mechanisms for biodiversity conservation, and to related global instruments such as the Clean Development Mechanism.

41 See Mullan, K and Swanson, T (2009) An international market based instrument to finance biodiversity conservation: Final report from the experts meeting: http://www.landecon.cam.ac.uk/research/eeprg/cleed/researchprojects/gdm.htm.

- The effective operation of any GDM will be dependent on the prior removal of perverse subsidies. Otherwise, funds for biodiversity protection will be competing with subsidies for land conversion or unsustainable levels of production.

- There is a clear mandate for a role for the CBD in the development and future implementation of a GDM."

Part 2 Elements for setting up a gdm

This part of the paper explores some of the elements which need to be addressed in order to set up a gdm. It is not intended to provide a blueprint for establishing such a mechanism, but rather raise issues which need to be considered, and addressed, within the CBD process.

2.1 Agreeing on common principles

In considering the nature, and mechanics, of a new international initiative to mobilise resources to conserve biodiversity, and protect ecosystems, it may be helpful to set out a number of guiding principles.[42] The following are suggested working principles for a new green development mechanism:

1. A green development mechanism (gdm) will promote the objectives of the Convention on Biological Diversity (CBD).

2. A gdm will recognise both the value of biodiversity as a public good, and its contribution to the livelihoods of people, particularly amongst the poorest sections of society.

3. A gdm will complement, and support, existing national, regional and international efforts to address biodiversity loss and promote sustainable development.

4. A gdm will complement other international efforts to address related challenges such as the need to tackle climate change and meet the Millennium Development Goals (MDGs).

5. A gdm will seek to mobilise new and additional financial resources from the beneficiaries (demanders) of biodiversity to the guardians (suppliers) of biodiversity so as to incentivise biodiversity conservation and contribute to poverty alleviation.

6. A gdm should be funded on the basis that consumption of biodiversity benefits carries a responsibility to ensure that the global needs of biodiversity conservation are addressed.

7. A gdm will operate in a flexible manner, recognising that biodiversity protection requires a range of interventions, including the possibility of certifying voluntary private sector actions, to address individual challenges.

[42] Earlier drafts of such a set of principles were presented by Joshua Bishop of IUCN at the 2009 OECD Workshop on Innovative International Financing. See: http://www.oecd.org/document/42/0,3343,en_2649_34309_43311082_1_1_1_1,00&&en-USS_01DBC.html.

8. A gdm will reward biodiversity suppliers on the basis of measurable performance against standards which reflect accepted best practice in the relevant field of activity.

9. A gdm will operate in a cost-effective manner, ensuring that transaction costs are commensurate with benefits.

10. Monitoring and verification of initiatives and projects funded by the gdm will be exercised by competent experts in the relevant field, including representatives of the corporate and civil society sectors.

In order to inform discussions at COP 10 on the possibility of establishing a gdm, an early discussion on a set of basic principles is highly desirable.

2.2 Financing green development

There is a rich menu of possible mechanisms that might be used to generate the international resources needed to promote biodiversity conservation and protect ecosystems.[43] The table below summarises some of the generic types of arrangements that have been suggested in the debate thus far. It should be noted that, within each generic type, there is a vast range of specific schemes that have been designed, and developed, to meet particular needs or circumstances.[44] The table also underlines the fact that there is no mutual exclusivity amongst schemes which might be either government sponsored, or put in place voluntarily by the private sector: and indeed the trading-based schemes[45] might be amenable to either official, or voluntary, sponsorship.

[43] See Annex 1 for a brief discussion of four models which were highlighted at an experts meeting on the gdm which took place in February 2009 in Amsterdam.
[44] See, for example, the ideas presented in, TEEB for National, and International Policy makers, Chapter 5: Rewarding benefits through Payments and Markets: http://www.teebweb.org/ForPolicymakers/tabid/1019/language/en-US/Default.aspx.
[45] For a fuller discussion of trading-based schemes, see Mullan, K and Swanson, T (2009) An international market based instrument to finance biodiversity conservation: Final report from the experts meeting: http://www.landecon.cam.ac.uk/research/eeprg/cleed/researchprojects/gdm.htm.

Government-mandated schemes	**Trading-basedschemes** (These could be either government mandated, sponsored, or voluntary)	**Voluntary private schemes**
Government development assistance (ODA)	National biodiversity offsets, e.g. wetland banking	Certification schemes to promote 'green products'
Tax incentives (exemptions and compensation payments) to encourage biodiversity conservation	International **biodiversity offsets**, e.g. including CCBA and REDD-plus	**Greening commodity imports**
Biodiversity footprint taxation	**Biodiversity trading arrangements** (incl. Possible (notional) cap modalities), e.g. using tradable conservation obligations	Biodiversity-related corporate responsibility associations, e.g. WBCSD
Other government levies (e.g. airline tax system; credit card transactions)		Global green lottery

One of the key challenges facing policymakers is the paradox that the more perfect is the underlying economic rationale justifying a particular mechanism to mobilise resources to meet the biodiversity challenge, the more complex are the issues of implementation: whether they be the valuation of location-specific biodiversity, and the utility of a particular ecosystem; or the standards against which one measures performance in achieving an incremental biodiversity 'gain.' This dilemma is clearly apparent in the proposition of replicating carbon trading into the biodiversity arena, where it quickly becomes obvious that, while the externality problem is common to both combating climate change and conserving biodiversity, the latter is less easily amenable to a trading solution because biodiversity is not a homogeneous product like carbon - amenable to being traded as a commodity. So, as the debate moves forward policy makers need to decide whether to search for an ideal solution, or settle for second-best: **in short, should the best become the enemy of the good?**

A second issue that policy makers need to address is where their political preferences lie as between mechanisms that are essentially government-funded; or private sector driven on a voluntary basis; or market-based mechanisms – which do not preclude either government-funding or private sector initiatives. In this respect, **there needs to be a clear consensus on whether:**

- the expectation is that a gdm will be government–funded, or;
- there is a presumption that the private sector must assume responsibility for mobilising resources.

The recent Copenhagen Conference on climate change saw some evidence of willingness by some governments to pledge official funding to reduce, or ameliorate, the effects of global warming. It is, however, debatable whether there is similar political will to generate additional official funding for biodiversity conservation. Even if there is, the question arises as to whether this is truly additional in nature, given the other intense pressures on bilateral aid budgets. If this conclusion is accepted, it follows that, if the funding gap highlighted in Section 1.6 above is to be met, the private sector must be persuaded to meet its responsibilities.

The private sector has for many years been active in biodiversity conservation. There have been 3 key drivers:

- **The profit motive**: ecotourism is perhaps the clearest example, but other industries e.g. the pharmaceutical, agriculture and fisheries, have all understood the importance of biodiversity conservation;

- **Corporate social responsibility**: pressure from shareholders, and other key stakeholders, in particular, governments and local communities, has induced many companies to engage constructively on biodiversity conservation issues; and

- **Consumer demand**: growing public awareness, and concern, about environmental issues is also driving the corporate sector towards a more considered approach to supply chains. Indeed many enterprises have actively pursued eco-labelling as a means of attracting new customers.

These influences on corporate behaviour will, almost certainly, continue, and intensify, in the future. And enlightened corporate players are likely to view them as opportunities rather than threats. This raises the possibility that the corporate sector might welcome an initiative through which they can demonstrate their commitment to the biodiversity agenda**. But the question arises as to whether new arrangements to mobilise financial resources should be voluntary or compulsory and, in this context, also whether a gdm would benefit from lessons learned in a voluntary phase.**

Industry – as well as other key stakeholders – is divided on this point. There are those who insist that any new initiative should be purely voluntary on the basis that, particularly at a time of global recession, no new compulsory obligations should be uniformly imposed. This view is premised on the argument that individual companies (even within a given sector) are not equally responsible for biodiversity loss, and that enlightened self interest will ensure that those companies whose prosperity depends upon biodiversity conservation will act responsibly because this represents rational behaviour.

On the other hand, there is also a strong conviction amongst some corporate players and other key stakeholders that any new initiative to mobilise resources to finance biodiversity should be internationally agreed and

regulated. This reflects a strongly held belief in the need for – to use industry's own jargon – 'a level playing field,' the notion that all competitors should operate under similar conditions. A critical adjunct to this argument is the desire of the corporate sector for predictability: an international arrangement is seen as a long term regime to which industry can adapt with the confidence that the boundaries of the playing field are not only level, but also stable.

2.3 Verifying biodiversity responsibility

It follows from the principles discussed in Section 2.1 above that payments from a gdm must meet certain criteria. Simply put, the **'g'** requires that money spent has a green – i.e. biodiversity – impact.[46] The **'d'** requires that spending also has a sustainable development impact. The **'m'** reflects the reality that the governance structure will need to be multi-stakeholder in nature.

In this respect regarding criteria for gdm payments, TEEB[47] provides a helpful definition of Payment for Ecosystem Services (PES) as follows:

> "a voluntary transaction where a well defined ecosystem service (or land use likely to secure that service) is 'bought' by an ecosystem buyer from an ecosystem supplier provided if, and only if, the ecosystem provider secures the ecosystem service provision."

This definition immediately introduces the principle of conditionality. Implicit in the PES concept is the notion that payments should only reward good stewardship of biodiversity that goes above, and beyond, what would be required by local law and customary practice. This is important because it underlines the principle that payments are designed to correct market failure and induce net positive behaviour (i.e. biodiversity conservation) that is at variance with what might be expected in the absence of intervention. The TEEB definition is equally applicable to sustainable management of biodiversity resources if such activities incur additional costs not recoverable in the market place.

As mentioned above, the real challenge for policymakers is how to measure the value of an incremental improvement in biodiversity: the metrics problem. This challenge poses two difficulties. First, it is likely to limit the potential for 'trade' between biodiversity suppliers and consumers. Second, even in a static situation, where no such trade is considered, the lack of relative values for individual elements of biodiversity makes prioritisation, in terms of investment decisions, problematic. Nonetheless, much work is

[46] For an early example of an innovative 'green' investment scheme set up by the Government of the Netherlands, see: http://www.senternovem.nl/greenfundsscheme/.
[47] TEEB for National and International Policymakers, Ch.5.p6.

underway to address this issue, but is unlikely to satisfactorily resolve the questions in the short term.

One way round this problem is to use extant standards and codes of conduct which exist for many types of biodiversity resource, and industries. Prime examples of such standards are those applied by the Forestry (FSC) and Marine (MSC) Stewardship Councils, but there are many more. For example, the World Business Council for Sustainable Development (WBCSD) provides advice to industry on how to address biodiversity issues[48]. **If a gdm is to be set up, policy makers need to decide whether they are prepared to use existing standards and best practice as a guide to the eligibility of projects for support, or whether discussion should focus on the search for some common standard.**

A gdm would, it has been argued (see Section 1.6), also differ from other related initiatives in the emphasis given to the development dimension of proposed investments. This reflects the spirit of the CBD which explicitly recognises "that the economic and social development and poverty eradication are the first and overriding priority of developing countries". To meet this requirement, projects funded by a gdm will also need to demonstrate the likely development benefits arising from the investment. Again no one single metric captures the value of such development benefits, but there are many accepted indicators in common usage by the development assistance community which policy makers may want to recognise under a gdm. As discussed further in the following Section 2.5, one way forward might be to set up a regulatory framework under a gdm for verifying biodiversity (and development) responsibility.

2.4 Establishing a regulatory framework

The design of a gdm will depend on the nature of the structure which is agreed upon by international policy makers. If a Kyoto-like cap and trade system for biodiversity is agreed, then a gdm, akin to the CDM, could be structured to facilitate financial flows for biodiversity through a regulated trading scheme. On the other hand, if the policy makers opt for a more flexible, market-driven approach which allows for a variety of biodiversity contributions, payments and trades on a voluntary basis, there will most likely still be a demand for a regulated framework to ensure that private sector actions deliver net positive impacts on biodiversity and development. As explained in this section, whatever the shape of the market-based transactions, there will likely be a need for a regulatory framework to verify or certify the biodiversity (and development) impact of these transactions.

[48] See: www.wbcsd.org.

2.4.1 Certifying biodiversity supply

So how might a gdm allocate any money it receives or brokers? The short answer is that the funds should finance activities which supply biodiversity conservation and/or restoration activities with positive and sustainable development impacts.

Regarding biodiversity supply, a gdm could fund projects which have a robust biodiversity management strategy and adopt top-class processes and practices to ensure net positive biodiversity and development impacts. In the context of the CBD, this would require that the projects address its three core objectives. Further, a gdm should only fund projects whose biodiversity business plans also address "economic and social development and poverty eradication;" i.e., the uses of biological resources in a gdm supported project should not only be sustainable and equitable, but should also have clear sustainable development impacts.

Whether a gdm facilitates contributions, payments or trades to encourage a supply of biodiversity conservation or restoration, it will need to ensure that the suppliers are responsible and committed to net positive biodiversity and development impacts. Importantly, for a market-based mechanism such as a gdm, such biodiversity supply projects could be for-profit ventures, not-for-profit initiatives, or hybrids such as public-private partnerships.

For-profit gdm projects could include small and medium biodiversity businesses operating in rural landscapes of developing countries such as ecotourism and sustainable farming. Not-for-profit gdm projects might include protected areas, or landscape, projects which explicitly address sustainable livelihoods in rural communities.

Irrespective of whether a project is for-profit or not-for-profit, it would need to be 'state-of-the-art' and 'best practice' with respect to the use of biodiversity and development impact assessments, management plans, measurement methodologies, monitoring procedures, and reporting practices. It is in this context where a gdm could provide regulatory framework under the CBD could play a critical role: i.e. to approve appropriate existing biodiversity and development tools to ensure net positive impacts. Such tools could include the following:

- the WBCSD/WRI/Meridian Institute Corporate Ecosystem Services Review;[49]
- trade agreements for Appendix II listed species under CITES;[50]

[49] For information on the Corporate Ecosystem Services Review, see: http://www.wbcsd.org/Plugins/DocSearch/details.asp?DocTypeId=25&ObjectId=Mjg5NjQ.
[50] For more on CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora), see: http://www.cites.org/.

- the UNEP-backed Global Reporting Initiative (GRI);[51]
- the IUCN guidelines on effectiveness in protected area management;[52] and
- the environment and social certification schemes of the ISEAL Alliance.[53]

This list is a small sample of the vast array of tools which are available for improving the biodiversity and development performance of activities which could be supported by a gdm. A regulatory framework backed by the Parties to the CBD could provide guidance to biodiversity suppliers on which of the biodiversity (and development) tools should be used and how to be eligible for support by a gdm.

2.4.2 Certifying biodiversity demand

If a gdm were to be established as a market-based international financing mechanism, who would finance it, why would they finance it, and how would they finance it? In short, who would demand biodiversity conservation or restoration with tangible sustainable development impacts and how would this demand be legitimised?

A starting point perhaps could be an expectation that demanders of biodiversity should demonstrate as high of a commitment to biodiversity responsibility as one would expect from a biodiversity supplier who qualifies for gdm support. In this respect, a legitimate private sector demand for biodiversity could be certified by a gdm based on a company's commitment to deliver net positive biodiversity and sustainable development impacts in their operations and across their value chains.

There is considerable evidence that many companies are already committed to biodiversity and sustainable development responsibility. For example, more than 40 companies have signed the Leadership Declaration of the Business and Biodiversity Initiative launched at the CBD COP8.[54] At present, however, such committed companies face two critical disincentives: either they get little formal recognition for their efforts; or they are confronted with such a wide choice of different schemes that they might buy into, with the result that the transaction costs of giving support become prohibitive. The creation of a gdm could resolve the recognition problem, without diminishing the role of

[51] For more on the GRI, see: http://www.globalreporting.org/.
[52] For more information on management effectiveness for protected areas, see: http://www.iucn.org/about/union/commissions/wcpa/wcpa_puball/wcpa_pubsubject/wvcpa_effectivenesspub/.
[53] For more on the ISEAL Alliance and its certification schemes members, see: http://www.isealalliance.org/.
[54] For more information on this initiative, which is also known as Biodiversity in Good Company, see: http://www.business-and-biodiversity.de/. By way of further examples are the recent recognition of ecosystems as a WBCSD focus area and biodiversity-related industry initiatives such as the International Council on Mining and Minerals and the Sustainable Agriculture Initiative.

individual 'greening' standards: because, in verification terms, a gdm could look to existing best practice in each field – e.g. by commodity sector, habitat conservation, endangered species, etc.

The appeal to the private sector of such an approach is that, perhaps for the first time, responsible biodiversity strategies could be certified, recognised and rewarded. If a private company or business project is accredited as a legitimate biodiversity demander by a gdm, then the gdm would in effect be offering a 3rd party independent verification of its biodiversity policies and practices. This would be material to corporate performance in both reputational and commercial terms given the increasing environmental concerns amongst consumers in many parts of the world.

A gdm would, in practical terms, certify that a participating company or business project is biodiversity responsible. In so doing, a gdm could also provide ways in which this company or project would mitigate its residual biodiversity impact by contributing, paying or trading to reduce, as appropriate, biodiversity loss through conservation and restoration projects elsewhere. Hence, as a 'biodiversity responsibility mechanism,' a gdm could motivate companies and business projects to contribute funds towards biodiversity conservation in two ways: first, a gdm could certify the company's own biodiversity responsibility, and second, a gdm could enable the company to mitigate its residual biodiversity impacts through an international contribution, payment, or trade.

2.4.3 A regulatory framework for demand and supply

Setting up a gdm as an international market based biodiversity finance mechanism along the lines outlined in this discussion paper requires establishing an internationally-recognised financial structure to certify biodiversity demand and biodiversity supply and, as required, to manage or regulate the funds from international contributions, payments or trade. **Thus a gdm will probably need to provide a regulatory framework to certify that the market-based transactions it facilitates actually deliver net positive biodiversity and sustainable development impacts.** This framework could be set up under the CBD and, as discussed in Section 2.5, might be the subject of discussions, and negotiations, leading up to CBD COP10 in October 2010 in Nagoya, Japan.

A gdm, like the GEF, could be hosted by a multilateral agency. Or, if there were a willing multinational bank committed to greening the economy, it could perhaps as well be managed by such a private sector bank. Alternatively, it could be hosted by an internationally-respected NGO committed to maintaining a gdm's biodiversity and development integrity. Further, as noted above in Section 1.6, it would need to have strong linkages to existing biodiversity and development related financial institutions, such as the GEF and LifeWeb. Whatever its institutional status, it will need a multi-stakeholder governance structure reflecting its private sector, biodiversity,

development, and political dimensions to ensure that it provides the needed integrated regulatory framework for international market-based biodiversity finance.

2.5 Next steps and key questions for discussion

Financial resources are a core component of the CBD process. Article 20 of the CBD states that:

> "developed country Parties may also provide, and developing country Parties avail themselves of, financial resources related to the implementation of this Convention through bilateral, regional and other multilateral channels."[55]

Financing has also been a regular and often hotly discussed agenda item at every CBD COP. For example, for many years, the GEF was only recognised as the Convention's financial mechanism on an 'interim basis' as its replenishment and indeed its programme of work with respect to biodiversity is not directly determined by the COP. Today, though the GEF is now the official financial mechanism of the CBD, finance remains a challenging issue. For example, Decision 31 of COP9[56] invited Parties, in the broader context of substantive guidance to the GEF regarding its 5th replenishment:

> "to submit assessments of their future funding needs based on their updated national biodiversity strategies and action plans."

These funding needs assessments should update our understanding of the extent and nature of the biodiversity funding gap, especially from the perspective of national governments. However, it remains highly unlikely that the GEF and other CBD-related funding mechanisms, such as LifeWeb (and even REDD-plus under the UNFCC), on their own will be able to fill this gap especially in ways that ensure that biodiversity conservation and restoration activities also deliver net positive sustainable development impacts.

Hence, there is an opportunity to consider establishing a new financial mechanism under the CBD which would complement existing financial mechanisms and initiatives and enable the private sector to play a more direct and substantive role in filling the biodiversity funding gap. Between now and the 10th Conference of the Parties of the Convention on Biological Diversity in October 2010 in Nagoya, Japan, the challenge will be to determine the level of political support for establishing such a gdm and how far the policy makers can progress at COP10.

In this respect, further discussion of a gdm in the formal and informal preparatory meetings leading up to COP10 would be appropriate. Specifically,

[55] See: http://www.cbd.int/convention/articles.shtml?a=cbd-20.
[56] See: http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-31-en.pdf.

the inclusion of a gdm in the programme of work for the CBD following COP10 will need to be considered. And importantly, consultations with the private sector – notably from the host country of COP10 – will most likely be critical to ensure that policy makers move forward in a way which will empower and motivate the private sector, and hence ensure its support for the development of a gdm.

To support these next steps, the following set of key questions should be explored further at the Bonn workshop on innovative financing:

1) **Do we have the political mandate and sufficient political will to introduce innovative market mechanisms to halt the loss of biodiversity?** (Section 1.4)

2) **Are biodiversity policy makers able to commit to conserving biodiversity in ways which ensure development outcomes, especially for the very poor?** (Section 1.5)

3) **Could a gdm enhance current sources of international finance for biodiversity through encouraging private sector investment through international contributions, payments and trades?** (Section 1.6.1)

4) **Could a gdm partner with the GEF and its Earth Fund as an innovative platform for scaling up market-based biodiversity financing – notably by going beyond the GEF's mandate to finance the incremental costs of projects to deliver global environmental benefits?** (Section 1.6.2)

5) **Could a gdm collaborate with LifeWeb to generate market-based support for biodiversity projects, programmes and institutions, particularly with respect to protected areas?** (Section 1.6.3)

6) **What lessons and insights can we gain from the pioneering work of the CDM – particularly with respect to metrics and certification – for the construction of a gdm?** (Section 1.6.4)

7) **Could the work undertaken to develop an international market for REDD-plus activities provide substantive insights and even pilot projects for the development of a more far-reaching gdm which links biodiversity conservation and the maintenance of ecosystem services globally to sustainable development?** (Section 1.6.5)

8) **Can we convince that there is a financing case for a gdm?** (Section 1.6.6)

9) **In order to inform discussions at COP 10 on the possibility of establishing a gdm, can we agree on a set of basic principles?** (Section 2.1)

10) **Could new arrangements to mobilise financial resources benefit from lessons learned in a voluntary phase?** (Section 2.2)

11) **Are we prepared to use existing standards and best practice as a guide to the eligibility of projects for support or should our discussion focus on the search for a common standard?** (Section 2.3)

12) **Will a gdm need to provide a regulatory framework to certify that the market-based transactions it facilitates actually deliver net positive biodiversity and development impacts?** (Section 2.4)

To conclude, the Bonn meeting might also consider what further discussions – notably with policy makers and the private sector – in formal and informal preparatory meetings leading up to COP10 are needed to build sufficient political interest and support for a gdm.

In 2010, there is a real opportunity to move forward from the January Bonn meeting on innovative financial mechanisms to the CBD COP10 in Nagoya in October, to secure endorsement of the COP of the case for a gdm, and to agree on some key elements and a timetable for its development. (Please see Annex 2.) In this respect, the Bonn meeting may want to provide specific guidance on a gdm to the Third Meeting of the Working Group on the Review of the Implementation of the Convention which will take place in May, in Nairobi, particularly with respect to questions 9 and 12 above.

Annex 1 Possible financial modalities for a gdm

There has been considerable debate, in recent years, about the features, and modalities, of such a gdm to address biodiversity loss. These challenges were discussed further at an international experts meeting which took place in February 2009 in Amsterdam.[57] Out of this meeting, four models emerged which processes features and elements which are potentially valuable to a gdm. These models are summarised in this annex.

A1.1 Biodiversity offsets with international support

There is a multitude of national schemes which seek to conserve biodiversity by requiring developers to 'offset' or mitigate the damage caused to ecosystems through economic exploitation of biodiverse-rich habitats. Financing for biodiversity conservation within such a mechanism comes from those who wish to exploit land in restricted zones: those wishing to convert such land must pay for the relaxation of development restrictions by purchasing offset credits generated by those who have invested in conservation programmes in other locations. A gdm could support such schemes by acting as an international clearing house, exercising a range of roles at graduated levels of ambition such as:

- serving as a register of national schemes in order to provide information to potential developers on offset/credit markets in individual states;

- providing a source of start up funding, and technical advice, to support new national offset schemes in developing countries; and

- Acting as a clearing house for the international trade in offset credits: this would require agreement on standards and verification methods, and, as such, would be more complex and more difficult to agree.

A1.2 Greening commodity imports

Another vehicle to address biodiversity degradation resulting from economic exploitation is the concept of 'greening' imports, particularly of those commodities whose biodiversity footprint is regarded as high (e.g. timber, palm oil, soy, beef, and fish). Importers of such products in developed countries would acquire 'green certificates,' the supply of which would come from those who met agreed certified standards of sustainable production. (Imports already covered by recognised standards, e.g. FSC for timber, would probably be exempt).

[57] See: http://gdm.earthmind.net and www.landecon.cam.ac.uk/cleed/gdm.htm.

A more ambitious variant of the scheme would allow certificates to be earned by a wide range of project-based conservation activities in developing countries. This, however, immediately confronts the continuing challenge of agreeing a set of metrics to value the relative impacts of a wide range of interventions across different locations and ecosystem types.

Such a system could be made obligatory if developed countries were to accept that a proportion of their imports of the prescribed products had to be sourced through the acquisition of Certificates. However, World Trade Organisation rules, in particular the Most-favoured Nation (MFN) principle, almost certainly preclude this arrangement being introduced on a legally-binding basis. No such constraints, however, would apply if the system was operated on a voluntary basis. And the philosophy underpinning this concept is certainly worth incorporating into any new financial mechanism for the CBD.

A1.3 Biodiversity cap and trade

Inspired by the rapid growth in the carbon markets, it is argued that a similar model could be applied to induce biodiversity conservation. The system is premised on an agreed aggregate level of global conservation, with states accepting responsibility for individual quotas of that aggregate target: such burden sharing arrangements would have to be agreed, but the presumption is that obligations (represented by tradable Certificates) are agreed such that developed countries are initially in deficit (given that they have already converted the majority of their natural habitat). Countries, primarily developing economies, with large areas of unconverted land would be in credit, and would thus have surpluses of Certificates to sell.[58] The trading mechanism, overseen by a gdm, would facilitate the purchase of Certificates by those with shortages of protected land to those with surplus land to protect, thus generating a flow of funding from developed to developing regions. This system has obvious synergies with, and might complement, existing climate change initiatives.

This arrangement has a number of attractions: if it were agreed, it has the potential to generate significant, on-going, financial transfers for biodiversity protection. In an ideal world, it should promote conservation where the opportunity costs are lowest. The development of "exchange rates" between different types of biodiversity credits7allowances would promote the protection of the most highly-prized components of biodiversity.

However, the challenges inherent in securing agreement on the specific *modus operandi* of this system are very significant. The success of the carbon trade market stems, in part, from the relative homogeneity of the commodity: the volume of carbon emissions, and their reduction or capture, is amenable to reasonably simple measurement. By contrast, the relative

[58] A drawback of this scheme is that a number of developing economies may arguably be in deficit in terms of their biodiversity footprint.

value of different types of biodiversity conservation is subject to considerable conjecture, and often intense debate. Thus, even if the political will exists to enable governments to agree to the adoption of a cap and trade mechanism to address biodiversity concerns, agreement on precise exchange rates defining the relative importance of individual species, or ecosystems (the 'metrics' problem), could prove highly elusive.

Furthermore, since the responsibility for obligations (and the need to trade credits/allowances) rests, primarily, with governments, it is by no means guaranteed that the resources transferred to biodiversity suppliers will truly be 'new and additional.'

A1.4 Biodiversity footprint taxation

Under this proposal, governments would agree on a principle of *biodiversity footprint taxation*. The agreed size of the footprint of developed countries would impose a commitment to transfer resources to invest in conservation, and/or reduce their footprint, e.g. through the import of 'certified' commodities.

An important element of this system is the close linkage between commodity consumption and biodiversity loss. Since consumption will inevitably continue the arrangement has potential to ensure a continuous financing mechanism. However, at a time of global economic recession, the prospects of persuading governments to accept additional fiscal obligations may be limited. And, like the *greening of imports* idea, some of the features of this mechanism may be incompatible with WTO rules.

Also this mechanism, like the one above, assumes that governments will take the lead in mobilising resources to conserve biodiversity, even if, ultimately, the costs of resource mobilisation are transferred to the private sector and consumers in the form of taxes or charges. This is a rational approach if one accepts that the biodiversity challenge reflects a 'market failure' which governments are often best placed to correct. However, a market-based gdm may as well be able to provide new opportunities for financing biodiversity beyond in addition to traditional tax and spend approaches.

Annex 2 From Bonn to Nagoya

Though elements of a gdm have been under discussion since the early 1990s, the actual idea of a gdm was first addressed in the context of the CBD at a side event at COP9 in May 2008. Subsequently, background research was commissioned in late 2008, which served as the basis for discussions at an experts meeting which took place in Amsterdam in February 2009.

Following on from the recommendations of this meeting, the Government of the Netherlands has sponsored a GDM 2010 Initiative with the aim of achieving a significant level of support for the design, and establishment, of a gdm from the Parties to the CBD and other interested stakeholders. It is hoped that the CBD Parties will demonstrate a commitment to a gdm by a decision for its follow up at the 10th Conference of the Parties in October 2010 in Nagoya, Japan.

The GDM 2010 Initiative[59] has identified several key events for discussion, development, and promotion of the concept of a gdm. These include:

- November 2009: The Jakarta meeting on business and biodiversity;
- January 2010: The Bonn meeting on innovative financing;
- February 2010: The Bali meeting of the UNEP Governing Council and a planned 2nd experts meeting on a gdm;
- May 2010: The Nairobi meeting on reviewing CBD implementation and SBSTTA 14;
- May 2010: possibly the 4th GEF Assembly in Punta del Este;
- October 2010: COP10 in Nagoya.

In addition, between now and October 2010, the GDM 2010 Initiative Steering Committee, and consultants, will explore the challenges, and opportunities, of establishing a gdm with a broad spectrum of stakeholders though presentations and discussions in various events related to the preparation for COP10 and the International Year of Biodiversity – including the United Nations General Assembly debate in New York in September 2010.

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[59] For information on these and other events, see http://gdm.earthmind.net.