

INTERNATIONAL INVOLVEMENT IN PRESERVATION OF THE BRAZILIAN AMAZON

Brett Simpson*

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Abstract

Lack of international recognition of fundamentals of Brazilian history has arguably been a key factor leading to a clash of concepts of international responsibilities and national rights which has inhibited past conservation efforts in respect of Brazil's Amazon. However, emergent convergence of national action and international support, including in the context of nascent REDD programs, could now enable the rational preservation of much of the remaining Brazilian Amazon rainforest, to the mutual benefit of Brazil, the South American region and the world in general.

1. THE AMAZON

The Amazon Basin comprises more than seven million square kilometres in seven countries.¹ It includes a tropical rainforest biome of some 5.5 million square kilometres, about 60% of which is within Brazil.²

The forests of the Amazon vary greatly and different areas have very different ecological characteristics. In the ensemble, the Amazon is of vast ecological importance. It includes "over half of the planet's remaining rainforests and comprises the largest and most species-rich tract of tropical rainforest in the world."³ Brazil itself is the world's most biologically megadiverse country.⁴

Additionally, the Amazon's biodiversity is typified by a high degree of local endemism, with numerous individual species being found only within a specific and relatively small area of the forest even when the surrounding forest seems the same.⁵

The Amazon Basin contains a very great proportion of the world's available fresh water.⁶ Moreover, the sheer size of the Amazon rainforest is such that it largely creates its own climate and is the predominant determinant of the climate of Brazil and of the region as a whole, with influence extending planet-wide.⁷

* Bachelor of Jurisprudence, Bachelor of Laws (Honours), Master of Environmental Law; Resources and Environmental Lawyer, Sydney, Australia. resources@pacific.net.au

It has been noted that “survival of the Amazon rainforest is key to the survival of the planet. The jungle is sometimes called the world’s ‘lung’ because its billions of trees produce oxygen and remove carbon dioxide from the atmosphere.”⁸ The Amazon has also been described as the “great heat factory of the world” with “a daily energy turnover equal to some six million atomic bombs” and comprises a massive driving force for major global air currents.⁹

(It should not, however, be thought that the Amazon’s interaction with the rest of the world is a one-way affair. A salient example is comprised by evidence that the Amazon is fertilized each year by 40 million tons of mineral-rich dust blown from the Sahara Desert, dust which is posited to be “the main mineral source that fertilizes the Amazon basin”.¹⁰ Another example is the sizeable contribution that Amazonian deforestation makes to atmospheric carbon levels.)¹¹

The potentially fatal threat that climate change poses to the Amazon rainforest¹² – emphasized by the unprecedented extreme drought in the Amazon in and around 2005¹³ – reinforces and greatly increases the need to maintain as far as possible the capacity of that forest to preserve itself.¹⁴

In the face of that need, however, the reality is that the Amazon, and in particular the Brazilian Amazon, has been suffering deforestation at an alarming rate, from the 1960s (after construction of the Brasilia-Belem Highway) and even more so from the 1970s onwards, largely consequent upon access provided by construction of the Trans-Amazonian Highway and of the highway linking the capitals of Mato Grosso and Rondonia (Highway BR-364).¹⁵

The pre-1970 Brazilian Amazon forested area of 4,100,000 km² had declined to 3,375,000 km² by 2008.¹⁶ Moreover, these figures relate only to the loss of rainforest canopy – not the loss of important *cerrado* (scrubland) areas. A further factor is that research has indicated that “each year the amount of forest degraded is roughly equivalent to the amount of forest cleared.”¹⁷ Of especial concern is that degraded forest has lower biological diversity, greater fire-proneness and greater susceptibility to clearing.¹⁸

2. INTERNATIONAL EXPRESSIONS OF CONCERN

Enhanced awareness of the importance of the Amazon has led to increasing recognition, within and outside Brazil, of the world-wide ramifications of preservation or destruction/ degradation of the Brazilian Amazon rainforest.

This has resulted in both international disquiet and increased international support, including financial and technological support, for national action at both State and Federal levels.¹⁹

Nevertheless, in Brazil as in many developing countries, there has been concern that international requirements for environmental preservation of forest areas could threaten or diminish national sovereignty.

The reason for such anxiety was epitomised when, at the 1989 summit on protection of the global atmosphere, President Mitterrand of France went so far as to call for a supranational UN authority with power to use force to intervene in the case of global environmental dangers.²⁰

It was no surprise that Brazil's president denounced President Mitterrand's statement as being a threat to Brazil's sovereignty. The Brazilian military, too, noted with understandable concern that President Mitterrand "alluded to the *devoir d'ingerence*^a [duty to intervene] of the world community in the protection of the environment, suggesting the creation of a supranational guardian authority."²¹

As well as views held in common with many other developing countries, there are key factors specific to Brazil which stem from its unique history and especially its path to nationhood and the establishment of its frontiers. Awareness of these factors may be crucial to the avoidance of counter-productive international activity and to securing optimal international participation in the effective preservation of the Brazilian Amazon.

3. EMERGENCE OF THE NATION OF BRAZIL

Under the Treaty of Tordesillas (1494), Spain and Portugal demarcated their territory in South America and elsewhere – and Portuguese South America (Brazil)²² was confined to a relatively small area in what is now the east of the country, extending just far enough west to include Sao Paulo and a little beyond.²³ (Indeed, had the Treaty of Tordesillas not moved the initial demarcation line set by Pope Alexander VI in 1493, the Portuguese possessions in South America would have been confined to an even smaller area, to the east of Sao Paulo.)²⁴

The union of Spain and Portugal in 1580 under King Phillip II of Spain led to Portuguese-speakers, mainly from Sao Paulo, spreading into areas of the Amazon previously closed to them as being Spanish territory. By the time Portugal again became independent from Spain (1640), there had been so much Portuguese settlement, within territory previously designated Spanish, that the international frontiers again came into question. The Treaty of Madrid (1750) re-drew the boundaries²⁵ and did so on the basis of the principle of international law known as *Uti Possidetis* – essentially the principle that possession is ownership.^b

As a consequence, the frontiers of Portuguese territory were greatly expanded. Brazil eventually came to comprise approximately half of South America – and the importance of clearly-defined occupation of the land, as a foundation for legal ownership, was established in national thought as well as in international law in the region. (The specific international legal principle of *Uti Possidetis* was later applied widely in South America, including in relation to Brazil's borders, when the Spanish left their colonies in the 19th century.)²⁶

^a "*Droit d'ingérence*" or "*devoir d'ingérence*" describes the evolving and controversial principle of international law that posits that there is a right ("*droit*") – or, indeed, a duty ("*devoir*") – to intervene in certain extreme circumstances. The concept was espoused as far back as Hugo Grotius "*De Jure Belli ac Pacis*" (1625) but has been particularly, and still controversially, promoted in recent years in relation to crimes against humanity. It appears never to have been applied to environmental matters.

^b "The legal doctrine of *uti possidetis juris* The principle behind this doctrine dates to Roman times and takes its name from the Latin phrase "*uti possidetis, ita possideatis*," or "as you possess, so may you possess." Paul R. Hensel, Michael E. Allison & Ahmed Khanani "The Colonial Legacy and Border Stability: *Uti Possidetis* and Territorial Claims in the Americas" Paper presented at International Studies Association meeting, Montreal, 2004 www.allacademic.com/meta/p74293_index.html

Subsequently, a series of wars in the south resulted in the loss of territory to Paraguay and (partly due to British pressure) the establishment of Uruguay as a nation, preventing Brazil from having the “natural boundary” of the River Plate. As a consequence of the contraction of its territory and territorial ambitions in the south, Brazil turned its focus northwards, to the Amazon, and was determined not to lose Amazonian territory – and has not. The northern frontiers of Brazil, and thus the Brazilian Amazon, were finally expanded and fixed between 1895 and 1909 (predominantly by the diplomatic skill of the renowned Baron of Rio Branco and the success in arms of Brazil’s military) – again on the basis of *Uti Possidetis*.

The vital importance of uncompromised sovereignty over its Amazon has consequently been ingrained in the policies of the Brazilian Government, in particular the Ministry of Foreign Affairs and – importantly, given the great power of the military in Brazil throughout its history – the Ministry of Defence. The Brazilian armed forces themselves have seen the occupation and military protection of the Amazon as the core of their role in the nation – and that mindset has been generally shared by the Brazilian people as well as the Government.

This has impacted on Brazil’s approach to international treaty proposals. In particular, it has been a key factor in Brazilian resistance to the assumption of international obligations in relation to deforestation or any other aspect in which the international community could be seen to be impinging on Brazil’s sole possession and ownership of, and sovereignty over, its Amazon.

This was a driver of Brazil’s adamant refusal, at the United Nations Conference on Environment and Development (*UNCED*) at Rio de Janeiro in 1992, to countenance a binding international agreement on forests. Especially given that the conference followed so soon after President Mitterrand’s statement, the rather mild, non-binding “Rio Forest Principles”²⁷ was the most Brazil (and various other developing nations) would accept. To undertake concrete commitments was seen as potentially providing foreign powers with justification, or pretext, for occupation of economically and culturally valuable Amazonian areas – or, at the very least, for international interference with Brazil’s governance of its Amazon.

4. ACTION

International action

In 1989, international NGOs made a determined effort to restrict Brazil’s access to multilateral finance. Their campaign had considerable effect in impeding some major projects and in attracting attention and, at least initially, resentment. It arguably also ultimately generated a significant measure of co-operation between the international community and Brazil, especially from the time of the G7²⁸ summit on the Brazilian rainforests in 1990, which was held with Brazilian support and which resulted in major international funding for environmental action within Brazil.²⁹

Since then, a great deal of wider international effort has gone towards the goal of forest preservation generally and legal instruments to achieve that goal.

United Nations Forum on Forests

The United Nations Forum on Forests (*UNFF*) was, among other things, tasked to consider “the parameters of a mandate for developing a legal framework on all types of forests.”³⁰

One result of its negotiations is that the much-debated goal of a *legally-binding* instrument on all types of forests has now been put aside³¹ and, subject to the prospects of “REDD” arrangements (addressed later in this paper), the overall international law focus has been on “softer” law, including the Non-legally Binding Instrument on all Types of Forests³² which came into effect in 2007.³³ (That instrument essentially provides “a framework for national action and international cooperation”,³⁴ rather than providing for any specific action.)

Particularly in the light of fundamental perspectives forged by Brazil’s history, international acceptance of a non-binding international instrument, rather than continuing to seek some form of binding instrument, may well not be a negative in respect of the Brazilian Amazon.³⁵

National actions and international involvement in them

Debt for nature

Although in 1991 Brazil ended its official opposition to debt-for-nature swaps, in fact it seems that only one such swap has occurred³⁶ and no more appear to be contemplated.

Local land purchase by international persons

Another effort towards international involvement in conservation at a local level has been the purchase, by foreign individuals or international organizations, of land in the Amazon. Similar purchases in some other countries have, in certain circumstances, been welcomed. Moreover, since the purchaser must pay market price and is clearly subject to national sovereignty and laws, it might have been simplistically conjectured that such purchases would attract no more concern than that attendant on foreign purchases of land for any purpose in many parts of the world. However, in late 2006 an international plan to market the concept was very unfavourably received by the Brazilian Government.

A clear and firm view was expressed by three key Ministers, including the internationally-respected conservation-minded Minister of the Environment, Marina Silva: “The Amazon is the heritage of the people of Brazil and is not for sale.”³⁷

G7 Pilot Program

A different approach to the international provision of funds to enable the Brazilian Government to preserve major forest areas was, however, taken successfully for some years.

Building on in-principle agreement established between the G7 and Brazil in 1990, Brazil officially launched the G7 Pilot Program at UNCED in 1992.³⁸ The G7 nations pledged financial assistance to Brazil to address environmental challenges. Between 1995 and 2005, \$428 million³⁹ was provided – the vast majority (\$360 million) by Germany⁴⁰ and the balance by a number of other developed nations,⁴¹ the European Union and Brazil itself.⁴²

The program's main focus was on the protection of indigenous lands, in the Amazon and elsewhere, and the remnants of the Atlantic forest strip.

Much was achieved by the Pilot Program. Substantial areas of Amazonian forest became demarcated and protected as indigenous lands and have since formed key nuclei for subsequent accretions of adjacent areas as conservation reserves. Work under the Pilot Program also included generation and dissemination of information and strengthening Brazilian institutions charged with environmental and resource management. Importantly, it was clear that it was Brazil, primarily through Ministry of the Environment and the Brazilian Institute for Environment and Natural Resources (*IBAMA*),⁴³ which was conducting the program,⁴⁴ albeit with significant directional input from the G7.⁴⁵ The success of the Pilot Program⁴⁶ demonstrated that Brazil would accept international involvement in preservation of Amazon areas, provided the involvement was by way of substantial tangible support for effective action by Brazil itself.

Domestic attitudes and institutions

Brazil has not been without statesmanlike leaders in the field of the environment – notably including José Lutzenberger, Minister of the Environment in the early 1990s, a “visionary who saw the role of interdependence between the Amazon and the world”.⁴⁷ However, at that time, Dr Lutzenberger failed to generate the necessary support for his rational farsightedness. Recent presidents have also taken action to protect Amazon areas but political and on-ground opposition from powerful individuals and developmental bodies has been substantial.

There has accordingly been continuing destruction and serious degradation of the Brazilian Amazon, especially following construction of major highways and other roads. This has occurred, though for some years at a reduced level, despite the Brazilian Government having recently removed many of the governmental financial incentives for legal or quasi-legal encroachment.⁴⁸ Much of the deforestation is simply illegal.

One reason for the continuing illegal encroachment on the Amazon is arguably that of institutional structure. Although large tracts of land in Brazil are privately owned, most of the Brazilian Amazon is publicly-owned land. It is predominantly vested in the National Institute of Colonisation and Agrarian Reform (*INCRA*)⁴⁹ The function and focus of INCRA, to date, has not been to take care of the land⁵⁰ but to redistribute it as part of an agrarian reform program. The fact that the undistributed land has been seen as *unoccupied* has encouraged the view that it belongs to no-one and, even without INCRA approval, is available to whoever comes and takes possession (for example, private ranchers) – in other words, the exercise of a modern-day de facto *Uti Possidetis*.

Establishment of conservation areas: ARPA

Although “lack of enforcement and vulnerability to various threats often leads to degradation inside protected areas, resulting in the so-called ‘paperparks’ ”, it has nevertheless been observed in the Brazilian Amazon that land in reserved areas⁵¹ can be far less subject to deforestation than unreserved areas.⁵² A notable example is provided by a study of the (now extensively deforested) State of Rondonia: during the study period (1971 to 1999) only 3% of the land in reserves was illegally deforested, compared with a massive 47% of unreserved areas.⁵³

(While a substantial proportion of the large difference in those deforestation percentages may have been due to fact that there was generally less road access in the reserved areas, the research showed that the difference went well beyond that factor.)

In late 2002, the Brazilian Government and the international environmental organization WWF⁵⁴ signed a formal Co-operation Agreement,⁵⁵ establishing the Amazon Region Protected Areas Program (ARPA). At that time, only 3% of the Brazilian Amazon was protected in conservation reserves.⁵⁶

The use of a formal instrument of this sort between an *international* NGO and the *national* Government could possibly be seen as occupying the gap which has arguably been left by the limited public international law instruments in this field. It can also be seen as giving practical effect to those international instruments that do exist.

Other bodies have subsequently joined the ARPA initiative – including the Global Environment Facility (GEF), the World Bank (as implementing agency for the GEF), and the Brazilian Biodiversity Fund. ARPA's activities are co-ordinated by IBAMA.

WWF and other major international environmental NGOs and other international institutions have other programs and projects that they undertake or support in co-operation with the Brazilian Government and the relevant State government(s) and Brazilian NGO. ARPA has been the most extensive individual program.⁵⁷

A fundamental aim and action of ARPA, and the common goal of NGOs and the Brazilian Government (in particular the now-influential, though far from dominant, environmentally-concerned elements within Government) is for more effective governance of the Brazilian Amazon to be engendered by the provision of financial and technical support for the creation of protected areas – and, importantly, their physical demarcation.

It seems that this may function as a sort of public *Utī Possidetis*, in effect deterring other would-be possessors.⁵⁸

To some extent, there may be a risk that reservation/demarcation could simply push deforestation to other areas.⁵⁹ Nevertheless, although some such “leakage” can occur, there appears to be a very substantial nett protective result from the reservation/demarcation.

Indeed, as Fearnside has noted, in many places in the “Arc of Deforestation” (the largely denuded swathe of many thousands of square kilometres through the southern and eastern Amazon) “the only forest that remains standing is what is in [officially-designated] indigenous areas”.⁶⁰

The first foray in the ARPA project was the 2002 dedication of the Tumucumaque National Park, covering 39,000 square kilometres in the State of Amapa, a wilderness area along Brazil's border with French Guiana and Suriname. At the time, this was the largest area of protected tropical forest in the world.⁶¹ It has been followed by the protection of many other areas, including (in aggregate) 150,000 square kilometres in the heavily-deforested State of Para.⁶²

The express aim of ARPA was to achieve the designation of 12% of the Brazilian Amazon (500,000 km²)⁶³ as strict environmental reserves (10%) or “extractive reserves” (2%),⁶⁴ with clearly-defined boundaries (often natural features such as rivers but often, too, clearly visible boundary markers and signposts at regular intervals along the boundary). In the first four years of its ten-year program, it achieved about half (230,000 km²) of the target. The original 12% goal has now increased to 14%.

The areas protected/demarcated under ARPA are additional to other existing and projected conservation areas and the area (currently about 24% of the Brazilian Amazon) which is formally-recognized indigenous land. By 2006, an aggregate of almost 40% of the Brazilian Amazon was in officially protected areas of one sort or another⁶⁵ – though, as indicated above, “protected” status alone has not so far been a reliable safeguard against deforestation.

Overall forest matrix

Beyond protected areas, the importance of the preservation of an overall forest matrix, as forest in one form or another as distinct from isolated National Parks, is well-recognized in conservation worldwide. That principle is of especial importance in respect of the Amazon, particularly given the climate functions that arise largely from its sheer size.

Brazilian law, in the form of a presidential provisional measure made (despite vigorous opposition) in 2001,⁶⁶ prohibits Amazon landholders from clearing more than 20% of their forested land, requiring preservation of 80% in its natural state. The measure clearly shows Brazilian recognition of the issue and, properly applied, could provide considerable alleviation (even though some substantial adverse effects of fragmentation, from associated road access networks and other infrastructure as well as from agricultural clearing itself, would remain). However, enforcement has so far been problematic and to date the law appears to have been honoured far more in breach than observance. (Moreover, now faced with the prospect of greater enforcement, a legislative bill is currently seeking to return the preservation requirement to the pre-2001 level of 50%.)⁶⁷

There is also presently a push, by some NGOs and others, for the bulk of the remaining non-reserved Amazon forest to stay in Government ownership as timber-producing forest, rather than being used for agriculture.

In that regard, it can be noted that the basis of timber production in Brazil, as in many countries, currently varies greatly from place to place and operator to operator – from relatively sustainable to disastrous. A synthesis of national and international experience may be able to inform the establishment of ecologically appropriate governance structures with broad acceptance by the various interested parties.

If the combination of National Parks and other conservation reserves, indigenous reserves and timber-producing forests can result in very large contiguous areas of enduring and largely-undisturbed forest, the climate-producing and climate-benefiting functions of the Amazon may be able to continue, along with biodiversity preservation and environmental conservation more generally.

5. FURTHER EVENTS

Deforestation rate drop and surge

Brazilian deforestation amounted to half of the aggregate tropical forest loss worldwide between 2000 and 2005⁶⁸ but there was a substantial fall in the rate of deforestation in the Brazilian Amazon from 2005 to 2007. Overall, during that period there was a decrease of 60% in the annual rate of deforestation.⁶⁹

Among other things, in particular the decline in soy and beef prices received by producers⁷⁰ which lessened the incentive to convert forest land to beef/soy production,⁷¹ conservation initiatives – including, in particular, the ARPA program’s expansion and demarcation of protected areas – were seen as having a significant impact.⁷²

This was potentiated by the Brazilian Government’s far more active enforcement role, which is of considerable significance in itself. The Government’s decisive action in 2005 against longstanding corruption within its regulatory arm, IBAMA, in the State of Mato Grosso⁷³ – one of the States worst affected by recent deforestation – commanded attention throughout Brazil and abroad. Moreover, the Government, specifically IBAMA and the Brazilian military, have recently been carrying out vigorous forward surveillance and enforcement operations, including helicopter raids on illegal loggers, with a resolve not generally evident in the past.

If the military’s role as protector of the Amazon is evolving into a strong environmental protection and enforcement task, the Amazon’s future could be brighter than it may have appeared until now.⁷⁴

The scope for enforcement has been extended by Brazil’s development of “one of the world’s most advanced satellite monitoring systems for the rain forest”, including real-time detection of deforestation.⁷⁵

From late 2007 and into 2008, however, there was a major surge in the deforestation rate. This appears was driven very largely by the international commodities boom generating increased demand for agricultural products.

Major infrastructure projects

Moreover, a number of highly controversial infrastructure projects appear to be set to have a major impact in the Amazon. In particular, over 300 individual projects, some very large, are comprised in the Government’s huge development program, which is funding and promoting many billions of dollars of infrastructure work in and around the Amazon, engendering further deforestation and agricultural expansion.⁷⁶

Major projects include the Inter-Oceanic Highway (now approaching completion),⁷⁷ to provide a major transport link through the Brazilian and Peruvian Amazon to the Pacific, and major hydroelectric dams – notably the highly controversial multi-billion dollar dam projects for the Madeira River and the Xingu River.

It was largely the lack of success in preserving the Amazon from some very high-impact projects, and deforestation in general, in the face of the power of commercial interests, that led to the 2008 resignation of Brazil's nationally and internationally highly-regarded Environment Minister, Marina Silva.

Road construction, in particular, is a major contributor to deforestation – not only the deforestation required for the route itself but by providing access for destruction and development along the route – to a distance of up to 45 kilometres from the road.⁷⁸ It has been noted that as a consequence of construction of the 5000-kilometre Trans-Amazonian Highway in the early 1970s, “Brazilian deforestation accelerated to levels never before seen and vast swaths of forest were cleared for subsistence farmers and cattle-ranching schemes.”⁷⁹

A certain level of development in the Amazon can be seen as necessary or inevitable or both. For example: in providing Brazil's Asia-directed commodities with access to Pacific Ocean export ports, the Inter-Oceanic Highway can be expected to be of substantial economic benefit to Brazil and opposition to its construction was never likely to be successful.⁸⁰

In many cases, however, supposed economic benefits of development are much more doubtful⁸¹ and there is a strong risk that short and medium term commercial profit may obscure potential long-term adverse economic consequences – for Brazil itself as well as regionally and internationally – of deforestation, forest fragmentation⁸² and broader ecological disruption.

(One important aspect in that regard is comprised by the vast water recycling processes within the Amazon rainforest.⁸³ The water vapour they generate provides essential rainfall not only in the Amazon itself but to Brazilian agricultural areas and population centres, such as Sao Paulo, outside the Amazon Basin – and to agricultural and other areas in neighbouring countries. Brazil's crops alone have an annual value of some \$68 billion.⁸⁴ The potential threat which Amazonian deforestation may pose to agriculture nevertheless appears, so far, to have been largely disregarded.)

Among numerous expressions of concern in relation to the development push, a team of respected scientists, including leading researchers at Brazil's National Institute for Research in the Amazon,⁸⁵ reported in 2001 that their modelling indicated “that, under status quo conditions, current efforts to promote conservation planning in the Brazilian Amazon will be overwhelmed by prevailing destructive trends”.⁸⁶

Global Financial/Economic Crisis

The accelerated deforestation of late 2007 and early 2008 subsequently declined markedly as the demand for agricultural and other commodities plummeted with the advent of the global financial crisis that began its major impact in late 2008.

That dramatic downturn in demand could conceivably provide a sufficient pause in rainforest destruction in the Amazon for a more balanced and integrated economic and ecological approach to emerge.⁸⁷

However, there is potentially a very substantial countervailing factor. As in the case of many other major governments around the world, the Brazilian Government's response to actual and prospective national and global downturn in economic activity prominently included the announcement of increased expenditure on infrastructure projects, largely in the Amazon.⁸⁸

Preservation initiatives

New reserves; ARPA update

Despite those concerns, there have been possible signs of a shift toward a more balanced approach.

At the 2008 Conference of the Parties to the Convention on Biological Diversity, Brazil's new Environment Minister, Carlos Minc, announced that Brazil would be creating three further protected areas in the Amazon. These areas, comprising 2.6 million hectares (10,000 square miles), are strategically located and, as well as protecting the biodiversity within them, they "close a green circle . . . to contain the advance of the agricultural takeover of the Amazon rainforest."⁸⁹

This included the creation of the Mapinguari National Park "an area of great biological diversity with unique ecosystems" including areas of the Purus and Madeira river valleys.⁹⁰

The Minister also announced a substantial increase in the target for areas protected and supported by ARPA – from 50 million hectares to 60 million hectares.

Deforestation rate cut proposal

In early 2009, the Brazilian Government announced plans to cut the deforestation rate from the 1996-2005 "baseline" level of approximately 20,000 square kilometres per year (and, consequently, from the 2008 level of 12,000 square kilometres),⁹¹ through an interim target of 7980 square kilometres per year by 2010-2013, to 5586 square kilometres per year by the period 2014-2017.

This has been criticised by not going far enough. However, if actually *achieved*, it can be of far greater benefit than a more ambitious goal that is not achieved. Moreover, the much-sought "zero net deforestation" would be significantly more attainable if that lower rate has been firmly reached. In that regard, it is important that the planned major step-down in deforestation rate be a stable, structural decrease, rather than simply one more temporary reduction followed by yet another surge when economic pressures revive.⁹²

How the reduction is to be achieved despite the extensive infrastructure push is not yet clear.

(In that context, though, it can be noted that in late 2008 the Government suspended the paving of the major BR-319 highway between Manaus (Amazonas) and Porto Velho (Rondonia) so that thirteen nearby protected areas could be demarcated.⁹³ While not preventing the problems that major road construction generates in the Amazon, the willingness of the Government to take that action is encouraging, and would be particularly significant if it indicates a broader Governmental willingness to consider, and make, sound modifications to development plans.)⁹⁴

Amazonas: Juma Project

Independent of ARPA, and complementary to it, other conservation projects are being undertaken. One of these is the Juma project in Amazonas, Brazil's largest State.

Amazonas has so far retained 98% of its forest cover,⁹⁵ largely because the frontier of deforestation and agricultural expansion has been working its way through neighbouring States which have functioned as a buffer. However, highway construction is opening up Amazonas to forest destruction.

In contrast to some State governments, the current Amazonas government is working to prevent deforestation.

“The State of Amazonas’ forests play a key role in regulating rainfall regimes and climate worldwide. Furthermore, the maintenance of these forests is essential for conserving biodiversity, controlling regional rainfall regime, and securing global climate stability. ... These ecosystem services, however, are under severe threat of destruction. ... The State of Amazonas is convinced of the need to conserve its forests and it has been implementing a sustainable development policy to reduce deforestation ...”⁹⁶

[Government of the State of Amazonas]

Notably, in 2007 the Governor of Amazonas joined with the Governors of three key Indonesian provinces⁹⁷ in signing a statement declaring a moratorium on logging on land under their control.⁹⁸ The moratorium was designed to assist in preserving the forests while they were assessed for preservation funding mechanisms.

Moreover, without waiting for the development of an international carbon credit payment system for “avoided deforestation”, Amazonas proceeded to establish its own carbon credit system. This resulted in the Juma project, which concerns an area of some 6000 square kilometres of forest facing a very high risk of deforestation, being adjacent to one major highway and crossed by another – an area “that would be almost completely deforested under the ‘business as usual’ scenario if the current land use practices in the Amazon region continue.”⁹⁹

(As with ARPA projects, the importance of clear boundaries was recognised. The Juma project area is bounded by the Mariepaua River, the Madeira River, the Acari River and the border with Federal land.)¹⁰⁰

It is noteworthy that the Juma project – the first in Brazil to receive international certification for avoided deforestation – has been certified as being in the highest category of project standards.¹⁰¹

The success or otherwise of the project will no doubt be closely observed.

REDD

For some years before the Bali Conference in 2007,¹⁰² Brazil, joined by certain other developing countries,¹⁰³ had been proposing “the establishment of a fund to compensate developing countries that reduce deforestation”.¹⁰⁴

For various reasons, including the fact that a reduction in the *rate* of deforestation, while valuable, does not equate to preservation, the proposal generated only limited international enthusiasm – especially as the formula which was proposed by Brazil was referenced to high 1990 deforestation levels¹⁰⁵ and appeared to be apt to result in compensation to Brazil *without* actual deforestation reduction.¹⁰⁶

There would arguably be little point, for example, in providing vast amounts of scarce conservation funding if doing so amounted to little more than providing cash flow during years when economic circumstances led to reduced deforestation, only to have deforestation accelerate again in response to a subsequent economic upsurge.

However, the Brazilian proposal and other efforts have given rise to the Reduced Emissions from Deforestation and Degradation (*REDD*) initiative whose broad outlines were drawn at the Bali Conference.¹⁰⁷

The idea is, among other things, to fill a glaring gap that was left when the Kyoto Protocol to the United Nations Framework Convention on Climate Change was painstakingly negotiated: namely that, although afforestation and reforestation projects can result in carbon credits under the Kyoto Protocol, there are no such credits for prevention or avoidance of deforestation or of forest degradation. This anomaly subsists even though such deforestation and degradation contribute very greatly to worldwide greenhouse gas emissions¹⁰⁸ and even though the protection of existing undegraded tropical forests can, as well as avoiding the emission of very great quantities of greenhouse gas, contribute enormously to the preservation of the world’s biodiversity – especially as the areas concerned and their biota and ecological processes would generally be undisturbed, as distinct from areas the subject of afforestation and reforestation projects.

Fundamental differences of proposed approach nevertheless remain. The “classic” REDD concept which was the centre of attention at the Bali Conference is primarily focussed on the creation of carbon credits,¹⁰⁹ whereas the Brazilian Government has been sceptical of the effectiveness of market-based mechanisms and has sought direct international donations for the establishment of a fund to assist Brazil to protect Amazon areas and reduce deforestation.¹¹⁰

Substantial effort is being directed to transforming the REDD carbon credit concept into a functioning reality. So far, though, the scale of the funds required worldwide¹¹¹ and other substantial difficulties¹¹² that have been identified in relation to the REDD proposal suggest that it may be some time before a workable such system is developed and operative.¹¹³ Even those who are optimistic about the prospects of success include many who have been doubtful about the timetable set at Bali, which envisaged an agreement being reached by the end of 2009 and taking effect in 2013. It has been noted that “experience has shown that international negotiations often take years longer than expected. . . . On climate change, speedy action has proven particularly difficult.”¹¹⁴

Nevertheless, the REDD concept has been the subject of very considerable international focus since the Bali Conference¹¹⁵ and, in the context of the changed international situation¹¹⁶ and with the benefit of the fact that some previous opposition to a REDD component under the Kyoto Protocol has changed to support,¹¹⁷ concrete results may well be attainable more swiftly than past inertia would suggest.

If the overall challenge of reaching an effective agreement for the period after the initial Kyoto Protocol commitment period (2008 to 2012) can be met, it now seems reasonable to anticipate that there will be sufficient international will for the inclusion of some form of

REDD.¹¹⁸ Indeed, by providing substantial benefits to both developed and developing countries, REDD could be an integral part of achieving such an agreement.

Certain individual projects, such as the Juma project, are termed REDD projects but the general thrust of the REDD concept is toward establishing an overarching international system which will fund the preservation of forest globally – especially the biodiverse, carbon-rich tropical rainforests.

Moreover, notwithstanding the caution it has shown regarding participation in an international REDD credit system, there are signs that Brazil's attitude to is not, or is no longer, one of opposition. The powerful Ministry of the Economy, among other important governmental elements, appears to be very constructively engaged, in establishing how such a system could be developed in such a way that it functions effectively and appropriately in respect of the Brazilian Amazon.

In the meantime, though, Amazon and other forests continue to fall.

Amazon Fund

However, Brazil did not abandon its proposal for a new fund to protect Amazon areas and reduce deforestation with direct international donations – and initial progress in that regard appears to have been surprisingly rapid.

In 2008, the Brazilian Government's development bank, National Economic and Social Development Bank,¹¹⁹ established the "Amazon Fund". The Government is seeking donations from developed country governments and from corporations. (It has specified that such donations will not be eligible for carbon credits under any REDD carbon credit scheme that may eventually be put in place.)¹²⁰

The Government's ambitious aim is to raise \$21 billion in the Fund by 2021.

Governmental views of the Fund have included:

"It's better for the country's image to do things right, so we can walk in international forums with our heads high."¹²¹ [President da Silva]

"There's a real problem of deforestation that's of great interest to the world, and some countries have decided to step up to the plate and help us solve it."¹²²
[Minister for Strategic Affairs]¹²³

“The fund is a vehicle by which foreign governments can help support our initiatives without exerting any influence over our national policy. We are not going to trade sovereignty for money”¹²⁴ [Minister for Strategic Affairs]

It has been suggested that statements about sovereignty and non-interference may now be directed more toward reassurance of the Brazilian people than to actual government perception of threat, and that the President’s “embrace of the idea that the world as a whole has an interest in the Amazon is a sign of his country’s increasing self-confidence.”¹²⁵

At the embryonic stage, the lack of detail as to what such funding would achieve carried the risk that donations might be hard to obtain – especially donations of the size the Government is hoping for.

Norway nevertheless promptly committed to contributing an initial \$100 million.¹²⁶

The Office of the Prime Minister of Norway, Jens Stoltenberg, stated:

“Under President Lula’s leadership Brazilian authorities have launched a major campaign against deforestation. This has led to a strong reduction in deforestation over the last years. President Lula has now launched a plan to further increase these efforts in the period 2008 - 2011. Norway’s contributions to the Amazon Fund will go to the realisation of this plan.”¹²⁷

Norway’s action and alacrity immediately gave the Amazon Fund some credibility. Norway subsequently announced that it would continue its funding up to one billion dollars – provided the fund achieves demonstrable reduction in deforestation.¹²⁸

The response of President da Silva was encouraging:

“Lula welcomed the donation and said it increased the pressure on Brazil to deliver. ‘This increases our responsibility to do what we are already doing today, better’, he said.”¹²⁹

Moreover, the Amazon Fund approach appears to have received favourable attention even from some significant Brazilian commercial interests that have traditionally been seen as promoters of deforestation.¹³⁰

Brazil’s actions from here on appear likely to be the predominant determinant of the extent to which the Fund attracts donations and achieves results.

It has been noted that:

“What is particularly ingenious about the Norway response is that it comes with no prescription— no recipe for how to achieve the reduction... Unlike previous large-scale conservation programs, such as the G7 Pilot Program for the Protection of Brazilian Rainforests, the Norwegian response is ‘hands off’. Now, the ball is in Brazil’s court. The key question is whether or not the Brazilian government can design a process that allows for significant engagement of Amazon forest stakeholders, and effective measures to slow the main drivers of deforestation, to achieve the reductions.”¹³¹

6. SUMMATION

Coupled with the impacts of a changing climate, the extensive construction of roads, dams and other infrastructure (and the logging and agricultural clearing such infrastructure promotes) may gain such momentum as to result in the destruction of much of the Brazilian Amazon rainforest and the fragmentation and isolation of many of the forested areas that remain.

That risk and the fluctuating but high levels and cumulative nature of deforestation over many years have highlighted the need both for large-scale protected areas and for approaches which provide substantial financial incentives for broader forest conservation.

Sound modification of infrastructure planning so as to accord with such conservation would be highly beneficial. The Amazon Fund – and any other REDD arrangement that may be developed in the future and acceptable to the Brazilian Government – could potentially be conducive to such modification.

In respect of concepts of national rights and international responsibilities in relation to the Brazilian Amazon, there has been a clash of principle over the years but more recently there appears to have increasingly been considerable convergence in practice.

If that convergence is encouraged by functional national legal structures and by international support and mutual co-operation, coupled with strong enforcement by the Brazilian authorities, the rational preservation of much of the Brazilian Amazon may be feasible, to the mutual benefit of Brazil, the South American region and the world in general.

Just as an appreciation of Brazil's history makes clear the fundamental need for other nations to respect Brazil's sovereignty, Brazil itself may be doing most to generate such respect by exercising that sovereignty responsibly.

NOTES

¹ Brazil (68%), Peru (13%), Bolivia (11%), Colombia (6%), Ecuador, Venezuela and Guyana. Suriname and French Guiana (an Overseas Department of France) are also commonly included as Amazonian countries because of the continuation of the Amazonian forest into those countries, even though their rivers flow away from the Amazon River itself. See Philip M Fearnside “Amazonia, Deforestation of” in S Goudie & D J Cuff (editors) *Encyclopedia of Global Change: Environmental Change and Human Society* 2007 Vol 1 Oxford University Press.

² Calculations of the area and percentage can vary somewhat depending on the parameters used.

³ Stefan Anitei “The Mighty Amazon: Records and Fragility: – The largest river in the world” 2007 news.softpedia.com/news/Mighty-Amazon-Records-and-Fragility-71816.shtml

⁴ Milton Thiago de Mello “Biodiversity Conservation in the Brazilian Amazon”, 3rd IUCN Conservation Congress, 17-25 November 2004

⁵ Consequently, deforestation of an area “can result in loss of species and loss of genetic variability within species even when the forest surrounding a cleared area appears to human observers to be identical to the forest that was lost.” Fearnside, Note 1 at 6.

⁶ Jose Antonio Marengo, of Brazil’s National Institute of Space Research (*Instituto Nacional de Pesquisas Espaciais*) (INPE), reports that the Amazon Basin “has 70% of the world’s available fresh water”: J A Marengo “Water and climate change” 2008 *Estudos Avançados* Vol 23, No 63. See also Hurtak, Note 7.

⁷ J Hurtak “Crisis of the Amazon: An Overview by a Visiting Scientist” The Academy For Future Science 2009 affs.org/html/crisis_of_the_amazon.html

⁸ “Brazil fails to halt farmers’ march through Amazon” Sydney Morning Herald, 20 May 2005.

⁹ Hurtak, Note 7, where an outline is given in relation to Amazonian air current impacts worldwide, including impacts on ocean currents.

¹⁰ Most of the mineral dust appears to come from the Bodélé Depression in the Chadian Sahara. Ilan Koren, Yoram J Kaufman, Richard Washington, Martin C Todd, Yinon Rudich, J Vanderlei Martins and Daniel Rosenfeld “The Bodele depression: a single spot in the Sahara that provides most of the mineral dust to the Amazon forest” *Environmental Research Letters* 30 October 2006.

For a summary, see: Richard Fisher “Amazon forest relies on dust from one Saharan valley” *New Scientist*, 3 January 2007

¹¹ The UNFCCC figures for 2005/2006 (being the most recent available at the time of preparation of this paper) show Brazil as the fourth largest emitter of greenhouse gases (after the USA, China and Russia). (See FCCC/SBI/2005/18/Add.2 25 October 2005 and FCCC/SBI/2008/12 17 November 2008.)

Land use changes, principally tropical deforestation, appear to comprise some 20 percent of global greenhouse gas emissions. (For some overall gross and net IPCC percentage figures, see: UNEP “Climate in Peril: A popular guide to the latest IPCC reports” 2009 at 20.)

It has been noted that Brazil has been “the largest single contributor to land-use change emissions”: Philip M Fearnside “Saving tropical forests as a global warming countermeasure: an issue that divides the environmental movement” 2001 in *Ecological Economics* Vol 39(2) 167 at 171. (There have been indications that, more recently, Brazil may have been overtaken by Indonesia in that regard.)

The vast majority of Brazil’s emissions are from the burning of Amazonian forest. The construction of hydroelectric dams in the Amazon also involve the generation of large quantities of greenhouse gases. See Philip M Fearnside “Environmental Impacts of Hydroelectric Dams in the Amazon” 2005 (Outline of presentation at Society for Conservation Biology symposium “The Effects of Frontier Expansion on the Aquatic Ecology and Biodiversity of the Amazon River”), 16 to 19 July, University of Brasilia.

¹² For an overview, see Jose Antonio Marengo of INPE as reported by Michael Astor “Death of Amazon rainforest possible, says researcher” in Sydney Morning Herald, 31 December 2006. For a more detailed scientific paper, see Marengo, Note 6, which, *inter alia*, notes:

“Brazil is vulnerable to current climate changes and even more to those projected for the future, especially climatic extremes. The most vulnerable areas include the Amazon and Northeastern Brazil, as shown in recent studies”. It also notes: “The scientific evidence indicates that climatic changes represent a serious risk to water resources in Brazil.”

For a somewhat controversial paper on a further aspect of concern, see C Jones, J Lowe, S Liddicoat, R Betts “Committed ecosystem change due to climate change” 2009 *Earth and Environmental Science*, Vol 6

¹³ Although the impacts became stark in 2005 and then extended into 2006, analysis suggests what was observed in 2005 (and then 2006) was the cumulative effect of several years of rainfall deficit that could be characterised as the 2002-2006 drought. See:

– Ning Zeng, Jin-Ho Yoon, Jose A Marengo, Ajit Subramaniam, Carlos A Nobre and Charon M Birket “Causes and Impact of the 2005 Amazon Drought” 2008 *Environmental Research Letters* Vol 3

– Mongabay.com “Amazon drought extends into second year” 2006

news.mongabay.com/2006/0811-amazon.html “Field studies ... suggest that the Amazon forest ecosystems may not withstand more than two consecutive years of drought without starting to break down.” See also, however: Andrew C Revkin “Brazil: Amazon Forests Resilient to Drought” 2007 *The New York Times* 21 September 2007

– Mongabay.com “Will Amazon drought worsen in 2007?” 2007

news.mongabay.com/2007/0529-amazon.html

¹⁴ Doing so will assist but not ensure the survival of the forest in the face of the impact of climate change if it becomes severe. As noted by Carlos Nobre of Brazil’s National Institute of Space Research: “Even if all countries stop deforestation tomorrow and then within 100 years global warming changes 4-5 degrees further, then forget it, the tipping point will have been reached”:

Stuart Grudgings “Amazon fund seen as ‘paradigm shift’ for forest” Reuters, 14 August 2008.

“Mr Nobre is a leading researcher in assessing when the Amazon will reach a ‘tipping point’ – the point at which deforestation and climate change combine to trigger self-sustaining desertification.”

¹⁵ See: Rhett A Butler “Deforestation in the Amazon” mongabay.com/brazil.html#infrastructure (“Road construction in the Amazon leads to deforestation. Roads provide access to logging and mining sites while opening forest frontier land to exploitation by poor landless farmers.”)

¹⁶ Figures from Brazil’s National Institute of Space Research and the United Nations Food and Agriculture Organisation (FAO), as reported in: Mongabay.com “Calculating Deforestation Figures for the Amazon” rainforests.mongabay.com/amazon/deforestation_calculations.html

¹⁷ Mongabay.com “Brazil” rainforests.mongabay.com/20brazil.htm

¹⁸ Ibid.

¹⁹ See section 3 of this paper.

²⁰ See, for example, Kathryn Hochstetler and Margaret E Keck “Greening Brazil: Environmental Activism in State and Society” 2007 Duke University Press at 113, where President Mitterrand is quoted as having gone on to state: “This will result in the loss of sovereignty for some nations, but it has to be done.”

²¹ Colonel Alvaro de Souza Pinheiro, Brazilian Army “Guerrillas in the Brazilian Amazon” *Military Review*, March-April 1996

²² – upon its discovery by the Portuguese navigator, Pedro Alvares Cabral, in 1500.

²³ On the prevailing view in Brazil, the Treaty of Tordesillas demarcation line ran through Marajo Island, in the north, down to the vicinity of what is now Laguna in the State of Santa Catarina. The precise position of the demarcation line has been the subject of differing views, partly because the line was defined as being 370 leagues west of the Cape Verde islands and at that time a league could be of various lengths – and the length of the league in the treaty was not specified. (Also, the Spanish court soon claimed that, rather than meaning west of all the Cape Verde islands, the treaty wording should be taken to mean west of the most central of the Cape Verde islands – a claim which the Portuguese found unconvincing.)

²⁴ According to one common interpretation, the effect of the relevant papal bulls of May 1493 would have been to confine Portuguese territory to a tiny patch of land around what is now Olinda, not even extending as far as Fortaleza and Salvador da Bahia.

²⁵ Later treaties, in particular the Treaty of El Pardo (1761) and the Treaty of Santo Ildefonso (1777), resulted in further boundary shifts.

²⁶ See, for example, Paul R. Hensel, Michael E. Allison & Ahmed Khanani “The Colonial Legacy and Border Stability: Uti Possidetis and Territorial Claims in the Americas” Paper presented at International Studies Association meeting, Montreal, 2004

²⁷ “Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests” UN General Assembly, 14 August 1992, A/CONF.151/26 (Vol. III).

²⁸ Group of 7 specific developed nations: Canada, France, Germany, Italy, Japan, United Kingdom, United States.

²⁹ See the section of this paper entitled “G7 Pilot Program”.

³⁰ ECOSOC Resolution 2000/35

The UNFF has functioned largely on the basis of such earlier instruments as the Rio Declaration on Environment and Development, the Rio Forest Principles, and Chapter 11 [Combating deforestation] of Agenda 21. Its work followed on from that of the Intergovernmental Panel on Forests (established in 1995) and its successor, the Intergovernmental Forum on Forests (1997-2000).

³¹ Report of UNFF Sixth Session, 13-24 February 2006.

³² United Nations General Assembly document A/c.2/62/L.5

³³ Adopted on 17 December 2007 at the 62nd session of the United Nations Organization by Resolution 62/98.

³⁴ Article 1

³⁵ On one view, the long-running debate as to whether or not to have a legally-binding forests agreement was a distraction in respect of tropical forests generally and the action of the UNFF in settling that issue (– the matter has been expressly shelved until at least 2015) could lead to more concentration on action on the ground worldwide.

³⁶ – regarding the original area of Grande Sertão Vereda National Park, with funds provided by a Brazilian NGO, Funatura.

³⁷ Celso Amorim (Foreign Affairs), Sergio Rezende (Science and Technology) and Marina Silva (Environment) “The Amazon is not for sale”

brasilemb.org/index.php?Itemid=124&id=94&option=com_content&task=view

(originally published in Portuguese in Folha de São Paulo, 17 October 2006).

The Ministers also stated “We are taking care of the Amazon in a manner fully consistent with sustainable development models based on principles defined by Brazilian society.”

³⁸ Following approval of specific initial projects, implementation began in 1995.

³⁹ All dollar figures in this paper are US dollar figures.

⁴⁰ Michael Dutshke and Reinhard Wolf “Reducing Emissions from Deforestation in Developing Countries: The way forward” 2007 Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH and the Federal Ministry for Economic Cooperation and Development (Germany) at 17

⁴¹ The Netherlands, Italy, France, Japan, Canada, the United Kingdom and the United States.

⁴² World Bank “Pilot Program to Conserve the Brazilian Rain Forest (PPG7)”

⁴³ IBAMA is the national governmental body with primary management and enforcement responsibility for forestry, environment and natural resources generally (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis*).

⁴⁴ Nine federal ministries were involved, plus State governments and Brazilian NGOs.

⁴⁵ – generally via the World Bank.

⁴⁶ Though it is still officially on foot, the major activities currently receiving international financial and technical support, such as the ARPA program, are generally outside the rubric of the G7 Pilot Program.

⁴⁷ Hurtak, Note 9

⁴⁸ Nevertheless, while some tax and other incentives for clearing of forested land for grazing and agriculture have been removed or curtailed, Government support for major infrastructure projects remains a dominant factor.

⁴⁹ *Instituto Nacional de Colonização e Reforma Agrária*.

⁵⁰ The role of INCRA, and the perception of land vested in it, is very different from, for example, the role and perception of the Bureau of Land Management in the USA. That Bureau administers over one million square kilometres (412,500 square miles) of public land – far more than the US National Parks Service. The Bureau functions as a protective manager, rather than a passive holder or distributor, of land. The Bureau is a “multiple-use” agency. Its focus is on “grazing and the development of timber and mineral resources” but it also “manages wilderness areas, wild and scenic rivers, national conservation areas, a national monument, watersheds, historic and archaeological sites, and a multitude of recreational activities”. Public Lands Information Center “Bureau of Land Management, Department of the Interior” publiclands.org/agencies/BLM.php

⁵¹ – strict preservation areas, sustainable use reserves and indigenous lands.

⁵² See D Nepstad, S Schwartzman, B Bamberger, M Santilli, D Ray, P Schlesinger, P Lefebvre, A. Alencar, E Prinz, Greg Fiske and Alicia Rolla “Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands” 2006 Conservation Biology Vol 20 at 65 to 73 See also: See Britaldo Silveira Soares Filho, Laura Dietzsch, Paulo Moutinho, Alerson Falieri, Hermann Rodrigues, Erika Pinto, Claudio C Maretti, Karen Suassuna, Carlos Alberto de Mattos Scaramuzza, Fernando Vasconcelos de Araujo “Reduction of Carbon Emissions associated with deforestation in Brazil: The Role of the Amazon Region Protected Areas Program (ARPA)” 2008 WWF at 7, 8 and 13 (and the papers cited there).

⁵³ LV Ferreira, EM Venticinque, R Lemos de Sá and Luiz Carlos Pinagé “Protected areas or paper parks: The importance of protected areas in reducing deforestation in Rondônia, Brazil” 2000 WWF at 4

⁵⁴ *World Wide Fund for Nature* – formerly (and still in the USA – and often in common parlance elsewhere) the *World Wildlife Fund*.

⁵⁵ *Termo de Cooperação*

⁵⁶ – not including indigenous lands reserves. Part of the support role of the WWF is to work with the Government to identify the areas most in need of protection, based on such key aspects as biodiversity conservation.

⁵⁷ It was estimated that \$110 million would be needed for ARPA projects to establish protected areas, over the ten-year life of the program. It was also decided to establish a capital fund of approximately \$250 million, it being estimated that the interest from that amount would enable Brazil to pay in perpetuity the recurrent costs of the protected areas. WWF provided initial funding of \$3 million and committed to providing a total of \$75 million over the ten-year period of the program. Some of those funds are for direct project funding and some go to the long-term maintenance fund. The bulk of the funding has been provided by the GEF and (subject to the exigencies of international funding politics) that is expected to continue.

⁵⁸ The importance of physical demarcation of reserve boundaries has also been shown to be an important factor in reserve protection globally. Fiona Leverington, Marc Hockings and Katia Lemos Costa “Management effectiveness evaluation in protected areas – a global study” 2008 U Queensland, Gattton, IUCN WCPA, TNC, WWF

⁵⁹ See Soares Filho, Dietzsch et al Note 52 (and the papers cited there).

⁶⁰ Philip M Fearnside “Deforestation in Amazonia” 2007 in Cutler Cleveland (editor) *Encyclopedia of Earth*.

From the experience of indigenous lands, that protective effect of demarcation is further enhanced by actively defending of the area against encroachment. The need for that in respect of conservation reserves is also well-recognised. See, for example, Fearnside, Note 60 at 4: “In the longer term, ‘paper parks’ are not enough – the reserves must be actively defended.”

⁶¹ James Randerson “World’s largest tropical forest park created” 22 August 2002 NewScientist.com

⁶² Some logging is permitted in some of the Para reserves, provided most forest is conserved.

⁶³ – additional to the pre-existing 3% and reserves created outside the ARPA program.

⁶⁴ In extractive reserves, low-impact harvesting, in particular rubber tapping, is permitted.

⁶⁵ “The Brazilian Amazon: How green was my valley” *The Economist*, 27 April 2006

⁶⁶ Medida Provisória No. 2.166-67 made 24 August 2001. In effect, it comprises an interim amendment of Brazil’s Forest Code (*Código Florestal*), which previously required 50% of an Amazon forest landholding to be left in its natural state (– a requirement which also suffered from lack of

enforcement). The preservation requirement for Amazonian *cerrado* (savannah) areas was also lifted, from 20% to 35%.

⁶⁷ Projeto de Lei 6424 of 2005 (PL 6424/2005), which also proposes various related changes.

⁶⁸ Mongabay.com “Brazil asks rich countries to fund Amazon rainforest conservation” 2008 news.mongabay.com/2008/0802-amazon.html

⁶⁹ However, a deforestation surge (referred to later in the main text) began in the second half of 2007. Mongabay.com “Brazil will forge its own path for developing the Amazon” 2008 news.mongabay.com/2008/0515–amazon.html

See also R Butler “Deforestation in the Amazon” 2008 mongabay.com/brazil.html for specific annual deforestation figures, as derived from National Institute of Space Research data.

⁷⁰ – partly due to a stronger Brazilian currency.

⁷¹ In October 2006 a moratorium, for environmental purposes, was self-imposed by the major Brazilian soy-crushers and exporters “on trading soybeans grown on newly deforested lands in the Amazon basin.” Mongabay.com “Amazon soy becomes greener” news.mongabay.com/2006/0725-amazon.html

Initially applying for two years, the moratorium was subsequently extended to October 2009. The moratorium covers companies which move about 90% of Brazil’s soy production.

ABIOVE Newsletter On Soy Sustainability, 20 January 2009 “Soy Moratorium – Monitoring In 2009” (ABIOVE: Associação Brasileira das Indústrias de Óleos Vegetais)

However, the moratorium only applies to areas cleared from October 2006 and, commendable though it is, its impact is lessened by the fact that the usual progression is for Amazon land to be logged and burnt then used for cattle ranching for several years and only then converted to soy production. There is no moratorium on logging, burning and conversion to cattle ranching, nor on the expansion of soy into areas cleared before October 2006 and used for cattle ranching.

⁷² This was the conclusion of both Government and NGO analysts at a meeting called by the Government to examine the causes of the dramatic drop in deforestation rate in 2005/2006.

⁷³ Arrest of State head of IBAMA and arrest/warrants for over 80 other IBAMA personnel and loggers responsible for 2 million cubic metres of timber exported illegally with fraudulent documentation over 14 years: The Economist, Note 65

⁷⁴ This prospect may be tempered by indications that, despite re-election of President Luis (“Lula”) da Silva in late 2006, the proponents of unsustainable development may have strengthened their influence in government compared with that of proponents of ecologically sustainable development.

⁷⁵ Office of the Prime Minister of Norway “Facts about the rain forest and the Amazon Fund” 16 September 2008 The Brazilian monitoring has two components:

“DETER, which produces data on deforestation every two weeks. This is used as a warning system for real-time detection of logging, and makes it possible to respond quickly to illegal deforestation” but can only detect cleared areas larger than 25 hectares.

PRODES, which can detect cleared areas as small as 6.5 hectares ... but requires much more time for analysis and interpretation.”

⁷⁶ R Butler “Global Commodities Boom Fuels New Assault on Amazon” Yale Environment 360, June 2008 “Another catalyst of Brazil’s agricultural expansion is a \$43 billion program known as Avança Brasil (Forward Brazil) that is funding construction of roads, ports, pipelines, hydroelectric dams, and other infrastructure improvements in and around the Amazon.” Over time, and taking account of private investment as well as increased public expenditure, the total cost is now much higher: see Soliani, Note 88. (As well as specific content and cost, the name of the Government’s program has also evolved since Avança Brasil was launched some years ago; the current program is called “Plano de Aceleração do Crescimento” (Acceleration and Growth Plan).)

⁷⁷ C Schexnayder “South American Project Stretches Ocean to Ocean” Engineering News Record 2007. The Brazilian part of the road is complete. “Peru is counting on the road as a means of opening up its long-neglected interior for development. Brazil is looking for access to Pacific ports.”

⁷⁸ Ferreira et al, Note 53 at 6

⁷⁹ Fearnside, Note 60 at 2. Overall, the great majority of the clearing is done by medium and large ranchers, who hold 89% of the private land in the *Amazon Legal*. (The *Amazon Legal* is the region declared by the Government to be the Amazon region for official purposes, such as Governmental

subsidies. It extends a little beyond the Amazon basin itself so as to include key nearby population centres, in particular the cities of Cuiaba, in the State of Mato Grosso, and Sao Luis, in Maranhao.) “The social cost of substantially reducing deforestation rates would therefore be much less than is implied by frequent pronouncements that blame ‘poverty’ for environmental problems in the region.” (As regards the *impact* of deforestation on a given area, a separate but associated factor is that in areas – such as in a significant part of Mato Grosso – where there are substantial smallholdings, the deforestation is far more intense than that generally carried out by the larger landholders. Fearnside points out that “deforestation would increase if forest areas now held by large ranches were redistributed into small holdings. This indicates the importance of using already-cleared areas for agrarian reform, rather than following the politically easier path of distributing areas still in forest.”) Fearnside, Note 1 at 1, 5, 10.

R Butler, Note 69. “Roads provide access to logging and mining sites while opening forest frontier land to exploitation by poor landless farmers.” See also, by the same author, “Industry-driven road building to fuel Amazon destruction” 2008 mongabay.com//2008/0312-perz_amazon.html where the “feedback cycle” of road-building (especially unofficial local road-building) and forest destruction is examined.

⁸⁰ If the collateral environmental impacts could be closely confined to the route itself and a very limited number of *en route* hubs, Brazil could arguably optimise the benefit-to-detriment ratio of the impact of the highway. It is largely for this reason that rail links have been proposed as preferable alternatives to some proposed Amazonian road projects. Thus, in late 2008 when Brazil’s Environment Minister, Carlos Minc, suspended the licensing process for the paved reconstruction of the often-impassable unpaved highway between Porto Velho and Manaus (Highway BR-319), he cited the need “to ensure that the project included creating enough protected areas around the road, and ... urged that a railroad be considered instead of a highway”: Secretaria de Estado de Planajamaento e Desenvolvimento Econômico (SEPLAN), Governo do Estado do Amazonas “Finding Balance in Amazon Tug of War” citing Washington Post EUA/USA 6 November 2008

See also: Philip M Fearnside, Paulo Maurício Lima de Alencastro Graça “BR-319: Brazil’s Manaus-Porto Velho Highway and the Potential Impact of Linking the Arc of Deforestation to Central Amazonia” 2006 *Environmental Management* Vol 38, No. 5.

⁸¹ It has been noted, for example, that “most deforestation is for cattle pastures that do little for either the national economy or for providing employment to the population”. Fearnside, Note 60 at 5. Fearnside goes on to make the point that this lack of substantial economic benefit “offers an opportunity to slow deforestation as part of a program for mitigating global warming” (as to which, see the later section of this paper entitled “REDD”).

⁸² Fearnside, Note 1, notes “the impact of fragmentation of the formerly continuous forest into small islands that are unable to support viable populations of forest species, including their biological interactions”. See further: William F Laurance and Richard O Bierregaard, Jr (editors) “Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities” 1997 University of Chicago Press.

⁸³ For a review of various water cycling studies, see Jose Antonio Marengo “On the Hydrological Cycle of the Amazon Basin: A Historical Review and Current State-of-the-Art” *Revista Brasileira de Meteorologia* Vol 21, 2006

⁸⁴ Fearnside, Note 60. See also: Fearnside, Note 1.

⁸⁵ *Instituto Nacional de Pesquisas da Amazônia (INPA)*

⁸⁶ William F Laurence, Mark A Cochrane, Scott Bergen, Philip M Fearnside, Patricia Delamônica, Christopher Barber, Sammya D’Angelo and Tito Fernandes “The Future of the Brazilian Amazon” 2001 *Science* Vol 291 at 438-439

⁸⁷ For an outline of certain ways in which the downturn could ultimately mitigate *against* forest preservation, at least to some extent, see: R Butler “What does slowing economy mean for rainforest conservation?” 26 January 2009 news.mongabay.com/2009/0127-economy_deforestation.html

⁸⁸ Andre Soliani “Brazil to Raise Investment Spending to Spark Growth” Bloomberg, 4 February 2009 “Government and private spending on roads, power dams and other projects, which are part of Lula’s so-called Accelerated Growth Program for 2007-2010, will be increased to 646 billion reais (\$281 billion), from the 504 billion reais originally announced in January 2007.”

See also: Mongabay.com “Brazil to boost spending on infrastructure to counter economic crisis” 5 February 2009 news.mongabay.com/2009/0205-brazil.html

⁸⁹ Environment News Service “Brazil Protects Vast New Areas of Amazon Rainforest” 6 June 2008 ens-newswire.com/ens/jun2008/2008-06-06-01.asp

⁹⁰ Ibid.

⁹¹ 11,968 km². (The figure for 2007 was similar, namely 11,532 km²): National Institute of Space Research figures: Projeto Prodes Monitoramento da Floresta Amazônica Brasileira por Satélite obt.inpe.br/prodes/r2008.htm

For an English language publication with a table showing the annual figures, see: R Butler, Note 69.

⁹² It has also been noted that “the onus for reining in deforestation falls on Brazilian President Luiz Inacio Lula da Silva’s successor”:

R Butler “Lula pledges big cuts in Amazon deforestation – after he leaves office” 12 December 2008 news.mongabay.com/2008/1212-amazon_targets.html

The extent to which such apparent scepticism is or is not justified may be indicated by the degree to which the Government’s interim target of a reduction to 7980 square kilometres by 2010-2013 is stably established by the time President da Silva leaves office in 2011.

⁹³ Mongabay.com “Brazil suspends Amazon road project until protected areas established” September 26, 2008 news.mongabay.com/2008/0926-amazon.html

⁹⁴ For a less positive view, from earlier in 2008, see (regarding the highly controversial multi-billion dollar Belo Monte Hydroelectric Dam project proposed for the Xingu River): International Rivers “Judge Suspends Studies for Amazon Dam: Legality of World’s Third Largest Dam Project Questioned” 18 April 2008 internationalrivers.org/en/node/2732

⁹⁵ Secretariat for Environment and Sustainable Development (SDS), Government of the State of Amazonas “Amazonas Initiative on Climate Change, Forest Conservation and Sustainable Development” 2008 SDS

⁹⁶ Ibid.

⁹⁷ Aceh, Papua and West Papua.

⁹⁸ “The Governors of Aceh, Indonesia, Papua, Indonesia, and Amazonas, Brazil, sign the Forests Now Declaration”. ForestsNow News 7 December 2007

⁹⁹ “The Juma Sustainable Development Reserve Project: Reducing Greenhouse Gas Emissions from Deforestation in the State of Amazonas, Brazil (Project Design Document)” 2008 at 6.

¹⁰⁰ Ibid. at 8

¹⁰¹ TÜV SÜD Industrie Service GmbH “CCB - Validation Report Fundação Amazonas Sustentável - FAS The Juma Sustainable Development Reserve Project: Reducing Greenhouse Gas Emissions from Deforestation in the State of Amazonas, Brazil” Report 1177277, September 2008 (Of the three certification levels for projects which achieve approval, the Juma project was certified as having achieved the highest level of approval.)

¹⁰² The annual Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) serving as the annual Meeting of the Parties to the Kyoto Protocol to the UNFCCC, held at Bali in December 2007.

¹⁰³ – in particular, Papua New Guinea and Indonesia.

¹⁰⁴ Mongabay.com “Brazil proposes compensation plan for rainforest conservation” 2006 news.mongabay.com/2006/1016-brazil.html

¹⁰⁵ Achievement of actual preservation may be more likely, at least within the same country (or possibly, for large countries, the same region of the country), by selecting as the baseline the year of *lowest* deforestation (or at least a year or years of relatively low deforestation) in the last decade or so; the corollary could be a significantly *higher* rate of *compensation* for the genuinely-avoided deforestation/degradation.

¹⁰⁶ Similarly, Indonesia proposed as a baseline the year of its greatest deforestation, 2002.

¹⁰⁷ For variations and associated funding mechanisms, see: MJ Sanz “Reducing Emissions from Deforestation in Developing Countries (REDD)” 2007 UNFCCC Secretariat

¹⁰⁸ “Land use changes, mainly tropical deforestation, account for roughly 20 percent of global greenhouse gas emissions, a share greater than either the global transport or industrial sectors. In other words, intentional deforestation is doing more to deepen the climate crisis than all the

automobiles or factories in the world.” Nigel Purvis and Erin Myers “Conserving the Climate: Scaling-up Global Markets for Forest Carbon” Resources for the Future, June 2008

¹⁰⁹ Generally, REDD is envisaged as involving the establishment an international scheme – or possibly a number of schemes appropriate to the different circumstances of different developing nations and regions and desirably integrated into a consistent overarching framework.

¹¹⁰ Mongabay.com “Brazil’s Amazon conservation efforts worth \$100 billion” 29 May 2008 news.mongabay.com/2008/0529-amazon.html The Brazilian approach is referred to further in this paper under the heading “Amazon Fund”.

¹¹¹ In respect of Brazil itself, the cost may be less than has been anticipated.

The respected Woods Hole Research Center (*WHRC*) has researched the matter and estimated that: “carbon emissions from tropical deforestation and forest degradation in Brazil could be reduced to close to zero over a 10-yr time horizon at a cost between \$100 million and \$600 million per year.”

WHRC “Linking Climate Policy with Development strategy in Brazil, China, and India” (Synopsis Presented by the Project Team at the Bali UNFCCC COP/MOP, 10 December 2007)

Further: “Factoring in REDD, WHRC pegs the average opportunity cost of forest protection for 94 percent of Brazilian Amazon forest at US\$3 per ton of carbon, suggesting that over the first 30 years of the program, deforestation in the Amazon would be reduced by 490,000 square kilometers and approximately 6 billion tons of carbon emissions would be avoided at a cost of \$8 billion. The program would double the income of 200,000 forest-dwelling families as well as improving health and education in the region. Private landowners would also see compensation for preserving forest cover on their land.” Daniel C. Nepstad, et al “Brazil: The costs and benefits of reducing carbon emissions from the Brazilian Amazon region” in the Final Report to the William and Flora Hewlett Foundation from the Woods Hole Research Center in respect of Phase I of the program entitled “Linking Climate Policy with Development Strategy in Brazil, China, and India” 15 November 2007, as summarised in Mongabay.com “How much would it cost to end Amazon deforestation?” 27 January 2008 news.mongabay.com/2008/0128-brazil.html

¹¹² – difficulties which include, among others, measurement, verification, “leakage” (which occurs when conservation of one area of forest simply results in a different area being destroyed) and “permanence/impermanence” (which relates to the reluctance to expend money on preservation without some credible assurance that the area preserved will not later be destroyed).

An interesting perspective on some of these difficulties is given in Fearnside, Note 11 (“Saving tropical forests ...”).

See also: Purvis and Myers, Note 108.

¹¹³ See, for example, Mongabay.com “Bali delegates agree to support forests-for-climate (REDD) plan” 16 December 2007 news.mongabay.com/2007/1215-redd.html

See also: R Butler “U.S. climate policy could help save rainforests: An interview with Jeff Horowitz, Founding Partner of Avoided Deforestation Partners” news.mongabay.com/2008/0514-interview_horowitz.html

¹¹⁴ Purvis and Myers, Note 108 at 8. The authors also observed: “Countries agreed to negotiate the Kyoto Protocol in 1995, but the agreement did not enter into force until 2005 and its environmental efforts did not come into play until 2008.”

¹¹⁵ For an overview of the limited progress achieved in 2008 at the Poznan Conference (UNFCCC Conference of the Parties/ Kyoto Protocol Meeting of the Parties, December 2008), see:

R Butler “Deal on forests falls short” 2009 news.mongabay.com/2008/1211-poznan.html

For an overview of REDD generally, see: Global Canopy Programme “Little REDD Book”

¹¹⁶ Key aspects of that include: (a) the 2009 change of government in the USA, and (b) the varying effects of the general decline in global economic activity following the financial crisis of 2008.

¹¹⁷ Once the targets for developed countries to meet during the first commitment period (2008 to 2012) under the Kyoto Protocol were quantified, one objection to the inclusion of avoided deforestation as a “Kyoto mechanism” (i.e. a means available to developed countries to offset – and continue – their own greenhouse gas emissions by helping to reduce emissions elsewhere) was that, even if mechanisms could be devised in the required time frame for there to be a genuine avoidance of deforestation which would otherwise have occurred, it would achieve no greater reduction in emissions than if it were not included. If a basis for the inclusion of avoided deforestation measures can be

factored in *before* targets are set for the post-2012 period, that objection will not apply. (There were also concerns about the matters referred to at Note 112 – concerns which remain but which are being addressed.)

For whatever reason, certain environmental organizations which opposed the inclusion of avoided deforestation in the Kyoto Protocol in the past – in particular, WWF – are now proponents of it: see R Butler “How to save the Amazon rainforest” 4 January 2009 news.mongabay.com/2009/0104-saving_the_amazon.html

¹¹⁸ The “Poznan Declaration” (“Joint Statement on the importance of reduced emissions from deforestation and forest degradation in developing countries”) of 12 December 2008 included the following: “Our governments will therefore work together to:

- undertake early action on REDD; and
- ensure the inclusion of REDD as part of the outcome agreed in Copenhagen. . . .

Achieving an ambitious outcome in Copenhagen, including REDD as an important pillar, is essential.” (The reference to Copenhagen was to the UNFF / Kyoto Protocol COP/MOP to be held in Copenhagen in December 2009.)

¹¹⁹ *Banco Nacional de Desenvolvimento Economico e Social*

¹²⁰ Mongabay.com “Brazil to establish huge Amazon preservation fund” 2008 news.mongabay.com/2008/0529-brazil_fund.html

¹²¹ *Ibid.*

¹²² Joshua Goodman “Brazil Creates \$21 Billion Fund to Slow Amazon Deforestation” Bloomberg, 1 August 2008

¹²³ Mr Roberto Mangabeira Unger

¹²⁴ Mongabay.com, Note 68

¹²⁵ “Paying for the forest” *The Economist*, 9 August 2008

¹²⁶ *Ibid.*

¹²⁷ Prime Ministerial Press Release 141/08, 16 September 2008

¹²⁸ Fernando Exman and Ana Nicolaci da Costa “Norway pledges \$1 billion to Brazil Amazon fund” Reuters, 16 September 2008

Some basic details have been provided, in particular:

“Payments to the Fund in a particular year will depend on the difference between emissions from deforestation in the previous year and the reference level. The reference level will be the average for the current ten-year calculation period, and will be updated every five years. If emissions in a particular year are higher than the reference level, no payment will be made to the Fund in the subsequent year.” Office of the Prime Minister of Norway, Note 75

¹²⁹ Exman and Da Costa, Note 128

¹³⁰ See, for example, the comments of Carlo Lovatelli, president of ABIOVE (Brazil’s soybean processing industry association) and of the Brazilian Agribusiness Association, as quoted in: Carlos Caminada and Michael Smith “Brazil Amazon-Conservation Fund May Get \$3 Billion in Donations” Bloomberg, 29 January 2009

¹³¹ Daniel Nepstad, Gordon and Betty Moore Foundation, quoted in: R Butler, Note 117.