

**FAA 118/119 BIODIVERSITY AND TROPICAL FOREST ASSESSMENT GUYANA**

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## Table of Contents

page no.

Executive Summary	1
Introduction	2
Actions Taken Since 2003 to Conserve Forests & Biodiversity	6
Principal Threats to Guyana's Biodiversity & Tropical Forests, 2008	18
Actions Necessary to Conserve Biodiversity & Tropical Forests	24
Extent to Which USAID Actions Meet Conservation Needs	26
Recommendations	29
 <u>Annexes:</u>	
Annex I: Contacts/Schedule	
Annex II: References	
Annex III: Article: <i>Private Equity Firm Buys Rights to Ecosystem Services of Guyana Rainforest</i>	
Annex IV and V: Wildlife trade statistics and quotas	
Annex VI: Donor Table	
Annex VII: Maps depicting resources, infrastructure and land use along Lethem Road	

## **I. EXECUTIVE SUMMARY**

Guyana is embarking on preparing a new five-year country strategy. This assessment serves to meet requirements under Section 118 (tropical forests) and 119 (endangered species) the Foreign Assistance Act 1964 as amended, which request USAID field Missions to identify necessary actions threats to conserve biodiversity and forests and articulate how proposed Mission actions address these. Since Mission actions were still under preparation at the time of this assignment, this report also provides recommendations for cross sectoral actions relevant to USAID/Guyana's objectives.

There are two types of investors eyeing Guyana: those that see volumes of standing timber and mineral deposits as raw material needed for industrial development, and those who see volumes of standing carbon reserves with valuable biodiversity. In March, the price of gold drove the mineral to the top of the GDP earnings list, surpassing rice (Harlequin, personal conversation). Almost simultaneously, in April, a private equity firm, Canopy Capital, purchased the rights to carbon offsets from the forests Iwokrama Rainforest Reserve, banking on a strong future market for this emerging tradable asset, and putting Guyana in the center of climate change negotiations.

Principal donors assisting with tropical forests and biodiversity remain limited, but include the German Development Bank (Kfw), the European Union and the International Tropical Timber Organization (ITTO). The World Wildlife Fund and Conservation International are two NGOs which continue to make substantial contributions to biodiversity conservation, and the University of Guyana continues to play a strong role in biological research. With increased donor and investor attention, the GOG has moved forward on legislative actions to strengthen environmental management. This includes a new Forest Act, an updated Amerindian Act and draft wildlife regulations.

Far more legislative action and institutional coordination are needed, however, to protect biodiversity and tropical forests in Guyana. The drafting of a Protected Areas Act has only just begun and a second National Biodiversity Conservation Action Plan (NBAPII) has been developed, but not approved or distributed, and reportedly is deficient on the subject of protected areas. Meanwhile, institutional fragmentation is contributing to land use conflicts between mining and forestry in the hinterlands. Forest operators with timber rights (granted by the Forestry Commission) allow miners with subsurface rights (granted by the Geology and Mines Commission) to gain access to sites; however, their destructive practices undermine sustainable forest management and companies' prospects of obtaining certification for meeting environmental standards.

The Lethem-Georgetown road has significant potential to exacerbate these threats, particularly in the absence of strong local governance, enabling policy frameworks, environmental markets and public awareness. With Guyana facing both these looming threats, and new and innovative opportunities to attract foreign investment in biological assets that to date have not been commercially traded on a market, the Mission has an

opportunity to assist the country and its citizens in the right direction while meeting its program objectives in Democracy & Governance and Economic Growth. USAID/Guyana is already responding to some of these opportunities under its current program. The USAID Guyana Trade and Investment Program has supported the development of bird ecotourism, promoting the country as a competitive destination and capturing a share of the market niche. Investments have been targeted at working with a variety of conservation and tour operators to build skills for guides, produce an updated local bird list, and improve accommodations as dictated by the market. The GTIS project has also promoted and raised awareness of wood producers regarding niche markets, best practices, certification and legality standards for timber. New opportunities to build on this work exist through new GDA public private partnerships in the natural resources sector. To increase incomes for smaller, disadvantaged enterprises, such as Amerindian communities in the hinterlands, the EG program could also consider supporting related micro-enterprises in targeted areas that support the program's larger ecotourism goals.

The DG program has focused on many governance challenges, including the important goals of mitigating conflict, ensuring free and fair elections, and strengthening local government. Under a new strategy, new opportunities have opened up with the granting of territorial rights to at least 97 Amerindian communities (whose land cover 15% of Guyana's land area) and the passage of the Amerindian Act, 2006, which contains provisions for environmental governance. This legal framework allows USAID/Guyana to work with Village Councils to build their skills in governing mining and timber leases, proposing new protected areas, and working with national agencies such as GFC, GGMC, and the EPA, to enforce environmental laws. Building local governance capacity on biodiversity and forests will be critical to countering threats from economic activity spilling over from Brazil, and related land use conflicts.

Guyana is a country with many strengths, but one which unfortunately has suffered from division, emigration, violence and related impact on citizen morale. Raising citizen awareness of Guyana's valuable biodiversity and natural assets could be used to improve national pride (i.e. campaigns to promote a national bird or flower country wide) and to form a more positive identity. USAID could also support the development of an environmental professionals association which could ideally operate outside the context of divisive political and ethnic affiliations. Environmental issues and solutions could be freely discussed and policy issues advocated through this group.

USAID and USG efforts to combat HIV/AIDS also has an indirect positive impact on biodiversity in the long term, as citizens free of illness will be able to focus efforts on more productive activities. The infrastructure base which has been built country wide is substantial and can serve to raise awareness of environmental health issues such as mercury as well as other pertinent environmental messages.

In conclusion there are many interesting opportunities to weave conservation actions into the Missions Strategy, creating synergy with the Mission's core goals in democracy and economic growth.

## II. INTRODUCTION

Purpose: The purpose of this assessment was to 1) help USAID/Guyana to comply with country analysis requirements set out under the Foreign Assistance Act, Sections 118(e)<sup>1</sup> and 119(d)<sup>2</sup> for tropical forest and biodiversity, and 2) make recommendations to USAID Guyana on program opportunities that address conservation in a cross-sectoral context in its new 5-year Country Strategy.

Background: The previous country analysis for FAA 118/119 was carried out by a USAID team in Guyana in 2003 (*Biodiversity and Tropical Forest Conservation, Protection and Management in Guyana* by Drs. Jean Brennan, Christy Johnson and Safia Argarwal). That report provided a comprehensive description of Guyana's natural assets and challenges. Fundamental information on ecosystems and biology and other relevant information from that assessment will be referenced as appropriate.

USAID/Guyana is reaching the natural conclusion of its previous 5 year strategy period. As such, the Mission has conducted several sector assessments related to its program objectives to aid in its formation of a new 5 year vision. The Mission requested assistance from EGAT/NRM with the tropical forest and biodiversity assessment. A three person team was formed to include a biodiversity specialist/team leader from USAID/W, a local environmental institutional expert (contracted by the Mission), and a forest sector specialist from the USDA Forest Service, International Programs (accessed through EGAT's interagency agreement with the USFS and co-financed by EGAT and USFS).

After obtaining preliminary information, the team spent two weeks (March 2-15, 2008) in Georgetown, conducting interviews and gathering data. A wide range of stakeholders were consulted, including representatives of the main government agencies responsible for natural resources, the University of Guyana, NGOs, and the forest industry. The team also spent significant time with USAID program staff and personnel from the Economic Growth sector contractor, Carana Corporation. A list of contacts/meetings as well as references can be found in appendices 1 and 2.

Unfortunately, security concerns and weather impaired the ability of the team to make site visits out of Georgetown. However, team members were able to take an over-flight of forest along the Essequibo River in order to observe forest cover and mining and logging impacts from the air. Finally, although there is a large amount of information available related to forests and biodiversity in Guyana, the team had difficulty obtaining

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<sup>1</sup> For tropical forests, Section 118(e) of the FAA requires that "Each country development strategy statement or other country plan prepared by the US Agency for International Development shall include an analysis of (1) The actions necessary in that country to achieve conservation and sustainable management of tropical forests, and (2) The extent to which the actions proposed for support by the Agency meet the needs thus identified."

<sup>2</sup> Similar language exists for biodiversity conservation in FAA Section 119(d): "Country Analysis Requirements. -- Each country development strategy statement or other country plan prepared by the US Agency for International Development shall include an analysis of (1) the actions necessary in that country to conserve biological diversity, and (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified."

some key new information in written form. This included two key pieces of legislation or related frameworks: 1) draft language on the protected areas act and 2) Guyana's Biodiversity Action Plan II, which has been finished but not released.

### **A. Guyana's Biodiversity and Tropical Forests**

Guyana possesses significant biodiversity and intact forests which potentially offer a wide range of goods and environmental services. These include abundant wildlife for subsistence and ecotourism; significant water resources; timber and non-timber forest products; and a large "carbon sink."

Guyana is at a critical point in time as it defines its "national identity" with respect to its development direction, facing a strategic choice of either promoting and supporting investments in sustainable management and protection of its natural resources, or of undertaking large scale exploitation that does not consider environmental values.



Kaieteur National Park  
Photo Source: Alicia Grimes

The GoG operates in a context where pressing social needs call for economic development. The global demand for wood and minerals continues to attract large-scale foreign commercial interests to Guyana from as far away as Asia, where raw material is sought to fuel manufacturing. The potential export earnings, tax revenues and jobs likely to result from these and other pending deals are quite tempting, and the pressure is real: two large-scale timber concessions were recently awarded adjacent to conservation areas and gold mining surpassed sugar as the major GDP earner during the team's visit.

In November of 2007, leading up to the Bali Climate Conference, the GoG made a dramatic and unprecedented offer to place its entire standing forest under the control of a British-led, international body in return for development aid and assistance (Herald Tribune? 10 Dec 2007). Such a deal would represent the largest carbon offset ever taken. While such a scheme may not materialize in these terms, President Bharrat Jagdeo is making a very strong point to the international community: Guyana needs immediate assistance in identifying and testing alternatives to traditional development if it is to preserve the country's intact forests.

Private sector actors have already responded. On March 27, 2008, a private equity firm, Canopy Capital, announced it had made a deal with the GoG to purchase the rights to profits made from future payments for ecosystem services from the Iwokrama Forest Reserve (see article in annex). This deal represents the latest in innovative conservation models emerging from Guyana and is sure to keep Guyana in the forefront of the international dialogue pertaining to forests, biodiversity and climate change.

## **B. Value of Guyana's Biodiversity and Tropical Forests**

The tropical forests of Guyana cover an area of 163,777 square kilometers and harbor rich biodiversity. These intact ecosystems and forests contain significant value, not only for commercial exploitation but as standing forests for the multiple “goods and services” that they provide. The following data points illustrate the importance of Guyana's biological resources:

- ◆ The intact forests of the Guiana Shield complex are one of the last 4 large scale tracts of tropical forest in the world and host high levels of biodiversity.
- ◆ Guyana's intact forests are carbon rich. It is estimated that Iwokrama alone holds close to 120 million tons of carbon, which is equivalent to the annual green house gas emissions of the U.K.
- ◆ According to the National Biodiversity Action Plan, the mix of forest types in Guyana provides habitat for 6,300 plant species and 2,298 known animal species.
- ◆ Many “non-timber forest products” (NTFPs) are harvested in Guyana. These include “Kufa” and “Nibi” (shrubs for wicker), “Tibisiri” from palm leaves, Balata latex and crabwood oil. In 1999 (only data available), the export value of NTFPs was US\$1,120,612.
- ◆ Amerindian people depend for subsistence and place a high value on wildlife including Tapir, Labba, Agouti, Capybara, Armadillos, larger birds such as the Curassows, Guans and Tinamous, and many fresh water fishes.
- ◆ Guyana provides an important habitat for migratory birds. An example is the blackpoll warbler, which weighs no more than three nickels and migrates enormous distances from their breeding grounds in Alaska and northern Canada to their winter homes in the western Amazon, travelling by way of Guyana (Gutterman, 2002).
- ◆ Guyana harbors wildlife species important to ecotourism, including the Harpy Eagle, Arapaima (a huge Amazonian fish), Black Caiman, Giant River Otter, red Howler Monkey, and Black Spider Monkey (ITTO/IUCN Biodiversity Guidelines in Tropical Timber Production Forests, draft 2008). Because of Guyana's intact ecosystems, wildlife enthusiasts have a greater chance of seeing these species than they would elsewhere, making the country a competitive ecotourism destination for bird and wildlife watching.
- ◆ Wildlife conservation is critical to commercial forestry in Guyana, since seeds from timber species rely heavily on animal dispersal. A study of 172 timber species at Iwokrama found that 51% are mammal-dispersed, while 21% are bird dispersed.

- ◆ A Rapid Assessment by conservation scientists has determined that the Kanuku Mountains have the highest bat diversity recorded for any single area in the world (Conservation International, Guyana RAP report).
- ◆ The Northern Rupununi area harbours significant fresh water biodiversity with at least 700 species of fish, although scientists suspect that only 70-80% of the area's total fish species have been identified to date. Guyana is reportedly the only country of the Guianas with populations of the ancient and endangered Arapaima, the largest riverine fish in the Amazon.
- ◆ In anticipation of emerging markets for carbon, biodiversity and other ecosystem services, a UK-based private equity firm has purchased the rights to environmental services generated by the 371,000 hectares at Iwokrama's Rainforest Reserve, in exchange for funding a significant part of the costs of maintaining the reserve. While these markets are still voluntary, investor interest continues to grow, and this deal, reported on March 27, 2008, demonstrates the competitiveness of Guyana's forests for this purpose.



### III. ACTIONS TAKEN SINCE 2003 TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS

#### A. Government of Guyana

Over the past few years, a number of strides have been made by the GoG in addressing biodiversity and forestry issues at the institutional, policy and legislative levels.

##### *Policy and Legislation*

Table 1 below summarises key existing environmental laws. However, a number of new laws are in draft form and have either gone through public consultation or are about to undergo public discussion. These include the *National Biodiversity Access and Benefit Sharing Policy and Regulations*, draft *Wildlife Management and Conservation Regulations*, a draft *Protected Areas Act* and draft *Wildlife Regulations*. The *Wildlife Regulations* focus on broader conservation issues while the *Species Protection Regulations*, which are to be reviewed shortly, focus on trade in wildlife. Both the *Wildlife* and *Species Protection Regulations* fall under the *Environmental Protection Act*.

Guyana's Forestry Commission has drafted a new *Forests Act* through various public consultations. Currently, this new Act is awaiting approval by Parliament. If approved, the new *Forests Act* should improve the legal basis for sustainable and environmentally sound management of Guyana's forests. For example, the new law will provide for improved environmental and forestry controls, increased transparency and public involvement, reduced opportunities for corruption, the creation of new forest conservation concessions and special protected areas, and respect for Amerindian rights and opportunities for community-based forestry on Amerindian lands.

The *Second National Biodiversity Action Plan 2007 – 2011 (NBAP II)* has been drafted and is awaiting approval by Cabinet. However, the document was not made available for this Assessment. In addition, a *National Biosafety Framework* has been drafted with support from the *Global Environmental Facility (GEF)* and is with the Cabinet for approval.

The granting of territorial rights to Guyana's Amerindian communities and the updated *Amerindian Act 2006* is of particular interest for natural resources management and biodiversity in the hinterlands. Since 2004, land titles have been issued to 97 Amerindian communities. Currently, the area of these titled traditional lands covers almost 15% of the country's territory. The *Amerindian Act 2006* spells out the governance of village lands by village councils including privileges, rights & restrictions related to mining, wildlife and forest products. Section 48 defines requirements for miners wishing to carry out activities on Amerindian lands including required permissions, fees, agreements, environmental protection requirements, and processes to deal with mining conflicts. Sections 54-57 describe use rights for forests and state that "the Village Council may

invite the GFC to monitor the use of forest produce by a resident.” They further outline the procedures for non-residents who wish to use forests. Section 58 contains rules related to protected areas on village lands. It recognizes that villages may want to establish part of their lands as protected areas under a national protected area system, as well as the need for consent by the Village General Meeting on matters related to protected area management and traditional use.

The Amerindian Act 2006 is significant because it provides the legal framework for the governance of at least 15% of Guyana’s territory. It provides for delegation of authority to the local level and the development of local governance models to protect the environment. It governs trade and investment, protects or restores local culture, and encourages working relationships between villages and the Geology and Mines Commission, the Forestry Commission, and the EPA. Essentially, this legislative framework, combined with territorial rights, creates a new enabling environment for donors such as USAID to strengthen local government in villages to address natural resources issues.

**Table 1: Summary of New Draft Legislation**

<b>LEGISLATION</b>	<b>BRIEF DESCRIPTION OF PROVISIONS</b>
<p><b>Draft Wildlife Management and Conservation Regulations</b></p>	<p>Establishes the Environmental Protection Agency (EPA) as responsible for administration of the regulations.</p> <p>Allows for classification of wildlife species and wildlife conservation areas with various levels of protection. Requires preparation of management programme for each classified area.</p> <p>Allows for declaration of closed season each year for specific wildlife.</p> <p>Establishes various types of licenses.</p> <p>Recognises the rights of Amerindians to pursue traditional practices.</p> <p>Prohibits release of exotic species into the environment without permission from EPA.</p>
<p><b>Protected Areas Act</b></p>	<p>Not available for review. According to people interviewed, the act will provide definitions of IUCN compatible PA categories, and describe the processes by which protected areas are established and roles of national and local authorities.</p>

<b>LEGISLATION</b>	<b>BRIEF DESCRIPTION OF PROVISIONS</b>
<b>Forests Act</b>	<p>Provides for declaring any area of public land as State Forest.</p> <p>Provides for sustainable forest management.</p> <p>Provides for granting of forest concession agreements and smaller concessions of 8047 hectares or less with conditions.</p> <p>Provides for granting of community forest management areas to community groups.</p> <p>Sets out characteristics of state forest authorisations</p> <p>Includes section on Forest Conservation with measures such as special protected forest areas; fire prevention and protection; protection of specific tree and plant species.</p> <p>Provides measures for regulation and control of forest operations and activities.</p>
<b>Mining Regulations</b>	<p>Requires the creation of settling ponds.</p> <p>Requires use of retorts to recover mercury from gold amalgam.</p> <p>Provides for progressive reclamation during mining and reclamation after mine closure.</p>

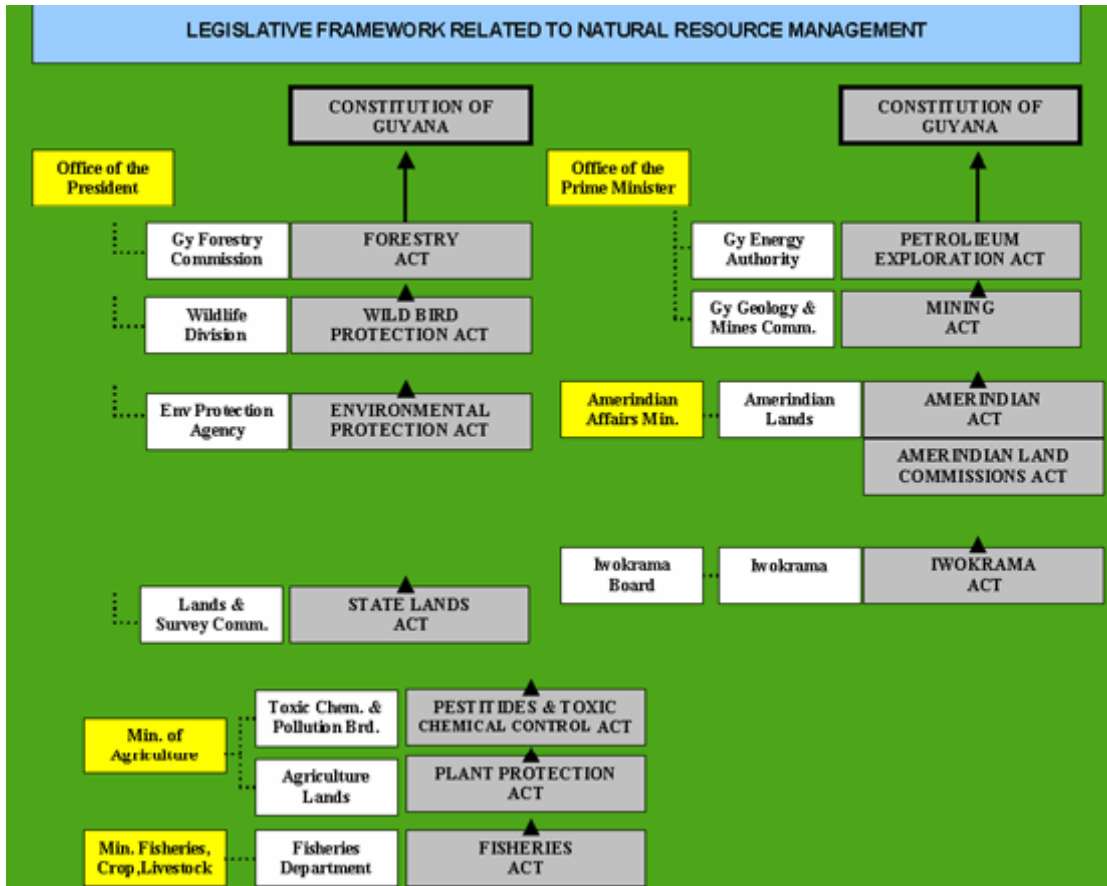


Figure ( 1 ) Legislative Framework for Natural Resources and Environmental Management (From *Biodiversity and Tropical Forest Conservation, Protection and Management in Guyana, 2003*)

### *Institutional Structure*

There are a number of other Government institutions with responsibilities related to the environment and natural resources management. The major ones are the Guyana Forestry Commission, the Wildlife Division, the Guyana Geology and Mines Commission, the Land and Survey Commission, and the Fisheries Department of the Ministry of Agriculture. Figure (2) summarizes the main agencies involved in environmental and/or natural resources management and their areas of responsibility.

The Environmental Protection Act establishes the Environmental Protection Agency (EPA) as the lead agency for environmental issues. This includes the coordination and maintenance of a program for the conservation of biological diversity and its sustainable use. The Agency also has the role of overseeing the establishment and maintenance of a protected areas system and a wildlife protection and management program.

In addition to functions directly related to biodiversity conservation and management, the Environmental Protection Agency has responsibility for Environmental Authorization, including administering the Environmental Impact Assessment Process set out in the Environmental Protection Act.

While the EPA has the lead role on paper, in practice the agencies listed above tend to be on the same level in terms of power. The Guyana Geology and Mines Commission plays a particularly important role, given the major economic and employment contributions of the mining sector.

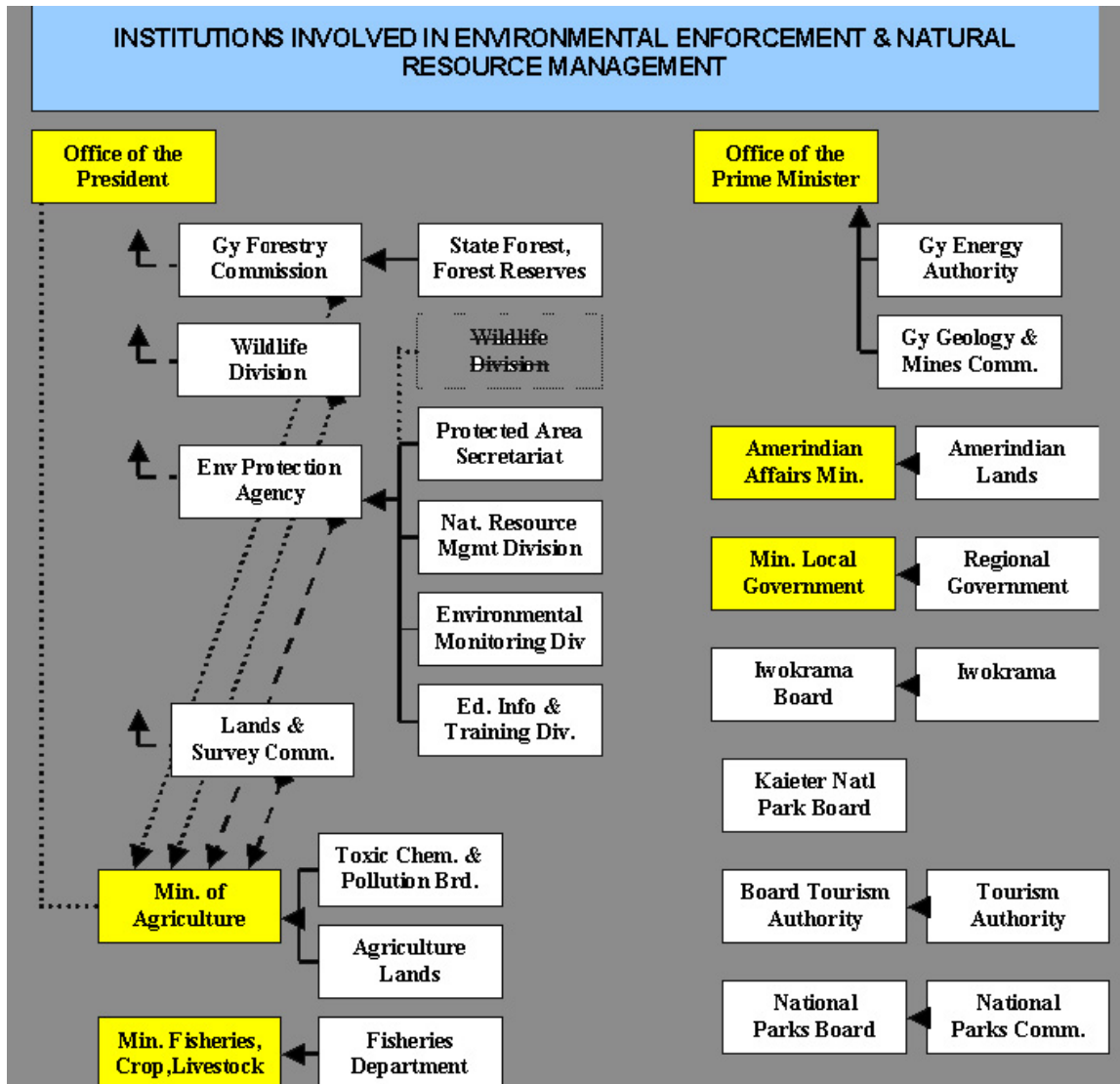


Figure (2) Institutions Involved In Environmental and Natural Resources Management and Their Areas of Responsibility.  
(From *Biodiversity and Tropical Forest Conservation, Protection and Management in Guyana, 2003*)

Interviewees at many Government institutions acknowledged a lack of capacity to monitor and enforce the environmental laws that they administer. Numbers of trained personnel are frequently inadequate, and the logistics involved in monitoring 216,000 square kilometres (83,000 square miles) of mostly rugged country can be prohibitive. The EPA, as the lead environmental agency and coordinating body, needs strengthening to meet the existing and future demands for environmental governance. Current donor support to the EPA is limited to a recent agreement with the German aid agency, KfW, to

establish a trust fund for financing protected area management. A KfW-funded small grants program related to protected areas and biodiversity is in its last year.

### ***Protected Areas***

As a result of the National Biodiversity Action Plan (I) implementation workshop held by the EPA in December 1999, a number of priority areas for conservation were identified. Lead Agencies were assigned responsibility for spearheading the process of developing these areas into managed protected areas including, among other things, demarcation, categorisation and management arrangements. The major priority areas identified were: Shell Beach, the Kanuku Mountains, Mount Roraima and the South-Eastern Forests of Guyana. This identification was based on biological significance, representation of major ecosystems and conservation activities taking place, among other criteria. See Table 2 for a summary of these priority areas, the lead agencies and their status.

Since 2003, Guyana has drafted a second National Biodiversity Action Plan (NBAP II), but this document has not been approved and was not released to the assessment team. Once available, the NBAP II will be an important reference for the Mission regarding the country's updated vision for protected areas, natural resources management and biodiversity. From verbal communications, the assessment team understands that the plan identifies the development and expansion of the protected areas system in Guyana as a priority. Other priorities include improving biodiversity monitoring, capacity building and land use planning.

The oldest of the Guyana's existing protected areas, Kaieteur National Park was established by the Kaieteur National Park Act of 1929, whose purpose was to protect the natural scenery and flora and fauna, as well as to established control over the area. The Act was amended in 1972, 1999 and 2000, resulting in extension of the Park boundaries to the current area of 224 square miles (62,759 hectares). The Act recognises the rights of Amerindians living in the vicinity of the Park to continue to fish, hunt and forage in a manner consistent with sustainable management of forests and wildlife in the area.

Kaieteur National Park is governed by a Board which has planning, development and general oversight responsibilities. Rangers are employed and park entrance fees are charged; however, there is no management plan in place. A new KfW-funded project is expected to fund the development of necessary plans and infrastructure for priority protected areas, including a management plan for Kaieteur.

The Iwokrama Rainforest Reserve, a special protected area covering 371,000 hectares, is the only national protected area with an approved management plan in place. In fact, the Reserve has a number of plans related to management that could provide examples and guide the development of management plans in other national protected areas.

A very interesting case has been the development of the new South-Eastern Forests protected area that has resulted from interest by the Wai-wai people who live on newly-titled Amerindian land in Southern Guyana. The Amerindians, through action initiated

locally, indicated a desire for this area to become part of the National Protected Areas System under the new Protected Areas legislation. According to the Amerindian Act, such a designation is possible, after which the Village will have to comply with EPA regulations (when updated and released) that concern national protected areas. Conservation International provided support for the development of a management plan for the area with the support of Conservation International. Additional support will be needed for implementation of the plan. (See section below on Actions by NGOs, communities and the private sector for more information on this new conservation model)

<b>EXISTING OR PRIORITY CONSERVATION AREA</b>	<b>LEAD AGENCY</b>	<b>STATUS</b>
<b>Kaieteur National Park</b>	Kaieteur National Park Board	Established by Kaieteur National Park Act, 1929. Rangers employed, entrance fee charged. No interpretation and no management plan. Management plan to be formulated under KFW-funded project. Enforcement and monitoring to be strengthened.
<b>Iwokrama</b>	Iwokrama Board	Established under Iwokrama International Centre for Rainforest Conservation and Development Act, 1997. A number of management plans developed and implemented including, road corridor management plan and forest management plan.
<b>Shell Beach</b>	Guyana Marine Turtle Conservation Society	Biodiversity Assessment carried out in 2003. Zoning to be done and Demarcation to be funded by KFW. Management Plan to be prepared.
<b>Kanuku Mountains Conservation Easement</b>	Conservation International	Management Plan and demarcation to be completed.  Status of this “protected area” concession corresponds to agreement with GFC. It is demarcated and has a management plan in compliance with GFC regulations
<b>South- Eastern Forests</b>	Konashen Village Councils  With support from Conservation International	Konashen District designated and titled as a protected under the Amerindian Act in 2003/4 at the request of the Wai-wai Amerindian people living in Southern Guyana. Management Plan developed with assistance from Conservation International but resources needed for implementation.

<b>EXISTING OR PRIORITY CONSERVATION AREA</b>	<b>LEAD AGENCY</b>	<b>STATUS</b>
		Desire expressed by the Wai-wai people for the area to be included as part of the national protected areas system.
<b>Roraima Mountain</b>	EPA with support from WWF	Proposed as a wildlife sanctuary but little work done on developing it as protected area. This is a sensitive area as it is shared with Venezuela.
<b>Orinduik Falls</b>		Little work done.

**Table ( 2 ) Priority Conservation Areas and Their Status**

### **B. Actions by NGOs and the Private Sector**

In addition to the Government institutions, there are a number of other organisations involved in conservation or natural resources management in Guyana. These are summarised in Table (3), below.

**Table (3) Other Major Actors in Biodiversity and Forest Conservation and Management in Guyana**

<b>ORGANISATION</b>	<b>Major Functions/ Areas of Activity</b>
University of Guyana: <ul style="list-style-type: none"> <li>◆ Biodiversity Centre</li> <li>◆ Forestry Department</li> <li>◆ School of Environment &amp; Earth Sciences</li> </ul>	National Repository (Reference), Education and Research  Teaching and research  Teaching and research
Guyana Marine Turtle Conservation Society	Marine Turtle Conservation, Education & Awareness, Community Development (including alternative sustainable livelihoods); Protected Areas, Research
Conservation International	Conservation, Protected Areas, Management of Conservation Concession, Biodiversity Offsets (payments for services provided by conservation concession)
WWF	Sustainable Forestry Management, Gold Mining Pollution Abatement, Protected Areas, Wildlife Conservation, Marine Turtle Conservation
Iwokrama Rain Forest Program	Intellectual Property Services, Sustainable Forestry, Research, Training, Ecotourism and



ORGANISATION	Major Functions/ Areas of Activity
	Conservation

In spite of weak government capacity in the environment sector, Guyana’s NGOs and environmental experts and civil society have undertaken environmental action in various capacities. These actions have steadily grown and produced results since 2003, providing unique examples around Guyana that demonstrate a variety of conservation models which can become part of national framework. These include:

The Wai Wai Protected Area of Southern Guyana: As described above, one interesting development has been the designation of the Konashen area in Southern Guyana as a protected area under the Amerindian Act. In 2004, the Wai Wai people received control of 2,400 square miles from Guyana’s government. In early October 2007, they became the first indigenous group to declare their territory a “Community Owned Conservation Area”, as recognized by government legislation (Amerindian Act, 2006). With Assistance from Conservation International, the 200 member group has devised a management plan for its homeland which aims at preserving forest, and creating jobs through ecotourism, research support and crafts.

The Wai Wai were motivated by a desire to preserve their traditional culture in the face of growing concern that their resources would be destroyed by miners who entered the Wai Wai’s territory illegally from Brazil. They have welcomed assistance to market local crafts and receive training to act as ecotourism guides or research assistance to counter the trend of young people leaving the area in pursuit of opportunity. A unique working relationship with national government also exists, whereby Wai Wai rangers report any miners or other threats spotted in this remote area to national authorities.

CI’s Upper Essequibo Conservation Concession (Region 9): In 2003, CI was awarded a 200,000 acre forest concession in a remote area of the Upper Essequibo under a renewable, 30-year agreement with the GFC. Unlike other timber sales agreements, however, CI negotiated a deal whereby the principal objective and use of the areas was to be dedicated to conservation of biodiversity rather than timber extraction. The concept is based on the premise that, in some areas, revenues from private investment in conserving forests would exceed any revenue generated by timber extraction. As part of the agreement, CI has been paying 40,000 USD annually in royalties to the GFC. In addition, to compensate for the loss of jobs, CI established a fund to compensate communities through small grants, dedicating approximately 10,000 USD per year to improve livelihoods. While this may appear to be a significant cash outlay for protection, it is minimal when considering the cost of managing a more conventional national park, which may amount to \$500,000-1,000,000 per year. However, costs of maintaining the conservation concession will increase as threats rise. Indeed, recently a 1 million acre logging concession was awarded immediately adjacent to the area (to foreign investor Simon & Shock). Given the remoteness of the area, logging is not expected to commence right away, and CI is already approaching its neighbors to discuss land use

options that are compatible with conservation goals. This “conservation easement” pilot will continue to be an interesting model for international donors to track.

Iwokrama Rainforest Reserve: As described above, this special protected area was established under the *Iwokrama International Centre for Rainforest Conservation and Development Act, 1997*, which sets out that 50 percent of the land area must be dedicated to sustainable utilization while the other 50 percent must be designated wilderness preserves. Since its creation, Iwokrama has been dedicated by the Government to the international community for development and demonstration of techniques and methods for sustainable management and conservation of tropical rainforests and their resources.

For over 10 years, Iwokrama has been working on community-based wildlife management with local villages, acquiring experience and lessons learned on approaches. As a research centre, Iwokrama continues to attract scientists and related funds and has produced invaluable biological, ecological and socio-economic data—in some cases the only data—on Guyana’s tropical forests. More recently, EU funding is supporting carbon (climate change) research at Iwokrama as part of a regional program.

With USAID’s involvement, Iwokrama is updating its visitor facilities to accommodate bird groups and other ecotourists. The Centre also provides a site for hands-on training for wildlife guides, foresters, communities and others on natural resources management.

WWF - Protected Areas and Species Conservation: The World Wildlife Fund/Guianas (WWF) works at the regional, national and local levels in Guyana. Under its next 4 year plan (2007-2011), WWF will dedicate 6.3 million Euros over 4 years to conservation efforts in the Guyana, French Guiana, and Surinam. At the national level, WWF is assisting the EPA with policy and planning efforts including the development of the NBAP II and Protected Areas legislation. A principal component of this work is facilitating stakeholder consultation. At the “site level”, WWF is actively supporting Protected Area management at Kaitour Falls, Shell Beach (an important mangrove and turtle nesting area on the Northwest coast), and Mt Roraima in partnership with the national government, KfW, and local partners. At the local level, WWF’s main focus is capacity building of communities and partners such as the Guyana Marine Turtle Conservation Centre.

WWF also works on conserving endangered species, such as the Leatherback Turtle. WWF has successfully instituted Turtle Exclusion Devices (TEDs), a global priority for the USG, on Guyana’s fishing fleet (?).

WWF - mining abatement and best practices: Recognizing that threats to forests and biodiversity associated with mining will not subside, WWF has been promoting better, less destructive, and safer mining practices. WWF seeks to change behaviour of gold miners by studying and raising awareness on health threats to humans and animals from mercury release and by introducing low impact technologies from Brazil such as the use of retort. Internationally, WWF is lobbying the EU and Australia to ban the export of mercury to Guyana. Preliminary testing of miners by WWF in the Northwest district

(Middle Mazaruni River Basin) revealed strong evidence of unhealthy levels of mercury in the human population.

WWF/University of Guyana Biodiversity Center - freshwater fish species: The Essequibo River drainage system is a significant area of fish diversity, given its link with the Amazon River. At least 700 species of fish have been identified; however, scientists suspect these represent only 70-80% of total fish species in the area. Although fresh water clams and sponges have been recorded, very little is known about these groups, which are particularly threatened from turbidity (sediment) from mining. WWF is providing assistance and economic support to communities and the district management board to maintain populations of the endangered Arapaima in the North Rupununi Area. WWF also helps to support research by the University of Guyana's Biodiversity Centre on fresh water fishes, including some population studies, particularly in the tributaries of Iwokrama.

Both WWF and the Biodiversity Centre are encouraging the GoG to sign the international RAMSAR convention for the protection of wetlands and have identified a principal site to designate under this international convention. In addition, WWF is assisting Hydromet, the Ministry of Agriculture, and EPA on water quality monitoring.

Environmental Education and Public Awareness: WWF and others recognize the importance of environmental awareness and education as a strategic objective. UNDP, CI and others support efforts to raise environmental awareness within Guyanese communities. WWF also addresses the general population and targeted communities on such topics as solid waste disposal, pollution, water management and species conservation. WWF has hired a new Education expert who will conduct public awareness surveys and carry out ideas to target marginalized groups and school children, using a variety of media.

### **Updated Status of the Forestry Sector**

Guyana is a highly forested country, with an area of 163,777 square kilometers (40,470,178 acres) of forest cover. There are six major forest types in Guyana: seasonal, montane, mangrove, dry evergreen, swamp and marsh and mixed forests. State forests are designated as production, conversion or protection forests as follows:

1. Permanent Production Forests are allocated for sustainable commercial timber.
2. Permanent Protection Forests and Biodiversity Reserves are to protect natural and cultural heritage.
3. Reserve Forests are areas exempt from commercial timber production.
4. Extractive Forests are allocated for sustainable use of NTFPs.
5. Multiple-use Forests are allocated for the sustainable use of timber and NTFPs.
6. Permanent Research Forests.
7. Conversion Forests are allocated for non-forestry practices.

The Government of Guyana continues to recognize the value of Guyana's forests for conservation, commercial and source of local livelihood needs. Because of the country's vast natural forested areas, the timber industry long has been a part of Guyana's National Development Strategy as a sector with potential to provide economic growth. According to the Guyana Forestry Commission (GFC) the forestry sector's annual contribution to the GDP has averaged 3.49 percent. The forestry sector's export earnings have grown steadily, and almost doubled between 2000 and 2006.

Currently, 60 percent of State Forests have been allocated to timber harvest concessions. The three types of concessions are 1) timber sales agreements (25 years and greater than 24,000 ha); 2) wood-cutting leases (10 years and 8,000 to 24,000 ha); and 3) State Forest Permission (2 years and less than 8,000 ha). Increased multiple use of forestry resources is seen as important to Guyana's continued socio-economic development. Consequently, Guyana's forest resources are managed for timber production, eco-tourism, conservation, non timber forest products (NTFPs), and ecosystem services, Amerindian community-based forest enterprises and community conservation concessions are not only important for maintaining culture and livelihoods but also help maintain forest cover.

Since 2003, there have been several advances in forest policies and regulations. In July 2007, the National Assembly passed the *Guyana Forestry Commission Bill*, which defines the functions and constitution of the commission. The *Forests Bill*, which focuses on the management and governance of state forests, was tabled at the National Assembly in August 2007. Also in 2007, the GFC developed a *National Log Export Policy*. The National Forest Plan, donor reports (ITTO & DFID), and other documents have emphasized the need for sustainable forest management and the development of value-added forest production and exports. To meet these goals, the GFC has been developing wood processing standards and procedures for sawmills sawpits, lumberyards and timber depots. While the GFC has made efforts to engage the private sector, forest enterprises are finding the new standards and timelines for compliance to be a challenge.

The following is a summary of the key achievements in forest management occurring over the past several years.

- Revision of the National Forest Legislation
- Preparation of a Draft National Forest Plan
- Classification of State Forest by predominant use
- Preparation of Forest Area management plans
- Development of procedures for allocation of forest concessions
- Introduction of log tagging systems
- The development of national standards for forest certification
- The use of GIS in the Forest Management planning process
- Preparation of several manuals/documents which include:
  - Guidelines for the preparation of forest management plans
  - Code of practice for forest operations (operational standards)
  - Forestry in Guyana (fact sheet)
  - Manual of procedures for forest concession allocation
  - Quarterly market reports
  - Timber grading rules for Guyana

Source: GFC

## IV. PRINCIPAL THREATS TO GUYANA'S BIODIVERSITY AND TROPICAL FORESTS 2008

### Direct Threats

**1. Mining:** Mining, a major contributor to Guyana's national economy, poses the greatest threat to Biodiversity and Tropical Forests conservation and management in Guyana. Mining practices, particularly those used by small and medium scale operations, are having a significant impact on rivers creeks and future forest regeneration areas. Dredging of river and stream beds is extremely destructive to fresh water ecosystems in the immediate area and also causes turbidity downstream,



Mining Operation in Guyana  
Source: Alicia Grimes

impacting additional riverbed flora and fauna. Mercury release is also a major and growing concern, not only for biodiversity but for human health, as people ingest fish containing the heavy metal. Amerindian communities rely on fish for 75% of their protein intake. On land, vegetation is slow to regenerate on mining scars, which leave pure mineral soils void of nutrients necessary for plant growth. Mineral deposits and thus mineral exploitation frequently occur in areas designated for forestry or biodiversity protection.

According to the National Development Strategy, the licensing system for small scale gold and diamond mining activities does not impose any regulatory environmental controls. Both large and small operations have the sole objective of maximising profits, without concern for the natural resources consumed or affected by the activity. In 2006, bauxite export earnings rose to U.S. \$67 million and gold export earnings reached \$114.4 million (<http://www.state.gov/r/pa/ei/bgn/1984.htm>). The current high price of gold has spurred additional prospectors and companies to begin or increase mining efforts. While the team was in Guyana, gold reportedly surpassed other sectors (including sugar) as the top GDP earner.

Mining impacts are often linked with road construction and management in Guyana, roads that are often built by forestry operations. The majority of forestry concessions in Guyana overlap with mineral deposits and, due to subsurface level rights, mining concessions (See Annex: Forestry Concession Map). A major forestry producer provided the team with a map of his forest concession area that illustrated the division of the entire area into mining lots. In an interview with the

forest producers association, members described how their efforts to invest in carefully-planned, costly, but sustainable techniques such as Reduced Impact Harvesting are undermined by miners who use logging roads to gain access to mining sites. Once roads are built, mining operations move in and have a severe impact on regeneration, biodiversity, and soils; the resultant damage and loss of control severely decrease the economic incentive for the timber companies to implement best practices and take the steps necessary to achieve certification.

- 2. The Lethem-Georgetown road:** While there are several infrastructure plans envisioned for Guyana's future, including major roads and dams for hydropower, the completion of the Lethem-Georgetown road raises the most immediate concern as a threat to Biodiversity and Tropical Forests conservation and management. This highway would connect the Brazilian interior to a Northern port in Guyana, providing a more direct route for goods to reach European and North American markets. A lack of infrastructure has impeded development in Guyana and the road represents a critical basis for economic development, as noted in the national development strategy.

However, the high demand for gold and timber, including by informal Brazilian operators; a lack of resources by the GOG to monitor resource use and enforce natural resource laws; and a lack of best practices and local governance regimes in place in the hinterlands means that access could result in rapid degradation of resources. Unless these issues are addressed, completion of the road is expected to exacerbate already existing problems with over-harvesting and illegal hunting of wildlife, unsustainable mining and forestry, and related conflicts over land and natural resource use. By increasing population pressures and activity, the road could also negatively impact ecotourism, as wildlife retreats from roads and settlements.

- 3. Unsustainable harvesting and processing of timber:** Guyana's forested ecosystems are fragile, with a highly diverse species base, soils of low fertility, and timber species heavily reliant on animal seed dispersal for regeneration. Sustainable Forest Management dictates that managers view and treat the forest as an ecosystem of interdependent parts. In Guyana, the low availability of nutrients in soils, many of which are quartzite sand, results in slow regeneration and recovery rates for vegetation. This outcome is exacerbated where forestry practices have been poor, particularly along skid trails where logs have been dragged or soil has been damaged. Unfortunately, most forest concessionaires have not adopted reduced impact logging (RIL) techniques and, as noted above, have little incentive to practice sustainable forest management due to high costs and mining impacts over which they have minimal control. Inefficient mills have very low recovery rates from the logs. Furthermore, although the impacts of logging and forest management on wildlife are an important consideration given the importance of animals as seed dispersers, testing of ITTO biodiversity guidelines for tropical timber production forests found that standards for resource inventory recommended by the Guyana Forestry Commission did not capture

information on the relationships of fruiting and flowering trees with wildlife. The main concern is control over hunting by logging crews or others who use newly opened roads. The relevant form reportedly has been corrected; however, there is still no evidence that this practice is being followed by logging operations in their forest management planning. Forestry practices that do not consider the ecological aspects of regeneration are not sustainable and pose a threat to biodiversity and forest integrity.

- 4. Hunting and poaching for wildlife trade:** The international demand for aquarium fish, animal skins, and pets has driven wildlife capture for trade at levels that are highly suspected to be unsustainable. The team heard at least two accounts of unsavoury and/or cruel practices resulting in a high percentage of death and waste, such as cramming hundreds of parrots into inappropriate containers or using an Anaconda to smuggle drugs. On a more positive note, some wildlife traders have been issued licenses for legal trade in compliance with Guyana's wildlife laws and the GoG/EPA Wildlife unit, which monitors national quotas for legal species. While this is to be commended, key issues remain: the data available on the population biology of most species is insufficient to establish quotas and there is a lack of resources to fully monitor off-take, waste (death/discarding) and smuggling.

Wildlife Trade is governed by under the Species Protection Regulations administered by the Wildlife Division, which is the executive arm of the Wildlife Management Authority. The Management Authority is advised by the Scientific Authority and has established closed seasons as follows: Birds: April 1 – August 1 and Mammals: May 1 – July 31. During these seasons, commercial sale of wildlife on the local market is not allowed and export is only allowed if the animals were in the exporter's possession before the season closed.

Quotas have been established for approximately 13 species of Parrots or macaws; 15 species of parakeets or toucans; four species of primates and 20 other mammal species; 4 species of caiman; 37 reptile species; 11 poisonous snake species; and 5 species of poison arrow frogs. Annexes IV and V give quotas established for the traded species as well as for export figures for 2007 provided by the Wildlife Division. Shipping of the wildlife is required to comply with the animal regulations of International Association for Air Transport (IATA).

- 5. Unsustainable harvesting of wildlife and Non Timber Forest Products (NTFPs) for subsistence:** A lack of baseline data for species populations and use makes it difficult to establish sustainable harvesting levels of most NTFPs, let alone to monitor existing harvest levels. However, based on site-based trends studied and informally observed by individuals and organizations with a long history in Guyana, there is concern that communities relying on rainforests for subsistence are beginning to abandon traditional practices of sustainable use. River turtles and Arapaimas have already been collected to near extinction. Declines in vulnerable species such as tapirs, primates, large ground dwelling

birds, macaws, parrots, caiman, Arapaima and terrapins have been found in some areas in proximity to economic activities. Some plant species, such as the Manicole Palm (*Euterpe oleracea*), are also reported to be unsustainably harvested.

- 6. Global warming and related natural disasters:** Warmer ocean temperatures due to global warming are contributing to unpredictable weather events such as unseasonable heavy rain and floods in Guyana. At the same time, the Caribbean Centre for Climate Change (CCCC) predicts that over the longer run, the basin countries will be drier by the 2080's.

A drier climate could bring an **increased risk of forest fires**, particularly under scenarios of less rainfall. A recent National Fire Assessment and Planning activity supported by the ITTO in Guyana revealed that: (1) Currently, there is no national fire strategy or fire management training in Guyana for communities or other stakeholders; (2) Roads are one of the principle drivers of fire in closed-canopied forest areas. (The road between Lethem and Georgetown could bring more people into Guyana, thus increasing the use of fire.); and (3) In southern Guyana, forests adjacent to savannas show more frequent effects of fire and drought and the forest composition in part reflects these effects and is distinct from forests wedged between this area (the Gran Sabana/Rupununi area/Sipalawini areas) and the Atlantic coast.

#### Institutional Issues (“Indirect Threats”)

- 1. Institutional fragmentation and conflicting legislation:** Institutional fragmentation and conflicting legislation between natural resources management agencies is an ongoing issue in Guyana, resulting in a lack of law enforcement, poor governance, and general inefficiency. Inconsistencies in regulations, incentives, and practices governing mining, forestry and conservation are particularly challenging and generate or threaten to generate conflict in a number of cases. For example, the Forests Act and its regulations, administered by the Guyana Forestry Commission, prevent logging of trees near river banks in order to prevent erosion. However, under the Mining Act, administered by the Geology and Mines Commission, miners can conduct their operations without regard for buffer zones, causing far greater environmental impact. As another example, logging operations are required to close off blocks of forests after harvest in order to allow for regeneration; however, miners can subsequently enter these “closed” areas to mine, thus frustrating efforts to manage the forests on a sustainable basis.
- 2. Limited Knowledge of biodiversity and species range and behavior:** While many studies have been conducted on Guyana's biodiversity in the last 5 years, including research on particular species or groups of species, a great deal remains unknown about populations, ranges and related ecology. These gaps in understanding make developing conservation plans, regulations, practices, and quotas for capture or trade difficult.



3. **Weakness environmental law enforcement:** In Guyana, the Environmental Protection Agency is tasked with enforcing many of the country's environmental laws, including those related to wildlife, protected areas and biodiversity, research, and environmental impact assessment and mitigation. Unfortunately, due to a lack of resources, the EPA's monitoring activities are significantly constrained, particularly in the hinterland where some of the most important biodiversity and forests are found.
4. **Lack of fully legalized, demarcated and managed protected areas:** Areas including Shell Beach, Kanuku Mountains, and Mt. Roraima have been recognized as important conservation areas, but lack formal legislative delineation or establishment. At the time of this assessment, a protected areas act was in the process of being drafted in consultation with major stakeholders.
5. **Lack of relevant Judicial awareness and experience:** Based on natural resource related cases starting to come before the Judiciary branch, there appears to be a lack of understanding of the issues facing hinterland communities—including their dependence on and management of natural resources—and the appropriate role of Guyana's environmental laws. For example, representatives of the Ministry of Amerindian affairs described a current case in which a court granted an injunction allowing a miner to continue to mine in an Amerindian area despite the fact that the Geology and Mines Commission, taking into account the new Amerindian Act and water-related objections raised by the relevant village, had not renewed his license. While the Amerindian Act specifies rights that could allow this case to be addressed in an appeal, such cases will continue to be challenging given the evident lack of Judicial experience with the legislation and procedures of the EPA, GGMC and Amerindian Act.

### Civic Issues

1. **Lack of public awareness and political engagement:** The environment and natural resources management present issues that are of common interest, on which consensus could be built across economic and ethnic divisions in Guyana. However, despite efforts by USAID and others, the average Guyanese citizen is not able to actively participate in and influence national or even local decision making in general, let alone on issues related to the environment and natural resources. Local governmental systems tend to be highly politicised, with many participants at least appearing to represent political party interests and not necessarily the interest of individual citizens. In addition, there is a lack of basic public awareness about and appreciation for environmental issues and the value of Guyana's natural resources. These issues are particularly important for Amerindian Communities, whose livelihoods and survival depend directly on the

environment and natural resources but who tend to be marginalised and lacking in capacity relative to the population at large.

2. **Lack of neutral space for professional dialogue:** Environmental and natural resources management professionals have a limited ability to influence policies, in part because they are a small cohort, but also because there is a lack of neutral space and few opportunities for professional dialogue. This lack, and the highly politicised/divisive environment, weaken the ability of professionals to advocate for and influence policies from a technical perspective, to mentor new professionals, and to develop locally appropriate best practices. Preliminary discussions are underway to address this lack by developing an association of environmental and natural resources professionals.

## **V. ACTIONS NECESSARY TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS**

Sections 118 and 119 of the Foreign Assistance Act specifically call for the identification of actions necessary to address the threats to biodiversity and tropical forests. These constitute 'global' actions necessary in Guyana, but do not imply that USAID is responsible for carrying them out.

- ◆ The GoG needs to develop a National Land Use Plan which clarifies zoning for mining and forestry, defines land use priorities, and is informed by such frameworks as the NBAP II and new protected area legislation. In addition, to help alleviate conflict and enable sustainable competitive uses, the GoG should seek more integration and coordination between natural resources agencies and improve transparency and access of information, land use allocations and concession sales.
- ◆ Constructively address security and ethnic conflict in order to reduce the violence which threatens existing and future investment in ecotourism and sustainable natural resources management.
- ◆ Finalize and enact Protected Areas legislation with the participation of all relevant stakeholders. Continue to work with donors and NGO partners to develop and approve management plans and build capacity for their implementation.
- ◆ Support and build governance and natural resources management capacity in hinterland communities to address increasing pressures by outside commercial interests. Work could begin immediately with Amerindian villages, for which a legislative framework exists.
- ◆ Continue to promote and reward environmentally-friendly practices such as Reduced Impact Logging, legal verification, certification and best management practices for aquaculture and agriculture. To help maintain competitiveness, businesses should be linked to the international market place where environmental practices are valued. A supportive enabling environment would include incentives such as tax breaks, allow for product marketing boards that are independent from government, and seek to minimize contradictory policies.
- ◆ Build human and institutional capacity in monitoring and enforcement of legislation. This could include cooperation between relevant agencies and locally-based units or communities, particularly within Amerindian territories which are beginning to gain access to improved communication. Conduct related training in collection of evidence for building of cases for prosecution under the Environmental Protection Act.

- ◆ Enhance baseline data collection to provide a scientific basis for management monitoring, and informed decision making. Support population studies and the collection of scientific data on which to base wildlife management decisions to improve the monitoring and regulation of wildlife poaching, trade and use. Strengthen regulations related to local transport of fauna. Officers of EPA's Wildlife Division and other enforcement agencies such as police and customs need training in species identification to help administer the trade.
- ◆ Further develop and/or support financial instruments to help agencies cover the cost of environmental management and monitoring. This could include finding support for a new protected area endowment being started with funds from KfW and CI, as well as assisting Guyana to market the "ecosystem services" of its intact forests while maintaining its sovereignty.
- ◆ The GFC should implement the national forest management strategy and national fire action plan to provide a clear national strategy for forestry and to prevent catastrophic fires.
- ◆ Raise the environmental awareness of decision makers (i.e. the judiciary, Cabinet and local leaders) and society about the value of Guyana's environment and natural resources and the threats to those resources. Build national pride based on biodiversity and other natural assets.
- ◆ Provide, develop and support a neutral space for professional advocacy and dialogue on environment and natural resources issues.

## VI. EXTENT TO WHICH USAID ACTIONS MEET CONSERVATION NEEDS

At the time of this assessment, USAID/Guyana had not formally prepared a written strategy document. However, the Mission reported that it generally plans to maintain the strategic program objectives in the Economic Growth, Democracy and Governance, and Health sectors that have defined the current strategy, building on elements that have produced results and streamlining programs that have shown less opportunity. Consequently, although the current programs and strategies are phasing out, a brief overview is provided below to provide insight into likely future directions.

### **Current USAID Program:**

USAID Guyana's current strategy (2004-2008) has the goal "Broad-based sustainable development in a well-governed and prosperous Guyana." To achieve this goal, programs fall under three principal objectives:

1. Economic Growth: *Environment for Sustained Growth of Value-Added Exports Strengthened*
2. Democracy and Governance: *Democratic Governance Consolidated*, and
3. Health: *HIV Transmission Reduced and Impact of HIV/AIDs Mitigated*.

### Economic Growth (EG) Objective activities:

Under its Economic Growth SO, the Mission is increasing private sector competitiveness through the Guyana Trade and Investment Support (GTIS) Program. Targeted sectors have included forest products, agribusiness and tourism. Using a market-based approach, GTIS has helped link businesses to the international market and, in so doing, has simultaneously brought specific demands for adequate ecological and safety standards to be adopted by Guyanese suppliers.

GTIS has helped revitalize the forest products sector by exposing producers to an expanding market where new trade opportunities have raised interest in improved processing. By supporting members of Guyana's Forest Products Marketing Council to participate in a trade show sponsored by the U.S.-based International Wood Products Association, Guyanese wood processors discovered many new opportunities. They also learned that Lesser Known Species (LKS), available but not traditionally used locally, are in demand in this new market. The impact of these efforts has led to a 22 percent increase in wood products exports to \$59.5 million from 2005-2006, with projections of an additional increase to nearly \$70 million for 2007. New buyers include two large international firms (timber wholesalers) who market certified hardwoods and who strengthen supplier networks in providing technical assistance to improve environmental management practices. Finally, to support market calls for legal wood, GTIS is facilitating the engagement of the private sector in the formulation of a legality standard by the GFC.

USAID efforts through GTIS to revitalize the forest products sector are vital to providing an enabling environment for sustainable forest management and trade. Markets for LKS, improved market linkages, private investment in processing, environmental standards and incentives to meet these were all identified as important factors for SFM.

Another notable area where the GTIS program has been addressing conservation needs is in ecotourism. GTIS-supported market analysis specifically identified Birding to be a competitive ecotourism niche for Guyana. As a result, in January 2006, GTIS joined with the Guyana Tourism Association (GTA) and others to develop a three-year comprehensive Birding Tourism Marketing Action plan, which included recommendations for birding tourism product development. Partners included the GoG, The National Park Authority, Guyana tourism private sector partners, Caribbean Airlines, Iwokrama, and a host of tourism suppliers. These partners have collectively put together marketing materials, websites, bird lists, media kits and field equipment and support for guide training. USAID helped beneficiaries participate in trade shows including the British Bird watching Fair and the North American Photographers Association show in California. Familiarization tours allowed four UK and North American birding tour operators and birding-related media outlets to visit market-ready sites across Guyana. Three of these four companies have committed to and begun introducing new tours to Guyana. Additionally, based on their feedback, support is being given to suppliers to improve their infrastructure, and training is being provided to promising bird guides. A wide variety of international partners have been linked to Guyana through this process as potential investors and donors as well, including the Trinidad & Tobago Tourism Development Company, Mass Audubon, the National Audubon Society and the Canadian International Development Agency.

GTIS is also supporting diversification and revitalization of the agribusiness sector. To ensure environmental soundness, the program is building awareness and capacity to help Guyana adhere to international environmental standards. For example, market research identified farm-raised tilapia as a competitive product, and Guyana is actively participating in the WWF's Tilapia Aquaculture dialogue and receiving TA from the American Aquaculture society on environmental practices. Given its abundant land, Guyana is able to use semi-intensive farming methods which can reduce the water quality concerns commonly associated with fish farming. In this context, GTIS is working to assist environmental standard setting and certification for sustainably grown tilapia.

#### Democracy and Governance (DG) Activities

USAID's Governance program has a number of components, including supporting credible electoral processes, promoting free media, improving the justice system, strengthening civil society, and combating trafficking in persons. The Mission has been promoting democracy by encouraging citizen participation and government transparency, particularly related to local and national elections which are usually violently contested. In response to political divisions along ethnic lines, USAID has invested significant effort into attempting to mitigate potential conflict by fostering approaches to improve relationships among and between communities, local government, national governments

and their respective political parties and ethnic groups. The level of attention given to systemic issues during the current strategy period limited the ability of the DG program to focused energy on actions specifically related to environmental needs. However, for the new strategy under development, the Mission has expressed its interest in identifying relevant environmental DG actions. Recommendations are provided below.

### Health Objective

USAID's Health program focuses on HIV/AIDS under the Presidents Emergency Program for AIDS Relief (PEPFAR). Since 2004, the annual budget for PEPFAR in Guyana has been approximately \$25-35 million, of which USAID is responsible for \$15-20 million annually. This program has 14 areas, 10 technical assistance arms, and has established 65 health centers and a regional public health lab. The program covers every region of Guyana and provides a wide range of services, training, technical assistance, infrastructure, analysis and information management. While there are no direct links to biodiversity and forest conservation needs in Guyana, the program does address a fundamental health problem that is hampering Guyana's citizens and institutions from fully participating in productive activities, including those related to the environment.

### **Proposed New Country Strategy (2008-2012):**

In response to recent changes in the U.S. Government Foreign Assistance Framework, USAID has been transitioning to modified operational systems that better reflect the foreign assistance vision set out by the Bush administration. Pilot Country Strategic Plans (CSPs) which utilize the new framework and link objectives with State Dept. goals will be conducted during FY08 in each of USAID's regions. While Guyana was not chosen for a pilot, the Mission is proceeding with developing a 5 year strategy based on sectoral assessments that were recently conducted.

As noted above, at the time of this assessment, USAID/Guyana had not formally prepared a written strategy document. The Mission did report, however, that it generally plans to maintain the same three strategic program objectives in the EG, DG and health sectors, in particular building on the elements that have produced the best results. The EG sector will continue to promote private sector competitiveness for export led growth. The DG program will be streamlined and made more strategic, adopting new approaches to address ethnic tension and political division while supporting local government and citizen actions and seeking synergies with the other objectives to maximize the effectiveness and impact of limited resources.

Given this, the team is unable to fully articulate which proposed actions can meet conservation needs. In order to comply with the FAA 118/119 requirements, the Mission will need to finalize this section of the report once the new strategy has been further elaborated. However, the timing of this analysis does allow the team to make recommendations about potential conservation-related synergies and opportunities that the Mission may wish to consider in defining the strategy. These recommendations are articulated in the following section.

## VII. RECOMMENDATIONS

### Economic Growth

- Solidify bird ecotourism and related businesses in this cluster as a competitive niche and build on this model (e.g., high value photography, fly fishing, etc.). Nature-based tourism has raised the international visibility of Guyana as a competitive destination. Guyana's intact forests offer it a comparative advantage with respect to species abundance as well as spectacular geological and hydrological features such as Kaieteur Falls. As described above, USAID/Guyana support for market studies and the use of a market-based approach to building niche ecotourism has been successful.

USAID may discover some interesting GDA partnership opportunities to promote the protection of migratory bird habitats through environmental awareness, habitat rehabilitation and ecotourism with organizations such as Iwokrama, Birdlife International, Guyana Amazon Tropical Bird Society, (GATBS), the Government of Guyana and others. Potential partnerships with US-based bird conservation groups (i.e. from selected States) may be possible through the US Forest Service International Programs Office as well. The USFS's International Programs Office works with (with Birdlife International), to support partners in Latin America and the Caribbean. Currently, Birdlife International is working with to identify the important bird areas in Guyana. which might further identify specific partnership opportunities based on particular migratory species. For more information on this program, the Mission can contact the USFS International Programs office

- Seek endorsement of and promote and publicize Guyana's legal verification standards in cooperation with the Guyana Forestry Commission (GFC) to comply with Section 118 and to access international market concerned with origin and illegal logging.
- Promote best practices and facilitate marketing for environmentally sound products from aquaculture, agriculture, forestry and tourism. Citizens, businesses and donors should continue to engage the GoG on the enabling environment to support and reward good NRM. (note re: Tilapia. While Tilapia aquaculture has been identified as a significant income earner to boost private sector income earnings, it does pose a potential risk to the environment as an introduced species. The Mission should continue to work with the Regional Environmental Advisor and BEO to ensure that the activity is "Regulation 216" compliant and proper mitigation practices are in place.
- Explore GDA partnership opportunities that support the environment and EG program objectives. There are many possibilities that could be relevant either to the ecotourism or forest product sectors. For example, to help re-vitalize the forest products sector, a partnership could be formed to test lesser known



timber species. Potential partners might include IWPA or a reputable firm; Forest Products Association; The Forest Products Marketing Council (FPMC) and the USDA Forest Products Lab. The GFC is currently investigating and promoting an additional fifteen species with the help of funding from the ITTO (International Tropical Timber Organization); however, additional support is needed for tests to determine the species' structural (strength and moisture) characteristics. The US Forest Service Products Lab or universities may be able to assist in determining wood characteristics as well as support for marketing the lesser used species

- Support for micro-enterprise in hinterland communities under the tourism cluster could include natural product enterprises that support conservation of the environment and local communities such as North West Organics and traditional crafts. However, this would have to be carefully assessed, as constraints exist related to commercial expansion of NTFPs. A study on commercial resources by local companies in 2003 identified the state of economy and access to financial resources as impediments.

## **Democracy and Governance Sector**

### National Level: participation of civil society:

- ◆ Promote public dialogue and advocacy on environmental issues by the following actions:
  - Support the formation of an Environmental Professional Association to provide space outside of political parties and government to discuss a variety of environmental issues, approaches and actions.
  - Raise the understanding of the judiciary on land use issues, and related environmental laws, including the impact on local stakeholders, such as Amerindian communities, businesses and Guyanese citizens.
  - Build national pride across ethnic lines based on environmental assets (e.g., Arapaima, a bird, or other symbol) through support of public awareness campaigns. Such a campaign could use a variety of media to promote a positive message and identity throughout Guyana.
  - Utilize free media and training of journalists to document mining, forestry and environmental conflicts, including tapping the voices of affected stakeholders to help link them to national audiences.
  - Support donor dialogue on assistance with an integrated policy framework on environment that is also supported by a transparent information management system that provides access to information and defines accountability.

### Local Level: Governance of Natural Resources

- ◆ Support community-based natural resources management and governance efforts at the local level. As mentioned previously, the award of territorial

rights to Amerindian communities, combined with the passage of the Amerindian Act 2006, provides a unique opportunity to devise and test appropriate legal instruments for better governance of resources at the local level. This could potentially make a significant contribution to conservation while strengthening local government. There is a tremendous need to raise awareness of laws and practices, as well as to build capacity in exercising rights including the oversight and negotiation of leases for mining, forestry and tourism. Facilitating dialogue and consensus among and between communities on natural resource use is a real need as well. There is also a unique opportunity to establish working relationships with local and national government bodies for monitoring and law enforcement. For example, Village Councils, located deep in the hinterlands could document and report environmental violations to the GFC, the GGMC or the EPA, who lack resources to monitor activities in remote areas. A number of efforts by NGOs in Guyana have produced some interesting models on which to build or extract “lessons learned.” These include the work done in Northern Rupununi, IWOKRAMA field station, and among the Wai Wai in Southern Guyana. Successful community-based models will increase Guyana’s visibility within the international arena where this is being actively discussed.

## **Health**

- ◆ Integrate messages related to environment and health where appropriate and possible (i.e., Malaria and mining practices; effects of mercury on health). Mercury released into ecosystems may be finding their way up the food chain and impacting humans. World Wildlife Fund/Guianas is working with miners and the GGMC to encourage voluntary testing of mercury levels. The USG could consider avenues of cooperation, given the substantial health facility infrastructure that it has put in place in Guyana. There may also be nature-based or environmental activities for HIV patients, or affected youth that could assist in their recovery.

Program Note on Biodiversity earmark criteria: For an activity to be attributable to the biodiversity earmark, it must meet certain criteria. The four main criteria are: 1) The program must have an explicit biodiversity objective; 2) Activities must be identified based on an analysis of threats to biodiversity; 3) The program must monitor associated indicators for biodiversity conservation; 4) Site-based programs must have the intent to positively impact biodiversity in biologically significant areas (see [http://www.usaid.gov/our\\_work/environment/biodiversity/code](http://www.usaid.gov/our_work/environment/biodiversity/code).). The Biodiversity team in EGAT leads the technical earmark group for biodiversity and can be contacted for further guidance if necessary.

## ANNEXES

Annex I: Contacts/Schedule

Annex II: References

Annex III: Article: *Private Equity Firm Buys Rights to Ecosystem Services of Guyana Rainforest*

Annex IV and V: Wildlife trade statistics and quotas

Annex VI: Donor Table

Annex VII: Maps depicting resources, infrastructure and land use along Lethem Road

## INTERVIEW SCHEDULE

ORGANISATION	CONTACT PERSON(S)
<b>Government Agencies:</b>	
Environmental Protection Agency IAST Building, University of Guyana Campus, Turkeyen, Greater Georgetown Tel: (592) 222-4224	Mr. Doorga Persaud, Executive Director Dr. Indarjit Ramdass, Director Natural Resources Management Division
Wildlife Division 263 Earl's Avenue, Subryanville, Georgetown Tel: (592) 223-0939; 223-0940	Ms. Alona Sankar
Guyana Forestry Commission 1 Water Street, Kingston, Georgetown Tel: 592-226-7271/4	Mr. James Singh, Commissioner Ms. Pradeepa Bholanath, Director of Policy
Forest Management Training Center Tel: (592) 223-5061-2	Godfrey Marshall, Director
Tourism Authority National Exhibition Site Sophia, Georgetown Tel: (592) 219-0094-6	Indranauth Haralsingh, Director
Capacity Building in Environment Project, Ministry of Foreign Affairs South Road, Bourda, Georgetown Tel: (592) 233-7338	Ms Sandy Griffith, Project Manager
Guyana Lands and Surveys Commission 22 Upper Hadfield Street, Durban Park, Georgetown Tel: (592) 226-0524-9	Ms Andrea Mohamed, Senior Land Use Planner
Kaieteur National Park Commission	Mr. Shyam Nokta, Former Chairman Tel: (592) 222 4565
<b>NGOs/ International and Other Organisations:</b>	
Guyana Marine Turtle Conservation Association Le Meridien Pegasus Hotel, Seawall Road, Kingston, Georgetown Tel: (592) 227-7377; 227-7344	Ms. Annette Arjoon
Conservation International 266 Forshaw Street, Queenstown, Georgetown Tel: (592) 225-2978; 227-8171;223- 5497	Dr David Singh, Director Eustace Alexander Curtis Bernard

<b>ORGANISATION</b>	<b>CONTACT PERSON(S)</b>
WWF Urving Street, Queenstown, Georgetown	Dr. Patrick Williams
Iwokrama Rain Forest Program 77 High Street, Kingston, Georgetown Tel: 592-225-1504 Cell: 592-623-8588	Mr. Dane Gobin, Chief Executive Officer (ag) Mr. Ken Rodney Mr. Jorge Trevin
Delegation of the European Union 11 Sendall Place, Stabroek Georgetown Tel: 592-226-4004, Extension 234	Mr. Giampero Muchi
UNDP 42 Brickdam, G/town (592) 226-4040; 226-4048	Ms. Patsy Ross Programme Analyst, Environment
Forest Products Association 157 Waterloo Street, G/town Tel: (592) 226-9848; 226-2821	Mr. S.K. Chan, Managing Director, Demerara Timbers Limited  Mr David Persaud, Toolsie Persaud Ltd. Ms Mona Bynoe, Consultant 645-9036 (cell phone)
University of Guyana Turkeyen	Mr. Phillip Da Silva & Mr Calvin Bernard, Biodiversity Centre Tel: Mr. Lawrence Lewis, Forestry Department, Faculty of Agriculture and Forestry; Tel: (592) 222-3599 Dr. Paulette Bynoe, School of Environment & Earth Sciences Tel: (592) 222-4180
KFW	Matthias v.Bechtolsheim Sector Economist - Agriculture & Environment KfW - Dept. L IV a/2 Palmengartenstr. 5-9 D-60325 Frankfurt (Main), Germany Phone/ Fax: +49-69-7431-2913/ -3605

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**Private equity firm buys rights to ecosystem services of Guyana rainforest**  
**mongabay.com**  
**March 27, 2008**

A private equity firm has purchased the rights to environmental services generated by a 371,000-hectare rainforest reserve in Guyana. Terms of the deal were not disclosed, but the agreement is precedent-setting in that a financial firm is betting that the services generated by a living rainforest — including rainfall generation, climate regulation, biodiversity maintenance and water storage — will eventually see compensation in international markets.

In exchange for funding a "significant" part of the costs of maintaining Iwokrama rainforest reserve in Guyana, the agreement grants UK-based Canopy Capital the right to 16 percent profit from proceeds generated from environmental services payments. 80 percent of the income generated would go to local communities while the Global Canopy Programme, an alliance of 29 scientific institutions in 19 countries, would receive four percent.

While the environmental services market is presently limited to voluntary markets, investor interest is growing. Last December, Merrill Lynch invested \$9M in rainforest conservation in Sumatra, expecting to eventually profit from the sales of carbon credits. Meanwhile in November, New Forests, a Sydney-based investment outfit, established a wildlife conservation banking scheme in Malaysia. The firm expects annual returns for selling "biodiversity credits" to developers to be in the 15-25 percent range. Canopy Capital hopes to do the same, while at the same time developing a market for the utility value of living rainforests.

"How can it be that Google's services are worth billions, but those from all the world's rainforests amount to nothing?" asked Hylton Murray-Philipson, director of Canopy Capital. "As atmospheric levels of carbon dioxide rise, emissions will carry an ever mounting cost and conservation will acquire real value. The investment community is beginning to wake up to this."

Canopy Capital's decision to fund rainforest conservation in Guyana in an interesting one: Guyana's low deforestation rate handicaps it in a market (Reducing Emissions from Deforestation and Forest Degradation -- REDD) that seems likely to reward high deforestation countries for reducing their rates of forest clearing. Still Guyana's president Bharrat Jagdeo has shown interest in environmental services — last fall he offered up the country's remaining forests as a giant carbon offset.



Surveying the Iwokrama Reserve, 1 million hectares of pristine rainforest within the Guiana Shield. Photo (c) Samantha James.

"We can deploy the forest against global warming and... it wouldn't have to stymie development in Guyana," President Jagdeo told *The Independent* last November. "We are a country with the political will and a large tract of standing forest. I'm not a mercenary, this is not blackmail and I realize there's no such thing as a free lunch. I'm not just doing this just because I'm a good man and want to save the world, I need the assistance."

At the time President Jagdeo cited Iwokrama, a "sustainable-use" reserve that supports 7,000 people and locks up around 120 million tons of carbon, as a potential model for such payments.

"Forests do much more for us than just store carbon. We should move beyond emissions-based trading to measure and place a value on all the services they provide. This initiative fits perfectly with Iwokrama's original mandate to demonstrate that conservation, environmental balance and sustainable economic activity can be mutually reinforcing," said Iwokrama's Chairman Edward Glover. "Moreover, this first significant step is in keeping with President Jagdeo's visionary approach to safeguarding all the forests of Guyana. It also ensures, with the Commonwealth's support for Iwokrama, that the world hears a knowledgeable and persuasive voice on a matter of growing international concern."

The new deal offers hope to conservationists that Guyana's forests can be economically viable as intact ecosystems. Climbing prices for gold and timber, coupled with surging demand for biofuels derived from sugar cane, have raised concerns that developers may push for infrastructure improvements that could transform Guyana's forests.

"Saving rainforests can only occur through attracting significant capital flows, and the private sector is beginning to play a leading role alongside government and philanthropy," said Abyd Karmali, Managing Director and Global Head of Carbon Emissions at Merrill Lynch. "This deal presents a template for monetizing the benefits that come with the protection of standing forests. The preservation of ecosystem services in countries that choose to conserve their forests could become a billion dollar market."

### **Opportunities beyond carbon**

While most investors are currently eyeing forests solely for their carbon value, Murray-Philipson believes they are overlooking more important services — especially rainfall generation.



The Keiteur Falls in the Iwokrama Reserve, Guyana



"If I were a farmer in Brazil's Mato Grosso or the mayor in Atlanta I would be very concerned about deforestation in the Amazon," he told mongabay.com, referring to studies by Duke University's Roni Avissar that have linked forest clearing in the Amazon to rainfall in North and South America. "The market is looking at carbon but what I believe will be far bigger will be the maintenance of rainfall."

Murray-Philipson says that since there's no market for the services provided by rainforests, his firm sees the present as a good opportunity for investment.

"The market for these ecosystem services doesn't exist — therefore it can't go any lower," he said. "We see this as an opportunity to drive capital to the canopy."

Murray-Philipson believes that an "equitable and just" system based on the insurance market will eventually emerge as a vehicle for paying for environmental services provided by living ecosystems like rainforests.

"All my life I've been reading about rainforests going up in smoke and indigenous people disappearing. The most important thing that's been missing in the equation has been money. Now we have a real chance to engage and save rainforests."

"The Stern report estimated that it's going to take \$15 billion per year to pay for the maintenance of tropical forests," he said. "While that number seems quite intimidating, it is actually incredibly doable. The other way of looking at it is the cost of not doing something is going to be significantly greater than whatever the cost of starting that trend of payments today."



Looking at only the value of rainforest for ensuring the flow of water to Brazil's dams, which provide the country with 70 percent of its electricity, Murray-Philipson calculates that environmental services are worth a minimum of \$20 per hectare in Guyana. Factoring in carbon sequestration and other ecosystem services would significantly boost the value, he says.

**EXPORT SUMMARY FOR 2007 (BY MONTH)**

SCIENTIFIC NAME	COMMON NAME	Cites Appendix Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<i>Amazona amazonica</i>	Orange-winged parrot	II	9900	199	195	190	125	245	64	30	1	170		154		1373
<i>Amazona dufresniana dufresniana</i>	Blue-cheek parrot	II	520				41	21	15					1		78
<i>Amazona farinosa</i>	Mealy parrot	II	1100	11	32	41		53	15	15				30		197
<i>Amazona festiva</i>	Festive parrot	II	520				39	16						4		59
<i>Amazona ochrocephala</i>	Yellow-headed parrot	II	1000	10	14	38		140	58	12	17	19	48	40	44	440
<i>Ara ararauna</i>	Blue and Gold macaw	II	792	44		36	30	143		15		25		27	55	375
<i>Ara chloropterus</i>	Red and Green macaw	II	990	61	62	40	32	137		15	6	55	20	54	106	588
<i>Ara manilata</i>	Red-bellied macaw	II	1650			48		5				20				73
<i>Ara nobilis</i>	Red-shouldered macaw	II	1100	25		126		85	32			20		4	80	372
<i>Derophtus accipitrinus</i>	Hawk-headed parrot	II	780	15				2	2					4	9	32
<i>Pionus menstruus</i>	Blue-headed parrot	II	900			70		5				26		20		121
<i>Pionites melanocephala</i>	Black-headed parrot	II	600	18		27		44	29		10	18		20	78	244
<i>Pionus fuscus</i>	Dusky parrot	II	780			59								20		79

**PARAKEETS/TOUCANS ETC**

SCIENTIFIC NAME	COMMON NAME	Cites Appendix Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<i>Aratinga leucophthalmus</i>	White-eyed parakeet	II	300													
<i>Aratinga pertinax</i>	Brown-throated parakeet	II	500											4		4
<i>Brotogeris chrysopterus</i>	Golden-winged parakeet	II	180													
<i>Crax alector</i>	Powis*	N/c	52											3		3
<i>Forpus passerinus</i>	Green-rumped parrotlet	II	600											8		8
<i>Penelope grantii</i>	Marudi	II	18													
<i>Psophia crepitans</i>	Grey -winged trumpeter	N/c	90											2		2
<i>Pteroglossus aracari</i>	Black-necked aracari*	N/c	300					4								4
<i>Pteroglossus viridis</i>	Green aracari***	II	52													
<i>Pyrrhura egregia egregia</i>	Fiery-shouldered parakeet	II	120													
<i>Pyrrhura picta picta</i>	Painted parakeet	II	300													
<i>Ramphastos toco</i>	Toco toucan	II	200	6		27	8	8	12			4		22	14	101
<i>Ramphastos tucanus</i>	Red-billed toucan	II	170			7		5	1					11		24
<i>Ramphastos vitellinus</i>	Channel-billed toucan	II	120			7		4						8		19
<i>Selenidera culik</i>	Guianan toucanet*	II	260													

**PRIMATES**

SCIENTIFIC NAME	COMMON NAME	Cites AppendX. Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<i>Cebus nigrivattatus</i>	Weeper/White fronted capu	II	242					4								4
<i>Cebus apella</i>	Tufted capuchin	II	600					4					6			10
<i>Saguinus midas</i>	Marmoset	II	200					44					19			63
<i>Saimiri sciureus</i>	Squirrel monkey	II	2200		7			126					6			139
<i>Trichechus manatus manatus</i>	West Indian Manatee	I											2			2

**OTHER MAMMALS**

SCIENTIFIC NAME	COMMON NAME	Cites AppendX. Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<i>Acomys russatus</i>	Spiney rat	N/c	100													
<i>Dasyopus septemcinctus</i>	Seven-banded armadillo	N/c	50				8			2	5		1			16
<i>Choloepus didactylus</i>	Two-toed Sloth	N/c	110	6	7	15	5	3	10	7	9	5	14	7	5	93
<i>Coendou prehensilis</i>	Tree porcupine****	N/c	44		2	2	3	3	4	6	2		8			30
<i>Crisonia vittata</i>	Guiana martin	N/c	3													
<i>Agouti paca</i>	Labba	N/c	150		1	6		7	6	1	2			2	2	27
<i>Cyclopes didactylus</i>	Pigmy anteater	N/c	10													
<i>Dasyprocta agouti</i>	Agouti	N/c	350		37	21	11	53	24	35	23	21	69	35	30	359
<i>Dasyopus n.novemcinctus</i>	Nine-banded armadillo	N/c	50													
<i>Didelphis marsupialis</i>	Yawari	N/c	200				20									20
<i>Eira barbara</i>	Tayra****	N/c	60		3			1		1				2		7
<i>Euphractus sexcinctus</i>	Six-banded armadillo	N/c	50			1		2		5	7	4	5	3		27
<i>Grison vittatus</i>	Grison	N/c	60			1	1				2					4
<i>Hydrochaeris hydrochaeris</i>	Watras	N/c	100			2										2
<i>Nasua nasua</i>	Kibihee. Coatimundi	N/c	100		1						2	1		2	3	9
<i>Philander opossum</i>	Four-eyed opossum	N/c	150		10	4		55	5		3					77
<i>Potos flavus</i>	Kinkajou	N/c	150		19	14		15	15	7	18	3	24	4	2	121
<i>Procyon cancrivorus</i>	Racoon	N/c	60					1						3		4
<i>Tamandua tetradactyla</i>	Lesser anteater****	N/c	60		8	7	5	3	4	9	14		8	2		60
<i>Chironectes minimus</i>	Yapok/water opossum	N/c	100													

**CAIMANS**

SCIENTIFIC NAME	COMMON NAME	Cites Appendix Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Caiman c.crocodilus	Spectacled caiman (skin)	II	20,000	1500	500	1725			2000	1002	2700		1505	3750		14682
Caiman c.crocodilus	Spectacled caiman (live)	II	10,000	250		156	50				370	10	50	50	528	1464
Paleosuchus palpebrosus	Smooth fronted (Dwarf)	II	500		21	38	26	40	46	7	17	69	69	36	15	384
Paleosuchus trigonatus	Wedge-headed caiman	II	1000	75	72	83	58	36	25	14	3	5	33	82	84	570

**REPTILES**

SCIENTIFIC NAME	COMMON NAME	Cites Appendix Non-Cites.	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Ameiva ameiva	Ameiva, Luboo lizard	N/c	20000	221	877	383	543	718	438	165	50	259	357	277	64	4352
Amphisbaena fuliginosa	Legless lizard	N/c	500													
Anolis roquet	Anoles lizard	N/c	24000	50	803	250	100	595	100			500	57	300	204	2959
Boa c constrictor	Land camudi	II	2000	137	115	97	71	125	76	30	119	102	204	215	87	1378
Chelus fimbriatus	Mata mata turtle	N/c	132	6	11	11	1	16	14		8	5	2	7	4	85
Chironius carinatus	Black racer, Fire snake	N/c	105											1		1
Cnemidophorus lemiseatus	Rainbow-coloured lizard	N/c	2000		52	160	22	75	36		71	90		201		707
Corallus caninus	Emerald boa	II	880	68	74	62	55	196	70	30	62	47	90	90	7	851
Corallus enydris	Cook's tree boa	II	3000	148	190	241	174	372	84	65	231	163	318	347	101	2434
Drymarchoran c.corais	Drymarchon, Yellow tail	II	100	3	4	3	3	2			2	2	1	8		28
Epicrates c.cenchria	Rainbow boa (cc)	II	500	45	62	25	15	46	20	3	42	53	39	64	20	434
Epicrates c.maurus	Rainbow boa (cm)	II	500	31	16	3	3	11	22	13	10	23	24	19	17	192
Eunectes murinus	Anaconda, Water camud	II	2000	81	86	64	55	46		15	28	48	91	139	107	760
Geochelone carbonaria	Red-footed tortoise	II	704	40	39	43	25	160	40	31	95	18	57	41	31	620
Geochelone denticulata	Yellow footed tortoise	II	704	38	24	41	30	198	51	34	80	29	78	50	19	672
Helicops angulatus	Green water snake	N/c	100	1												1
Iguana iguana	Iguana	II	8400				31				30	2	50	370		483
Kinosternon scorpioides	Scorpion mud turtle	N/c	250	6	11	23	3	31	10		24	11	16	8	4	147
Mabuya mabouya	Skink lizard	N/c	700													0
Phrynops geoffranus	Side-necked turtle	N/c	600	7	10	8										25
Phrynops gibbus	Side-necked turtle	N/c	600	31	29	113	13	56	12	11	10	26	41	10	21	373
Phrynops nasuta	Toad headed turtle	N/c	600												1	1
Platemys platycephala	Twist-necked turtle	N/c	500	5	12	15		25	18	7	10	2	52	2	1	149

**REPTILES**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Reptiles	NAME	Non-Cites.	QUOTA													
<i>Plica plica</i>	Plica lizard ( <i>plica plica</i> )	N/c	2800		66			16			37			31	50	200
<i>Plica umbra</i>	Plica lizard ( <i>plica umbra</i> )	N/c	2800		80	15		21			100			34		250
<i>Podocnemis erythrocephala</i>	Side-necked turtle	II	50		12											12
<i>Polychrus marmoratus</i>	Polychrus lizard	N/c	2000	53	163		23	1	10		33	20				303
<i>Pseutes sulphureus</i>	Pseutes	N/c	100									1				1
<i>Rhinoclemys punctularia</i>	Labarya turtle	N/c	1500	58	10	136	48	69	71		47	37	73	48	25	622
<i>Spilotes pullatus</i>	Salipenter snake	N/c	200	3	19	5	6	6	1		12	5	19	11	4	91
<i>Thecadactylus rapicauda</i>	Knot-tailed lizard	N/c	450												38	38
<i>Tropidums hispidus</i>	Collared lizard.	N/c	20000	50	579	298	90	1537	188		100	300	100	325	389	3956
<i>Tupinambis nigropunctatus</i>	Tegu lizard/Salipenter li	II	7200	16	23	1	80	73	150		125	20	206	212		906
<i>Uranoscodon supercilliosus</i>	Brown-tree climber	N/c	6500		22	60	20	60			18			30	50	260
<i>Podocnemis unifilis</i>	Turtle	II	150												4	4
<i>Podocnemis duneriliana</i>	Turtle	II	500													
<i>Basiliscus guianensis</i>	Water lizard	N/c	100													

**POISONOUS SNAKES**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Poisonous Snakes	NAME	Non-Cites.	QUOTA													
<i>Bothrops atrox</i>	Brown labarya	N/c	200					2								2
<i>Bothrops bilineatus</i>	Green labarya	N/c	200					3	3			3		1	1	11
<i>Crotalus Durissus bryhinus</i>	Rattlesnake	N/c	150													
<i>Lachesis muta</i>	Bushmaster	N/c	100													
<i>Micrurus surinamensis</i>	Coral snake	N/c	100													
<i>Cyclagras clelia</i>	Mussurana	N/c	100													
<i>Clelia gigas</i>	Water cobra	N/c	100													
<i>Leptophis ahaetulla</i>	Vine snake	N/c	300													
<i>Oxybelis fulgidus</i>	Parrot snake	N/c	200													
<i>Bothrops brazili</i>	Morabana snake	N/c	200													
<i>Bothrops taeniata</i>	Morabana snake	N/c	200													

**POISON ARROW FROGS**

SCIENTIFIC NAME	COMMON	Cites Appendix	NATIONAL	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Poison Arrow Frogs	NAME	Non-Cites.	QUOTA													
Dendrobates trivittatus	Poison arrow frog	II	500													
Dendrobates leucomelas	Yellow banded frog	II	500								10					10
Dendrobates tinctorius	Dyeing poison frog	II	500													
Epipedobates femoralis	Brilliant-thighed frog	II	500													
Epipedobates pictus	Spotted-legged frog	II	500													

**OTHER AMPHIBIANS**

SCIENTIFIC NAME	COMMON	Cites Appendix	NATIONAL	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Other Amphibians	NAME	Non-Cites.	QUOTA													
Bufo guttata	Land toad	N/c	1500					76	20		2					98
Bufo marinus	Land toad	N/c	1500					83							80	163
Bufo typhonius	Land toad	N/c	750													
Hyla crepitans	Tree frog	N/c	1000													
Hyla boans	Tree frog	N/c	1000					5	9		26					40
Leptodactylus pentadactylus	Mountain chicken	N/c	500					23	15		50	1				89
Phyllomedusa bicolor	Green tree frog	N/c	500				42	12	40		22	10				126
Pipa pia	Suriname toad	N/c	500					170								170
Pseudis paradoxus	Green and Black frog	N/c	5000													
Phyllomedusa venulosa	Bicolour frog	N/c	3000													
Phyllomedusa hypocondrialis	Bicolour frog	N/c	3000													
Sphaenorhynchus carneus	Lime Tree frog	N/c	500													

### ARTHROPODS

SCIENTIFIC NAME	COMMON NAME	Cites Appendix	NATIONAL QUOTA	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<b>Arthropods</b>		<b>Non-Cites.</b>														
Avicularia avicularia	Tarantula spider	N/c	20000	583	2098	1155	823	1765	1942	1028	2193	510	3752	1934	726	18509
Morpho menelaus	Blue morpho butterfly (c	N/c	20000						4000	500	1000			400		5900
Periplanata americanus	Water Roach	N/c	2500													
Blaberus sp	Water Roach	N/c	2500													
Schistocera sp	Locusts	N/c	2500													
Theraphosa blondi	Bird eating tarantula	N/c	2500			365	35			200		84	253		647	1584
Ephebopus murinus	Skeleton legged tarantul	N/c	2500				328			200			27			555
Amblypygi spp.	Whip scorpion	N/c	2500													
Scolopendra spp	Centipedes	N/c	2500													
Diplopoda spp	Millipedes	N/c	2500													
Buthidae spp	Scorpions	N/c	2500													
Gasteracantha spp	Spiders	N/c	2500													
Ocyopodidae spp	Land crabs	N/c	2500													
Scarabidae spp	Beetles	N/c	2500													
Mantidae spp	Mantids	N/c	2500													
Phasmidae spp	Phasmids	N/c	2500													
Bulimulus spp	Land snails	N/c	2500													

**PARROTS/MACAWS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Parrots/Macaws	NAME	Non-Cites.	QUOTA
<i>Amazona amazonica</i>	Orange-winged parrot	II	9900
<i>Amazona dufresniana dufresniana</i>	Blue-cheek parrot	II	520
<i>Amazona farinosa</i>	Mealy parrot	II	1100
<i>Amazona festiva</i>	Festive parrot	II	520
<i>Amazona ochrocephala</i>	Yellow-headed parrot	II	1000
<i>Ara ararauna</i>	Blue and Gold macaw	II	792
<i>Ara chloropterus</i>	Red and Green macaw	II	990
<i>Ara manilata</i>	Red-bellied macaw	II	1650
<i>Ara nobilis</i>	Red-shouldered macaw	II	1100
<i>Deropterus accipitrinus</i>	Hawk-headed parrot	II	780
<i>Pionus menstruus</i>	Blue-headed parrot	II	900
<i>Pionites melanocephala</i>	Black-headed parrot	II	600
<i>Pionus fuscus</i>	Dusky parrot	II	780

**PARAKEETS/TOUCANS ETC**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Parakeets/Toucans etc	NAME	Non-Cites.	QUOTA
<i>Aratinga leucophthalmus</i>	White-eyed parakeet	II	300
<i>Aratinga pertinax</i>	Brown-throated parakeet	II	500
<i>Brotogeris chrysopterus</i>	Golden-winged parakeet	II	180
<i>Crax alector</i>	Powis*	N/c	52
<i>Forpus passerinus</i>	Green-rumped parrotlet	II	600
<i>Penelope grantii</i>	Marudi	II	18
<i>Psophia crepitans</i>	Grey -winged trumpeter*	N/c	90
<i>Pteroglossus aracari</i>	Black-necked aracari**	N/c	300
<i>Pteroglossus viridis</i>	Green aracari***	II	52
<i>Pyrrhura egregia egregia</i>	Fiery-shouldered parakeet	II	120
<i>Pyrrhura picta picta</i>	Painted parakeet	II	300
<i>Ramphastos toco</i>	Toco toucan	II	200
<i>Ramphastos tucanus</i>	Red-billed toucan	II	170
<i>Ramphastos vitellinus</i>	Channel-billed toucan	II	120
<i>Selenidera culik</i>	Guianan toucanet*	II	260

**PRIMATES**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Primates	NAME	Non-Cites.	QUOTA
<i>Cebus nigrivittatus</i>	Weeper/White fronted capuchin	II	242
<i>Cebus apella</i>	Tufted capuchin	II	600
<i>Saguinus midas</i>	Marmoset	II	200
<i>Saimiri sciureus</i>	Squirrel monkey	II	2200



**OTHER MAMMALS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Other Mammals	NAME	Non-Cites.	QUOTA
<i>Acomys russatus</i>	Spiney rat	N/c	100
<i>Dasyopus septemcinctus</i>	Seven-banded armadillo	N/c	50
<i>Choloepus didactylus</i>	Two-toed Sloth	N/c	110
<i>Coendou prehensilis</i>	Tree porcupine****	N/c	44
<i>Crisonia vittata</i>	Guiana martin	N/c	3
<i>Agouti paca</i>	Labba	N/c	150
<i>Cyclopes didactylus</i>	Pigmy anteater	N/c	10
<i>Dasyprocta agouti</i>	Agouti	N/c	350
<i>Dasyopus n.novemcinctus</i>	Nine-banded armadillo	N/c	50
<i>Didelphis marsupialis</i>	Yawari	N/c	200
<i>Eira barbara</i>	Tayra****	N/c	60
<i>Euphractus sexcinctus</i>	Six-banded armadillo	N/c	50
<i>Grison vittatus</i>	Grison	N/c	60
<i>Hydrochaeris hydrochaeris</i>	Watras	N/c	100
<i>Nasua nasua</i>	Kibihee. Coatimundi	N/c	100
<i>Philander opossum</i>	Four-eyed opossum	N/c	150
<i>Potos flavus</i>	Kinkajou	N/c	150
<i>Procyon cancrivorus</i>	Racoon	N/c	60
<i>Tamandua tetradactyla</i>	Lesser anteater****	N/c	60
<i>Chironectes minimus</i>	Yapok/water opossum	N/c	100

**CAIMANS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Caimans	NAME	Non-Cites.	QUOTA
<i>Caiman c.crocodilus</i>	Spectacled caiman (skin)	II	20,000
<i>Caiman c.crocodilus</i>	Spectacled caiman (live)	II	10,000
<i>Paleosuchus palpebrosus</i>	Smooth fronted (Dwarf) caiman	II	500
<i>Paleosuchus trigonatus</i>	Wedge-headed caiman	II	1000

**REPTILES**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Reptiles	NAME	Non-Cites.	QUOTA
<i>Ameiva ameiva</i>	Ameiva, Luboo lizard	N/c	20000
<i>Amphisbaena fuliginosa</i>	Legless lizard	N/c	500
<i>Anolis roquet</i>	Anoles lizard	N/c	24000
<i>Boa c constrictor</i>	Land camudi	II	2000
<i>Chelus fimbriatus</i>	Mata mata turtle	N/c	132
<i>Chironius carinatus</i>	Black racer, Fire snake	N/c	105
<i>Cnemidophorus lemiscatus</i>	Rainbow-coloured lizard	N/c	2000
<i>Corallus caninus</i>	Emerald boa	II	880
<i>Corallus enydris</i>	Cook's tree boa	II	3000
<i>Drymarchon c.corais</i>	Drymarchon, Yellow tail	II	100
<i>Epicrates c.cenchria</i>	Rainbow boa (cc)	II	500
<i>Epicrates c.maurus</i>	Rainbow boa (cm)	II	500
<i>Eunectes murinus</i>	Anaconda. Water camudi	II	2000

Geochelone carbonaria	Red-footed tortoise	II	704
Geochelone denticulata	Yellow footed tortoise	II	704
Helicops angulatus	Green water snake	N/c	100
Iguana iguana	Iguana	II	8400
Kinosternon scorpioides	Scorpion mud turtle	N/c	250
Mabuya mabouya	Skink lizard	N/c	700
Phrynops geoffranus	Side-necked turtle	N/c	600
Phrynops gibbus	Side-necked turtle	N/c	600
Phrynops nasuta	Toad headed turtle	N/c	600
Platemys platycephala	Twist-necked turtle	N/c	500

### REPTILES

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Reptiles	NAME	Non-Cites.	QUOTA
Plica plica	Plica lizard (plica plica)	N/c	2800
Plica umbra	Plica lizard (plica umbra)	N/c	2800
Podocnemis erythrocephala	Side-necked turtle	II	50
Polychrus marmoratus	Polychrus lizard	N/c	2000
Pseutes sulphureus	Pseutes	N/c	100
Rhinoclemys punctularia	Labarya turtle	N/c	1500
Spilotes pullatus	Salipenter snake	N/c	200
Thecadactylus rapicauda	Knot-tailed lizard	N/c	450
Tropidurus hispidus	Collared lizard.	N/c	20000
Tupinambis nigropunctatus	Tegu lizard/Salipenter lizard	II	7200
Uranoscodon supercilliosus	Brown-tree climber	N/c	6500
Podocnemis unifilis	Turtle	II	150
Peltocephalus dumeriliana	Turtle	II	500
Basiliscus guianensis	Water lizard	N/c	100

### POISONOUS SNAKES

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Poisonous Snakes	NAME	Non-Cites.	QUOTA
Bothrops atrox	Brown labarya	N/c	200
Bothrops bilineatus	Green labarya	N/c	200
Crotalus Durissus bryhinus	Rattlesnake	N/c	150
Lachesis muta	Bushmaster	N/c	100
Micrurus surinamensis	Coral snake	N/c	100
Cyclagras clelia	Mussurana	N/c	100
Clelia gigas	Water cobra	N/c	100
Leptophis ahaetulla	Vine snake	N/c	300
Oxybelis fulgidus	Parrot snake	N/c	200
Bothrops brazili	Morabana snake	N/c	200
Bothrops taeniata	Morabana snake	N/c	200

**POISON ARROW FROGS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Poison Arrow Frogs	NAME	Non-Cites.	QUOTA
<i>Dendrobates trivittatus</i>	Poison arrow frog	II	500
<i>Dendrobates leucomelas</i>	Yellow banded frog	II	500
<i>Dendrobates tinctorius</i>	Dyeing poison frog	II	500
<i>Epipedobates femoralis</i>	Brilliant-thighed frog	II	500
<i>Epipedobates pictus</i>	Spotted-legged frog	II	500

**OTHER AMPHIBIANS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Other Amphibians	NAME	Non-Cites.	QUOTA
<i>Bufo guttata</i>	Land toad	N/c	1500
<i>Bufo marinus</i>	Land toad	N/c	1500
<i>Bufo typhonius</i>	Land toad	N/c	750
<i>Hyla crepitans</i>	Tree frog	N/c	1000
<i>Hyla boans</i>	Tree frog	N/c	1000
<i>Leptodactylus pentadactylus</i>	Mountain chicken	N/c	500
<i>Phyllomedusa bicolor</i>	Green tree frog	N/c	500
<i>Pipa pia</i>	Suriname toad	N/c	500
<i>Pseudis paradoxus</i>	Green and Black frog	N/c	5000
<i>Phyllomedusa venulosa</i>	Bicolour frog	N/c	3000
<i>Phyllomedusa hypocondrialis</i>	Bicolour frog	N/c	3000
<i>Sphaenorhynchus carneus</i>	Lime Tree frog	N/c	500

**ARTHROPODS**

SCIENTIFIC NAME	COMMON	Cites Appendix.	NATIONAL
Arthropods	NAME	Non-Cites.	QUOTA
<i>Avicularia avicularia</i>	Tarantula spider	N/c	20000
<i>Morpho menelaus</i>	Blue morpho butterfly (dead)	N/c	20000
<i>Periplanata americanus</i>	Water Roach	N/c	2500
<i>Blaberus sp</i>	Water Roach	N/c	2500
<i>Schistocera sp</i>	Locusts	N/c	2500
<i>Theraphosa blondi</i>	Bird eating tarantula	N/c	2500
<i>Ephebopus murinus</i>	Skeleton legged tarantula	N/c	2500
<i>Amblypygi spp.</i>	Whip scorpion	N/c	2500
<i>Scolopendra spp</i>	Centipedes	N/c	2500
<i>Diplopoda spp</i>	Millipedes	N/c	2500
<i>Buthidae spp</i>	Scorpions	N/c	2500
<i>Gasteracantha spp</i>	Spiders	N/c	2500
<i>Ocyopodidae spp</i>	Land crabs	N/c	2500
<i>Scarabidae spp</i>	Beetles	N/c	2500
<i>Mantidae spp</i>	Mantids	N/c	2500
<i>Phasmidae spp</i>	Phasmids	N/c	2500
<i>Bulimulus spp</i>	Land snails	N/c	2500

**ANNEX**  
**Donor Activities**

<b>DONOR</b>	<b>ACTIVITIES/ ACTIONS/ PROJECTS</b>	<b>PARTNER</b>	<b>\$ Million</b>
CIDA	Forestry Training Centre,	Forestry Training Centre	
	Iwokrama Rainforest Conservation and Development	Iwokrama	0.70
	Guyana Environmental Capacity Development Project	Guyana Geology and Mines Commission (GGMC)	3.30
DFID	Water Programme		23
	Land Administration Support		8.7
EU	Guiana Shield Project (A regional project)	UNDP Local Partner: Iwokrama	3.2
	Forestry Research (?);		
	Study on Sea and River Defence Management (with UG)		
KFW	Development of Protected Areas Legislation		
	Small Grants Programme		2.5
	Protected Areas Trust		2.5
IDB	ACTO Study in Biodiversity in Guyana		

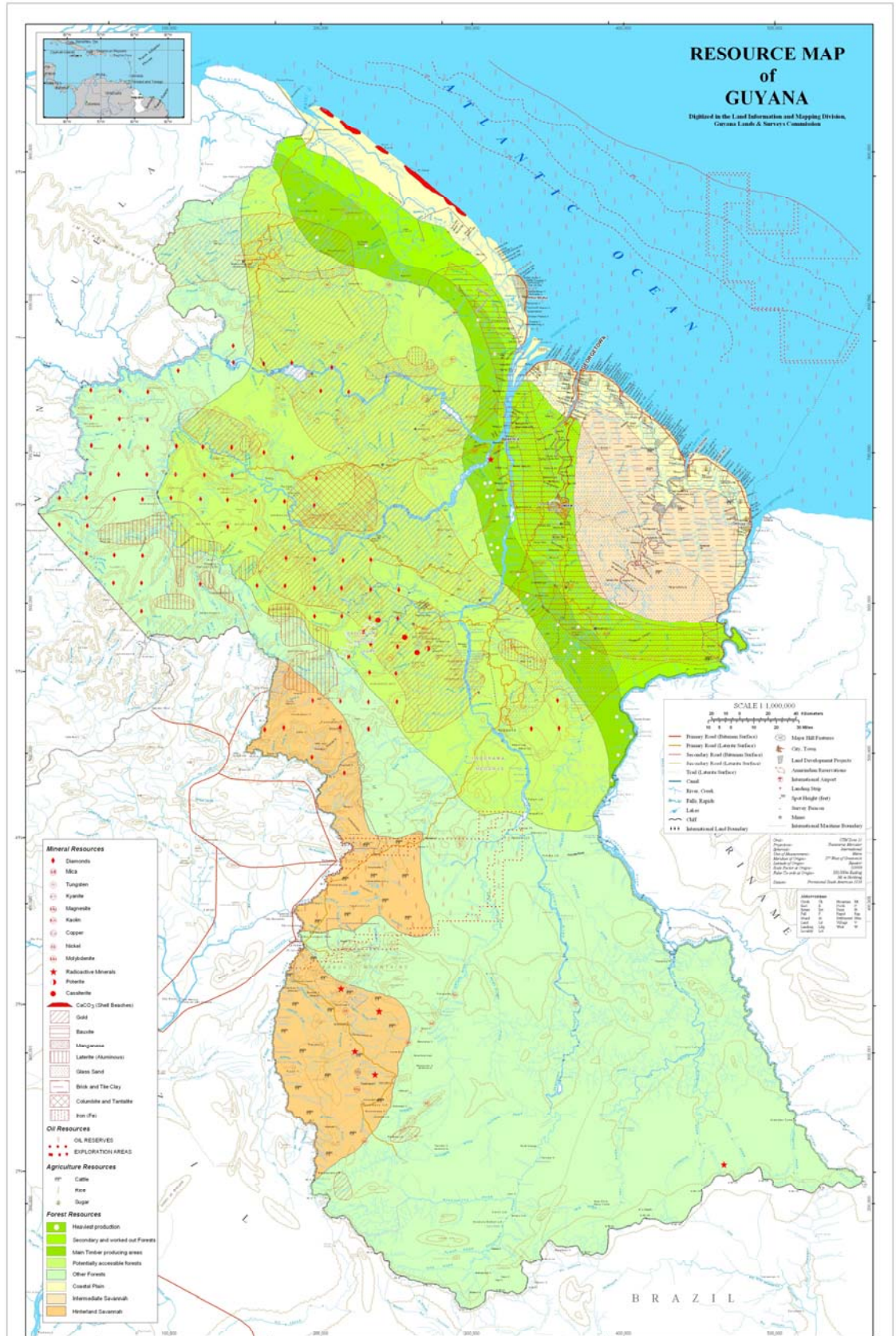
<b>DONOR</b>	<b>ACTIVITIES/ ACTIONS/ PROJECTS</b>	<b>PARTNER</b>	<b>\$ Million</b>
	Environmental Management Programme (Phase II)	EPA	1.28
UNDP	Environmental Management Capacity Building GEF Sustainable Land Management Project		
	Iwokrama	Iwokrama	0.018
	National Report to UNFCCC	Hydromet Department	0.033
	Building Environmental Awareness	EPA	0.326
	Introducing ISO 14000	Guyana National Bureau of Standards	0.125
	Mainstreaming Disaster management	Civil Defence Commission	0.222
USAID	GTIS – Aquaculture, Tourism (Promotion of Birding), Wood Products (Marketing and Legal Verification System, step wise approach to certification)	Carana Corporation	2.0
MCC	The two-year threshold program with the Government of Guyana seeks to implement its new value-added		6.7
ITTO	1. Improving the detection and prevention of		

<b>DONOR</b>	<b>ACTIVITIES/ ACTIONS/ PROJECTS</b>	<b>PARTNER</b>	<b>\$ Million</b>
ITTO	illegal logging and illegality in shipment and trade of wood products from Guyana	Guyana Forestry Commission	1.4 Note: This is a total for all 4 projects
	2. Utilization of lesser used wood species in Guyana		
	3. Development and delivery of a vocational training program in reduced impact logging and sustainable forest management practices in Guyana	Guyana Forestry Commission	
	4. Training in Reduced Impact Logging in Guyana		
IDB	Various Infrastructure Projects	Government of Guyana	

**Annex VII: Maps depicting resources, infrastructure and land use along  
Lethem Road**

# RESOURCE MAP of GUYANA

Digitized by the Land Information and Mapping Division, Guyana Lands & Survey Commission



## Mineral Resources

- ◆ Diamonds
- Ⓜ Mica
- Ⓦ Tungsten
- Ⓚ Kyanite
- Ⓜg Magnesite
- Ⓚa Kaolin
- Ⓚu Copper
- Ⓝ Nickel
- Ⓜo Molybdenite
- ★ Radioactive Minerals
- Poterite
- Cassiterite
- CaCO<sub>3</sub> (Shell Beaches)
- Gold
- Bauxite
- Manganese
- Laterite (Aluminous)
- Glass Sand
- Brick and Tile Clay
- Columbite and Tantalite
- Iron (Fe)

## Oil Resources

- ⬇ OIL RESERVES
- EXPLORATION AREAS

## Agriculture Resources

- 🐄 Cattle
- 🌾 Rice
- 🍷 Sugar

## Forest Resources

- Heaviest production
- Secondary and worked out Forests
- Main Timber producing areas
- Potentially accessible forests
- Other Forests
- Coastal Plain
- Intermediate Savannah
- Hinterland Savannah

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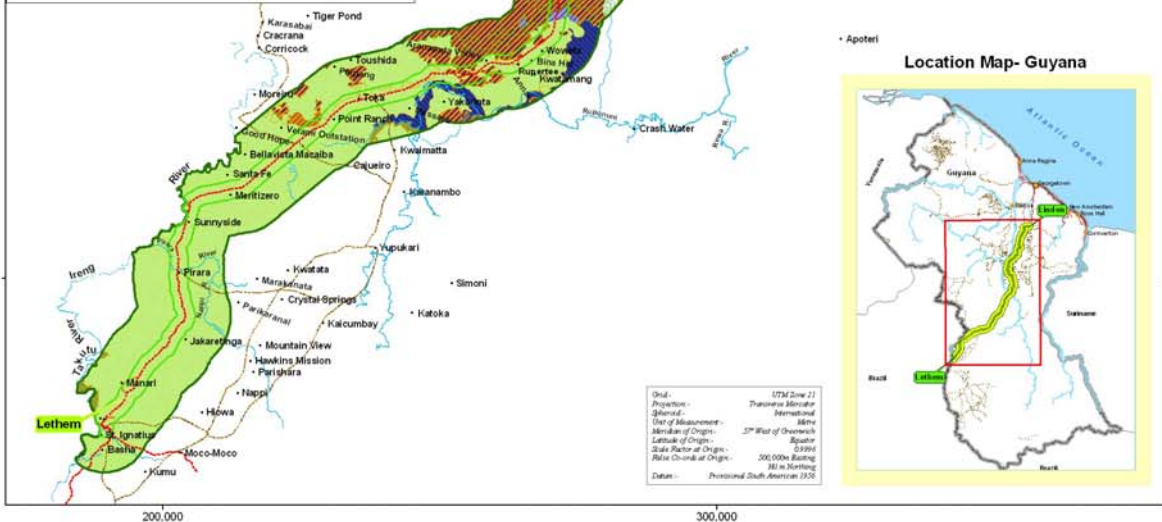
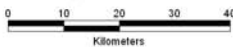
# LETHEM-LINDEN ROAD CORRIDOR SOIL MAPPING UNITS



### Legend

- Place
- ▬ Takutu Bridge
- Transport Network**
- Road in town; Sealed Road
- All Weather Unsealed Road
- Main access Road (Four Wheel Drive)
- Secondary Road (Four Wheel Drive)
- Track, Cut line; Logging Road
- Tractor Road/ Trail
- River/ Creek
- Main River
- Vegetation Types**
- 1 Mixed Forests
- 2 Wallaba/Dakama/Muri Forests
- 3 Marsh And Swamp Forests
- 5 Savannah Grassland
- Clearings
- Landuse Types**
- Abandoned Cultivation Land
- Abandoned Housing
- Cleared For Cultivation
- Conservation
- Extensive Grazing
- Housing
- Housing like 42 Miles
- Housing like 42-43 Miles
- Managed Grazing
- Mixed Farming
- Settlement
- Shifting Cultivation
- Timber, Hunting, Non Timber Forest Products(NTFPs)
- Iwokrama
- Road buffer (Linden to Lethem-distance 432 kilometers or 268 miles)**
- 1 Mile
- Planning Area (Corridor width- 8 kilometers or 5 miles on both sides)**
- 5 mile Road Buffer

Scale 1:400,000



### Location Map- Guyana



Grid: UTM Zone 21  
 Projection: Transverse Mercator  
 Spheroid: Besseloid  
 Unit of Measurement: Meter  
 Meridian of Origin: 57° West of Greenwich  
 Latitude of Origin: 8° South  
 Scale Factor at Origin: 0.9998  
 False Cutoff at Origin: 500,000 Easting  
 Datum: Potentially South American 1955

Fieldwork and data collection was done in 2005.  
 Map prepared by the Land Use Planning & Policy Section, Guyana Lands and Surveys Commission.

Copies of this map are obtainable from the Guyana Lands and Surveys Commission,  
 22 Upper Halffield Street, Durban Backlands, Georgetown, Guyana.

# Existing and Proposed Infrastructure

