

The Jagdeo Climate Change Initiative: Implications for utilities in Guyana

John Caesar
Department of Biology
Faculty of Natural Sciences
University of Guyana
iccaesar@yahoo.com

Forest Adaptation - Umea 2008

1

Content

- Brief Introduction to Guyana
- Bio-cultural diversity/richness
- Guyana's vulnerabilities to climate change
- National environmental ethos
- The 4 tenets buttressing the climate change mitigation proposal/offer for global partnership consideration
- Public Utilities & Climate change mitigation

Forest Adaptation - Umea 2008

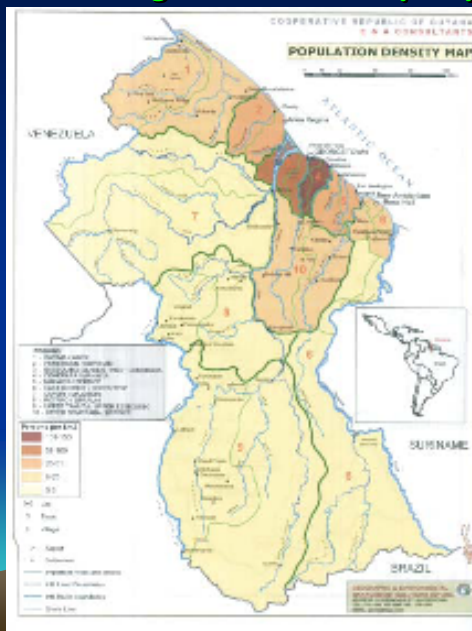
2



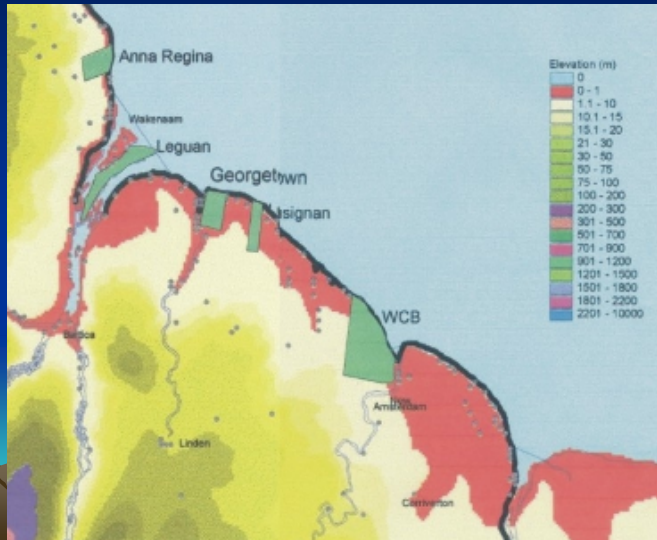


Forest Adaptation - Umea 2008

Predominantly coastal population



Reality at Home! Georgetown and sea level rise



9



The road leading to the Marfrends Co-operative Land Society at Friendship, East Bank Demerara yesterday.



Farmer Berl Macey in her flooded cassava field at Friendship, East Bank Demerara yesterday.



Two cabbages whose roots had rotted being held up by farmer Troy Yorrick yesterday.



One of over 40 pigs belonging to farmer Eucy Wathey sitting in the water that flooded their pens yesterday.

Forest Adaptation - Umea 2008

**Flood-
induced
Devastation
of the agro-
based
economy &
livelihoods**

10



11



3

12



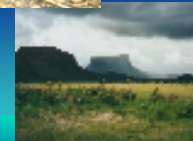
Some limited international cooperation/partnerships ongoing



Forest Adaptation - Umea 2008

15

Guyana's biodiversity richness



Forest Adaptation - Umea 2008

16



Guyana's cultural diversity



Guyana's cultural diversity

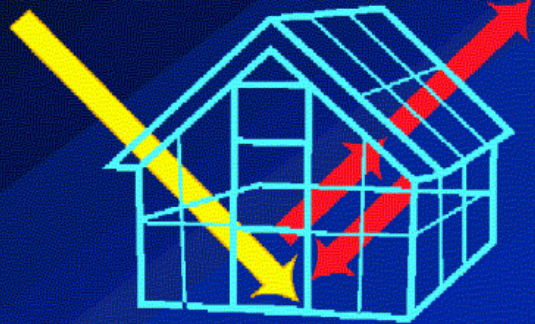




THE GREENHOUSE EFFECT

Visible energy from the sun passes through the glass and heats the ground

Infra-red heat energy from the ground is partly reflected by the glass, and some is trapped inside the greenhouse

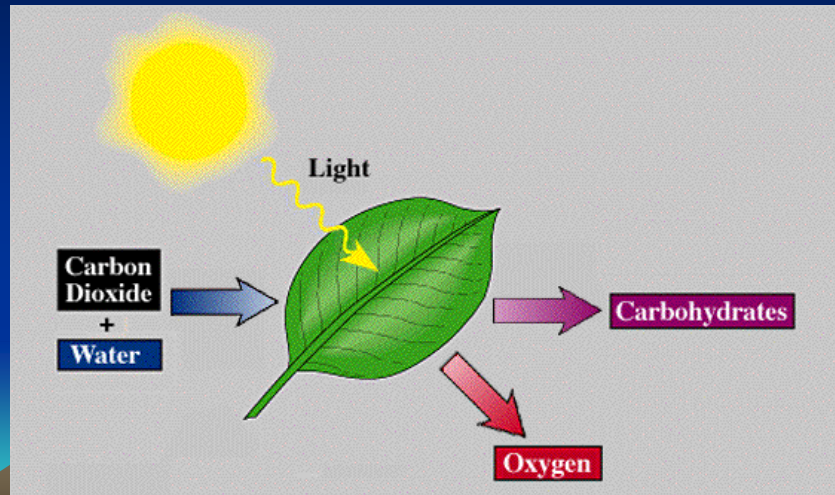


The Met Office

Hadley Centre for Climate Prediction and Research

981995 1

Basic Photosynthesis & carbon dioxide sequestration



Forest Adaptation - Umea 2008

23

Guyana Case Example: January 2005 Flood disaster

- About 60% of entire population affected
- About 75% of critical national infrastructure threatened/vulnerable
- Flood damage cost to mobile telecommunications infrastructure = G\$42 million = US\$210,000

Flood damage estimated nationally @ nearly 60% of GDP!(UNECLAC et al.)

Forest Adaptation - Umea 2008

24

Guyana's Forest cover profile

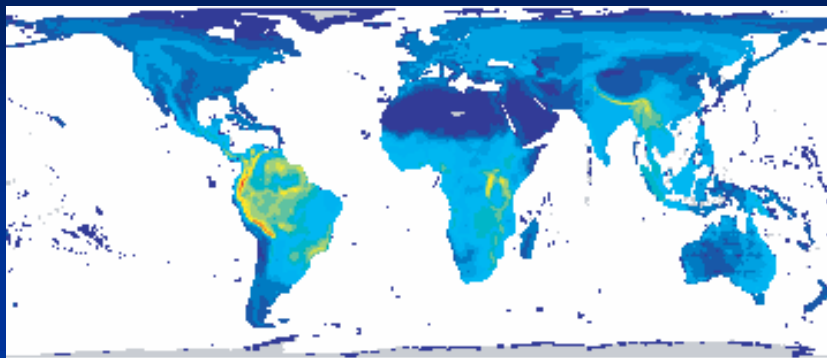
(FAO, 2005)

- Total Land Area (ha) - 19,685,000
- Total Forest Area (ha) - 15,104,000
- Percent Forest Cover - 76.73%
- **Primary Forest Cover (ha) - 9,314,000**
- **Primary Forest, % total forest - 61.67%**
- **Primary Forest, % total land - 47.32%**
- Other wooded land (ha) - 3,580,000

Forest Adaptation - Umea 2008

25

Global Avifauna biodiversity species richness & Guyana's



High levels of species richness indicated by colour range yellow, green to orange red.

Guyana features well in avifauna biological wealth!

Diseases expected to spread in Guyana, Belize & Caribbean Islands

- Trypanosomiasis [sleeping sickness]
- Onchocerciasis [river blindness]
- Malaria
- Schistosomiasis [bilharzia]
- Filariasis
- Leishmaniasis [bush yaws]
- Dengue
- Yellow fever

Source: Hamilton (2003) *The Round Table* volume 92

Forest Adaptation - Umea 2008

27

Guyana's Mitigation Strategy Domain

Reducing emissions from deforestation & degradation [REDD] “modified” to acknowledge heavier weighting for standing forests.

Forest Adaptation - Umea 2008

28

The Jagdeo Climate Change Initiative



Forest Adaptation - Umea 2008

29

Guyana's Environmental ethos

Enshrined in the Constitution - Article 25:

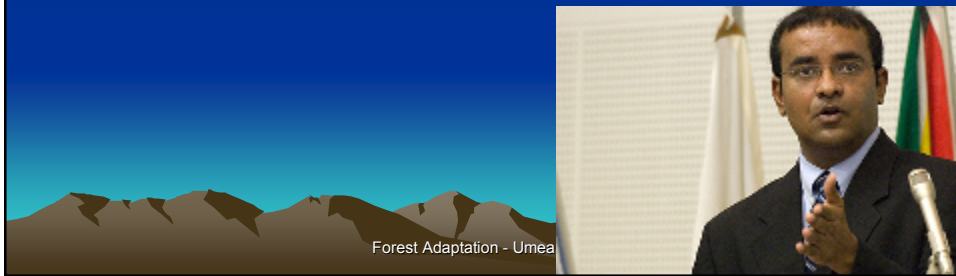
“Every citizen has a duty to participate in activities designed to improve the environment and protect the health of the nation”

Forest Adaptation - Umea 2008

30

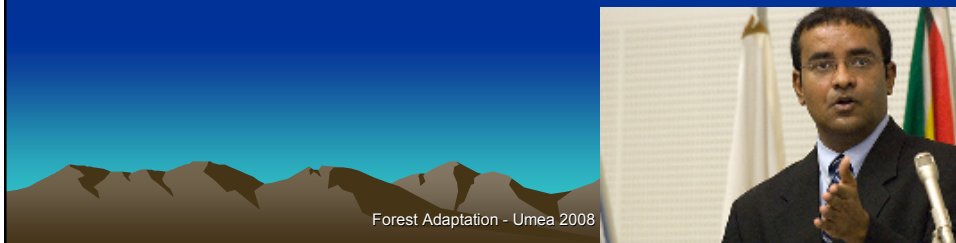
The Four Tenets of Guyana's Climate Change Initiative

Recognize the contributions of standing forests towards addressing climate change through avoided deforestation, carbon sequestration and ecosystem services



The Four Tenets of Guyana's Climate Change Initiative

Make urgent change to the current perverse arrangement which provides a dis-incentive for forest conservation and protection



The Four Tenets of Guyana's Climate Change Initiative

Take into consideration opportunity costs, and develop financial models to provide adequate compensation and incentives for maintaining standing forests through conservation and sustainable use



Forest Adap

The Four Tenets of Guyana's Climate Change Initiative

Provide increased and easily accessible financial resources as well as capacity building for climate change mitigation by developing countries as the current mechanisms, in particular the Kyoto Protocol's Clean Development Mechanism has not proven to be effective, thus far.

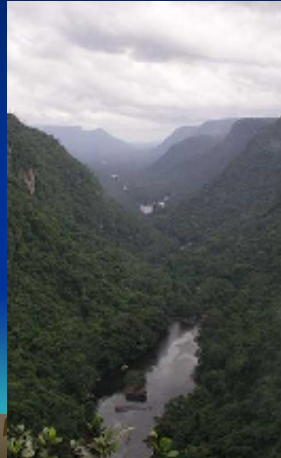


Forest Adaptation - Umea 2008

34

Take over our rainforest

GUYANA'S EXTRAORDINARY OFFER TO BRITAIN TO SAVE
ONE OF THE WORLD'S MOST IMPORTANT CARBON SINKS



Forest Adaptation - Umea 2008

35

Estimates of Guyana's Forest Biomass Carbon stock

[Gibbs *et al.* 2007 – Environmental Research Letters vol. 2]

- Estimates based on harvest data:
 - 2494 M t C (million tons of carbon)
 - 3742 M t C
 - 3354 M t C [IPCC 2006 estimate]
- Estimate based on forest inventory
 - 923 M t C

Forest Adaptation - Umea 2008

36

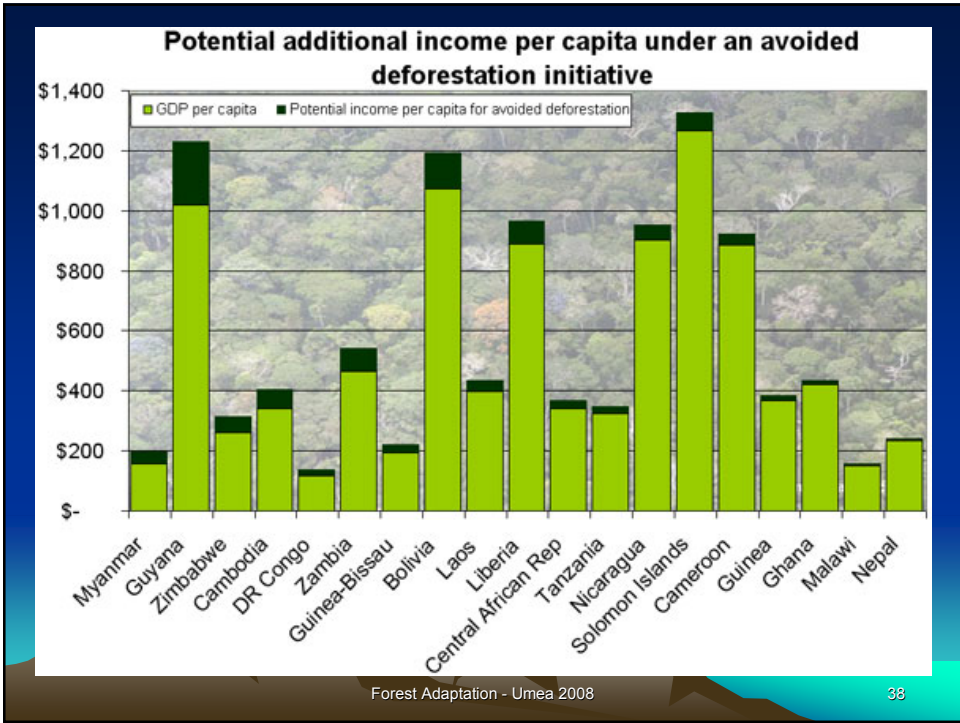
Gold mining & Deforestation

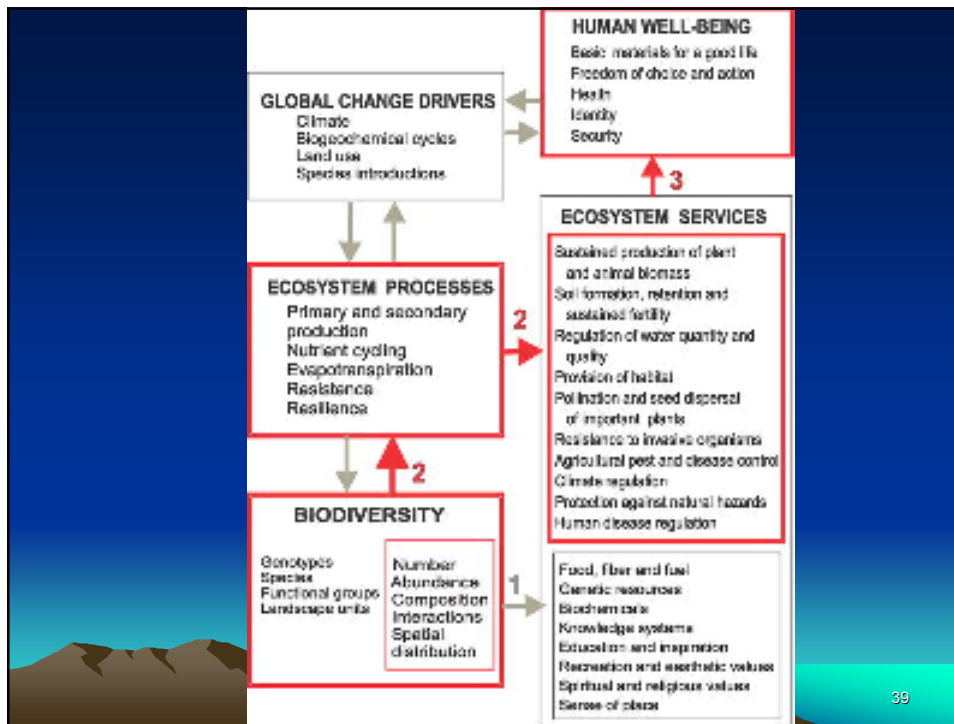
2006 income from forestry
[selective logging] = US\$63M

2007 Income from
Gold exports
> US\$215 M



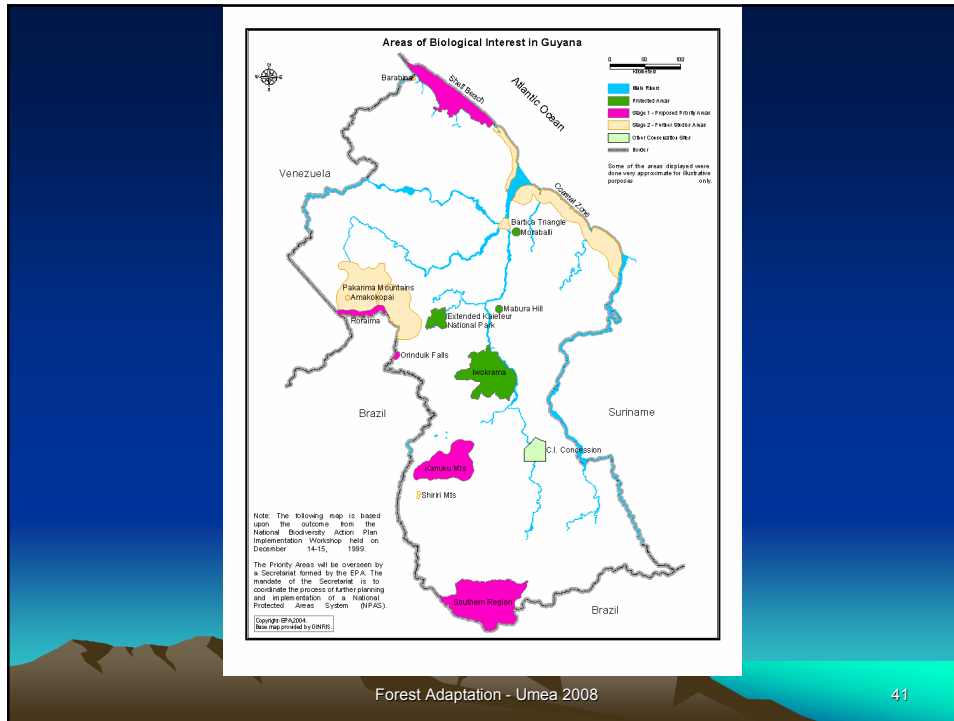
Forest /



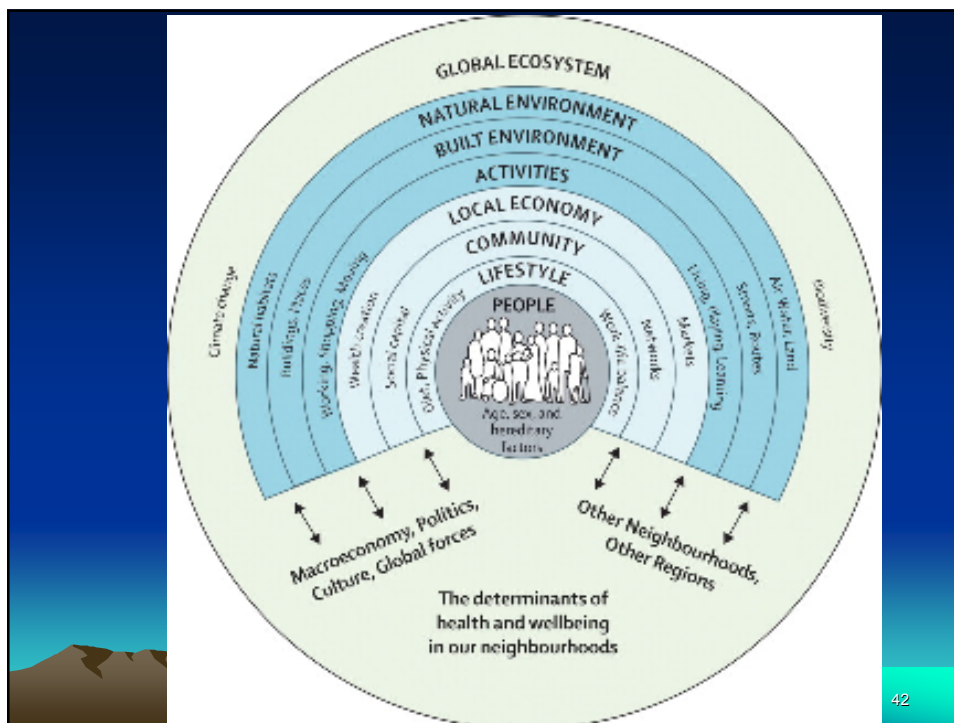


Some Strategic Needs for Guyana's REDD

- Policy commitment exists
- Adequate capacity for implementation – a prototype emerges from Iwokrama
- Evaluation of REDD prospects for entire national forest system less e.g. committed Amerindian lands
- Monitoring & enforcement capacity
- Refinement of applicable carbon stock estimates & economic valuation
 - Improved forest inventory data



Forest Adaptation - Umea 2008



Ecosystem services

COASTAL

Food
Fiber
Timber
Fuel
Climate regulation
Waste processing
Nutrient cycling
Storm and wave protection
Recreation and ecotourism
Aesthetic values

INLAND WATER Rivers and other wetlands

Fresh water
Food
Pollution control
Flood regulation
Sediment retention
and transport
Disease regulation
Nutrient cycling
Recreation and
ecotourism
Aesthetic values

ECOSYSTEM SERVICES

Provisioning

- FOOD
- FRESH WATER
- WOOD AND FIBER
- FUEL
- ...

Supporting

- NUTRIENT CYCLING
- SOIL FORMATION
- PRIMARY PRODUCTION
- ...

Regulating

- CLIMATE REGULATION
- FLOOD REGULATION
- DISEASE REGULATION
- WATER PURIFICATION
- ...

Cultural

- AESTHETIC
- SPIRITUAL
- EDUCATIONAL
- RECREATIONAL
- ...

We offer our 16 million hectares of forest in global partnership for the sustainability of our common global ecosystem. Join us for the sake of our common humanity!

Forest Adaptation - Umea 2008

45

Implications for utilities

- **Negative impacts on utility infrastructure & service quality**
- **Business risk for utilities**
- **Impoverished ecosystem services undermine utility business/service delivery**
- **Emotional & economic security of Human capacity of utilities can be threatened**

Forest Adaptation - Umea 2008

46

Climate change solutions & Responsibility of utilities

- Eco-insurance – ecosystem services
- Greenhouse gas accounting
- Carbon credits – Mitigation PPP
- Renewable energy use strategies
 - Biodiesel use?
 - Miniature photovoltaics for household use
- Engagement in revised REDD mechanisms
- Public engagement – best-practice awareness; lifestyle adjustment

Forest Adaptation - Umea 2008

47

Thank You



48

Acknowledgements

- His Excellency
President Bharrat Jagdeo for use of
principles in his UN speech.
- Chairman Prem Persaud & colleagues of
PUC-Guyana
- OOCUR
- University of Guyana
 - Smithsonian Institution
 - Tropenbos-Guyana Programme
- COHAB2008
- Forest Adaptation 2008