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## USING A RAINFOREST WITHOUT LOSING IT

**Guyana's Iwokrama Forest is providing a unique dedicated site in which to test the concept of a truly sustainable forest – a place where conservation, environmental balance, economic use and a new generation of research come together at a time of global climate challenge**

**GUYANA, SOUTH AMERICA** – The Iwokrama International Centre for Rainforest Conservation and Development (IIC), which manages nearly one million acres (371,000 ha) of pristine Guiana Shield rainforest in the heart of Guyana, South America, recently launched a new integrated research framework to help the world find new ways of using a rainforest without losing it.

The framework is spearheading a new cross-disciplinary science agenda designed to support the development of a sustainable future for tropical forest communities in the face of climate change.

The Government of Guyana and the



Commonwealth Secretariat established the IIC in 1996 under a joint mandate to manage the Iwokrama forest “in a manner that will lead to lasting ecological, economic and social benefits

to the people of Guyana and to the world in general.”

Since then, the IIC has become internationally recognized for its unique and ambitious conservation and development practices that

seek to show that rainforest resources can be used sustainably to generate economic benefits for communities through traditional and scientific resource-based knowledge and management.

As the negative effects of climate change become more prevalent, Iwokrama's new research program is examining the impacts of climate change on the forest and seeking additional ways to understand and protect the threatened ecosystem services that surrounding communities depend on for their well-being and ultimate survival.

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The world's remaining tropical forests are finally being recognized as giant eco-utilities that provide critical but undervalued ecosystem services on a global scale, including rainfall generation, climate regulation, biodiversity maintenance and water storage. But research shows that the areas most vulnerable to rapid and irreversible degradation are at the borders of tropical rainforests, such as forest-savannah boundaries and edges of agricultural, road or mining areas.

Tropical frontier rainforests like Iwokrama and the communities that directly depend on their resources are particularly threatened by more extreme conditions stemming from global warming, including floods, droughts and fires. And it is not

just their forests that are threatened. The cultural and social capital of indigenous peoples and local communities can also degrade, often aggravating poverty.

**“In April 2009 the Iwokrama Science Committee (ISC) was launched to advise the IIC’s board of trustees on scientific matters and to reinforce and advance IIC’s well-established business model.”**

By working with 16 local communities that are linked through the North Rupununi District Development Board (NRDDDB) and the Bina Hill Institute – Iwokrama’s research and training centre arm – the IIC, in collaboration with the Government of Guyana and other international partners, is looking to play its part in helping to arrest this potential downward spiral.

The IIC is researching the links between climate, vegetation and ecosystems in the Iwokrama Forest and the bordering savannah region with the hope of being able to provide a better understanding of how such frontier rainforests may be impacted by environmental and climatic change.

The IIC plans to use its knowledge to design and implement new mitigation and adaptation strategies. In an effort to help diversify local community economies to enhance and retain their economic, social and cultural capital, Iwokrama’s new research program will also seek to promote alternative livelihoods while evaluating the contribution of ecosystem services to the overall financial value of the forest.

Continuing with its mission of designing and implementing integrated models that create synergies between scientific research, sustainable tropical forest management and business (such as ecotourism and sustainable timber harvesting), at the same time as developing and supporting the welfare of people within and around Iwokrama, the IIC is working to transform natural capital into human and economic benefit through environmentally sustainable models and mechanisms.

As part of national, regional and international research networks, Iwokrama has a long and successful track record in sustainable forestry

and biodiversity research. IIC’s experience has shown that the challenge of sustainability requires the integration of new strategic research directions, including the fields of hydrology, carbon and nutrient cycling, and climate change, in order to underpin the existing economy and community driven model for Iwokrama.

In April 2009 the Iwokrama Science Committee



(ISC) was launched to advise the IIC’s board of trustees on scientific matters and to reinforce and advance IIC’s well-established business model. The ISC consists of experts and scientists from

Guyana, the Caribbean, South America, North America and Europe who are able to provide advice on strategic research directions to the trustees and assist in developing an integrated research vision.

Expertise within the ISC spans community work, biodiversity, physical sciences, economics and political frameworks. Since the creation of the advisory committee, research capacity at Iwokrama has been substantially enhanced through funding from the Inter-American Development Bank.

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A new hydroclimate and geochemistry monitoring programme at the IIC is just one example of the new strategic activities designed by the ISC and led by a team at Newcastle University (NU) in the UK.

Last year, to coordinate research activities at the Iwokrama River Lodge and Research Station, and to enhance the new science programme on

an international level, the IIC appointed a new Resident Scientist and climate change expert, Dr. Isabella Bovolo, formerly with NU.



Together, Dr. Bovolo (pictured on left), Dr. Geoff Parkin, a senior hydrologist at NU, and Thomas Wagner, Professor of

Earth System Sciences at NU and current Chair of the ISC, have spearheaded the installation of new monitoring instruments to record key variables of climate, hydrology and geochemistry across an area of forest from the heart of the rainforest at the IIC field station to the Rupununi Savannah further south.

The research area spans a sensitive climatic transition zone, enabling the Iwokrama Forest and its neighboring savannah areas to be placed into the dynamic tropical South American climatic context. The work complements existing research programs on biodiversity, while creating new links with key issues such as tropical forest hydrology, biogeochemical cycling and climate change.

Dr. Elizabeth Losos, President and CEO of the Organization for Tropical Studies at Duke University and an Iwokrama trustee, brings invaluable experience and oversight to this new programme.

The general research framework for Iwokrama links three themes - 'Environmental Resilience', 'Ecosystem Service Values', and 'Human, Social and Cultural Capital' – with sets of underlying questions structuring the objectives of individual work components (see box below).

Recent strategic investments and achievements have positioned Iwokrama to consolidate and further develop its profile as an international leading centre of excellence in integrated tropical forest research and management. Iwokrama and the ISC invite the wider research community and potential funding bodies to engage in the new and emerging opportunities.

For general information on Iwokrama, visit [www.iwokrama.org](http://www.iwokrama.org). For specific questions regarding the new research framework and opportunities for engagement, please contact Dr. Isabella Bovolo at Iwokrama ([ibovolo@iwokrama.org](mailto:ibovolo@iwokrama.org)) or the Chair of the ISC, Professor Thomas Wagner at Newcastle University ([Thomas.wagner@ncl.ac.uk](mailto:Thomas.wagner@ncl.ac.uk)).

### IIC Research Framework Themes:

#### Environmental Resilience

- How resilient are tropical environments, like Iwokrama, to local and global change?
- What impact will different land use practices have on biodiversity and ecosystem services?
- What are the likely consequences of environmental change for human livelihoods and their resilience?
- What are the linkages and feedbacks that contribute to resilience?

#### Ecosystem service values

- What are the values of Iwokrama's ecosystem services?
- Are these values changing and if so how and why and what are the consequences?
- What mechanisms might provide incentives to optimize the values of ecosystem services across a range of scales?

#### Human, social and cultural capital

- What values can be derived from past cultural practices and expressions and how can these values be best invested for current communities?
- What is needed to develop sustainable forest-based entrepreneurs drawing on ecosystem services and how might communities contribute to and benefit from their development?
- How can local communities participate in the governance and economic benefits of ecosystem services?
- How can sustainable forest management build and shape human and social capital?