



# SYMPOSIUM ON RESEARCH ENTERPRISE & IMPACT

MAINSTREAMING ENVIRONMENTAL  
CONSIDERATIONS INTO DECISION MAKING FOR  
SUSTAINABLE DEVELOPMENT IN  
TRINIDAD AND TOBAGO:

**The Project for Ecosystem Services**  
([www.proecoserv.org](http://www.proecoserv.org))

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University of the West Indies  
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Trinidad and Tobago



# What is Sustainable Development ?

United Nations Brundtland Commission Definition:

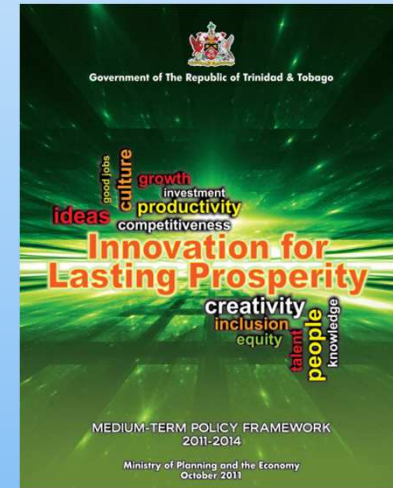
- “Enabling development that meets today’s needs without prejudicing the ability of future generations to meet their own needs. Broadly, it is the principle of stewardship and responsibility in the use and management of resources and achieving a balance between economic growth and technological developments and environmental considerations.”



# T&T GOVERNMENT SEVEN INTERCONNECTED PILLARS FOR SUSTAINABLE DEVELOPMENT

1. People-Centred Development
2. Poverty Eradication and Social Justice
3. National and Personal Security
4. Information and Communication Technologies
5. A More Diversified, Knowledge Intensive Economy
6. Good Governance -People Participation
7. Foreign Policy -Securing our Place in the World

ENVIRONMENT  
NOT MENTIONED



Source: T&T Medium-Term Policy Framework 2011 – 2014,  
Ministry of Planning and Sustainable Development



# HOW DOES BIODIVERSITY CONTRIBUTE TO HUMAN WELL\_BEING AND WHAT IS THE PROJECTED EFFECTS OF CLIMATE CHANGE?

## UWI PROECOSERV associated projects:

- Project for ecosystem services –funded by UNEP, Global Environment Facility (GEF) with partners in Chile, South Africa and Vietnam
- Economic valuation of Caroni Swamp ecosystem services – funded by UWI RDI
- Aripo Savannahs project –funded by the Green Fund, Ministry of Environment and Water Resources

## UWI CLIMATE CHANGE related projects:

- Global to Local Socio-Economic Climate Change Scenarios –funded by EU Africa Caribbean and Pacific (ACP) Programme with collaborators at UWI Barbados and Jamaica Campuses
- Water and Climate Change –funded by IDRC of Canada with collaborators at UWI Barbados and Jamaica Campuses



# ENGAGING OUR STAKEHOLDERS

## The Role of Ecosystem Services in Sustainable Development

By *GRO HARLEM BRUNDTLAND*

OSLO – 23 November 2012



The Project for Ecosystem Services (ProEcoServ) is now instituting "Our Common Future" into lessons learned in Chile, South Africa, Trinidad and Tobago and Vietnam. These lessons can then be replicated in other countries, underlining that taking care of our planet's biological diversity is critical to secure our future.

When we submitted the Brundtland Report to the UN Secretary General in 1987, it was clear that our report was not the end, but the beginning of a long journey.



# 1. Think global act local

*Minister of Planning and Sustainable Development  
Dr Bhoë Tewarie  
at ProEcoServ Launch  
International Waterfront Complex  
7 February 2012*



## ProEcoServ Launch Pretoria South Africa



## ProEcoServ launch San Pedro de Atacama, Chile



## ProEcoServ launch, Ha Noi, Vietnam



# Proecoserv International Steering Committee

Ms. Sandra Berna, Mayor San Pedro de Atacama, **Chile**



Prof. Rashid Hassan, Centre for Environmental Economics and Policy in Africa, University of Pretoria, **S. Africa.**



Dr. Pushpam Kumar, UNEP Ecosystem Economics, **Kenya**



Prof. Anil Markandya, Basque Centre for Climate Change, **Spain**



Prof. Jacqueline Mc Glade, European Environment Agency, **Denmark**



Dr. Rosimeiry Portela, Conservation International, **USA**



Mr. Edoardo Zandri, UNEP GEF Biodiversity/Land Degradation/Biosafety Unit ,

Kenya



## ENGAGING OUR STAKEHOLDERS AT THE NATIONAL LEVEL

### 2. Identify local policy intervention points

#### Objectives of ProEcoServ

1. **Introduce GIS-based biodiversity and ecosystem service maps into the next Spatial Development Plan of T&T: – Ministry of Planning & Sustainable Development**
2. **Introduce Experimental Ecosystem Services Accounting into the T&T National Accounts: –Ministry of Finance**
3. **Develop a pilot Eco-finance/Payment for Ecosystem Services case study with the Green Fund: -Ministry of Environment and Water Resources**



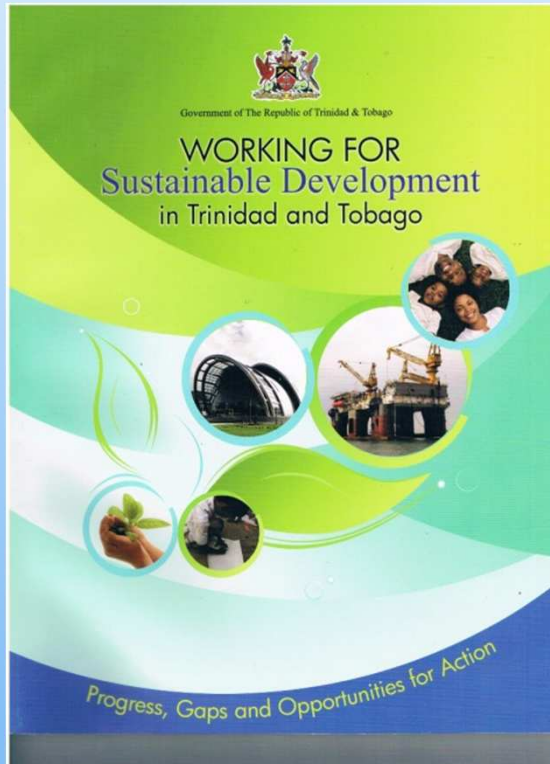


### 3. Target decision-makers and try to influence policy and process

- Development Planning:
  - National Spatial Development Plan
- Economic Decision-Making
  - National Accounting System
  - Green Fund



## 4. Seek strong prior authorization



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“The ProEcoServ Programme, a new initiative of the Government of Trinidad and Tobago in collaboration with the University of the West Indies, integrates ecosystem assessment, scenario development, and economic valuation of ecosystem services into national sustainable development planning.” “Professor John Agard of the Department of Life Sciences UWI who leads the ProEcoServ effort has been co-opted on the Committee charged with overseeing the integration of Land Use Policy with National Physical Development .”



## 5. Have Stakeholders on the project steering committee:

**Chair: Permanent Secretary Ministry of Environment and Water Resources**

- Public Agencies:
  - Ministry of Planning and Sustainable Development
  - Ministry of Environment and Water Resources
  - Ministry of Food Production
  - Tobago House of Assembly
  - Environmental Management Authority
- Research institutions
  - The University of the West Indies
  - Institute of Marine Affairs
  - Caribbean Agricultural Research and Development Institute
- NGOs
  - The Cropper Foundation, Trinidad
  - The Bucco Reef Trust, Tobago
- Development Agencies/ Orgs
  - UNDP



Permanent Secretary Vidiah Ramkhelawan of the Ministry of Environment and Water Resources at the Proecoserv event in Rio+20 Brazil on June 18<sup>th</sup>, 2012.



## FIELD WORK ONGOING ON ECOSYSTEM SERVICE VALUATION AT 4 PILOT SITES

- Three Pilot sites:
  1. **Nariva Swamp (Trinidad) -2 Ph.d. Students**
  2. **Northern Range (Trinidad) -1 Ph.d. Student**
  3. **Buccoo Reef and Bon Accord Lagoon Complex (Tobago) -1 Ph.d. Student**
  4. **Caroni Swamp (Trinidad) – 2 Ph.d. students, 17 M.Sc. Students**
  5. **Aripo Savannahs -5 Post-doctoral Research Fellows**

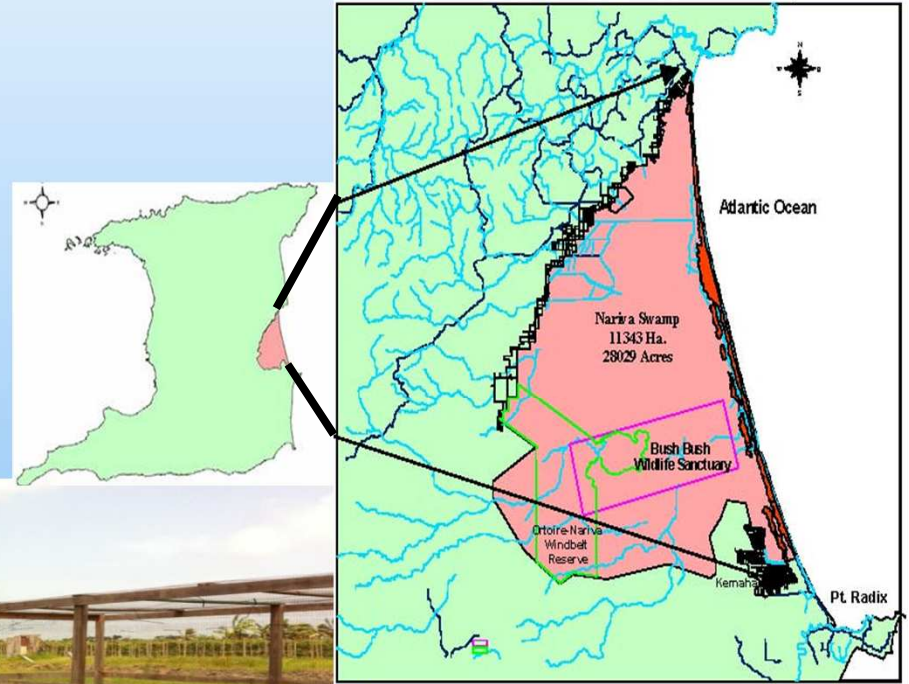
# Implementation Approach

## 6. Involve local people Ecosystem Services

targeted: Crop Pollination

- Carbon Sequestration

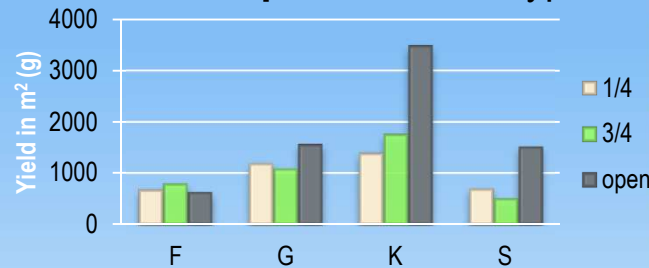
## Trinidad Nariva Swamp



### STAKHOLDER CONSULTATION



Total cucumber yield per location per enclosure type

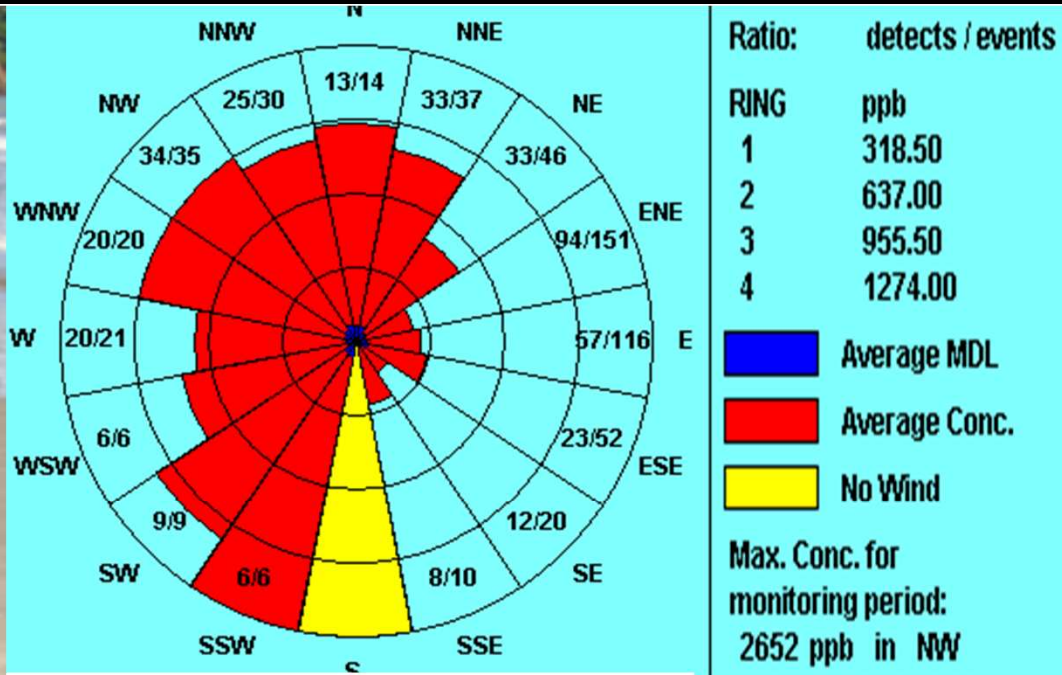


Source: Lena Dempewolf

# Nariva Swamp

## Ground based remote sensing of greenhouse gas emissions reduction

### Measured Concentrations of Methane Emissions from Nariva Swamp

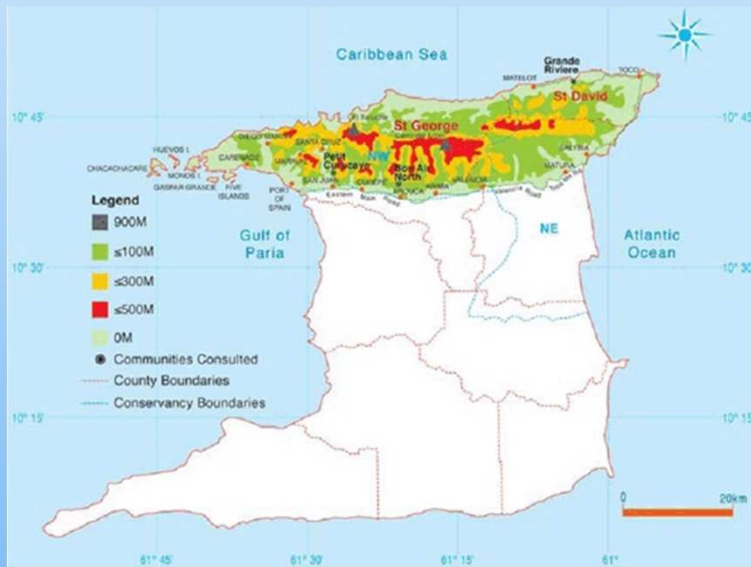


Wind Sector	Average Conc. (ppb)	Average MDL (ppb)	Wind Sector	Average Conc. (ppb)	Average MDL (ppb)
N	939.2	71.22	S	No data	No data
NNE	851	73.39	SSW	1274	75.98
NE	535.7	55.46	SW	1040	63.05
ENE	256.3	47.72	WSW	768.1	46.83
E	283.4	44.07	W	702.1	51.42
ESE	313.3	55.2	WNW	960.8	58.27
SE	171.6	30.83	NW	963.4	62.42
SSE	278.7	30.64	NNW	890.2	84.03

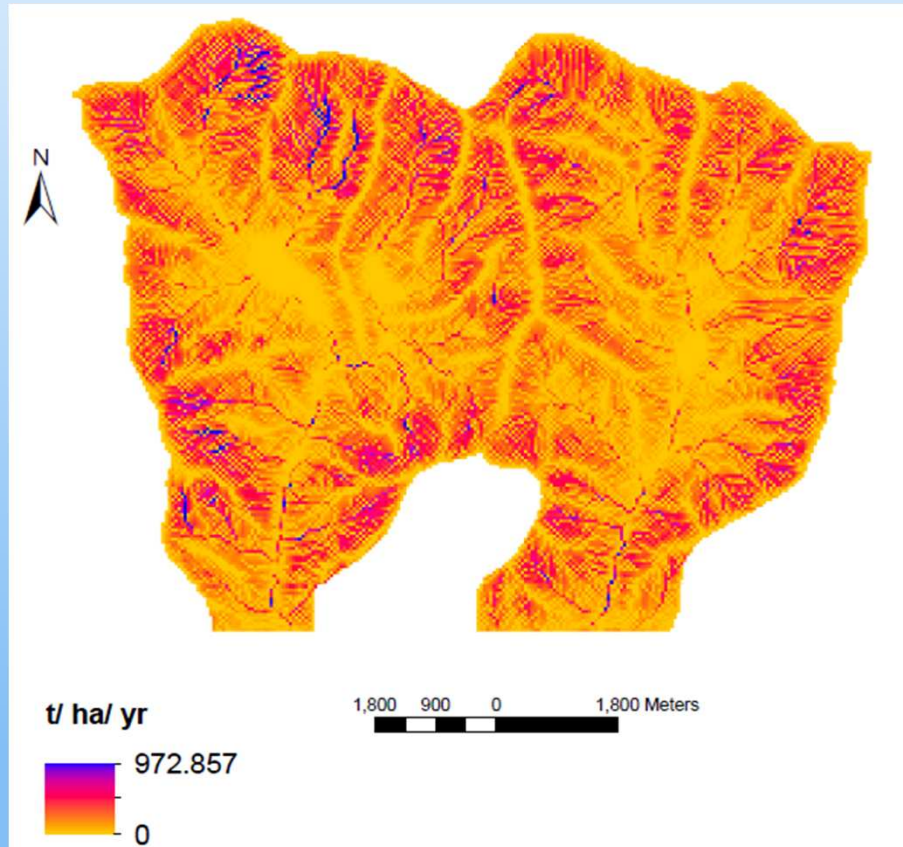


## Ecosystem Services

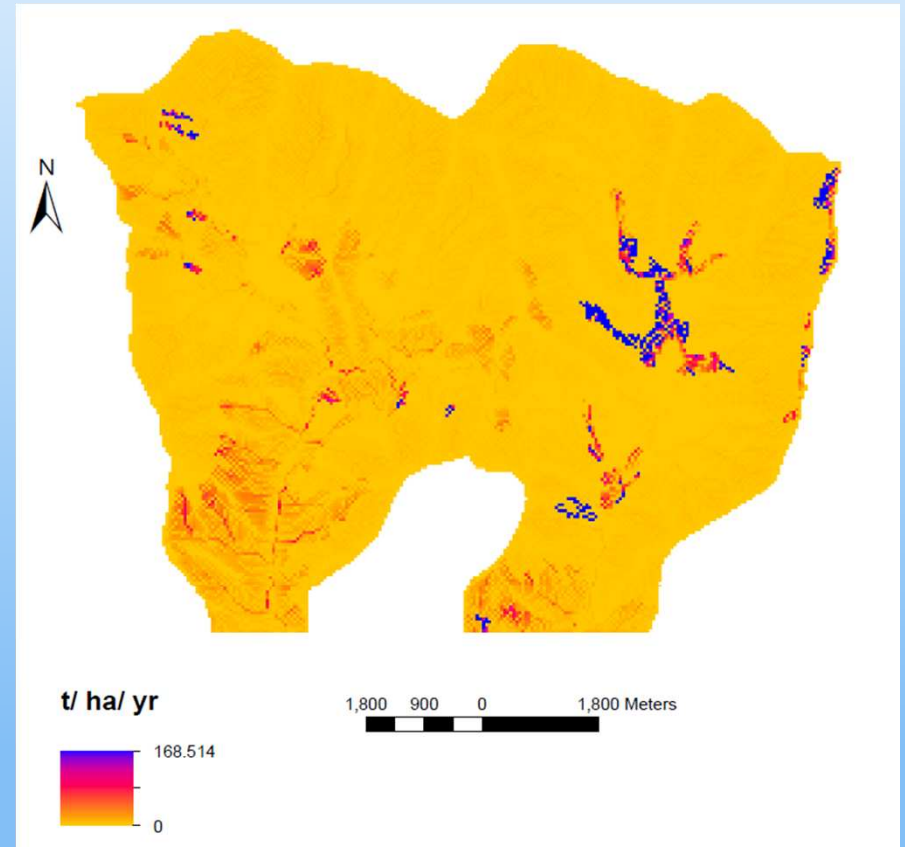
- Erosion Regulation
- Water Purification



## Modelled soil loss in the Maracas and Caura Watersheds without vegetation cover ( $A_w$ )



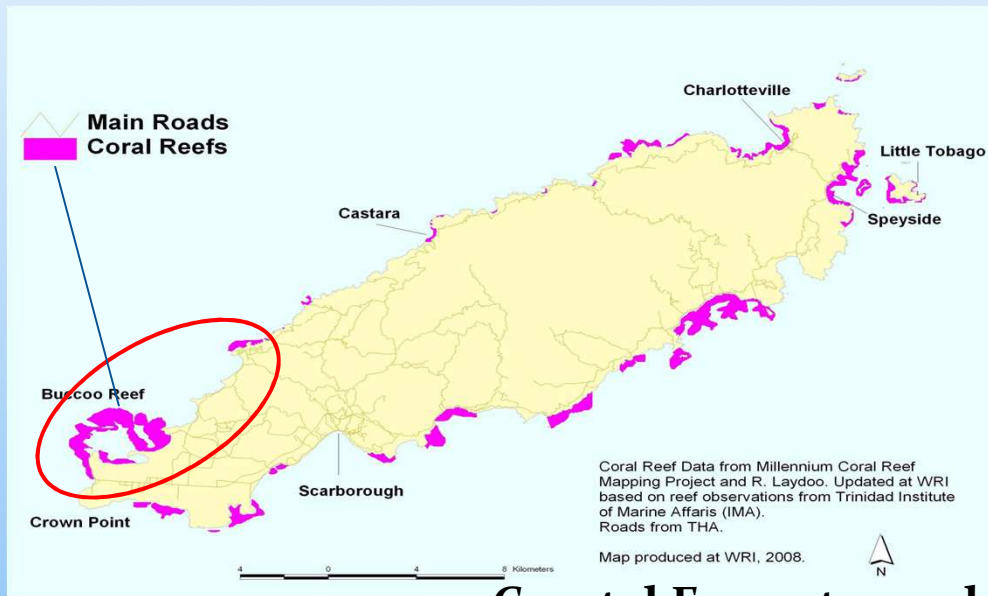
## Modelled soil loss in the Maracas and Caura Watersheds with vegetation cover ( $A_{wv}$ )



Forests on steep slopes ( $30^\circ - 50^\circ$ ) reduce potential erosion by as much as 95%

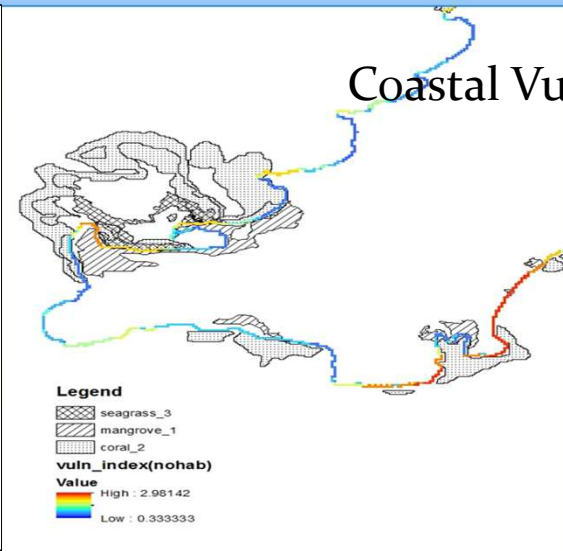
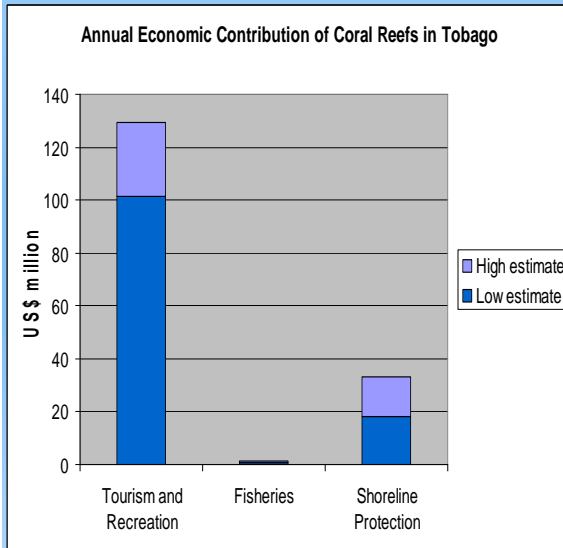


# South-West Tobago – Research Focus: Coastal Erosion Protection

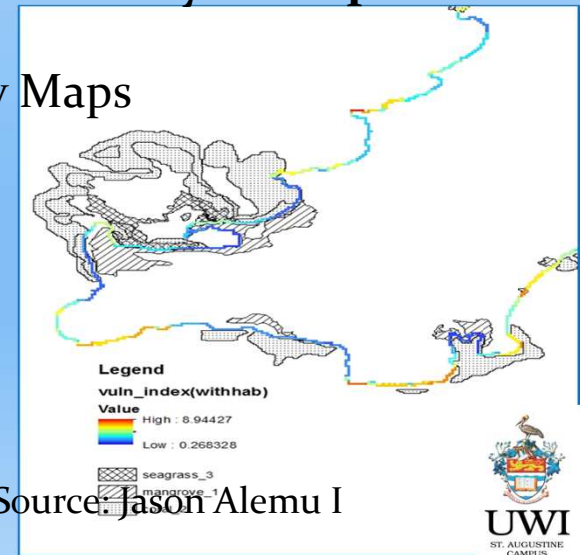


Coastal Ecosystems absent

Coastal Ecosystems present



Coastal Vulnerability Maps



Source: Jason Alemu I

# RDI Caroni Swamp Project

<http://caroniswamprdi.org/>

## Ongoing research

- 14 M.Sc. students from online M.Sc. Biodiversity and Sustainable Development in the Caribbean

- 2 PhD students

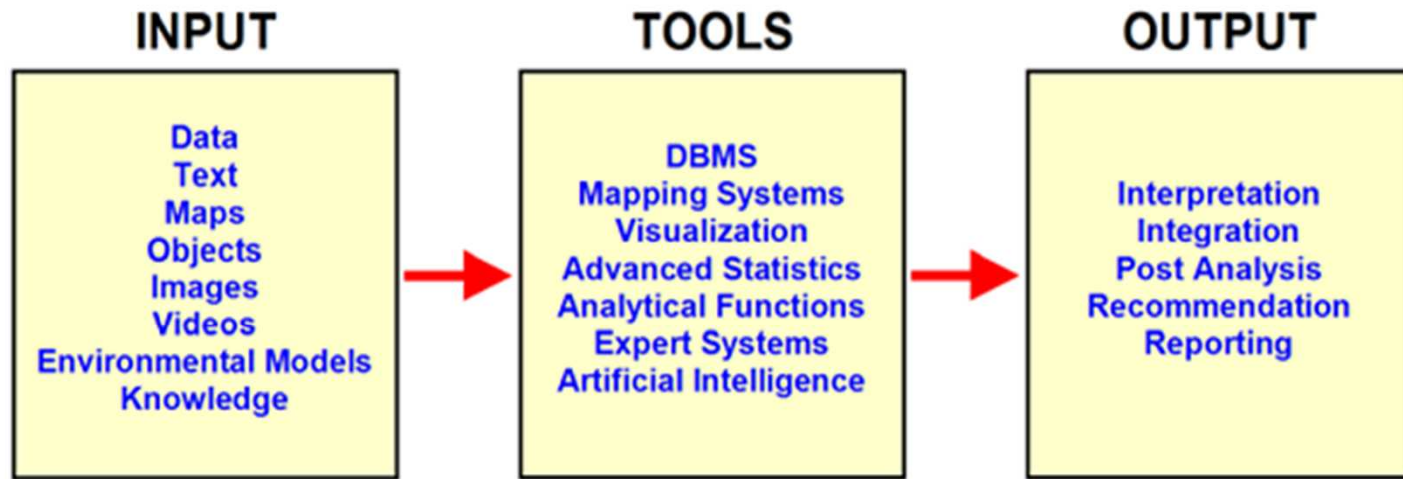
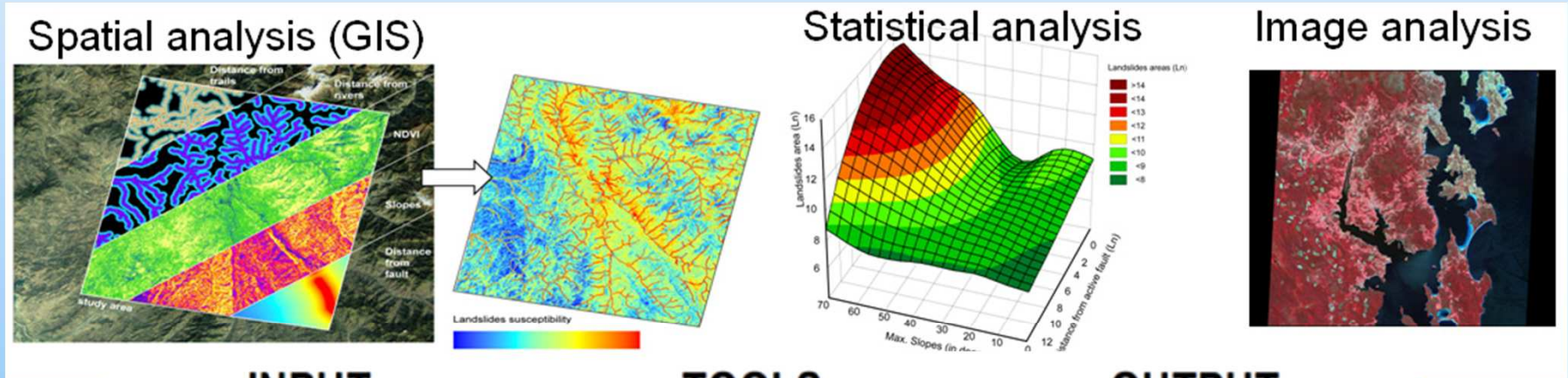
- 1 M.Sc. Economics student

- 2 completed MSc research projects

- An Economic Valuation of Domestic Recreation at Caroni Swamp

- Mist netting Survey of Overwintering Migrant Songbirds at Caroni Swamp

7. Develop tools and techniques to aid decision making
8. Conduct targeted capacity building workshops/ training sessions
9. Prepare summary for policy makers



## Building Political will and capacity

Engage Key stakeholders by introducing ENAN concepts and potential uses.



Conduct a needs assessment – to determine the most important policy questions and needs of stakeholders.



Conduct targeted capacity building workshops/ training sessions

Form a Steering subcommittee with relevant stakeholders

## Providing Demand Driven information

Determine Policy Entry Points – What natural resource issue is most critical? Which type of accounting can help solve this issue?



Scoping paper: reviewed by Steering subcommittee and other key stakeholders

## Beyond ProEcoServ

Present Pilot study to Subcommittee and Senior Technocrats



Subcommittee develops four year work plan work plan – how will Gov agencies and other stakeholders implement their own accounts?

Pilot study of accounts  
Provides demand driven pilot of accounts and presents possible uses to subcommittee





*Thank You*

**UWI**  
RESEARCH  
*expo*  
2013

