P3DM a tool for Building the Resilience of SIDS coastal Communities and their Ecosystem to the impacts of Climate Change (Participatory 3 Dimensional Modelling)

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CARIBBEAN AGRICULTURAL WEEK

Building resilience in small island economies : from vulnerabilities to opportunities.

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Outline of the presentation

- Introduction
- About Participatory 3D Modelling (P3DM)
- Where?
- The case of Boe Boe (video)
- Why?
- From the Pacific to the Caribbean
- Strategic approach to building capacity
- Outcomes and conclusions

Introduction

- Partners With Melanesians (PwM) is a national conservation and community development NGO from in Papua New Guinea in the South Pacific.
- PWM works in 4 provinces on forest conservation and community development projects… but moving into coastal marine activities.
- In our work, we applied many tools with local people and communities… 860+ different languages …. Difficult Task.

Issues affecting the Pacific

- Global Warming and Climate Change
- Sea Level Raise
- Food insecurity agriculture
- Natural disasters
- Rights (tenure, access and use) over natural resources

Similar in the Caribbean (SIDS)

Participatory 3D Modelling (P3DM)

P3DM merges traditional spatial information …

… with local knowledge

P3DM works best at scales larger than 1:10,000

The Map Legend

P3DM in the Pacific

- 2005 CTA/SPC supported Training of Trainers in Fiji …
- PwM applied P3DM for conservation and spatial planning in PNG

- Supported communities in Solomon's Islands

World Summit Award
WINNER 2007

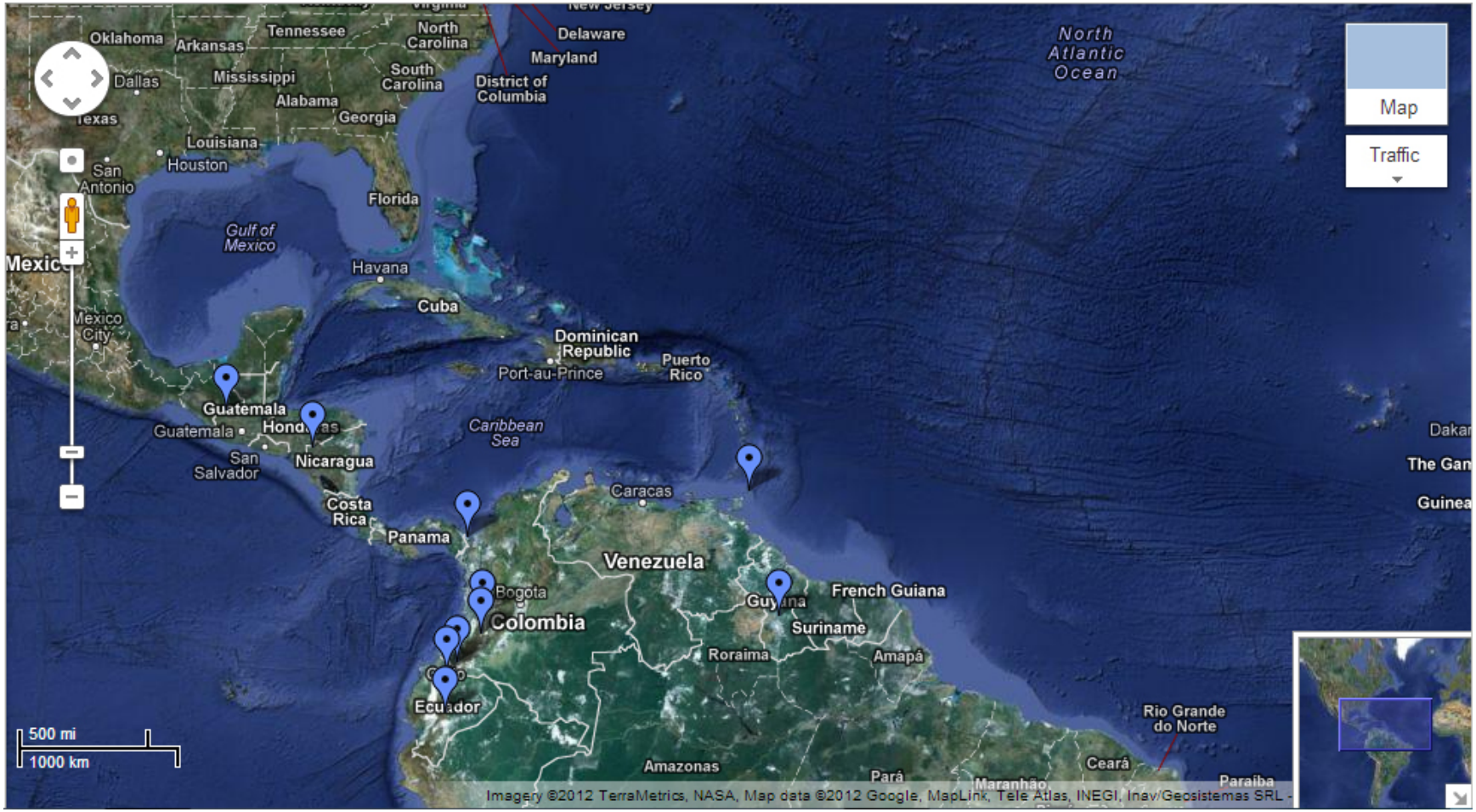
Applications in Pacific

- Education and Awareness on Climate Change
- Advocacy to influence policy development
- Protected Area management and planning
- Disaster Risk Reduction (DRR)
- Multi sectoral / multi stakeholders spatial planning
- Watershed and coastal resource management
- Documentation of biological and cultural diversity (Traditional knowledge)
- Action research

P3DM in South Pacific

P3DM in the World

P3DM in The Caribbean



Why this tool in the Pacific?

- Diverse languages
- Low literacy levels
- Limited capacities to articulate knowledge
- Limited map reading skills

P3DM Partnership in PNG

- P3DM has brought different parties to the table to discuss openly issues on climate change, development, disaster preparedness and other traditional matters
- It was a NGO/CSO and Local community exercise, but with climate change and especially coastal communities and maritime provinces….the model has really made sense.
- AUSAID, TNC, WWF, Provincial & Local Level Governments, Churches, Academia and soon to be with National Governments

From the Pacific to the Caribbean

Manus Island – PNG

Tobago Island – Trinidad & Tobago

1:10,000 scale

PGIS/P3DM in the Caribbean

- CANARI and UWI
- CTA, UNDP-GEF-SGP, TNC
- PGIS / P3DM / PV Training Workshop in Tobago
- 22 trainees from 10 countries

Participating organisations by country

- **Barbados**: Caribbean Disaster Emergency Management Agency; Caribbean Institute for Meteorology & Hydrology
- **Dominican Republic**: Consorcio Ambiental Dominicano Inc,
- **Grenada**: Caribbean Association for Youth Development Inc.; Woburn Community
- **Haïti**: Groupe de Action Francophone pour l'Environnement
- **Jamaica**: Forestry Department, Forest Science and Technology; Caribbean Coastal Area Management Foundation
- **St. Lucia**: Caribbean Environmental Health Institute
- **St. Vincent and the Grenadines**: Sustainable Grenadines; AWE Leader Union Island
- **T&T**: CARDI; Institute of Marine Affairs; Red Cross Society; Office of Disaster Preparedness and Management; Environment Tobago, Tobago; Department of Natural Resources and Environment (DNRE), Tobago
- **US Virgin Islands**: The Nature Conservancy
- **Greater Caribbean**: Caribbean Large Marine Ecosystem (CLME), IOCARIBE - UNESCO

Photos from Tobago P3DM

“She is so beautiful ...”

Scale: 1:10,000
Vertical exaggeration: 1
Total area covered: 1100 sq km
Source of DEM: UWI
Highest: 549 m a.s.l
Deepest: -100 m
Data layers: 87
Days: 12

No. of informants: 106
Informants: Fisherfolk, farmers, dive operators, beekeepers, entrepreneurs, students, researchers

What next?

- Data capturing and digitisation (UWI)
- GIS import and data validation
- Data custodianship: UWI and THA
- Model display at Tobago House of Assembly, Division of Agriculture, Marine Affairs, Marketing & the Environment
- Model use for collaborative planning, monitoring, strategising and informing policy making

Emerging vulnerability issues

- Extreme weather events
- Sea level raise
- Coastal erosion and reef damage
- Salination of water table and soils
- Decreasing soil fertility
- Forest clearance
- Sedimentation of rivers and stream
- Forest fires
- Landslides

Stories

- Our fish catches now compared to 10 years ago is much less and it's difficult … *Theo Fisherman*
- Crabs in the coastal wetlands/mangroves much smaller then before … *Observation from Fisher folks*
- Reefs are dying out … *Dive Shop Operator*
- Rainfall is unexpected and washing our topsoil away … *Cocoa Farmer*
- Waves are washing away coastal land for housing and agriculture … *Resident of Mt. St' George*
- Landslides affecting road, time to relocate road … *Resident of Mesopotamia*

“Platform for Dialogue”

P3DM adds value to traditional knowledge

Manus Provincial Government
Deputy Governor and Provincial Secretary

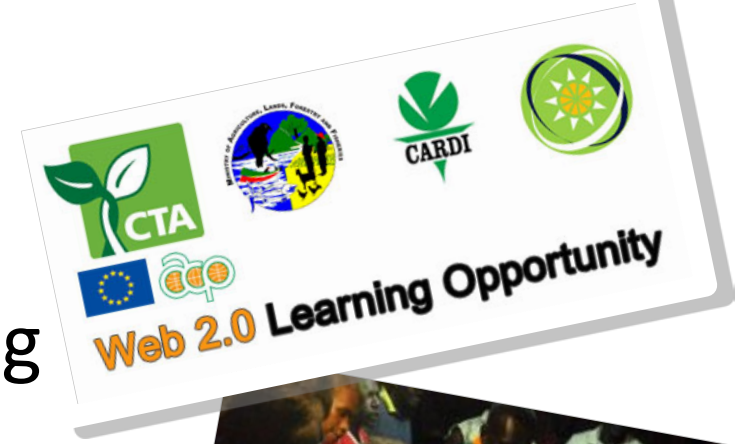
Tobago House of Assembly
Secretary of Agriculture, Marine Affairs and the Environment

2013 planned P3DM in the Caribbean

- St. Vincent and Grenadines: TNC and Sustainable Grenadines - 2 models in 1st Qrt.
- North Tobago: IMA with Charlottesville Community
- Haiti: 1 exercise

Strategic approach to building capacity

- Participatory GIS (PGIS)
- Participatory Video (PV)
- Web 2.0 Capacity building
- Online advocacy



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Outcomes

- Empowers local communities and other stakeholders
- Motivates and mobilise community to seek solutions to their problems locally and creates momentum for moving forward
- Creates a level playing field or a platform for all stakeholders (including policy makers) to discuss issues of climate change and other matters of importance

Training Kit *on*
Participatory Spatial Information
Management *and* Communication

Good practice promoted

http://pgis-tk.cta.int

https://vimeo.com/channels/pgis

Thank you

I would like to thank CTA for the Partnership with PwM on P3DM in the Pacific and for organising the P3DM Training of Trainers/Facilitators in the Caribbean along with all the partners CANARI, UWI, TNC and UNDP GEF-SGP that supported the Workshop in Tobago.