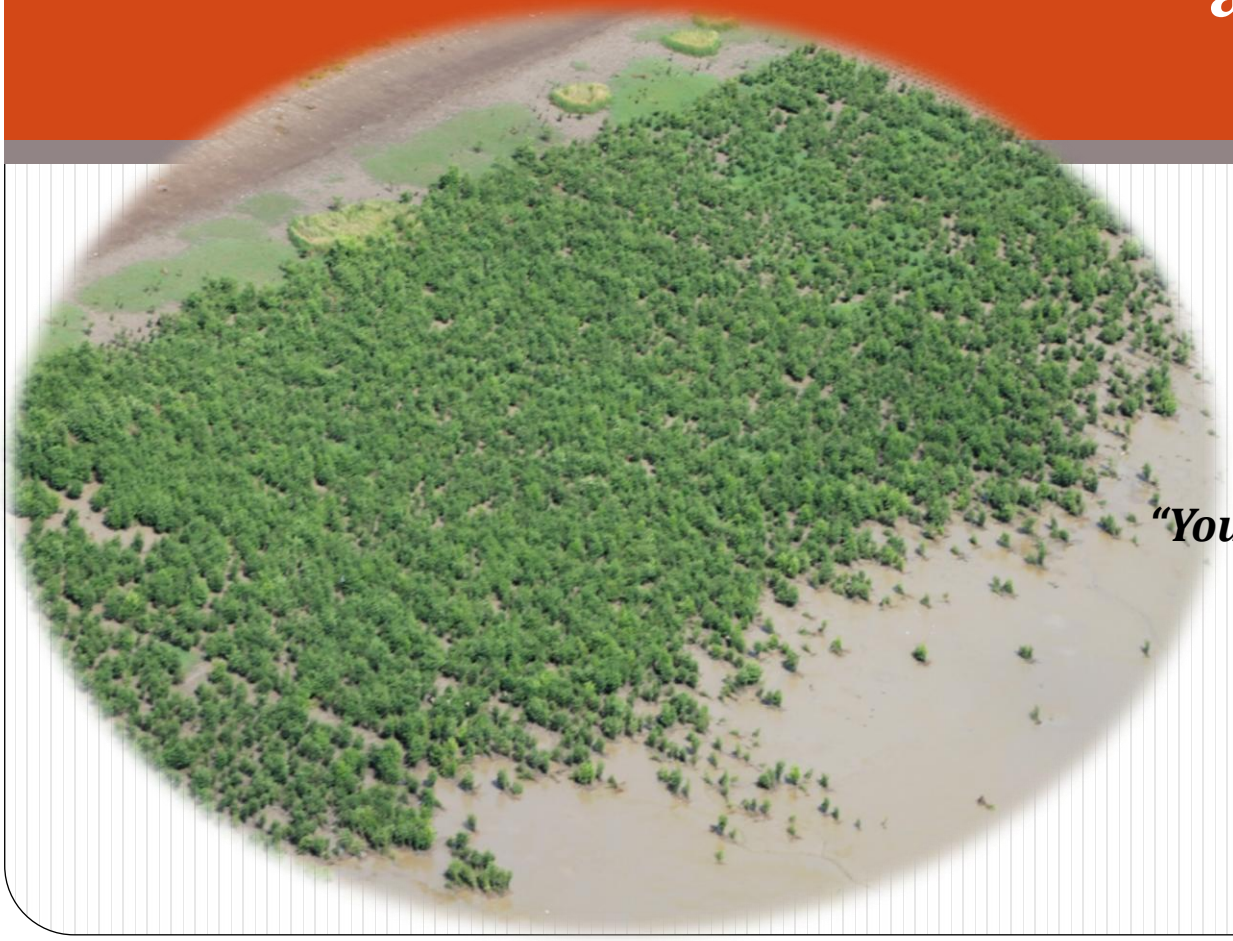
Restoring Guyana's Coastal Mangrove Ecosystem

Climate Change Mitigation for a sustainable future



VYBZING Guyana 2014
"Youth Voices for Climate Change"
May 22, 2014

www.mangrovesgy.org

Guyana Mangrove Restoration Project

Climate Change and its potential impact on Guyana

- Over 90% of Guyana's population live and work in the coastal zone.
- Guyana's coast is below sea level, in some areas by as much as 1.4 metres.
- Main livelihoods, economic activities and infrastructure of the country extremely vulnerable to climate change impacts.

- Guyana's Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC) predicts higher incidents of disasters such as flooding and water intrusion derived from storm surges, sea-level rise, and intense precipitation.

The severity of droughts and intensity of floods in various parts of Guyana is likely to increase.

Decrease in yield of crops as temperature increases in different parts of Guyana

By 2030, the annual loss due to flooding in Guyana is projected to be US$150 million.

(*Low Carbon Development Strategy, 2010*)

Mangroves and Climate Change

- Current rates of mangrove loss are roughly estimated at around 150,000 hectares (370,050 acres) per year, or about 1% per annum (FAO).

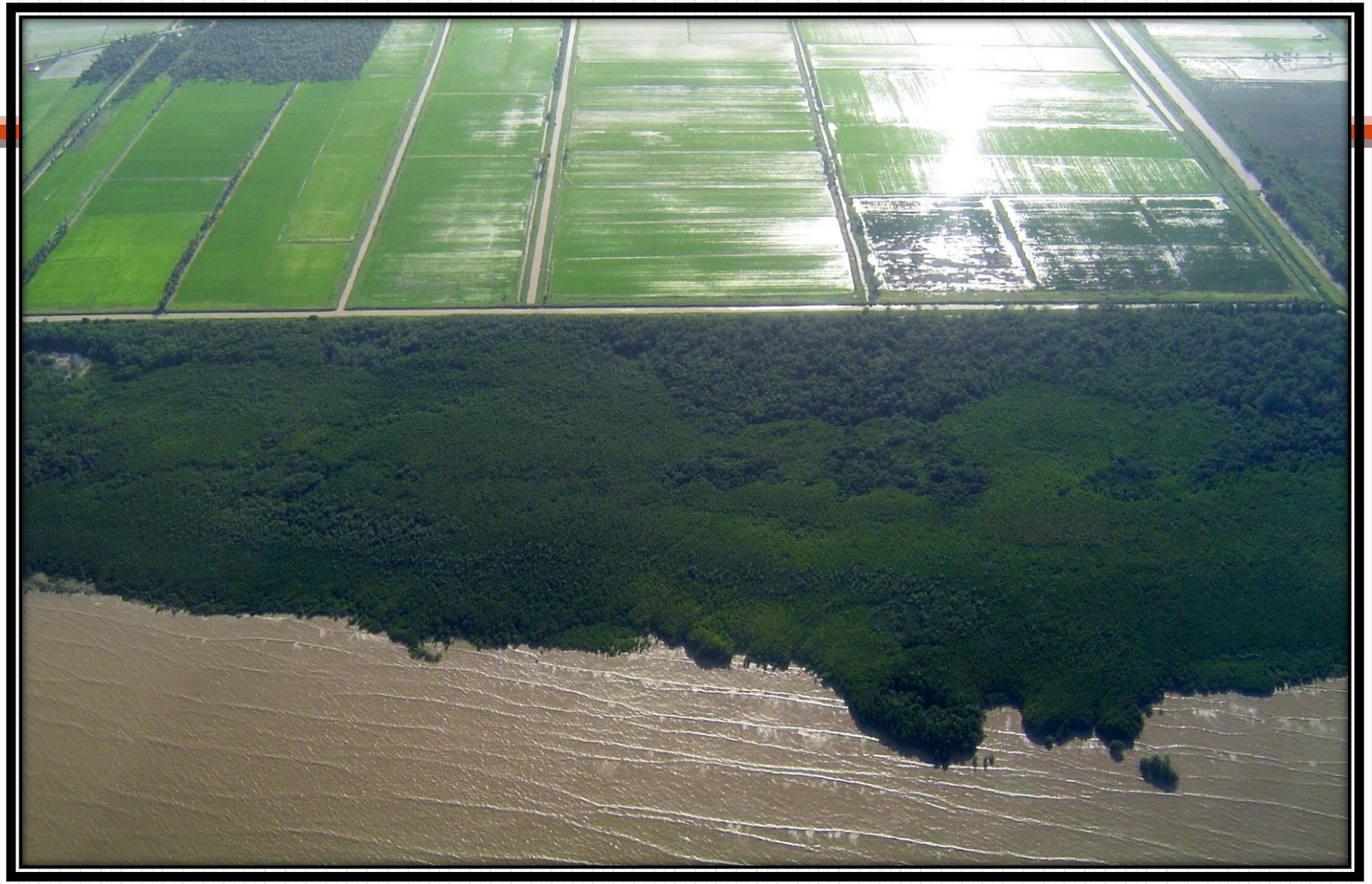
- **Mangrove loss = Loss of carbon sequestration potential**

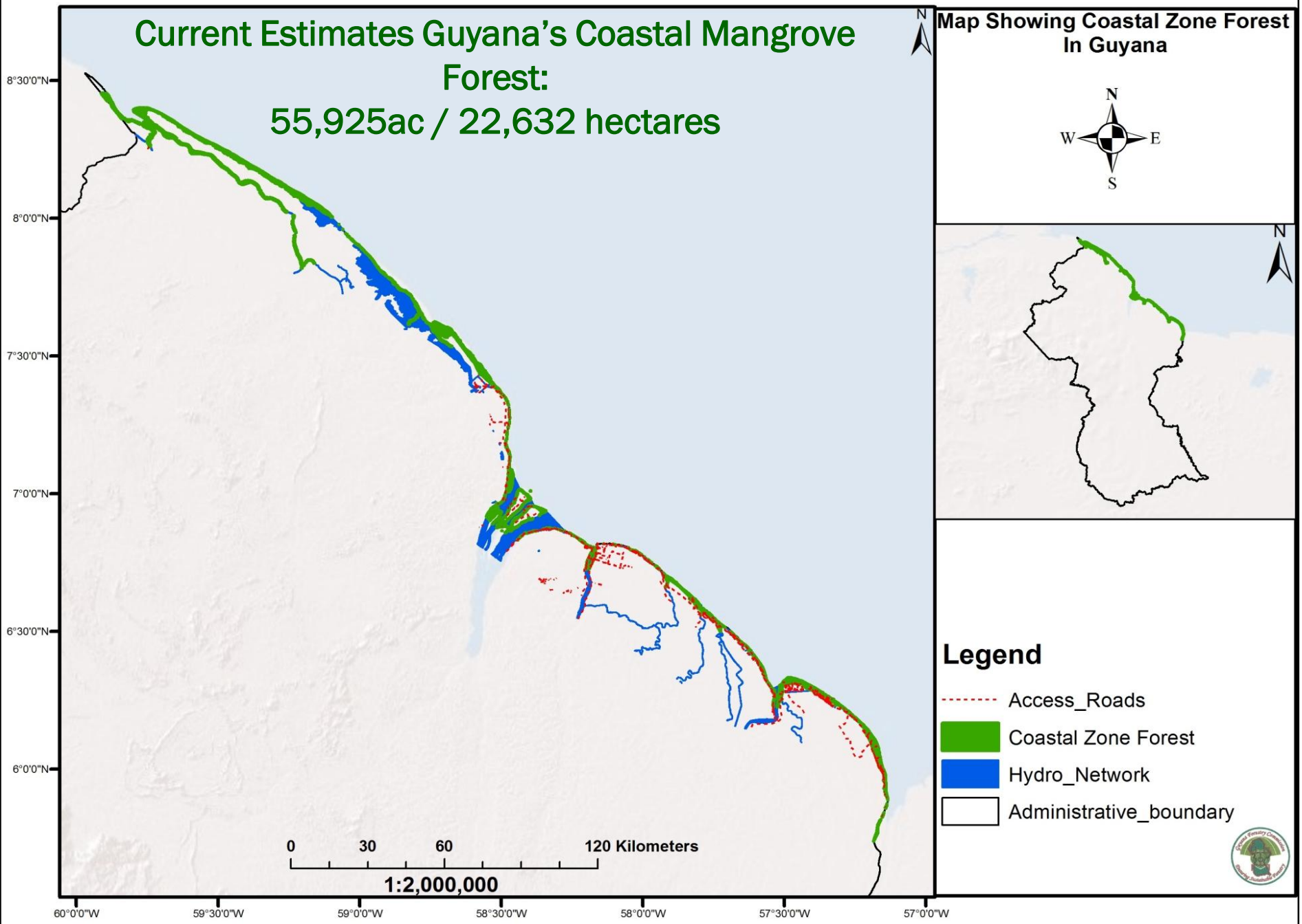
- Per hectare, mangrove forests store up to five times more carbon than most other tropical forests around the world.

Mangroves Values and Functions

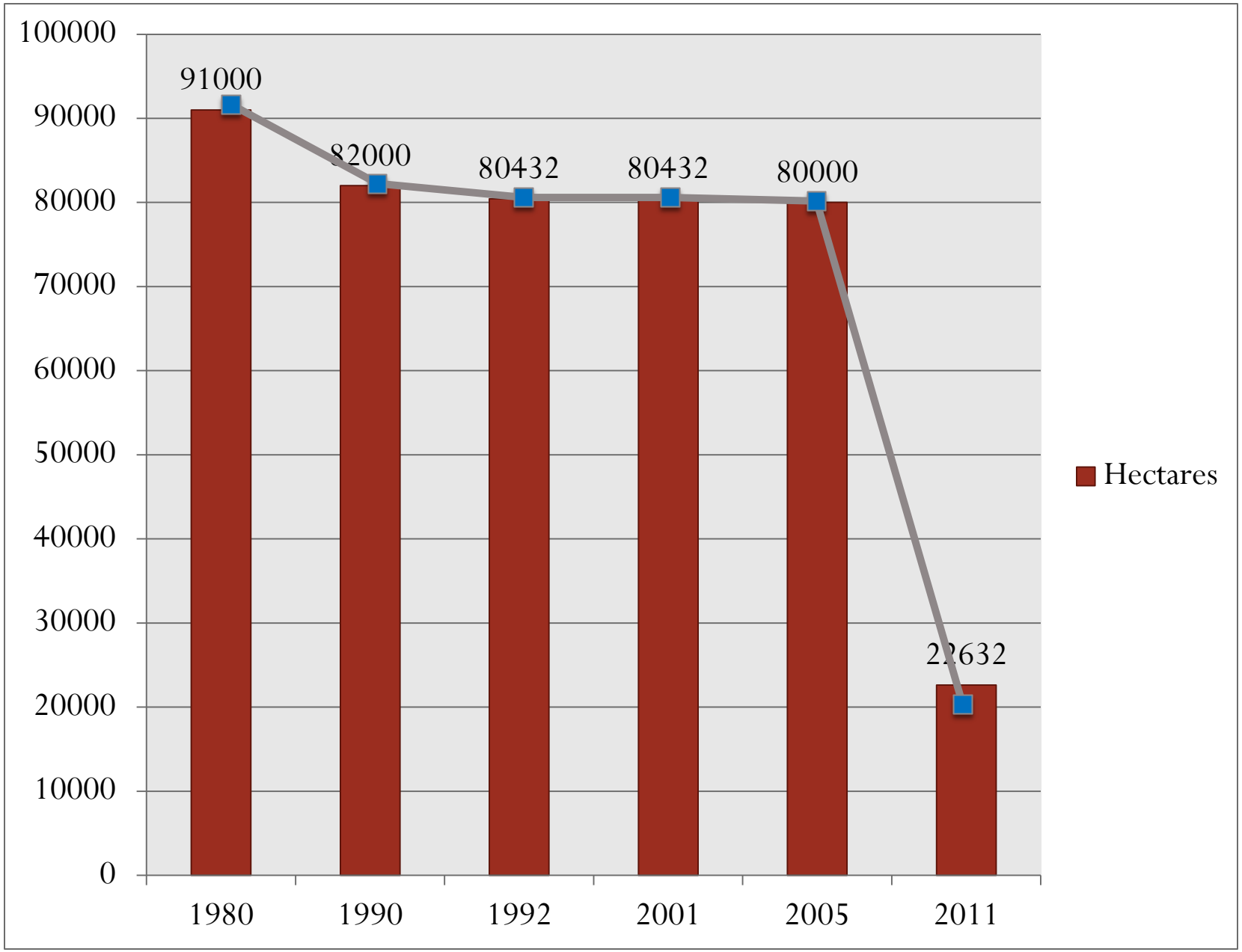
- Roots help to reduce and prevent coastal erosion.
- Act as wave breakers to protect coasts, coastal communities and infrastructure from the onslaught of strong waves and winds.
- Good breeding, feeding and nursery areas for many species of terrestrial and aquatic species.
- Provide an excellent habitat for different types of plants and animals.
- Root systems act as sediment traps and reduce the amount of sediment that enters the marine environment.

Guyana's Coastal Mangrove Forest



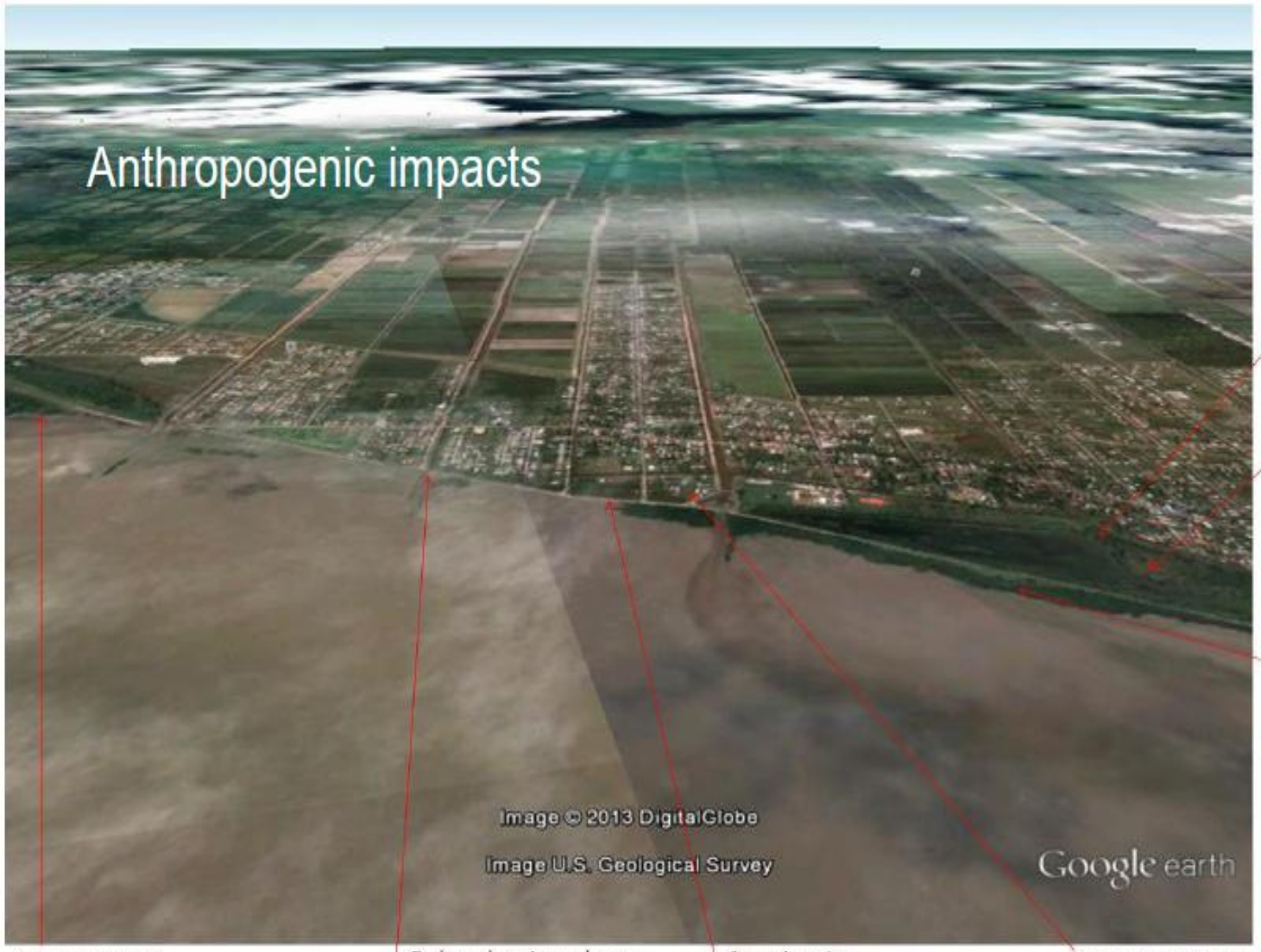

Current Estimates Guyana's Coastal Mangrove Forest:
55,925ac / 22,632 hectares
Map Showing Coastal Zone Forest In Guyana
N
W
E
S
8°30'0"N
8°0'0"N
7°30'0"N
7°0'0"N
6°30'0"N
6°0'0"N
60°0'0"W
59°30'0"W
59°0'0"W
58°30'0"W
58°0'0"W
57°30'0"W
57°0'0"W
0
30
60
120 Kilometers
1:2,000,000
Legend
Access_Roads
Coastal Zone Forest
Hydro_Network
Administrative_boundary

Changes in Mangrove Coverage in Guyana



Threats to Guyana's Mangroves

Anthropogenic impacts



Altered hydrology and dieback resulting from infrastructure development

Goat and cattle grazing

Fire

Coastal accretion

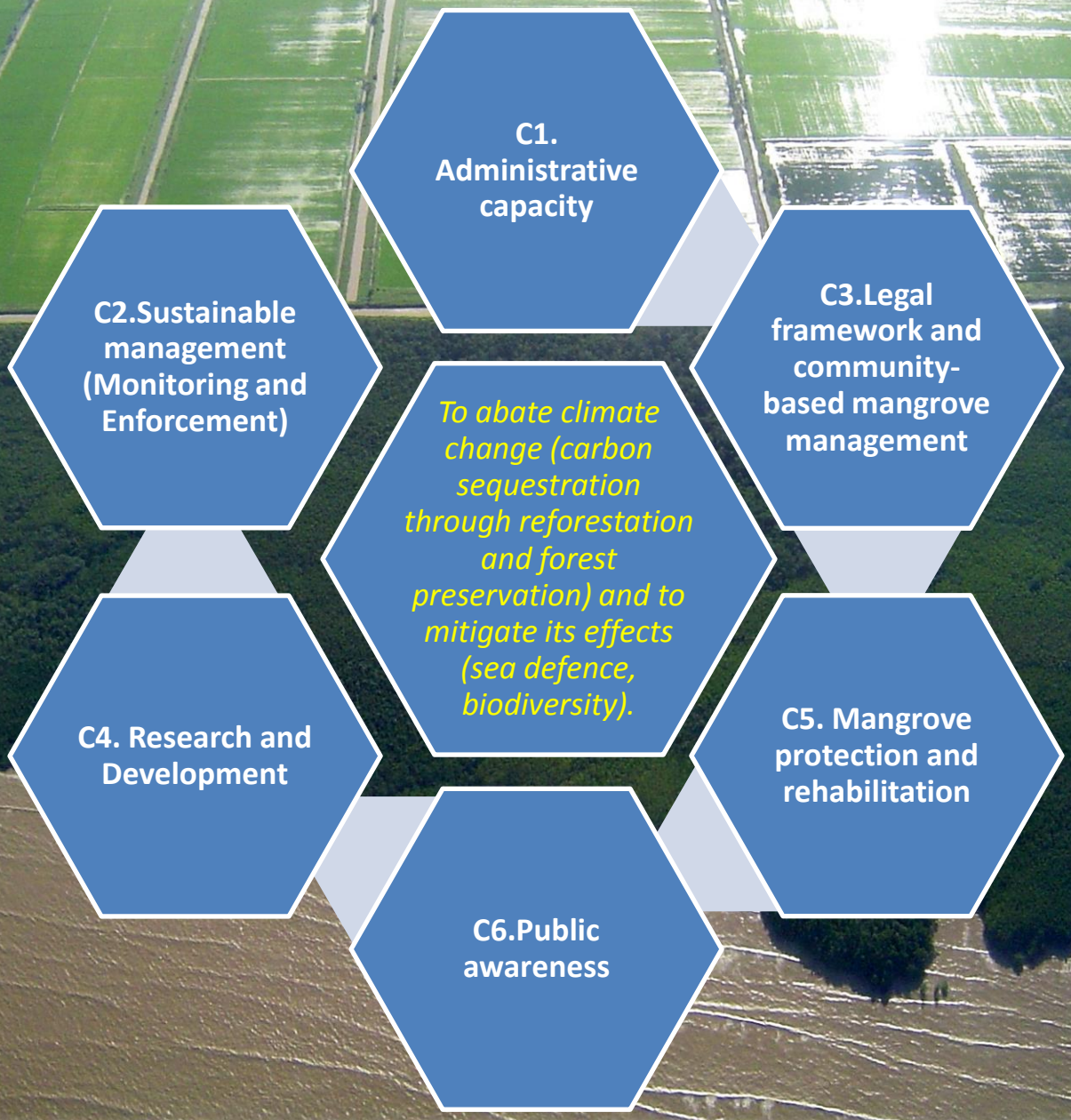
Garbage dumping and water pollution

Coastal erosion

Land development for housing

Combination of natural and man made factors has resulted in a mangrove forest which is out of equilibrium and unable to withstand the natural erosive cycle and recover during the accretion cycle

Guyana Mangrove Restoration Project

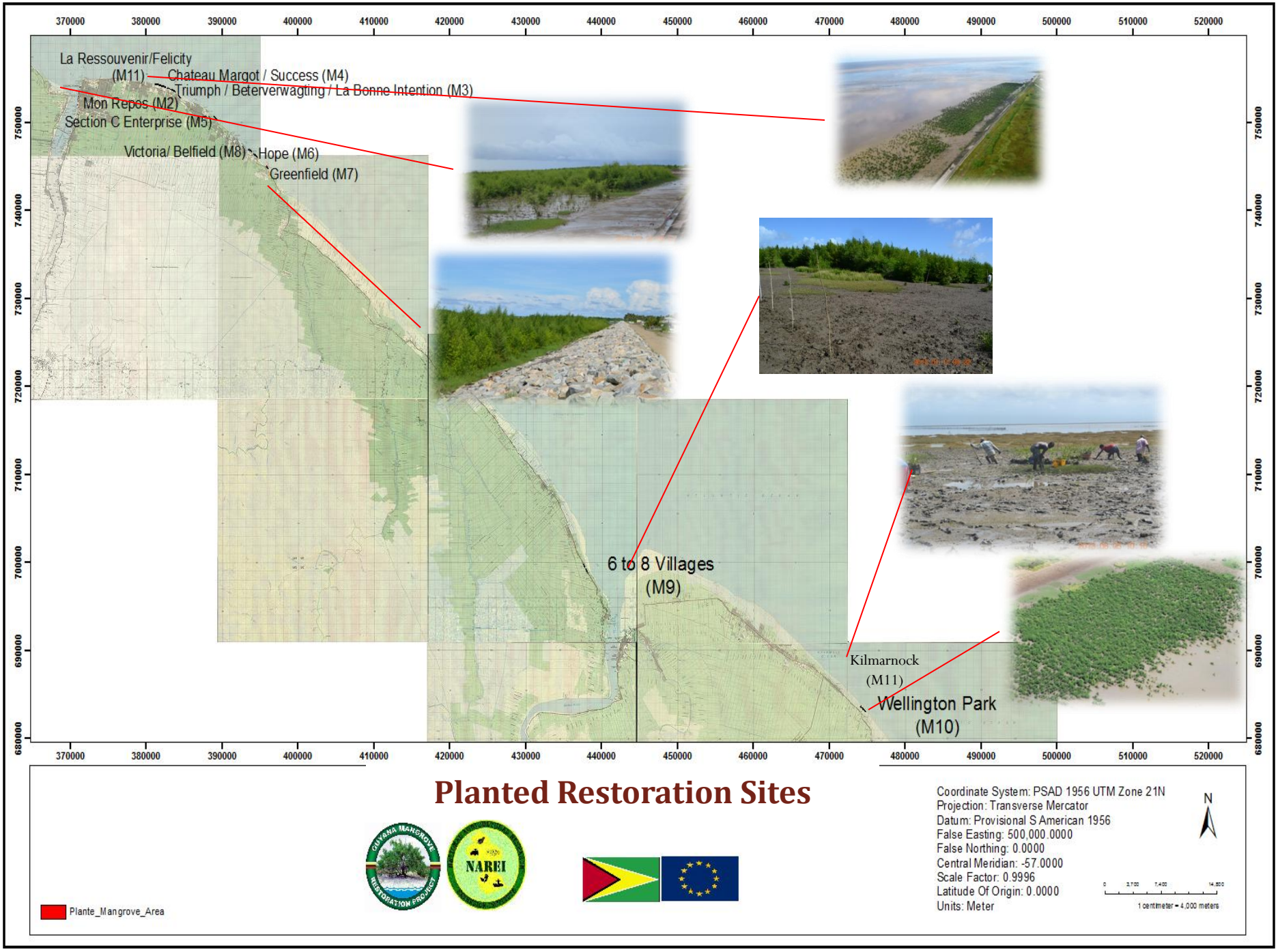



2012/03/26
RESTORATION

Restoration interventions

Mangrove Planting	Coastal Engineering Structures	Spartina Grass Planting


PLANTING



Planted Restoration Sites

Plante_Mangrove_Area

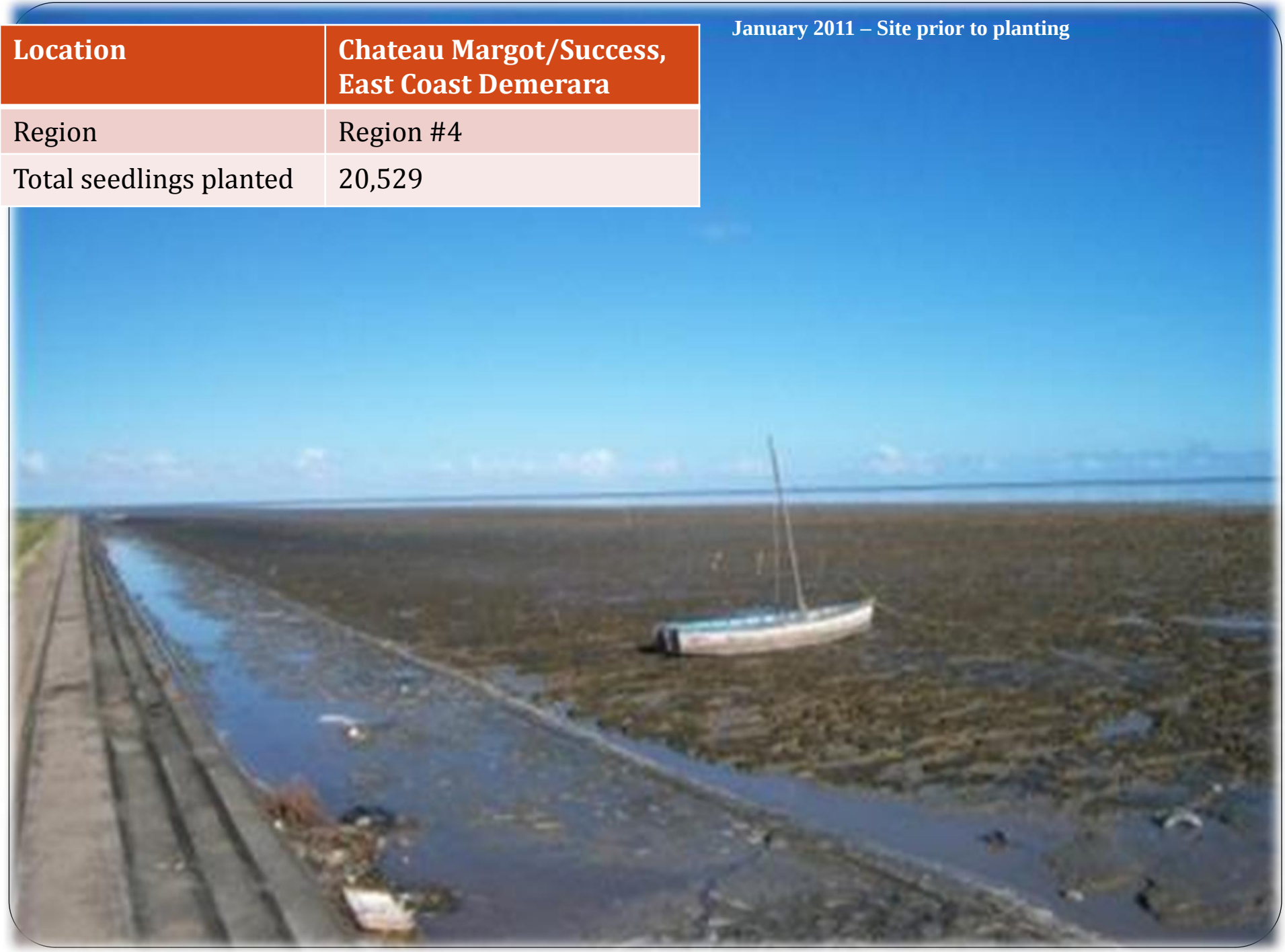
Coordinate System: PSAD 1956 UTM Zone 21N
Projection: Transverse Mercator
Datum: Provisional S American 1956
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -57.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

N

0 3,700 7,400 14,800

1 centimeter = 4,000 meters

Location	Chateau Margot/Success, East Coast Demerara
Region	Region #4
Total seedlings planted	20,529

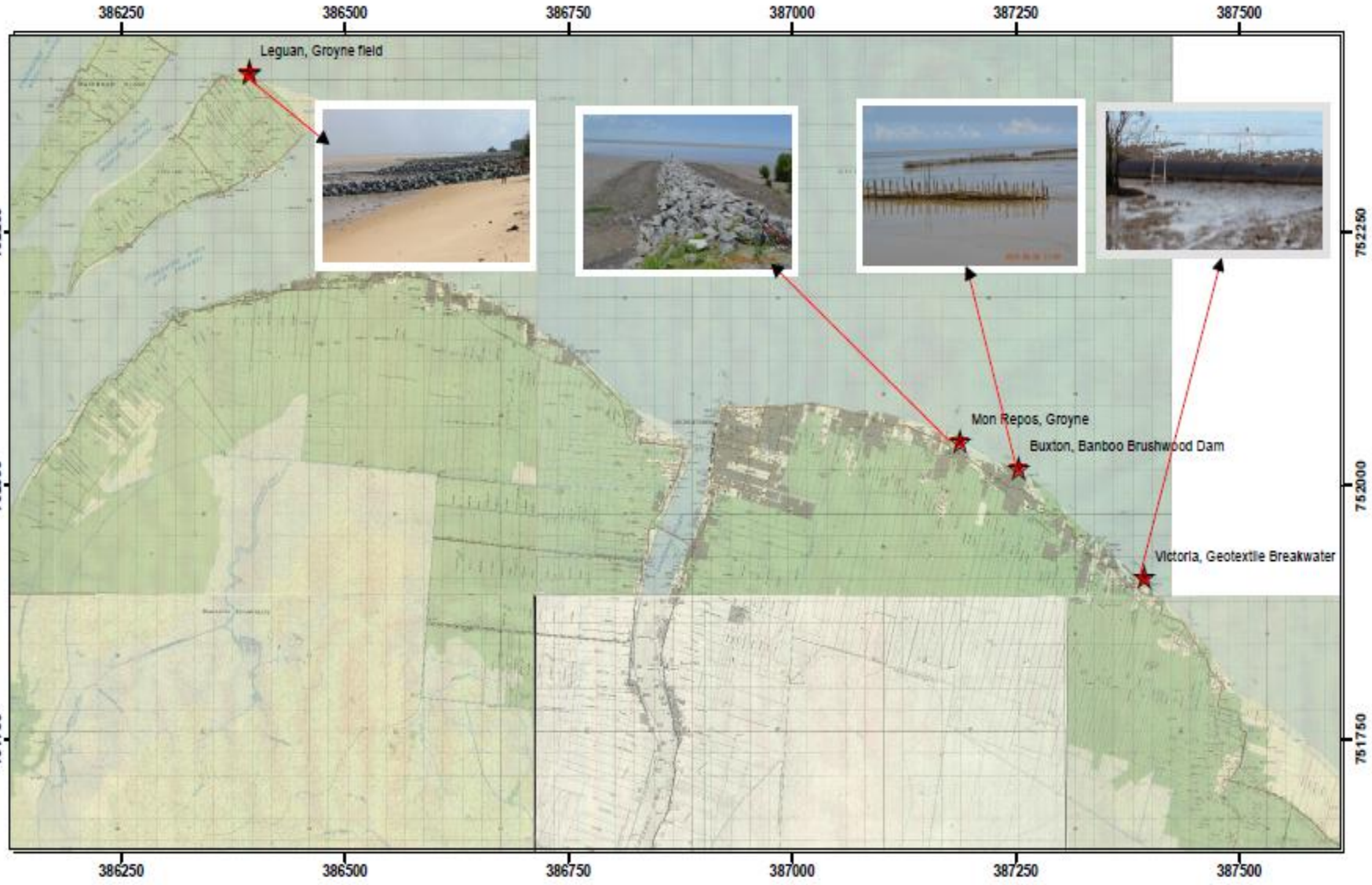


January 2011 – Site prior to planting

3 years after restoration

2013.09.18 12:14

Coastal Engineering



Coastal Structures

National Agricultural Research & Extension Institute

Guyana Mangrove Restoration Project

Coastal Engineering Stuctures

Prepared By :Zola Narine
Checked by: Kene Moseley
Date: March 2014

N

1 centimeter = 62 meters

Victoria, Geotextile Breakwater

Buxton Brushwood Dam

Mon Repos rubble mound groyne

386250 386500 386750 387000 387250 387500

752250

752000

751750

Felicity, ECD

Victoria, ECD

Village N0#8, WCB

Wellington Park, Corentyne Coast

Spartina Grsss planted at Lima, Essequibo Coast

Planted Spartina Grass

National Agricultural Research & Extension Institute

Guyana Mangrove Restoration Project

Spartina GrassTrials Sites

Prepared By: Zola Narine
Checked by: Kene Moseley
Date: March 2014

N

0 55 110 220

1 centimeter = 0 meters

Community based mangrove management

MANGROVE RANGERS

Village Mangrove Action Committees

Community Mangrove Nurseries

Mangrove Reserve Producers Coop Society

The Mangrove Heritage Trail Tour

Future of Mangrove Restoration

- Work with communities to raise awareness and understanding about the importance of mangroves.
- Understand what is preventing natural regeneration at individual sites - **research**.
- Continue to monitor and protect existing mangrove forests.
- Using the principles of EMR and lessons learned, continue to restore degraded forests.

Mangroves Protects Us From The Sea

Let Us Protect Them!!

Thank You!!!

Enjoy The Mangrove Heritage Trail Tour