MANGROVE FORESTS: SBN PROTOTYPE TO MITIGATE RISKS, VARIABILITY AND CLIMATE CHANGE

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Context

Climate change

Alteration of the climate natural variability human activity (IPCC)

Desastre

Serious disturbance in a community in human, material, economic, or environmental terms

SBN

Increase resilience to reduce the likelihood of a disaster occurring.
Puerto Pizarro Villa

- Coordinates
  03º 30’47” S
  80º 24’12” W

“It is much easier preserve the mangroves intact that plant new”

G. Grimsditch - ONU
Objectives

• Determine functional structure of mangrove ecosystem - ACA

• Identify and prioritize potential and degraded mangrove areas that enable integration and enhance disaster risk reduction due to flooding and tsunami attenuation.

• Propitiate resilience
Condition factor
LOCATION IN THE TROPICAL AND SUBTROPICAL AREA OF SOUTH AMERICA, CLOSE TO THE EQUATORIAL LINE AND THE INTERTROPICAL CONVERGENCE AREA.

Higher risks:
summer months (extreme temperatures - extreme events)

Triggering factor
TOPOGRAPHY OF THE GROUND AND TYPES OF SOIL
Determination of vulnerable critical points
Risk Scenario

Hazard identification
- intense rains
- floods
- heavy rains
- floods
- anomalous swells

Tsunamis
National Oceanic
Atmospheric Administration – NOAA
2017 Niño Costero
2018 La Niña

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• SBN for GRD
• Living with floods
• “Be prepared”
• Structurals approaches
• No structurals approaches
Mangrove

*Rhizophora mangle*
*R. harrisonii*
*Avicennia germinans*
*Laguncularia racemosa*
*Conocarpus erectus*
Mangroves accumulate five times more carbon under the water than on the surface.
Method

- Weak and degraded mangrove areas were identified,
- Red mangrove trees were restored in a natural way from 01 hectare (in line).
  . periphery east
  Puerto Pizarro Villa, and
  . contiguous to the Fishing Engineering School UNT.
• Natural defense of the coast: reduce erosion, attenuate waves (and tsunamis) and reduce the height of the waves.

• Dampens the impact of storms, hurricanes and tsunamis
Influence of tides

- removes particulate organic matter (detritus) to the sea or adjacent lagoon bodies,
- increments primary productivity
- constitutes important SBN for RRD

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Mangrove species

- different flotation periods.
- different ranges of tolerance to flooding
- "zonation" of species along a gradient of elevation.
Knowledge management

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Conclusions

• Mangroves are important SbN for DRR.
• Air roots and cups reduce the impact of the winds.
• Rangos of tolerance to the flood are different between the species of mangle.
Conclusions

• Species tolerate tidal flood differently, they have different adaptations.
• Ecological restoration of the manglare, RRD strengthens resilience.

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Thank you!

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