Pronatura Sur, A.C. es una organización mexicana dedicada a la Conservación de los ecosistemas y sus procesos, promoviendo modos de vida diversos y equitativos en armonía con la Tierra.

MANGROVE CORRIDOR AND CLIMATE CHANGE PROGRAM

Israel Amezcua Torrijos
Climate Change Director

USAID FROM THE AMERICAN PEOPLE



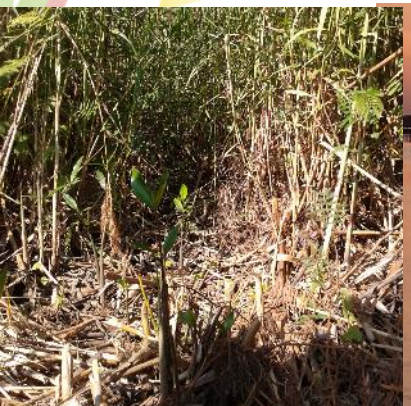

Mangrove Restoration, Wet Carbon & Livelihoods Project

South Pacific Coast, Mexico

VISION OF INITIATIVE

To restore the mangroves in the south-pacific coast of Mexico, while enhancing, in an impactful manner, the livelihoods of people subsisting with the resources and services provided by the mangrove ecosystem; and by doing so sequestering carbon effectively and efficiently.

- Managed and implemented by **Pronatura Sur, A.C.**
  - 23+ years experience in conservation and local development through participatory models
- And, strategically supported by **Bonafont/Danone Mexico**:
  - Committing to improve livelihoods of Mexicans and to improve natural ecosystems
- And by USAid:
  - REDD+ potential assessessment for 39,707 of Mangroves in Chiapas Pacific Coast.




About the forest

We work in mangrove forest. In 2000 the National Ecology Institute estimated a 2.5% lost of mangroves by year at nationwide, with this rate of loss is estimated that by 2025 we will have half of the mangroves that existed in 2000. Principal drives:

Development of aquaculture projects, oil and major tourism projects

Drying mangroves areas to establish agriculture and livestock and human settlements

Immoderate and illegal extraction of wood of different types of mangrove

Discharge highly contaminated water that pass the filtering capacity of mangroves


Mar·Muerto·
Pilot·Site¶
Encrucijada·
Pilot·Site¶
Gancho·Murillo··
Pilot·Site¶
Mangrove· Forest↵
Regional· Project·
Reference·Map¶
Comitán
Chiapas
Tonalá
Huehueten
Tapachula
San Marcos
Quetzaltenango
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Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Google earth

Preliminary Findings, Mangrove Restoration in Chiapas, Mexico

The scope of the assessment encompassed wetland impacts, community benefits and impacts, and potential for developing a carbon asset that in due course may be registered via Verified Carbon Standard (VCS).

•Overall conclusions:

- The zones all demonstrate long-term historical degradation (primarily anthropogenic) but with ongoing capacity for natural regeneration if appropriately managed.
- The wetland restoration approach will rely on a mix of planting techniques, with an estimated **70% involving direct planting and use of nursery raised seedlings, and 30% using ecological mangrove restoration (EMR) techniques** involving simple modifications to area hydrology.
- **Appropriate EMR and plantation methods can be used at all candidate sites** without any intervention in upland watersheds.
- Candidate stands will potentially sequester carbon at net rates as high as **50 tCO2e/ha/yr** in the Southern and Central regions of the State. In the North (and Oaxaca) rates are lower because of the species mix and generally lower rates of growth of above ground biomass (AGB), is expected to be of the order of **10 to 20 tCO2e/ha/yr** in a managed stand.
- A potential target area in excess of 10,000 ha is ultimately available in three zones of which up to **8,000 ha are potentially eligible under current VCS criteria**.

Three species: Avicennia germinans, Laguncularia racemosa and *Rhizophora* mangle

G3:Environmental

To carry-out the **re-population of mangroves** (initally 600 ha) & monitoring in full participation of local communities / cooperatives

G2:Legal

To obtain all **legal instruments** so that the project's activities are approved (on time & on form) under the Mexican legal system

G4:Carbon Seq. & Economic

To establish all technical and community guidelines for a **carbon sequestration project** & off-set Danone's carbon footprint

G1:Institutional

To generate appropiate and relevant **interinstitutional relations**, to strengthen Project's planning and operations in the region

MANGROVES rePOPULATION

Pilot Project: 600 has

Objective: + 5,000 Ha

G5:Livelihoods

To **improve livelihoods** of those populations involved in magrove repopulation

SEMARNAT
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

ESTADOS UNIDOS MEXICANOS

COMISIÓN NACIONAL DE ÁREAS NATURALES PROTEGIDAS

CONAFOR
COMISIÓN NACIONAL FORESTAL

SECRETARÍA DE MEDIO AMBIENTE E HISTORIA NATURAL

MAIN ACTIVITIES TO RESTORE:

Base line, to integrate management plans for federal properties and UMA: Maps, coverage, sample unit establishment, biological sampling, training.	
Setting and training of working brigades: general ecological forest conditions, structures, composition and phenology; transplant techniques, seedling collection, planting, carbon measurement.	
Hydric and saline conditioning of land: Hydric rehab, containment and management of organic matter and sediments.	
Artificial and induced repopulation of mangrove forest: natural nurseries identification, collecting seedling sites, conditioning of areas for nurseries, brinzales type B transplant and direct seedling planting.	

Activities driven by the repopulation of mangroves

Identify actions for livelihood imporvement
(i.e. repoblación, pesquería sustentable, apicultura, ecoturismo)

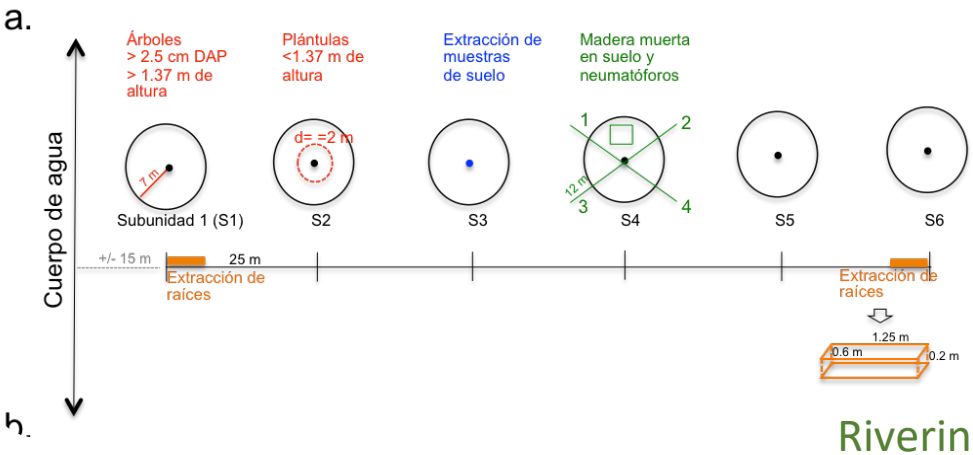
Strengthening of productive and social organizations

PREVENTION
Social work

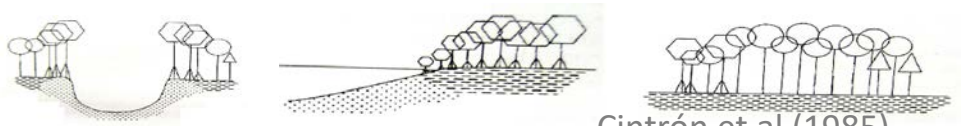
Detect of key players
Communicate the project and key components through a regional campaign
Probe project with communities
Conform local committees
Diagnosis on community and organizational systems
Long-term Livelihoods vision
Developing local capacities
(in the context of project's activities)

Livelihoods Improvement STRATEGY

Carbon Measurements

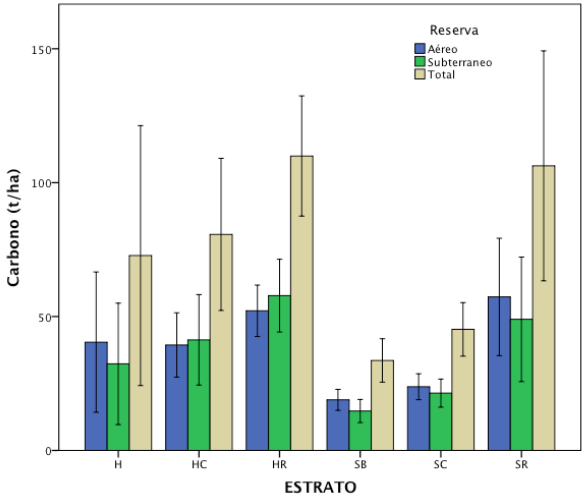


Riverine Fringe Basin



Cintrón et al (1985)

Principal achivements



Stratum	Area(ha)*	Biomas Carbon(t/ha)**	Total Carbon by stratum (Gg)
Seco Borde	5817.37	33.6	195.46
Seco Cuenca	12571.2	45.21	568.34
Seco Ribera	208.35	106.29	22.15
Humedo Borde	2317.77	72.77	168.66
Humedo Cuenca	29471.76	80.68	2377.78
Humedo Ribera	14721.84	109.96	1618.81
Total	**65108.29**		**4951.21**

1Gg= 1000 t
* Distribución de tipos de manglar Consultoría tasas de deforestación y degradación
** Estimaciones preliminares, falta incluir reservas en piso forestal, suelo, y biomasa de plántulas.

Challenges

Mangroves are highly heterogeneous ecosystems, resulting in a large structural variability (height, diameter), so required to generate a sampling design that achieves a high level of certainty (low variance in the data).

One REGION
Many Scenarios

We are in a dynamic ecosystem, so we need to think dynamic.

Potential
Challenges

Site	Environmental	Carbon	Economic	Social	Legal
Mar Muerto	**MEDIUM** Propagule availability	**LOW** To be estimated biomass in roots	**HIGH** Viable TIR, Highest $/CO2	**HIGH** Strong leaders & Established Orgs	**MEDIUM** Federal Permits
La Encrucijada (Biosphere Reserve)	**HIGH** Propagule availability + biodiversity	**HIGH** *R mangrove* high sequestration	**HIGH** Highest TIR, Lowest $/CO2	**MEDIUM** Orgs in formation, + capacity building	**LOW** Comodato + Community Agreement
Conquista Campesina	**MEDIUM** Salinity conditions & Ha dispersion	**MEDIUM** Low estimates given environ-mental conditions	**MEDIUM** High TIR, Low $/CO2	**MEDIUM** Good Org within the Ejido + External Players	**HIGH** An UMA is already in existence

PRONATURA SUR, A. C.

***PRIORIDAD*: la Gente (QUE TIENE COMO) *PRIORIDAD*: laTierra**

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THANK YOU