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Acronyms

APFFYB	Área de Protección de Flora y Fauna Yum Balam
NPO	Non Profit Organization
UNFCC	United Nations Framework Convention on Climate Change
GDP	Gross Domestic Product
ANP/NPA	Natural Protected Area
PROFEPA	Procuraduria Federal de Protección Ambiental
INECC	Instituto Nacional de Ecología y Cambio Climático
ZOFEMAT	Zona Federal Maritima Terrestre
NOM	Norma Oficial Mexicana
LGBN	Ley General de Bíenes Nacionales
PMC	Programa Mexicano del Carbono
UNDP	United Nations Development Programme
CZ	Isla Cozumel
NDC's	Nationally determined contributions
COP21	United Nations Climate Change Conference, COP 21
LGEEPA	Ley General de Equilibrio Ecológico y Protección Ambiental
CONANP	Comisión Nacional de Áreas Naturales Protegidas
BC	Blue Carbon
PNUD	Programa de las Naciones Unidas para el Desarrollo
LGVS	Ley General de Vida Silvestre
LGCC	Ley General de Cambio Climático
CINVESTAV	Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional
CEC	Commission for Environmental Cooperation
CONABIO	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad

Glossary

Condition	Four types of mangrove conditions were defined to explain the degree of landscape conservation or deterioration
Conserved mangrove	Landscape dominated by mangrove ecosystem where trees reach heights of up to 7 meters with an average of 6.2 m. and the canopy is developed with coverage of 60 to 70%
Conserved mangrove in restoration	Landscape dominated by mangrove ecosystem where the trees do not reach high heights; only trees between 2 and 3 meters tall but with a high canopy cover percentage (70%).
Degraded mangrove	Landscape mostly dominated by small herbaceous, dead trunks, and some low living mangrove trees (1.5 m) and with low canopy covers (<5%).
Lost mangrove	Areas without arboreal vegetation, generally flooded, with evidence of dead mangrove trees.
Avoided emissions	Carbon stocks under conserved condition and conserved in restoration in year zero that will potentially be preserved throughout the project.
Sequestered emissions	Carbon that will potentially be sequestered throughout the project through restoration actions in predominantly damaged and lost condition zones.
Additional emissions	The emissions captured by the plots destined to avoided emissions from the project baseline (year 0) will be accounted in later monitoring and will be integrated into the credit offer at different times such as additional emissions.
Social Risk Buffer	It is 50% of the theoretical potential and corresponds to the uncertainty associated with social feasibility
Feasible potential	It is 50% of the theoretical potential, once the social risk buffer has been applied
Theoretical potential	Stored and quantified potential from the mapped areas at the two pilot sites
Risk buffer	It is 15% of the theoretical potential and corresponds to other identified risks
Real sale potential	It is 35% of the theoretical potential and corresponds to the number of credits that are estimated to be sold in the market.

Summary Information

Project Title	Taab Ché: regional Blue Carbon strategy in the Yucatan Peninsula.
Project Location – Country/Region/District	The project is focused on two pilot sites in the Yucatan Peninsula: - Yum Balam Flora and Fauna Protection Area (APFFYB) - Cozumel Island (CZ) The Yucatan Peninsula comprises 3 States: Quintana Roo, Campeche and Yucatan.
Project Coordinator & Contact Details	Resiliencia Azul A.C. (NPO) Rosalía Andrade / Elisa López info@resilienciaazul.org 00 52 967 145 15 51 / 00 52 998 318 9314 Puerto Morelos, Quintana Roo, Mexico
Summary of Proposed Activities	Prevention of ecosystem conversion or degradation through local conservation and restoration of the Yucatan Peninsula´s blue carbon ecosystems.
Summary of Proposed Target Groups	Ejidatarios[1], and private landowners of mangrove areas in the Yucatan Peninsula. Indirect beneficiaries: youth, women and men without land tenure rights who participate in the project activities.

[1] Ejidatarios: Men and women holders of ejidos rights (Social property).

Part A: Project Aims & Objectives

A1 Describe the project's aims and objectives

Taab Ché is a regional project that seeks the prevention of ecosystem conversion or degradation through local conservation and restoration in the Yucatan Peninsula´s blue carbon ecosystems. The project is based on capacity building of communities, local governments, and private initiatives through the design of economic incentives intending to minimize the opportunity cost of maintaining mangroves.

The project envisions a 2-scale strategy where:

Short-term: focused in 2 sites (APFFYB and CZ) as part of a pilot project that seeks to develop the first BC voluntary market in Mexico.

Medium-term: a BC strategy for Peninsula de Yucatan (PY) which aims to direct public and private investment towards PES schemes, including payments for Carbon Sequestration or Greenhouse Gas Emissions Reductions (climate services), and non-extractive activities based on the Ecosystem Services (ES) provided (tourism, fishing and forestry) by mangroves.

The following impacts are identified for both pilot sites and applicable to PY:

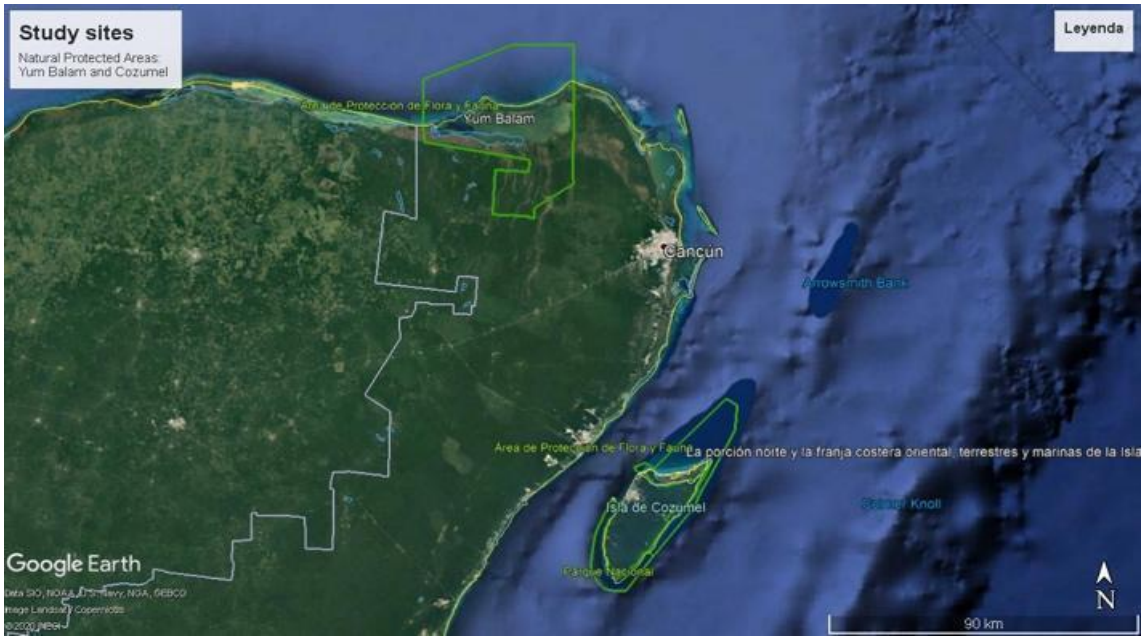
Deforestation, land use changes, increased sedimentation rate, disturbances, and increased tourism; the latter, leading to uncontrolled urban development with precarious infrastructure for sewage disposal, freshwater supply, and electricity. Changes in hydrological patterns, construction of public infrastructure, contamination of water bodies, sewage and municipal waste, the growth of unplanned human settlements, among others.

Part B: Proposed Project Area

B1 Description of Project Location

The project area corresponds to the Yum Balam Flora and Fauna Protection Area (APFFYB) located at coordinates 21 ° 13'58 ”and 21 ° 42'18” North latitude and 87 ° 32'13 ”and 87 ° 05 '48 ”west longitude in the extreme north of the state of Quintana Roo, municipality of Lázaro Cárdenas; and to the Arrecifes de Cozumel National Park, Cozumel Reef and Flora Protection Area, Selva State Reserve, and Cozumel Wetlands and Laguna Colombia State Ecological Park, at the island of Cozumel, in Municipality of Cozumel, Quintana Roo.

The two pilot sites (APFFYB and CZ) are show on the map.

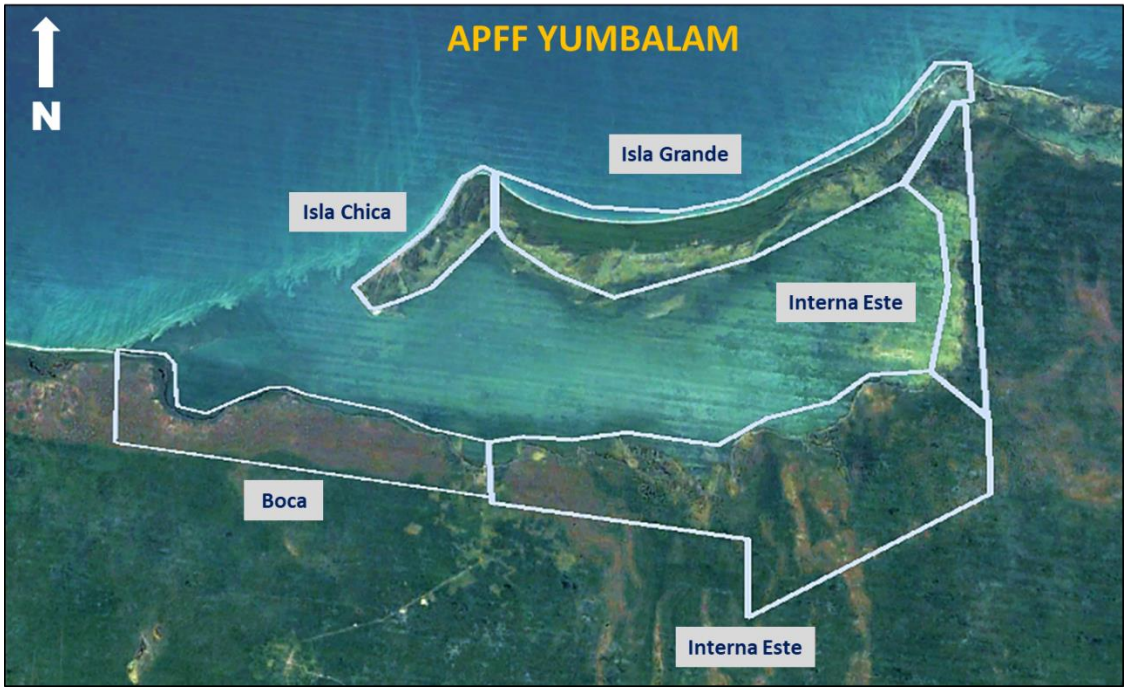


Map 1. Location of the pilot project sites: APFFYB and Cozumel Island.

B2 Description of Socio-Economic Context (PV requirements 7.2.2-7.2.5)

Yum Balam Flora and Fauna Protection Area (APFFYB)

The APFFYB is a national protected area, and since 2003 a Ramsar site in the Municipality of Lázaro Cárdenas, Quintana Roo. In the 2000s, Lázaro Cárdenas was the municipality in the state with the lowest Gross Domestic Product (GDP) of Quintana Roo (394 million pesos compared to the 83,646 million pesos of Benito Juárez) and a high degree of economic dependence and marginalization. In 2018, it was reported a total gross expense of 267 million pesos (2.4% of the State´s total expenses). The main activities are fishing, tourism, agriculture, cattle rising, forestry and beekeeping; land tenure is both private and social (*ejidal*).



Map 2. Zoning of the Yum Balam Flora and Fauna Protection Area.

The APFFYB presents several ecological types of mangroves, mainly registering basin mangrove dominated by *Rhizophora mangle* and *Avicennia germinans*, and fringe mangrove with discontinuous patches of short mangrove dominated by *R. mangle*. Mangroves are distributed in 7265.26 ha, 92% of which is well preserved. 5% of the total vegetation have been lost (2003-2017) and given the low connectivity with the rest of the continental vegetation; the mangroves of the island areas (Isla Chica and Isla Grande) can be considered the most impacted (6-7% loss).

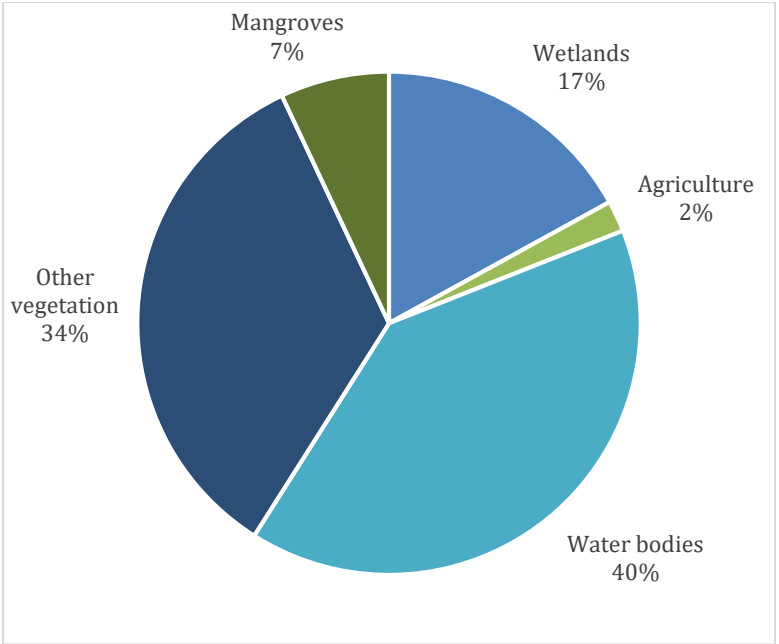
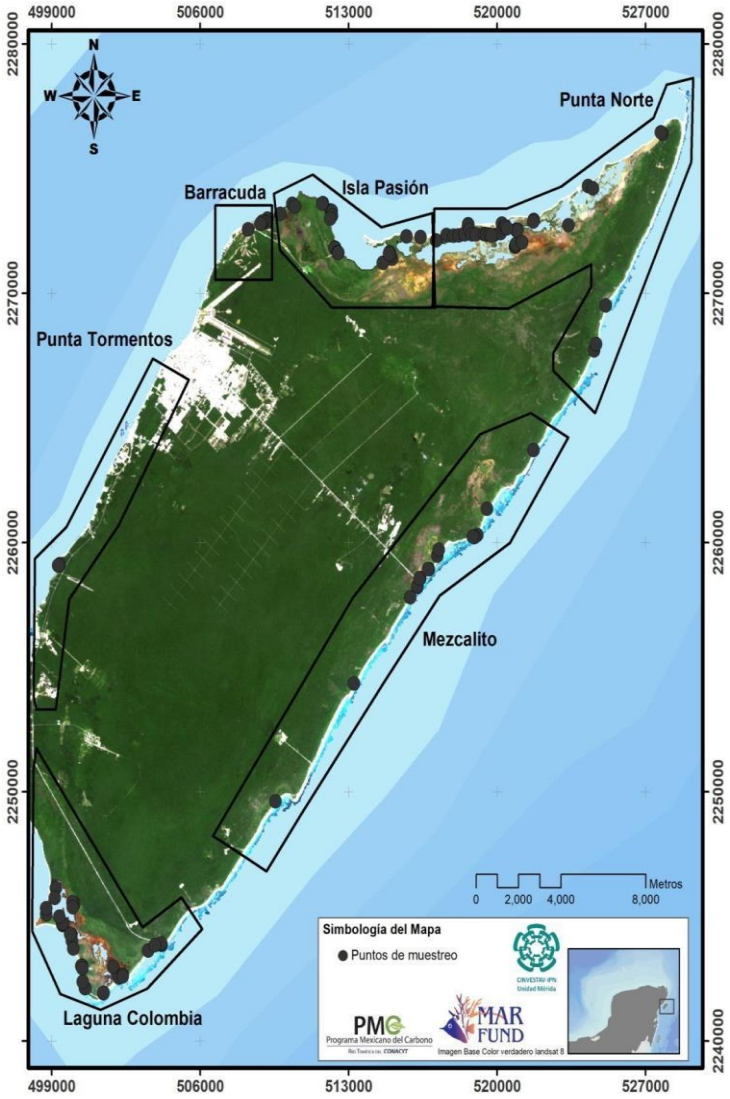


Figure 1. Land uses and vegetation in the APFFYB (2010). Adapted from CONABIO (2013).

Cozumel Island

Cozumel Island is located 17.5 km from the northeast coast of Quintana Roo. In 2018, the Municipality of Cozumel reported a total gross expense of 1,020 million pesos (9.2% of Quintana Roo´s total expenses). The main activities are tourism, fishing, agriculture and cattle rising, and the tenure of the land is private, social, state and federal-owned.



Map 3. Zoning of mangrove areas on the Island of Cozumel. Sampling points for Carbon base line analysis are presented. Source: CINVESTAV-MAR Fund 2019.

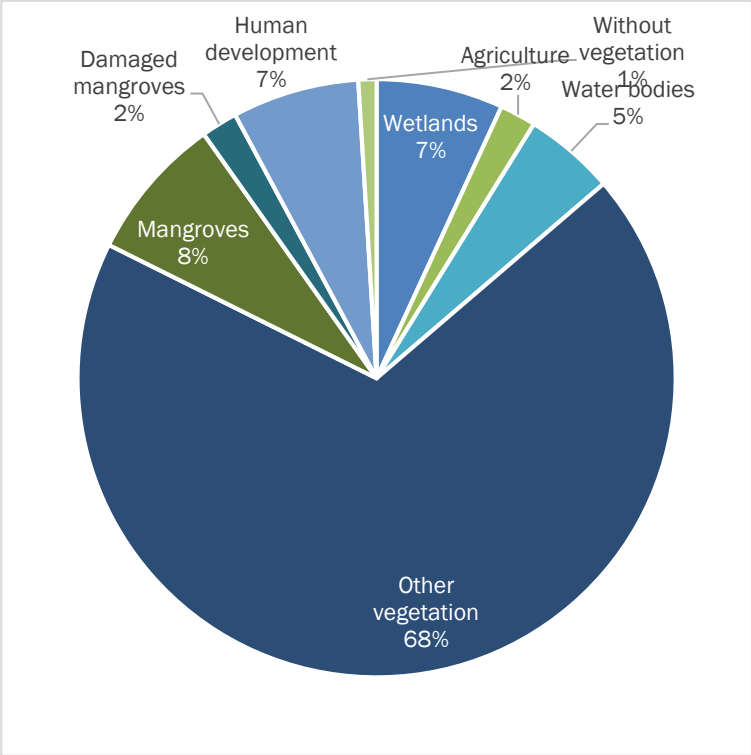


Figure 2. Land uses and vegetation in Cozumel Island (2010). Adapted from CONABIO (2013)

Cozumel´s coast comprises two federal natural protected areas (Cozumel Reef National Park and Cozumel Island Flora and Fauna Protection Area), one state protected area (Laguna Colombia), and two Ramsar sites (since 2005 and 2009), all encompassed in a UNESCO´s Man and the Biosphere Program (MaB) reserve.

CZ mangroves have a total extension of 3,011.25 ha, dominated by *R. mangle* and *A. germinans* and the basin type. 44.7% of the total mangrove area is well preserved. About 6% of the total vegetation has been lost (2003-2017) and given the low connectivity, Punta Norte presents the greatest impact (45% degradation).

The impacts and threats described in Fig. 5 explain the changes in land use changes described by CONABIO and shown in Fig. 2 and 4 and in Map 2 and 3.

	APFFYB	CZ
Direct impacts	Land use change	Mangrove felling
	Native vegetation logging	Unregulated extraction of firewood and wood by local inhabitants
Indirect impacts	Tourist infrastructure development	Change in the density of human populations
	Pollution by sewage, solid waste, leachate from landfills and agrochemicals	Fragmentation of the landscape by tourist activities
	Hydrological flows alteration	Modification of the environment by dredging, construction of docks and hotels
	Eutrophication	Landfill of wetlands
	Whipping	Pollution by solid waste, oil derivatives and wastewater
	Natural impacts from hurricanes and forest fires	
	Modification of coastal dune vegetation for urban development	
	Exotic species introduction	
Threats	Changes in human population density	Increase in tourist activities and infrastructure
	Increase in tourist activities and urban development in the area (Holbox Island Lotification)	Increase in urban development
	Increase in livestock activity	Increase in human population size
	Impact on water quality due to excess sediment that is washed ashore as a consequence of deforestation processes	Introduction of exotic species
	Construction of roads and highways	Deforestation
	Discrepancies between the managers of the ANP Yum Balam and the local populations (socio-environmental conflicts)	Increase in agricultural activities
		The island is subject to the impact of hurricanes

Figure 3. Impacts and threats to the APFFYB and CZ mangrove sites. Adapted from CONABIO (2013).

The following maps show the main impacts and threats for APFFYB and Cozumel Island:

Map 4. Land-use changes in the APFFYB (1981, 2005 and 2010). Source: CONABIO (2013)

Map 5. Land-use changes in the Cozumel (1981, 2005 and 2010). Source: CONABIO (2013)

-Anthropic development
- Agricultural-Livestock
- Other vegetation
- Without vegetation
- Mangrove
- Disturbed mangrove
- Other wetlands
- Water bodies

C1 Summarize information for the participating communities/groups/individuals expected to benefit from the project (PV requirements 1.1, 7.2.1, 7.2.7 & 7.2.8)

According to INEGI[2], the Municipality of Lázaro Cárdenas had a population of 25,333 inhabitants (1.9% of the total population of Quintana Roo), with an average age of 24 years, a density of 8.3 inhabitants per km^2 (2015) and a gender distribution of 50.8% men and 49.2% women (INEGI, 2010). There are two main human settlements in the APFFYB: Holbox (1,482 inhabitants) and Chiquilá (1,466 inhabitants).

In 2010, 71.2% of the population was in poverty and 18.2% in extreme poverty. The condition of educational backwardness affected 23.3% of the population, 39% reported living in homes without the availability of basic services and 22.1% lack access to food.
The main indigenous group is Mayan and in 2015, 46.99% of the population was registered as Mayan speakers (3.47% are Mayan speakers and do not speak Spanish).
According to CONABIO (2013) the following are the relevant organized institutions present in APFFYB:

- Secretaría de Medio Ambiente y Recursos Naturales
- Comisión Nacional de Áreas Naturales Protegidas
- Centro de Investigación y de Estudios Avanzados, IPN, Unidad Mérida
- Universidad Nacional Autónoma de México
- Universidad de Quintana Roo
- Yum Balam A.C.
- Pronatura, Península de Yucatán
- Centro de Investigaciones Científicas de Yucatán
- Amigos de Sian Ka´an A.C.
- ECOSFERA A.C.
- Global Environmental Facility
- The Nature Conservancy

According to INEGI, in 2010 the Municipality of Cozumel had 79,535 inhabitants, all of them living on the island (6% of the State´s population), 97% of which live in the capital, San Miguel de Cozumel. The average age in the Municipality is 27, there are 177.1 inhabitants per km^2 and a gender distribution of 49.3% men / 50.7% women.
In 2010, 31.7% of the population was in poverty and 4.2% in extreme poverty. The lack of education affected 15.5% of the population and 21% lacked access to food.
The main indigenous group is Mayan and 11.66% of the population is registered as Mayan speakers (0.09% are Mayan speakers and do not speak Spanish).
According to CONABIO (2013) the following are the relevant organized institutions present in CZ:

- Comisión Nacional de Áreas Naturales Protegidas
- Amigos de Sian Ka´an A.C.
- Investigación, conservación y desarrollo del Caribe mexicano (INCODECAM)

[2] INEGI is the National Institute of Statistics, Geography and Informatics. Official censuses are carried out every 10 years, the 2020 census is in preparation by INEGI https://www.inegi.org.mx/default.html

Part D: Land Tenure & Carbon Rights

D1 Describe the land tenure context and current understanding of carbon/ES rights for the project area(s) (PV requirements 1.1 & 1.2)

BC ecosystems are distributed based on territorial zoning of seas, passing through the Federal Terrestrial-Maritime Zone (ZOFEMAT) and ending in continental lands. Therefore, there are five legal bases that entrust SEMARNAT[3] with all the competences related to the regulation on the conservation and restoration of BC ecosystems: (1) General Law of Wildlife (LGVS), (2) Official Mexican Standard NOM-059-SEMARNAT-2010 (3) General Law of National Assets (LGBN), (4) General Law of Climate Change (LGCC) and (5) General Law of Ecological Balance and Protection of Environment (LGEEPA).

In Mexico, BC ecosystems are located in 3 types of property: private, social (*ejidos*) and national (public land and ZOFEMAT[4]). To be a beneficiary from a BC market project, it is mandatory to be the owner of a territory with this type of ecosystem. Moreover, as NPAs in Mexico respect original land tenure, most of the ANP area (92%) is owned by ejidos, communities and private owners. Therefore, it is necessary to have the legal certainty of the delimitation and possession of assets; that, in order to have a base of the carbon rights that will be assigned to each owner.

According to INECC-PNUD Mexico (2017) and in order to achieve the equitable distribution of benefits for the conservation and restoration of BC ecosystems, it is necessary to define who owns the property and who is entitled to receive its benefits. The ownership of the territory and the allocation of carbon rights will be granted under the provisions of the National Constitution and the General Law of National Assets (LGBN by its siglas in spanish).

The projects proposed will focus to include the mangroves that are under social property (*Ejidos*), that could be under common use or parceled land as well as private property; the territories under common use or parceled land (*Ejidos*) are part of an endowment that the government gave to the communities under a certificate of agrarian rights issued by the National Agrarian Registry (RAN by its siglas in spanish). For this project, only land outside national delimitation will be considered. The owners of the territory (private and social) will be those who hold the carbon rights.

The interventions proposed in the Taab Ché Project will focus on including the mangroves that are under social ownership (ejidal), which could be of common or parcel use as well as private property; Common use or parcel territories (ejidos) are part of an endowment that the government gave to the communities under a certificate of agrarian rights issued by the National Agrarian Registry (RAN). For this project, only lands outside the national boundary (public goods) will be considered. The owners of the territory (private and social) will be the holders of the carbon rights. Each of the owners can propose to include their carbon credit rights to the project coordinating entity (Resiliencia Azul A.C.) and receive direct incentives that will be reinvested in the conservation and restoration of ecosystems.

The participants of the project under social or private property would be the direct beneficiaries; they will signs agreements with the coordination organization (Resiliencia Azul), in order to allow

[3] Secretary of Environment and Natural Resources

[4] ZOFEMAT: Zona Federal Marítima Terrestre - Federal Terrestrial Maritime Zone

the inclusion of the land with mangrove coverage, to be part of the blue carbon stock, available for the conservation and restoration of these ecosystems. The benefits generated by the project will be distributed to the participants as economic revenue and as part of sustainable activities transitions projects, considered as cobenefits for the participants and the population of the communities located at the area of intervention.

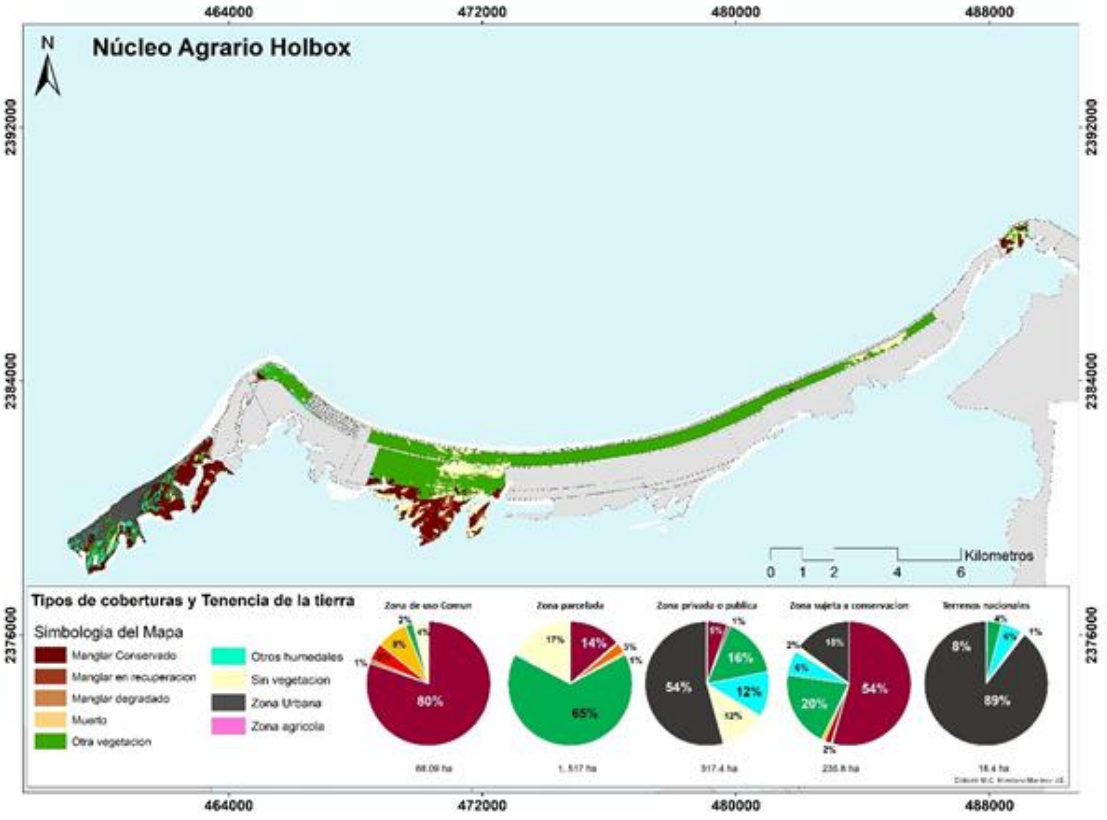
In Mexico there are national property, that could be divided in two different classes, the inland national property that is considered as those lands that are in national territory and that have not been claimed by the competent authority as property of public utility, nor granted by the State for onerous or lucrative title, to a natural or legal person authorized to acquire them; the second class is the Federal Maritime Terrestrial Zone (ZOFEMAT by its acronym in Spanish), a common use good in the public domain of the Federation consisting of the 20-meter strip that is passable and contiguous to the sea, which is determined from the maximum high tide level. Due to the diverse institutional arrangements needed to gain the benefits of these territories, a different scheme of institutional arrangements to implement a blue carbon project in this area.

The extension of mangroves in Yum Balam corresponds to 7,267 ha of which 93% is conserved, 5.6% in recovery and <1% as degraded mangrove. 62% of the mangrove vegetation is found on common use of social property. The largest extension of dead mangrove (194.25 ha) and conserved mangrove (4, 396.62 ha) extends over this regime. National lands (17.9%) and parceled lands inside social property (16%) have a similar extension of mangroves. For Cozumel, the distribution of land is less diverse, with three types of tenure, however, with living mangroves (2,948 ha) only in private or public areas (16%) and national lands (83%) (table 4). The extension of land with dead mangroves extends to 153.14 ha for national lands and 14.25 ha for lands of public or private property.

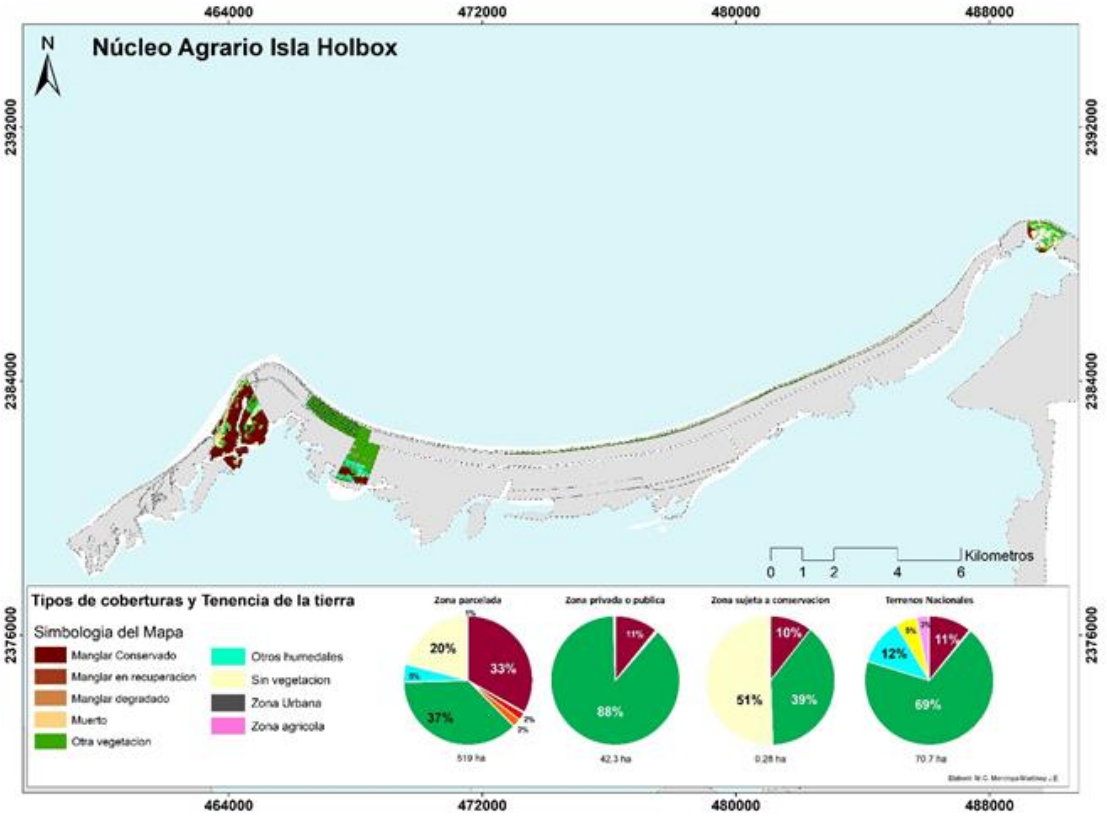
The mangroves that potentially could be included in the project in Yum Balam and Cozumel are under those five different land tenure, and with four conditions, showed in the next tables and maps:

Table 1. Land tenure by mangrove condition in the APFFYB.

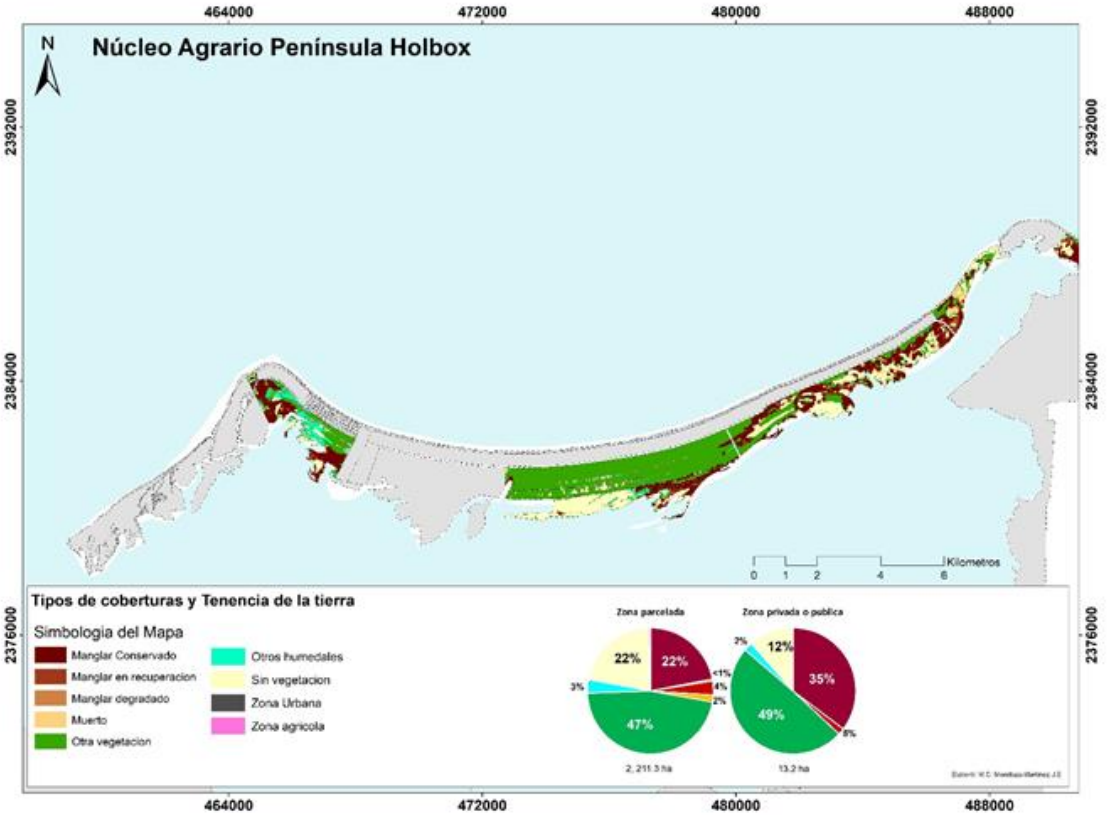
Land tenure	Conserved Mangrove (ha)	Degraded mangrove (ha)	Mangrove in recovery (ha)	Dead mangrove (ha)
National land	1,195.74	14.06	103.02	48.4
Common land	4,396.62	11.98	171.32	194.25
Parceled area	1,002.57	19.19	128.39	72.91
Private or public area	90.0	0.01	1.46	3.27
Area under to conservation	128.37	0.54	4.0	2.15



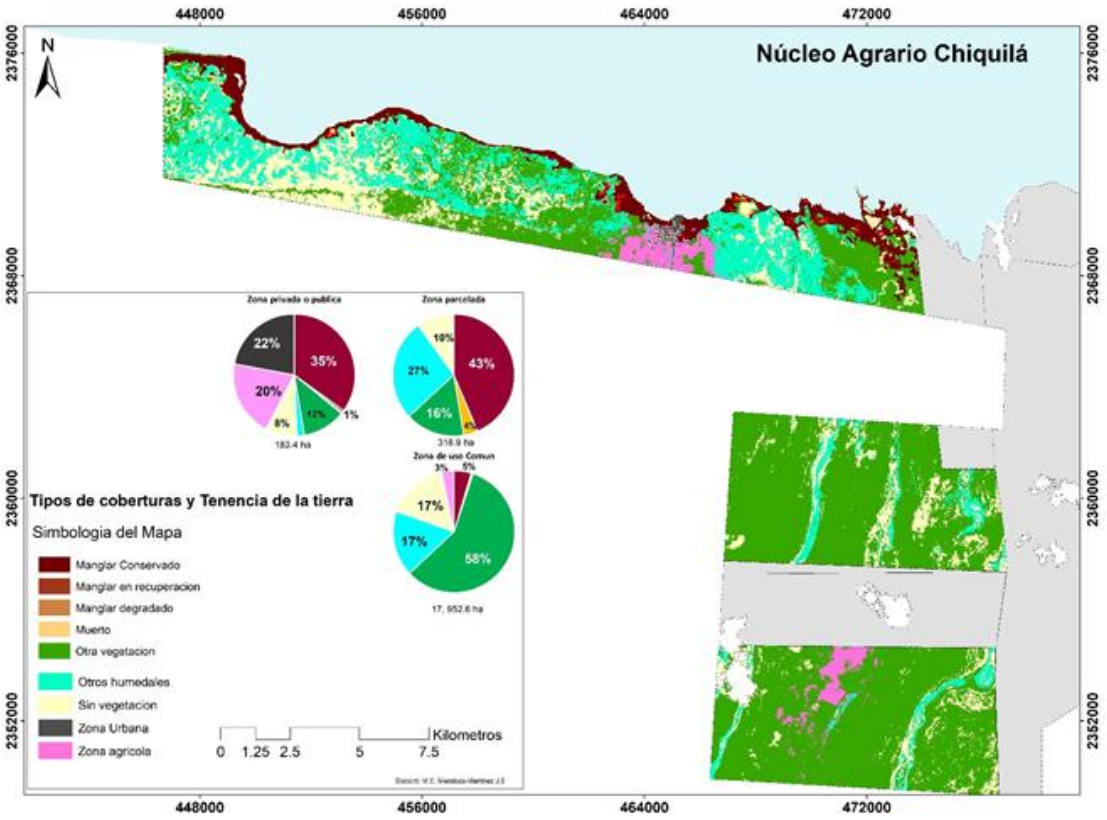
Map 6. Distribution of land tenure, property regimes and uses / types of vegetation at Holbox Ejido.



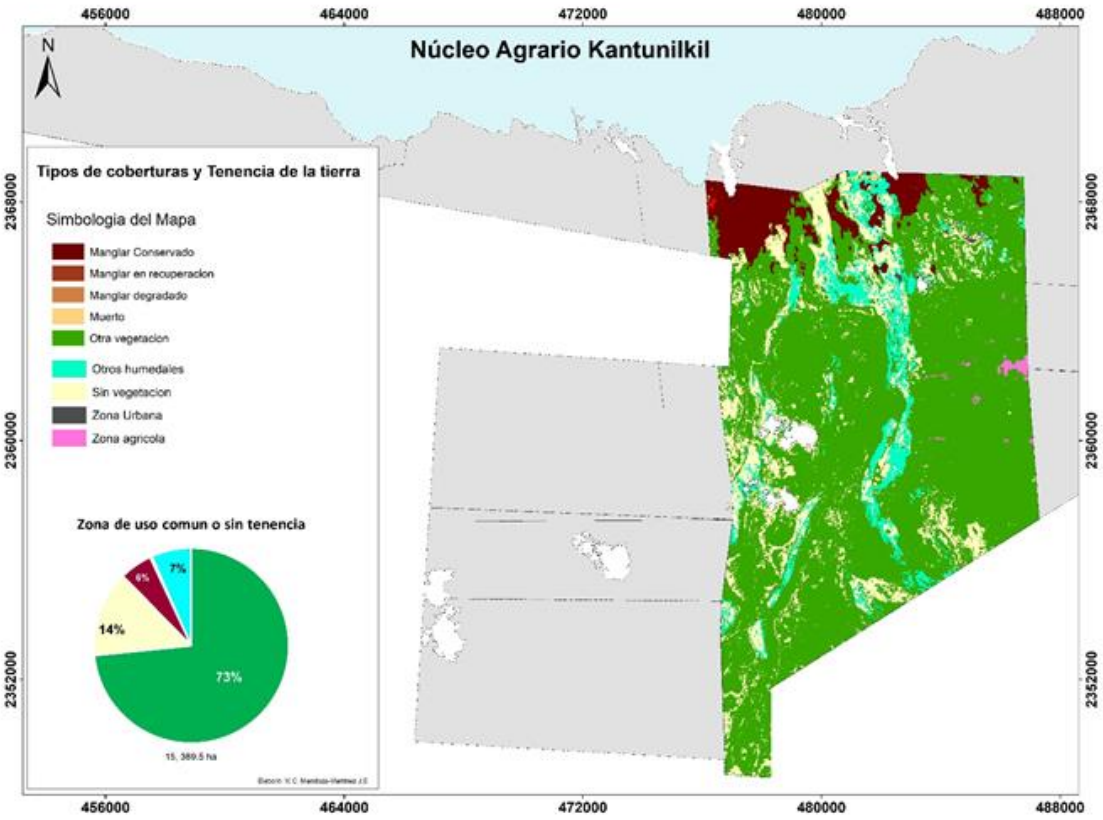
Map 7. Distribution of land tenure, property regimes and uses / types of vegetation at Isla Holbox Ejido



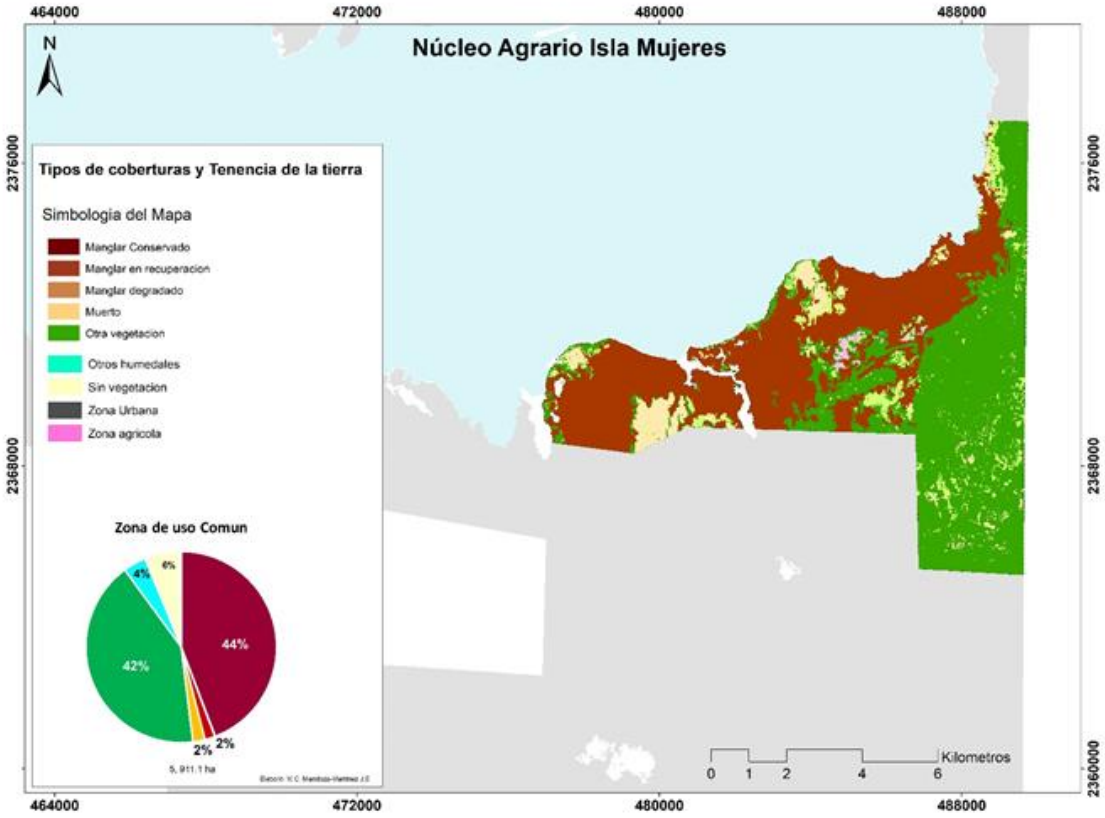
Map 8. Distribution of land tenure, property regimes and uses / types of vegetation at Peninsula Holbox Ejido



Map 9. Distribution of land tenure, property regimes and uses / types of vegetation at Chiquilá Ejido



Map 10. Distribution of land tenure, property regimes and uses / types of vegetation at Kantunilkin Ejido

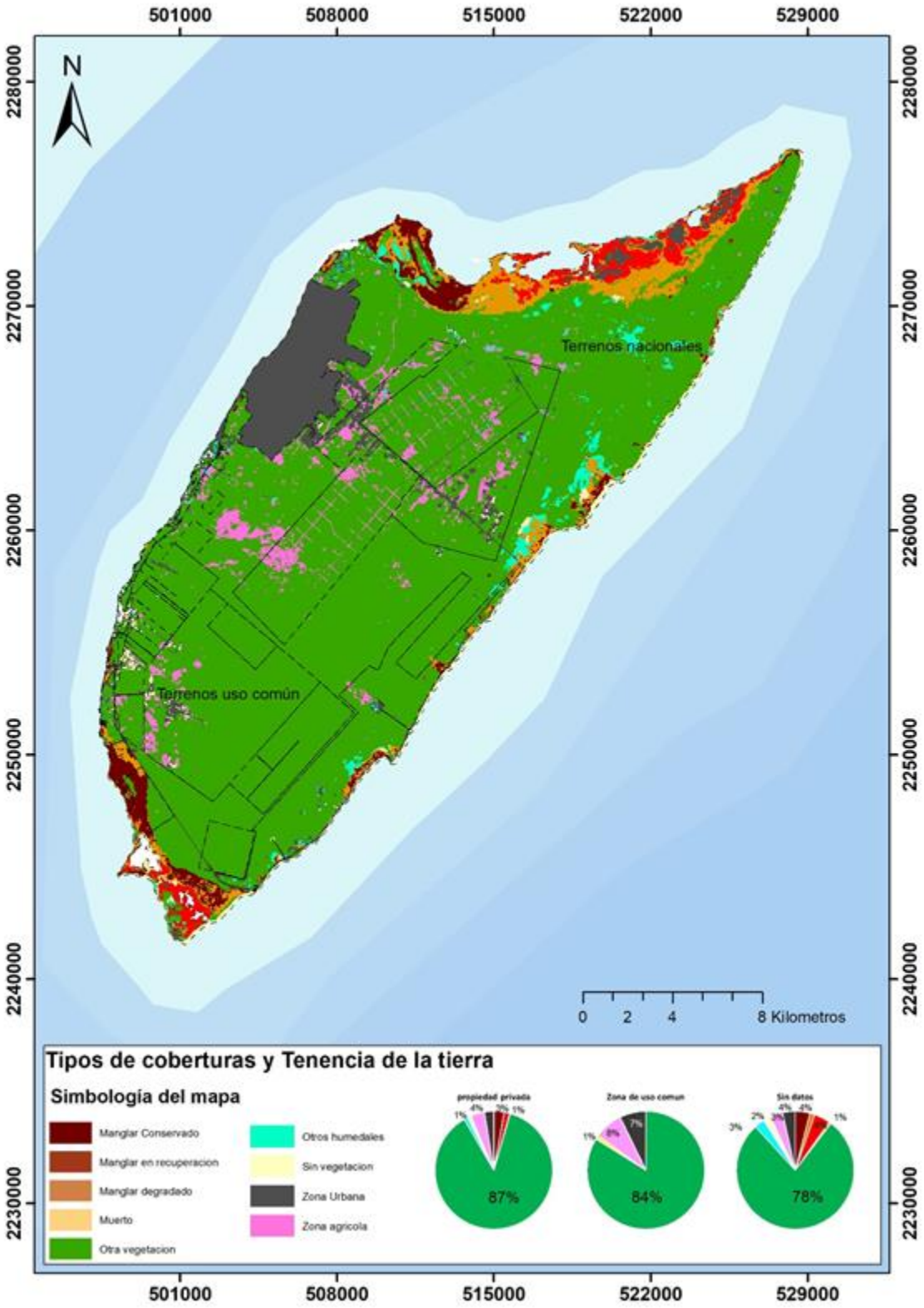


Map 11. Distribution of land tenure, property regimes and uses / types of vegetation at Isla Mujeres Ejido

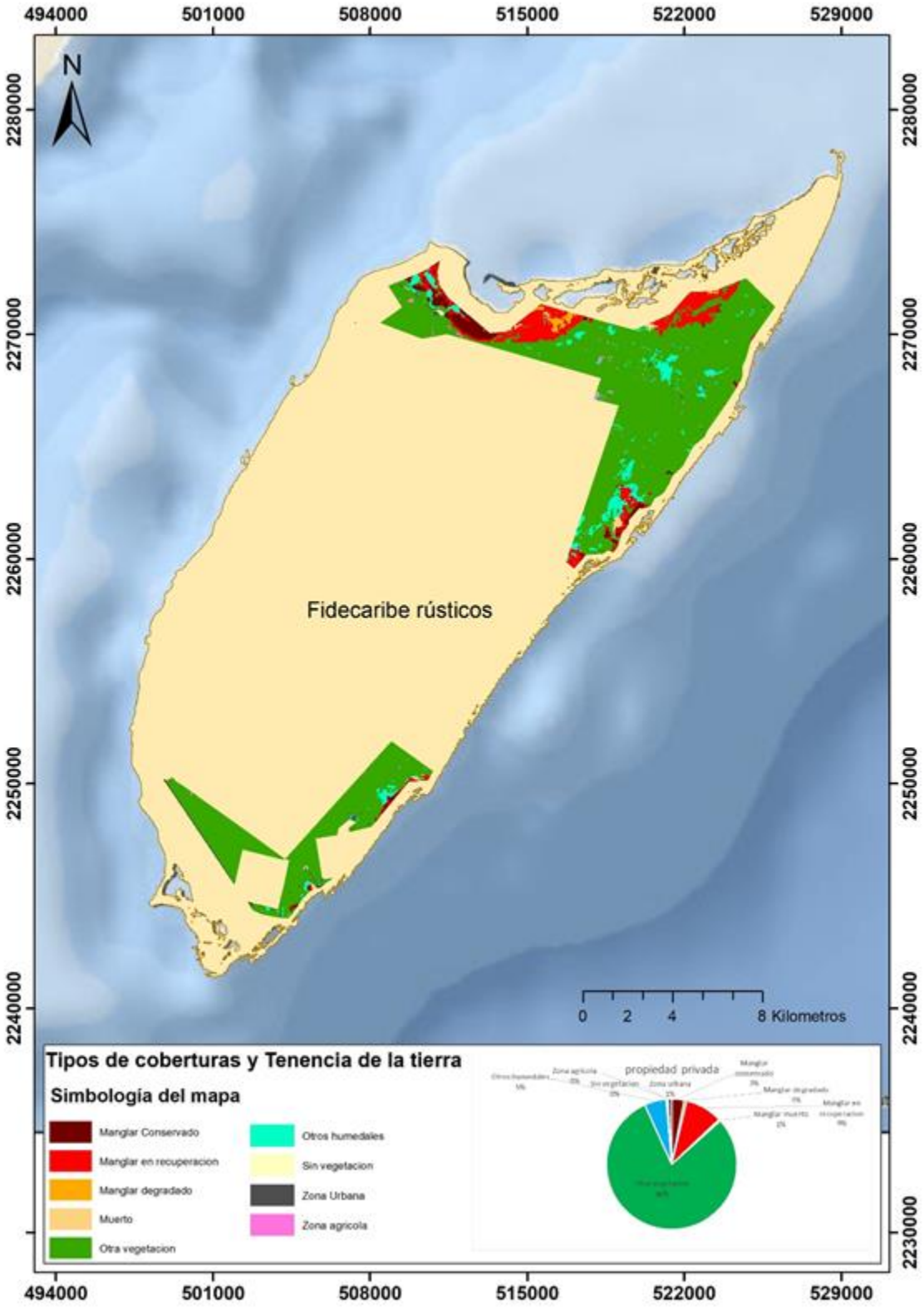
Cozumel

Table 2. Land tenure by mangrove condition in Cozumel.

Land tenure	Conserved Mangrove (ha)	Degraded mangrove (ha)	Mangrove in recovery (ha)	Dead mangrove (ha)
National land	1020.81	331.66	1111.93	153.14
Private or public area	316.07	0.49	167.48	14.25
Historically disturbed mangrove				
National land	0	772.2	847.60	0
Private or public land	0	3.34	0	0



Map 12. Distribution of land tenure, property regimes and uses / types of vegetation at Isla Cozumel

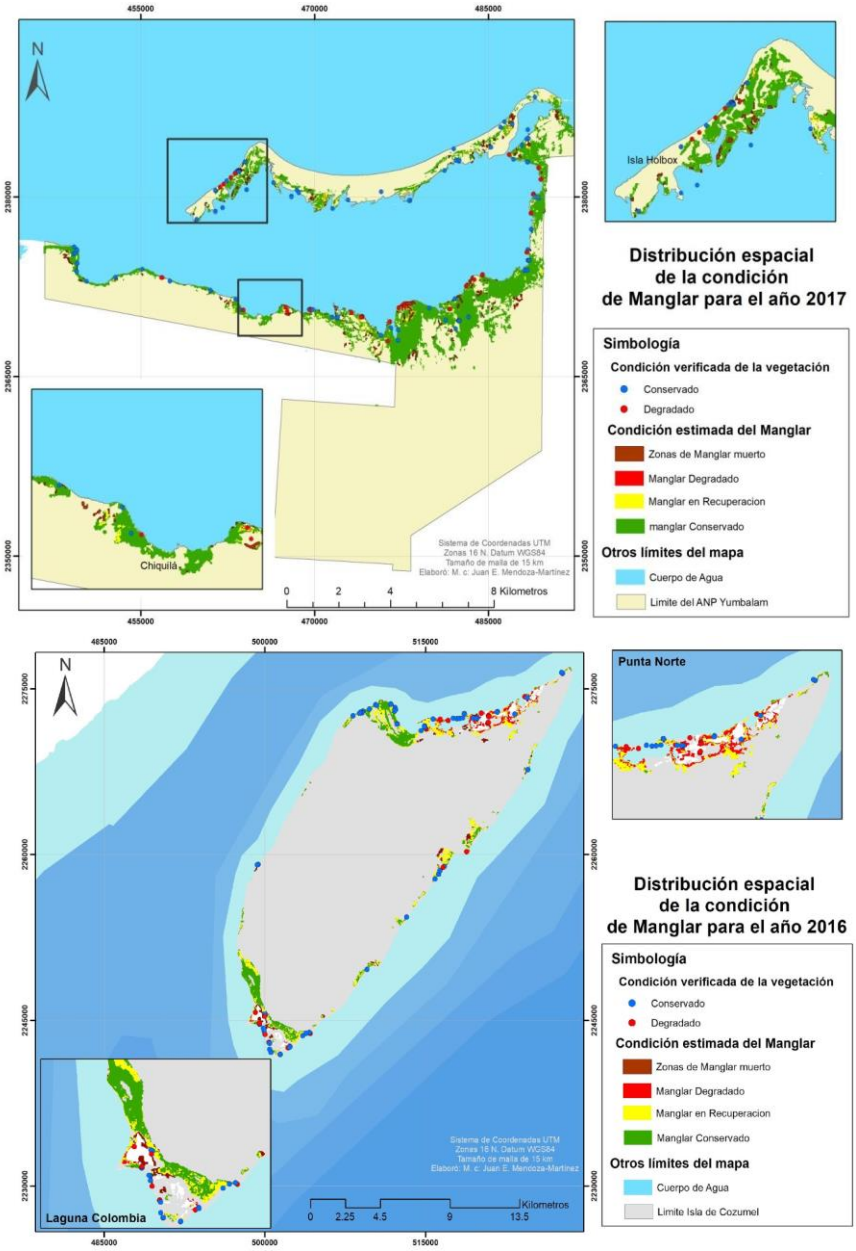


Map 13. Distribution of land tenure, property regimes and uses / types of vegetation at Isla Cozumel under state government tenure (FIDEICARIBE-IPAE-AGEPROO).

Part E: Project Interventions & Activities

E1 Describe the types of interventions included in the project and envisaged to generate PV Certificates (PV requirements 2.1.1-2.1.4)

In the following map of the sites, the special distribution of the four mangrove conditions identified for the sites can be observed: dead mangrove zones, degraded mangrove, recovering mangrove and conserved mangrove. This classification according to the mangrove condition allowed designing the strategy and types of intervention for the Taab Ché project.



Map 14. Spatial distribution of mangroves condition in both pilot sites: APFFYB and Cozumel Island.

Plan Vivo Certificates generated at the Taab Ché blue carbon project are based in two intervention types:

1) Prevention of ecosystem conversion or degradation through a conservation scheme intended to avoid mangrove deforestation under "preserved" and "recovery" conditions (avoided deforestation).

2) Ecosystem restoration through hydrological rehabilitation and propagules reforestation activities. Species propagules included will be *Avicennia germinans, Rhizophora mangle, Laguncularia racemosa* and *Conocarpus erectus*, all of them native from the Yucatan Peninsula. Reforestation will be performed aligned to the three ecological types of mangrove in the pilot sites (basin, dwarf and fringe).

Table 3. Taab Ché intervention types in Cozumel.

Cozumel Island						
Number	**Zone**	**Mangrove ecological type**	**Dominant spp**	**Conservation scheme (ha)**	**Ecosystem restoration (ha)**	**Total (ha)****
1	Barracuda	Basin	Rhizophora mangle, (1) Avicennia germinans (2), less frequently Laguncularia racemosa (3)	41.9	0.5	42.4
2	Isla Pasión	Fringe	Rhizophora mangle (1), Avicennia germinans (2) less frequently Laguncularia racemosa	900.8	75.8	976.6
3	Punta Norte	Basin	Avicennia germinans 1) and Conocarpus erectus (2) in shrubby form.	315.8	297.3	613.1
4	Mezcalito	Basin	Rhizophora mangle	452.4	48.6	501.0
5	Laguna Colombia	Basin	Rhizophora mangle	801.8	75.5	877.3
6	Punta Tormentos (Punta Sur)	Basin	Rhizophora mangle	38.8	3.3	42.1
				2551.5	501.1	**3052.6**

*** Buffers from social risk and management must be applied.*

Table 4. Taab Ché intervention types in APFFYB.

APFF Yum Balam						
Number	**Zone**	**Mangrove ecological type**	**Dominant spp**	**Conservation scheme (ha)**	**Ecosystem restoration (ha)**	**Total (ha)****
1	Isla Chica	Basin	Avicennia germinans (1), Rhizophora mangle (2) and Laguncularia racemosa (3).	447.7	29.8	477.5
2	Isla Grande	Basin	Avicennia germinans (1), Rhizophora mangle (2) y less frequently Laguncularia racemosa (3)	728.4	34.4	762.8
3	Interna Este	TBC	TBC	859.0	5.4	864.4
4	Interna Sur	Dwarf, Basin (most frecuently), Fringe and peten,	Rhizophora mangle y Avicennia germinans las que dominan, seguidas de Laguncularia racemosa	4239.3	45.2	4284.5
5	Boca	dwarf and Basin	Rhizophora mangle la especie dominante, seguido de Avicennia germinans y por último Laguncularia racemosa	634.0	3.8	637.8
				6908.4	118.6	**7027.0**

*** Buffers from social risk and management must be applied.*

According to the analysis of the extension and spatial distribution of areas dominated by mangroves in Cozumel Island and Yum Balam, four type of condition were considered: EMD: Extent of degraded mangrove, EMC: Extent of conserved mangrove, EMCR: Extent of conserved mangrove in recovery, EMP: Extent of lost mangrove. There are a total extension of mangrove for Cozumel Island of 3052.6 hectares, and 7027 ha for APFF Yum Balam. It is important to remark that 50% of social risk will be applied, as well as 30% for project risk.

Representing that for mangroves in the two pilot sites (APFFYB and Cozumel) there are at least 620 ha with degraded conditions and losses, which provides potential for restoration. However, the project contemplates the restoration of 200 ha for both sites.

As a combined effort between Taab Ché project partners, the Mexican Carbon Program (PMC) and the Research and Advance Studies Center-Merida Unit (Cinvestav), the carbon stocks (both aerial and belowground) at the two sites (APFFYB and Cozumel) have been quantified. Also, the spatial distribution and total cover of each mangroves condition was determined. The results of such an analysis allowed us to characterize sites by their prevailing condition.

This classification allowed identifying the areas where each condition prevails. Likewise, multiple research into mangroves of the Yucatan Peninsula region provide carbon sequestration data per hectare per year for restored mangroves, in the initial stage (the first 10 years) and the young to mature stage (more than 10 years) estimated for the aerial component.
Therefore, the analysis of the geospatial information and dead mangrove zones, degraded mangrove, recovering mangrove and conserved mangrove classification of areas, allowed calculating the potential carbon benefits for the project.

Financing feasibility was determined using the economic model for the avoided conversion of blue carbon ecosystems that Murray et al. (2011) use, first quantifying the benefits of greenhouse gases (GHG) as emissions that would be avoided by change of land use and the sequestration would be maintained through a blue carbon project that protects mangroves within defined parcels.

In addition to this, we will account for the emissions stored and captured in areas destined for restoration. Unfortunately, there is not significant data on methane and other GHG emissions in the project sites, therefore those emissions will not be taken in account for now. Methane emissions reduce GHG benefits from ecosystem protection, but tend to be small relative to the magnitude of the carbon sequestration rate and especially the CO2 sequestration rates in conserved saltwater ecosystems by those will be underestimated (Murray et al. 2011)..

The GHG benefit streams from blue carbon avoided projects take this general form:

$$\text{Flow of GHG Avoided Benefitst} = AvCO2$$

Equation 1 Murray et al. (2011)

$$\text{Flow of captured GHG Benefitst} = Ct + AvCO2$$

Equation 2 Murray et al. (2011)

$$\text{Additional GHG Benefit Flowt} = CSt$$

Equation 3 Murray et al. (2011)

where:
t is project time, expressed in years;
CS is the annual carbon captures which continues as long as the ecosystem is maintained and will be geographically differentiated, depending on the physiological type of mangrove and depending on its age and condition;
AvCO2 are the emissions avoided of carbon dioxide (CO_2) by change of land use of the ecosystem (repository in year zero).

Although the sequestration rate was not directly measured in this project, the rates for conserved mangroves at the pilot sites can be estimated based on the literature. According to personal comments, the growth dynamics of mangroves in restoration projects respond to 3 distinct phases:

Table 5. Growth phases in mangrove restoration projects in the Yucatan Peninsula, based on personal conversations with Ph. D. Jorge Herrera-Silveira from CINVESTAV.

Restoration project phases	Seedlings age / trees (years)	Growth type	Number of seedlings / trees	CO2 capture type
Adaptation	0-3	Slow Lento	Tens of thousands / ha	Almost exclusively aerial
Exponential	3-8	Exponential	Miles / ha	Aerial and underground (dominant aerial)
Stabilization	> 8	Progressively slower in height but continues to grow in diameter	Hundreds / ha	Aerial and underground (dominant underground)

For this reason, two catch rates were taken for the restoration plots: 7.5 Mg C ha^{-1} $year^{-1}$ will be applied for those newly planted mangroves and the rate will be maintained until 10 years, while for those same mangroves from at 10 years and up to 20 years, a rate of 5 Mg C ha^{-1} $year^{-1}$ will be used[5]. For mangroves in preserved adult condition, an average rate for the Yucatan Peninsula of 6 Mg C ha^{-1} $year^{-1}$ will be used.

According to Kauffman, the total carbon reserve of the mangrove ecosystem is calculated by adding all the analyzed components; therefore, the total sales potential of our project will be the sum of the three emission fractions. Year zero is considered 2019 and the specific store for that year for the pilot sites appears in tables 2 and 3.[6]

$$AvCO_2 = C\ Total * Predominant\ condition\ surface$$

Equation 4, avoided carbon dioxide (CO2) emissions from land use change

CS = capture rate * surface of prevailing condition

Equation 5, annual carbon sequestration

Where:

C Total the sum of the aerial and underground reservoirs for each zone;

[5] Teutli-Hernández et al (2016) where it is specified that in mangroves in restoration of the PY after eight years of restoration, an average C capture rate of 7.5 Mg C ha^{-1} yr^{-1}.

[6] Ecological mangroves types are available on MARFund reports: CZ_Act.1.1.1 https://drive.google.com/file/d/1jJKrAyDubhA_EJlzUlm1KNanjjWpWTMj/view?usp=sharing y YB_Act.2.1.2 https://drive.google.com/file/d/1jml-jfPI0kRKdYNdvn-fvjYBqhBVwjQe/view?usp=sharing

Predominant condition surface, the sum of EMC + EMCR for Eq 1 and 3, and EMD + EMP for Eq. 2 for each zone;
Time the total duration of the project or the cut-off time to report.

Thus, the sum of all emissions from all zones of a site will give the total potential of each site (Table 4 and 5), that is, the carbon that can potentially be put up for sale throughout the project in metric tons. That carbon will be converted into tons of CO_2 equivalent (CO_2e) to quantify the PVC potentially available for sale in the voluntary market.

The following table shows the total potential for emissions avoided based on the area and average carbon of each site in a conserved (EMC) and conserved in recovery (EMCR) condition; and the planned ecological restoration carbon potential for at least 460 hectares in both pilot sites (± 250 ha in YB and ± 195 ha in Isla Cozumel).[7]

Taab Ché project is projected to have a carbon / ES benefits potential of 9,904,793.26 tCO_2e, pending further refinement of the technical specifications in the PDD which is under development On this estimate, the social risk was discounted, basing the estimate on the assumption that only 50% of the surface will be susceptible to insertion of the project, given the interest of the social actors to participate in the project and therefore are the existing carbon stored to be included. Likewise, 30% of the project's buffer was discounted to guarantee any leakage or displacement to other mangrove areas, which could occur throughout the period, established for the 20-year payment for environmental services agreements.

Table 6. Carbon analysis for avoided emissions and restoration for both Taab Ché project sites

Potential of carbon credits for avoided emissions and restoration
Cozumel Island

TCO2e	Avoid Emissions	Restoration	Total
tCO2e total	**6,679,866.23**	243,329.17	6,923,195.39
tCO_2e potential (-50% social risk)	**3,339,933.11**	**121,664.58**	3,461,597.70
Project buffer (30%)	**1,001,979.93**	**36,499.38**	1,038,479.31
tCO_2e available	**2,337,953.18**	85,165.21	**2,423,118.39**
tCO_2e annual	**116,897.66**	**4,258.26**	**121,155.92**

Potential of carbon credits for avoided emissions and restoration
APFFYB

TCO2e	Avoid Emissions	Restoration	Total
tCO2e total	**21,197,390.60**	**178,823.33**	**21,376,213.93**
tCO_2e potential (-50% social risk)	**10,598,695.30**	**89,411.67**	**10,688,106.97**

[7] Further details of the restoration activities will be drawn up in the technical specification of the Taab Ché Project.

Project buffer (30%)	**3,179,608.59**	**26,823.50**	**3,206,432.09**
tCO_2e available	**7,419,086.71**	**62,588.17**	**7,481,674.88**
tCO_2e annual	**370,954.34**	**3,129.41**	**374,083.74**

Part F: Identification of Any Non-Eligible Activities

F1 Describe any additional activities to be supported or implemented by the project

60% of the gross annual benefits derived from the sale of the carbon generated in the Taab Ché Project will be distributed among the participants through the generation of direct and indirect benefits for their communities that ensure sustainable livelihoods.

This, together with the remainder of the net benefits[8], will be invested into:
- Creation and continuous training of community groups that will include the participation of youth and women to carry out the monitoring and surveillance of the project in the intervention areas.
- Strengthening of local capacities for ecological restoration
- Promotion of ecotourism activities in mangrove areas
- Multi-scale awareness (from local to regional) about the ecosystem goods and services provided by mangrove ecosystems.
- Promotions of local economy mechanisms through the creation of a fund for sustainable productive projects that reduce the pressure of deforestation of the mangrove swamp and provide economic opportunities for local communities.

[8] Net benefits are the economic revenue derived from the sale of the credits, once the total costs are subtracted.

G1 Description of project design that will ensure the project is self-sustaining after carbon/PES revenues cease

1. Economic sustainability

Financial and economic sustainability is ensured in the prototype phase through positive profitability. When entering the replication phase of the pilot, the possibility of adding plots in a group project will be explored.

PNUD-INECC (2017) proposes a public-private scheme in which the benefits derived from the sale of carbon are one of the sources of financing for the project; while other sources both ex ante and ex post could be public funds, philanthropy (i.e. bilateral institutions, climate finance tools, private foundations, etc.) and a private investment plan. The magnitude of these funds will depend on how much the project proponent is capable of optimizing the processes from the start and attracting investors or donors. Thus, it is recommended to have a diverse and broad portfolio of revenues, instead of entrusting the entire process to a single donor who may not be aware of the long-term commitment and risks of this type of project.

2. Social sustainability

Therefore, profitability will be reflected in the communities as direct and indirect economic benefits, social benefits and environmental benefits. Among the indirect benefits, the project aims to provide incentives to strengthen the capacities and livelihoods of local communities, which are dedicated to artisanal fishing, ecotourism and non-timber forest products (e.g. beekeeping) in order to promote community enterprises. In turn, the project seeks to internalize the environmental benefits in terms of coastal protection. Social benefits will increase social safeguards decreasing social risks such as high opportunity cost for land use changes and non-compliance and departure of partners.

3. Technical sustainability

The design and support in the investment of productive projects based on the services provided by mangroves (agroforestry, ecotourism, fishing) and surveillance of NPA management plan in collaboration with National Protected Areas Commission (CONANP) and aligned to the Environmental Minister (SEMARNAT) instruments will strengthen the resilience of the project.

Part H: Applicant Organization & Proposed Governance Structure

H1 Project Organizational Structure (PV requirements 3.1-3.6)

Participants and beneficiaries of this project will be the holders of ejidos rights of the following communities (social property):
Lázaro Cárdenas municipality Ejidos (Social Property):
-Isla Holbox
- Holbox
- Chiquilá
- Kantunilkin
- Isla Mujeres

Cozumel municipality:
- Villa de Cozumel

Table 7. Regime of property of Ejidos on APFFYB and Cozumel Island. Source: National Agrarian Registry.

Community	Surface (ha)	Parcels (ha)	Common use (ha)	Not delimited (ha)	Number of Ejidatarios	Number of non Ejidatarios	Number of Proprietor	Total number of beneficiaries
Yumbalam								
Holbox	1416.62	921.34	41.04	80.3	214	39	12	265
Isla Holbox	440.04	392.66	0	0	21	0	0	21
Isla mujeres	54822.39	29068.91	25337.62	0	56.9	0	0	56.9
Kantunilkil	77693.15	420	787.44	0	2233	0	58	2291
Península Holbox	2521.55	2316.6	0	0	24	0	0	24
Chiquilá	57588.76	19937.1	34580.63	0	366	432	22	820
Isla Cozumel								
Cozumel	8033.67	0	8033.67	0	69	22	48	139

In the first phase, 5 people from the towns of Chiquilá and Holbox were trained, who developed technical skills for taking soil samples and measuring physicochemical parameters on mangroves. There is 3-community surveillance and monitoring groups formed, as well as one field technician per group who will be trained along the Taab Ché project by CINVESTAV.

In addition, as part of the project, it is proposed to strengthen the capacities of local communities in monitoring and restoration of mangroves. The design of the projects will be validated by the participating ejidos in addition to defining the mechanisms for the distribution of benefits and the transition programs to sustainable livelihoods.

The key partners identified for the project are listed below:

Table 8. Key partners identified for Taab Ché Blue Carbon Project at two pilot sites in Quintana Roo, México.

Organization	Characteristics	Role
PMC- CINVESTAV	Research and teaching	Carbon estimates and training
Casa Wayuu	Local ONG	Presence in the communities
CONANP	National Commission for Protected Natural Areas	Institutional presence
MAR Fund	Regional Fund	Funding baseline analysis
FMCN	Mexican conservation fund	
Resiliencia Azul	Non-profit civil association, in registration process.	Project design consulting team Taab Ché Project coordinator

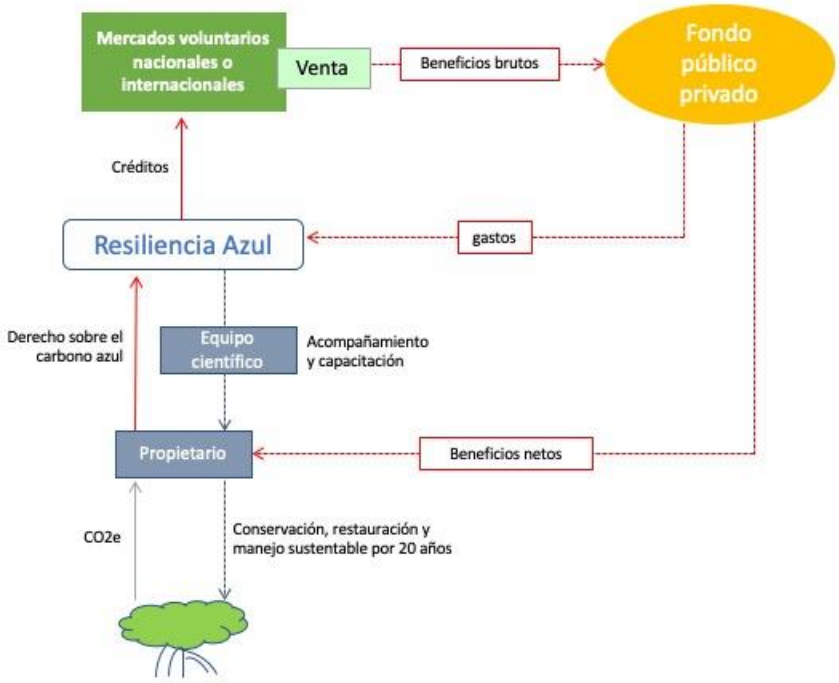


Figure 4. Taab Ché Governance structure and operation.

H2 Applicant organization

Name: Resiliencia Azul A.C.

Legal figure: Non-profit civil association

Mission:
Contribute to the climate resilience of the environmental services provided by ecosystems through the design and implementation of innovative management instruments that promote community governance.

Vision:
Citizen safeguard natural resources by having skills and capacities for the sustainable management of ecosystems, thus reducing the vulnerability of communities to climate change.

Corporate purpose / General objective:
Promote and advise the design, financing, coordination and execution of technical, legal, financial and governance actions that contribute to mitigation and adaptation to global climate change, in order to conserve, restore and promote sustainable management for ecosystems. Preserve the environmental services provided by ecosystems, contributing to reduce the climatic vulnerability of communities, under a gender equity and social inclusion approach.

Specific objectives:
1. Design, implement and advise on financial instruments for the conservation, restoration and sustainable management of ecosystems in a context of climate change.
2. Analyze and advise on national and international legal, normative and territorial management instruments applied to the conservation, restoration and sustainable management of ecosystems in a context of climate change.
3. Manage and strengthen the capacities of communities in matters of climate governance.
4. Provide advisory services to private initiative to comply with its climate obligations
5. Implement, coordinate and execute actions for the conservation, restoration and sustainable management of the environmental services that ecosystems provide.

Programs / lines of work:
- Policy and governance
- Climate finance
- Territorial climatic actions
- Development and sustainable livelihoods
- Business and climate management

Transversal lines of work:
- Gender and social inclusion perspective
- Communication
- Governance
- Biodiversity
- Conservation

Members:
Elisa López García
Rosalía Andrade Medina

Legal representative: C. Rosalía Andrade Medina

Structure:
- Resiliencia Azul, A.C. is conformed by 5 coordination, which cover each of the lines or work programs; and in a transversal way, each program includes a gender perspective and social inclusion, communication, governance, biodiversity and conservation.
- The research area is based on collaboration with academic bodies such as CINVESTAV-PMC, ECOSUR and CATIE (these collaborations will strengthen in the medium term).
- The structure model allows inter-actor governance among communities, institutions and the private sector, which's are part of the organizational structure of this Association.
- The creation of a board of directors is envisaged, which strengthens the actions of the Association and its sustainability.

Project developer is a non-profit organization, Resiliencia Azul, and a scientist team from the Mexican Carbon Program (PMC). The multidisciplinary group has developed the carbon stock baseline and designed a financial mechanism in two pilot sites in Mexico; they have also worked for the CEC and for UNDP compiling the information available in Mexico regarding blue carbon.
Resiliencia Azul specializes in environmental policy and blue business design. Ph. D. Jorge Herrera-Silveira, co-responsible for the Marine-Coastal area of the PMC, leads the scientific team. They are founders of the Blue Carbon Alliance in Mexico and have worked in the implementation of blue carbon projects since 5 years ago. (CV's are included).

Through Resiliencia Azul AC as the project coordinating organization, the activities requested by Plan Vivo will be implemented:

Administrative
- *Registration and recording of plans vivos and sale agreements;*
- *Managing the use of project finance in the Plan Vivo and making payments to producers*
- *Coordinating and recording monitoring*
- *Negotiating sales of Plan vivo Certificates*
- *Reporting to the Plan Vivo Foundation*
- *Contracting project validation and verification*
- *Managing project data.*

Technical
- *Providing technical support and training to producers in planning and implementing project activities*
- *Developing, reviewing and updating forestry and agroforestry systems (technical specifications)*
- *Evaluating plans vivos*
- *Monitoring plans vivos*

Social
- *Conducting preliminary discussions and continued workshops with communities*
- *Gathering socio-economic information for project registration and reporting purposes*

- *Helping groups/individuals to demonstrate land-tenure*
- *Advising on issues such as mobilization, setting up bank accounts, dispute resolution, etc.*

Resiliencia Azul AC is responsible to bring technical support and assistance to develop technical aspects of project design and development, in collaboration with the CINVESTAV scientific team that is going to provide training to project technicians and community teams, and to develop carbon/ES modeling and technical specifications.

Part I: Community-Led Design Plan

I1 **Submit a plan for achieving community participation in the project, including a mechanism for ongoing consultation with target groups and producers (PV requirement 4.1)**

Communities where there is potential for the Taab Ché Project, have been involved in awareness rising sessions since 2016 on the importance of conserving mangroves and ES provided. Participants will be consulted through presentations and participatory design in the plan of the mechanism, as well as the distribution of benefits.

In the case of ejidos, there will be a presentation at the Ejidal Assembly, as well as workshops and design meetings for Plan Vivo design, to agree on participation in community lands and private lands. Resiliencia Azul will conduct these activities in 2021.

The project's partner organizations and Resiliencia Azul A.C. have broad credibility and acceptance in the region, so the design process and agreements for the operation of the project, including monitoring and surveillance activities, will be agreed upon through the signing of contracts.

Due to Covid-19 the project was not able to carry out any community consultation so far and therefore details around community participation and site mapping still remains to be finalized. The project hopes these activities can happen in 2021 as the pandemic eases off and as communities rebound from the economic consequences of lockdown.

Part J: Additionality Analysis

J1 Description of how project activities additional (PV requirement 5.4)

Despite the fact that Mexico has a comprehensive regulatory framework to protect mangroves, the loss and degradation of BC ecosystems continues. CONABIO (2015) reports mangrove losses in states such as Guerrero (17.8%) and Baja California (0.4%) (2010-2015). Deforestation rates for our pilot sites reached 1.78% in APFFYB and 8.8% in Cozumel (2003-2017).

Barriers:

1. Socio-political tensions

In the 2000s, the Municipality of Lázaro Cárdenas was one of the least developed areas in the Quintana Roo state; with the lowest GDP, with an average annual growth rate of 1.7, 76% of economic dependency and a high degree of marginalization. Under these conditions, the tourist explosion of Holbox only triggered a deep polarization and fragmentation of the population and revealed important socio-environmental tensions that even today seriously threaten the preservation of ecosystems.

2. Limited management capacity

CONANP needs additional information to approve evidence of the economic value of the ES provided by BC ecosystems, to continue and improve the level of incidence in decision-making in public policy and in the local territorial management. It also lacks a sufficient budget for the effective management of resources. The lack of personnel and resources to maintain a more effective control and surveillance system, the limited presence of the PROFEPA and the weakness of the judicial system to monitor and process complaints environmentally causes a constant violation of the regulations and laws that support the legal framework of conservation.

3. Limited environmental governance and institutional respect

Frequently, NPA decrees impose restrictions on the use of natural resources, unleashing social conflicts and rejection. When landowners do not support the transition to a natural resources sustainable use the need to generate income jeopardize natural capital. Surveys estimated these social conflicts showing the loss of confidence in the managers of the resources, benefiting the land use change, the urban expansion and economic leakages.

Our premise is based on the creation of a portfolio of financial incentives based on the market and sustenance of local livelihoods, capable of modifying the behavior of the pilot communities, valuing their natural assets, helping to weave social fabric and favoring their conservation, restoration and sustainable management.

Situation of the Blue Carbon in Mexico´s NDC

All 196 Parties to the UNFCCC at COP21 adopted the Paris Agreement in December 2015. One of the important elements of the Paris Agreement is that countries can independently determine how to lower their emissions, which they outline in pledges called NDCs. Parties can develop their NDC actions and priorities based on a portfolio of measures including the conservation and restoration of nature as a climate change solution. The recognition of the roles that natural ecosystems can play in climate change mitigation and adaptation are often referred to as nature-based solutions. 151 countries contain at least one blue carbon ecosystem (seagrass, saltmarshes or mangroves) and 71 countries contain all three.

Mexico ratified the Paris agreement and presented its NDC in 2015, being the first developing country to do so. Mexico includes coastal wetlands as part of general mitigation aims and specifically recognizes both the mitigation and adaptation benefits of coastal wetlands; as for adaptation, Mexico includes coastal wetlands as adaptation solutions, with references to conservation and management, protection, and reforestation measures. Therefore, mangroves and seagrasses roles in mitigation and adaptation are recognized with protection of mangroves, seagrasses and other coastal and marine ecosystems identified as mitigation and adaptation measures. Mexico describes the need to increase carbon capture and strengthen coastal protection through conservation and recovery of coastal and marine ecosystems, such as coral reefs, mangroves, seagrass and dunes in its Ecosystem-Based Adaptation section.

Moreover, the National Wetlands Committee of Mexico included in its recommendations for the Federal Administration 2019-2024 a priority action to “promote integration and strengthen the issue of blue carbon within the framework of the process of updating Mexico´s NDC. Additionally, the Ministry of the Environment and Natural Resources (SEMARNAT) in conjunction with the National Commission of Protected Natural Areas (CONANP), have promoted the incorporation of actions that promote the conservation of blue carbon ecosystems in policy instruments such as the Special Program on Climate Change (PECC) 2020-2024. Both instruments lay the foundations to promote the design and consolidation of a Blue Carbon Strategy at the national level with the objective of identifying, planning, promoting and facilitating actions in the framework of research, policy design, development and strengthening of capacities and conservation, restoration and sustainable management of blue carbon ecosystems with a long-term and comprehensive vision that contributes to the fulfillment of the objectives and commitments acquired by Mexico within the framework of its NDC.

However there are some challenges in the inclusion process. For example, coastal wetlands´ land-use change emissions and wetlands´-avoided emissions are not yet included in the national GHG accounting. There have been multidisciplinary attempts to do so in the past, but the different federal institutions involved haven´t reached any standardized methodology yet. The soon-to -

happen launching of the Mexico´s compliance carbon trading system will maybe accelerate the process.

SEMARNAT
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

CONANP
COMISIÓN NACIONAL DE ÁREAS NATURALES PROTEGIDAS

PARQUE NACIONAL ARRECIFES DE COZUMEL

COMISIÓN NACIONAL DE ÁREAS NATURALES PROTEGIDAS
DIRECCIÓN PARQUE NACIONAL ARRECIFES DE COZUMEL"

Cozumel, Quintana Roo, a 11 de Octubre de 2018

C. CLAUDIO GONZÁLEZ
COORDINADOR TÉCNICO
FONDO PARA EL SISTEMA ARRECIFAL MESOAMERICANO
P R E S E N T E

Por este conducto hago de su conocimiento nuestro respaldo al proyecto **"Mitigación al cambio climático y protección de sumideros de carbono azul: fase de certificación"**, propuesto por el Programa Mexicano del Carbono (PMC), para obtener fondos de MarFund bajo la convocatoria del presente año.

En el Área de Protección de Flora y Fauna Isla de Cozumel a mi cargo, hemos trabajado de la mano con el Dr. Jorge Herrera Coordinador del Comité Científico: Ecosistemas Acuáticos del Programa Mexicano del Carbono, en el estudio del estado de conservación de los manglares de la isla, así como evaluando la calidad del agua en la zona, desde hace más de seis años.

Por lo anterior, otorgo mi respaldo completo al financiamiento de la propuesta presentada, a fin de contribuir con la conservación y restauración de los humedales costeros no solo dentro del área natural protegida, sino también en su zona de influencia.

A T E N T A M E N T E,
EL DIRECTOR DEL ÁREA.

CRISTOPHER ARTURO GONZÁLEZ BACA
C.c.p.- Archivo

"Por un uso responsable de papel, las copias de conocimiento se envían por correo electrónico"

Página 1 de 1

Image 1. Endorsement of CONANP for Blue Carbon Certification Project in ANP of Cozumel Island.

SEMARNAT
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

CONANP
COMISIÓN NACIONAL DE ÁREAS NATURALES PROTEGIDAS

Yum Balam

COMISIÓN NACIONAL DE ÁREAS NATURALES PROTEGIDAS
DIRECCIÓN REGIONAL PENÍNSULA DE YUCATÁN Y CARIBE MEXICANO
DIRECCIÓN ÁREA DE PROTECCIÓN DE FLORA Y FAUNA YUM BALAM

Oficio No. F00.9.DAPFFYB.- 159/2018

Cancún, Quintana Roo, a 11 octubre de 2018

C. Claudio González
Coordinador Técnico
Fondo para el Sistema Arrecifal Mesoamericano
Presente

Estimado Claudio, por este conducto hago del MAR Fund nuestro interés en la implementación del proyecto ***"Mitigación al cambio climático y protección de sumideros de Carbono Azul: fase de valoración."***, propuesto por el Programa Mexicano del Carbono (PMC) en coordinación con el Centro Mexicano de Derecho Ambiental (CEMDA) oficina Sureste, para obtener fondos de Mar Fund bajo la convocatoria del presente año. En el Área de Protección de Flora y Fauna Yum Balam a mi cargo, hemos trabajado durante varios años con el CEMDA, para la implementación de acciones para la conservación de los ecosistemas dentro del área natural protegidas a través de instrumentos de política pública ambiental entre los que se encuentra la publicación del programa de manejo, el seguimiento del estado de conservación de los ecosistemas y acciones que contribuyan a la vigilancia de los objetos de conservación del área, entre ellos los manglares y pastos marinos que se distribuyen dentro del área.

Por lo anterior, recomiendo al Fondo para el Sistema Arrecifal Mesoamericano financiar la propuesta presentada, a fin de contribuir con la conservación y manejo de los ecosistemas de carbono azul dentro del área natural protegida y su zona de influencia.

Sin otro particular, me despido de usted, enviándole un cordial saludo.

ATENTAMENTE
EL DIRECTOR

JOSÉ JUAN PÉREZ RAMÍREZ

c. c. p. Archivo/2018.

Norma Mexicana en Igualdad Laboral y No Discriminación

Calle Reforma Agraria S/N entre Rafael E. Melgar y Javier Rojo Gómez, Centro Kantunilkin, Lázaro Cárdenas, C.P. 77320, Quintana Roo
Tel. 01 (984) 870073 **www.conanp.gob.mx y yumbalam@conanp.gob.mx**
SPC EXP 1156/QROO/16

Image 2. Endorsement of CONANP for Blue Carbon Certification Project in APFFYB.

Part L: Identification of Start-Up Funding

L1 Provide details of how the project will be financed in the development phase, before full project registration

The short-term demonstration project is shaped by the following phases:

Table 9. Taab Ché project financing phases.

Phase	Focused site	State	Length	Final output
Analysis	APFFYB	Completed	12 months	Mangrove carbon stock baseline
Valuation	APFFYB	On going	16 months	Economic and social incentives portfolio's valuation
Design	CZ	On going	16 months	Feasibility analysis; additionally and risk analysis for Quintana Roo BC projects
Launching	APFFYB and CZ	Raising funds	8 months	Certification of carbon stored and sequestered in pilot sites and launching of BC credits

To date, more than US $100,000 was invested in Phase 1-3, coming from regional and national funds, civil society organizations and Private Initiative and government entities. It is estimated that at least US $180,000 will be invested in the next year to start with the sale of credits, launching a conservation mechanism that will include other mangrove areas in the region. In order to cover the launching costs, a financial strategy is being designed combining a blended combination of funding sources and partners.

Annex I. Reference documents on blue carbon in Mexico

- Análisis de las oportunidades del carbono azul en la política pública mexicana: https://bit.ly/3f765Wy
- Parte 4: Análisis de la situación política y económica del carbono azul en México: https://bit.ly/2YdYxu5
- Nota de Mar Fund sobre Fase I: https://bit.ly/3hbpB5X
- Resultados de la fase I (Tríptico): https://bit.ly/2Y7NSRu
- CEMDA - Carbono azul: http://www.cemda.org.mx/carbonoazul/
- Proyecto carbono azul en la Península de Yucatán: https://bit.ly/3dLTEin
- Resumen de reporte fase III: https://bit.ly/2YcuC5D
- INECC-PNUD México. 2017. Estudio para la identificación, caracterización y evaluación del balance entre las emisiones de GEIs y las zonas de captura y almacenamiento de carbono en zonas de ecosistemas costero/marinos del Pacífico, Golfo de México y la Península de Yucatán (Carbono azul). Proyecto 85488 "Sexta Comunicación Nacional de México ante la Convención Marco de las Naciones Unidas sobre el Cambio Climático", 430 pp. Programa Mexicano del Carbono, A.C. México. https://www.gob.mx/cms/uploads/attachment/file/444387/CGACC_2017_Balance_entre_las_emisiones_de_GEIs_y_las_zona_de_captura_y_almacenamiento_de_carbono_en_zonas_de_ecosistemas_costero-marinos_del_Pacifico_Golfo_de_Mexico_y_Yucatan.pdf

Annex II. Curricular information of personnel to be involved in the project

Ph.D. Jorge Herrera-Silveira
https://drive.google.com/file/d/1D0FtLihxn7oS-KtA4JqbHayE_bFYYKFG/view?usp=sharing

M.Sc. Elisa López García
https://drive.google.com/file/d/1ZbplPQ0WjCw9kywLSYr6-oaVANu4r2Gf/view?usp=sharing

I. E. Minerva Rosette Perezvargas
https://drive.google.com/file/d/15b4IriCFl7EdjDJknr2_sAnMXUjFSucE/view?usp=sharing

M.Sc. Juan Enrique Mendoza Martínez
https://drive.google.com/file/d/1Ll9oMfbmmudmvNUjmsX7v75n96_diNRQ/view?usp=sharing

M.Sc. Rosalía Andrade Medina
https://drive.google.com/file/d/1FboRdXEph1M1zjMkzmJB5Ydk4HnydgD_/view?usp=sharing