MVOTMA

Ministerio de Vivienda
Ordenamiento Territorial
y Medio Ambiente

CLIMATE CHANGE ADAPTATION

NAP-URUGUAY

Regional Workshop UNFCC/LEG

4-7 September, 2017

San José de Costa Rica

REGIONAL CONTEXT

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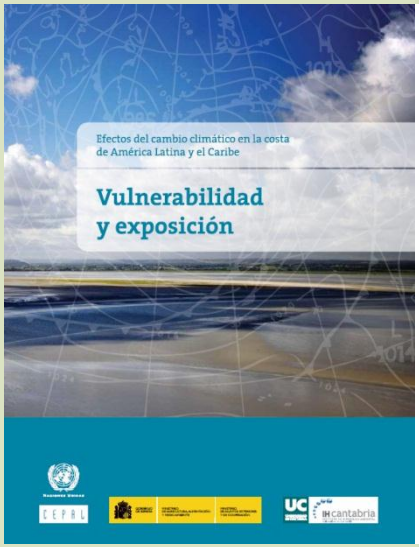

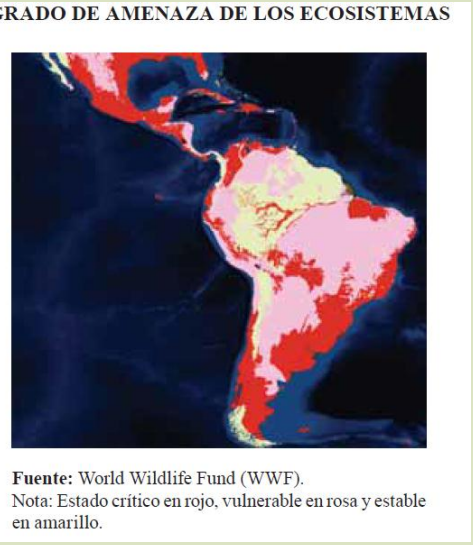

Fuente: World Wildlife Fund (WWF).
Nota: Estado crítico en rojo, vulnerable en rosa y estable en amarillo.

Vulnerability and exposure

1. Threatened ecosystems

2. Effects of CC on exposure to coastal flooding in Uruguayan coastal zone
   - High: affected population
   - High: land surface
   - Very high: built capital

PLOS ONE

RESEARCH ARTICLE

Effects of Climate Change on Exposure to Coastal Flooding in Latin America and the Caribbean

Borja G. Reguero[1,2], Iñigo J. Losada[1]*, Pedro Díaz-Simal[1], Fernando J. Méndez[1], Michael W. Beck[2]

1 Environmental Hydraulics Institute "IH Cantabria", Universidad de Cantabria, Santander, Cantabria, Spain, 2 Institute of Marine Sciences, University of California Santa Cruz, Santa Cruz, CA, United States of America, and The Nature Conservancy, Arlington, VA, United States of America

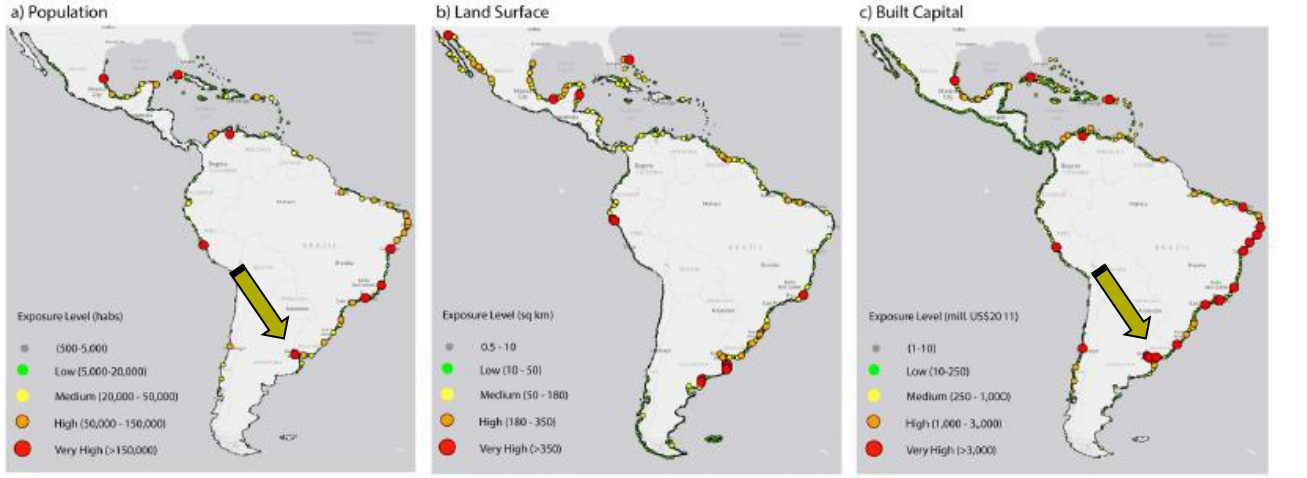

Fig 4. Flooding exposure from present 100-yr extreme sea level. (a) Population; (b) land surface and (c) built capital at 2011 reference values.

doi:10.1371/journal.pone.0133409.g004

NATIONAL CONTEXT

- The **agricultural sector** is important in the country's economy (livestock, crops and afforestation, 6.8% GDP, 2013).
- The **tourism** is principaly concentrated in the coastal zone (9 % PIB, 2016).
- The country hosts a significant ecosystem and ecological **biodiversity**.
- National **energy matrix**: the primary energy supply is undiversified (hydro, oil); renewable sources (wind, biomass) was just introduced in the matrix in 2007 and 2008.

NATIONAL CONTEXT

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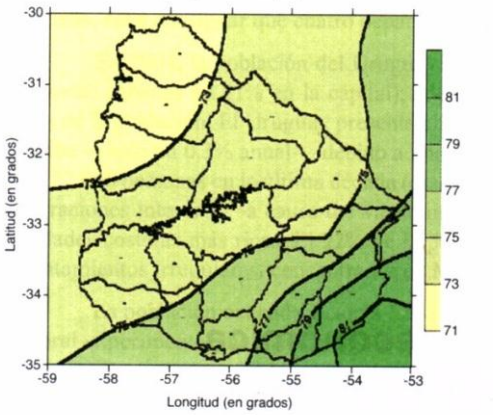
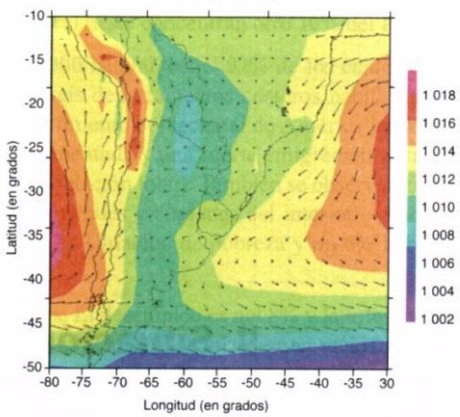
WEATHER: temperate zone, mediun temperatuares 17.5°C, humid climate, irregular precipitations (1.700 mm), without dry season.

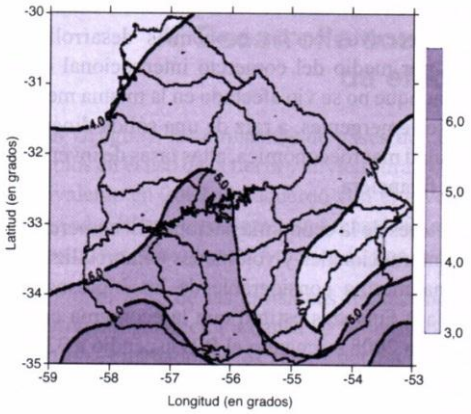
E. Humedad relativa media anual, 1961-1990
(En porcentajes)



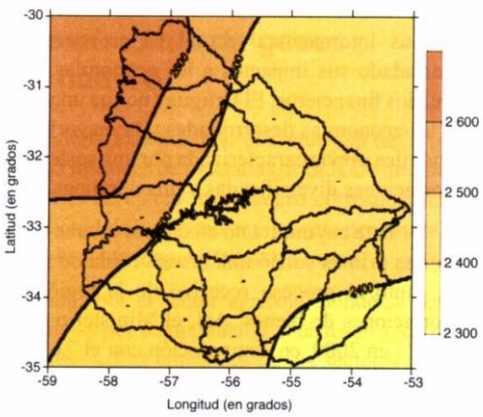
F. Presión y vientos en superficie, 1982-1994
(En milibares)



G. Intensidad del viento media anual, 1979-1984
(En metros por segundo)



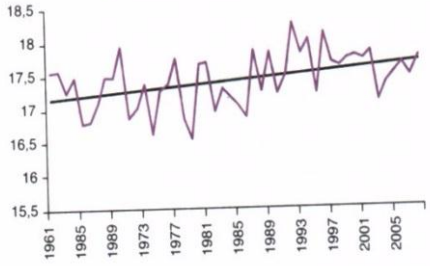
H. Insolación media anual, 1961-1990
(En horas)



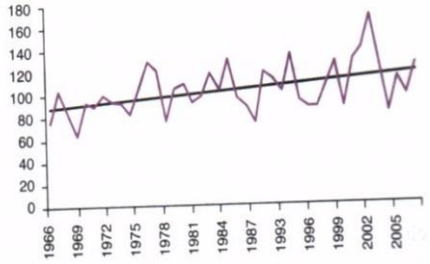
Fuente: Elaboración propia sobre la base de datos de la Dirección Nacional de Meteorología.

GRÁFICO I.1:
URUGUAY: VARIABLES CLIMÁTICAS

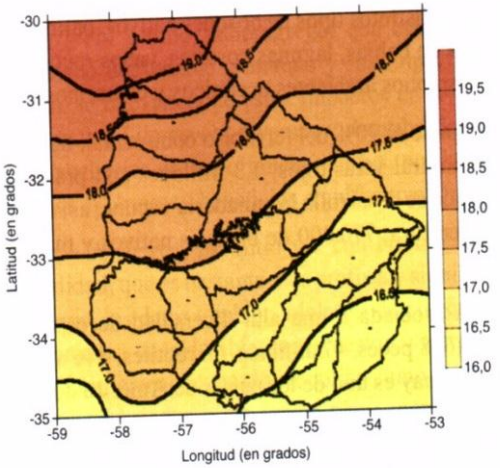
A. Temperatura
(crecimiento anual: 0,08%), 1961-2005
(En grados Celsius)



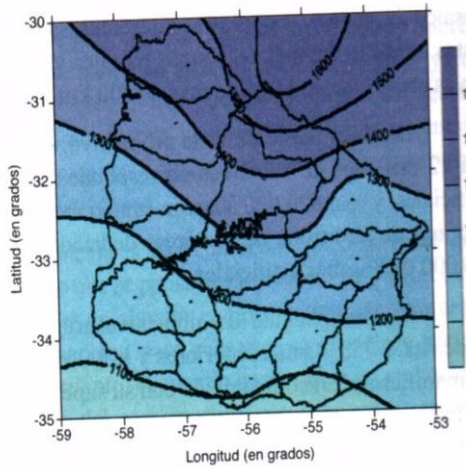
B. Precipitaciones
(crecimiento anual: 0,7%), 1966-2006
(En milímetros por mes)



C. Temperatura media anual, 1961-1990
(En grados Celsius)



D. Precipitación medial anual, 1961-1990
(En milímetros)



(Contin

KEY VULNERABILITIES

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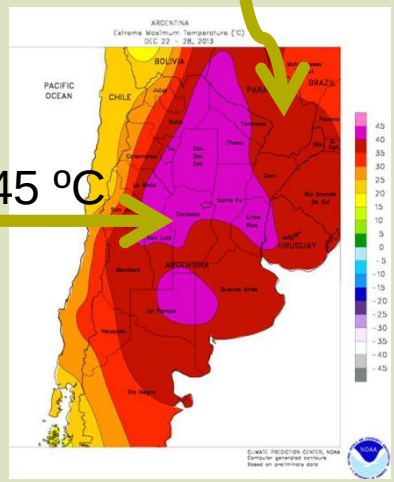
- **NATURAL RISKS**:

  They are related to climatic events (droughts, floods, cold and heat waves, micro- and macro-scale phenomena –hail & tornadoes).

- **DROUGHTS**: South Oscillation "La Niña"

  Economic damages
  1999-2000: > US$ 200 millions
  2008 – 2009: > US$ 950 millions



Record temperature during a heat wave, December 2013

KEY VULNERABILITIES

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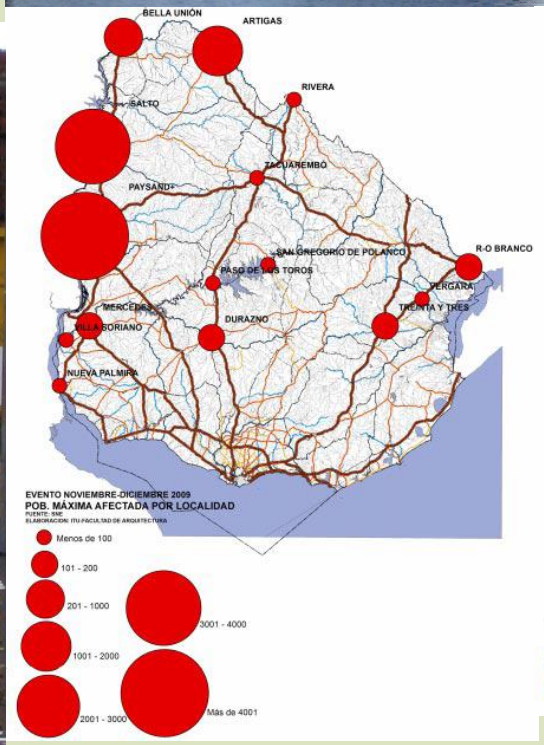
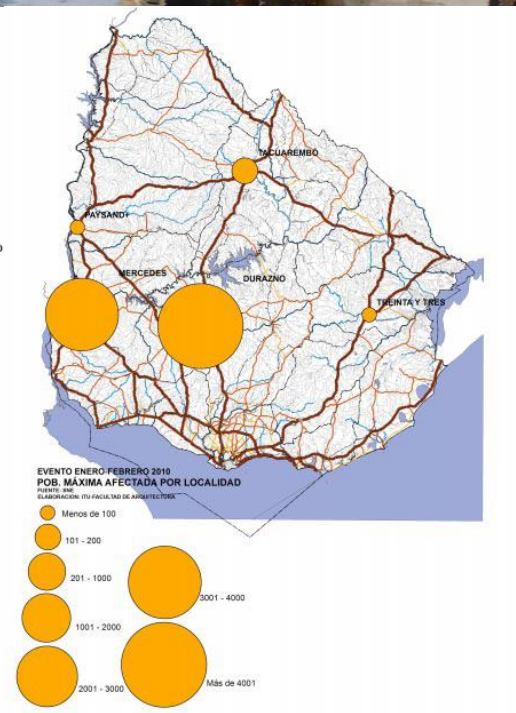
- **FLOODS**: South Oscillation “El Niño”

  2007: 14.000 evacuated people, losses and damages > US$ 21 millions

  2009-2010: 14.886 evacuated people





Evento 2009

Evento 2010

PUBLIC POLICY APPROACH

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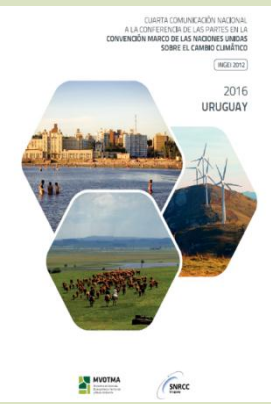
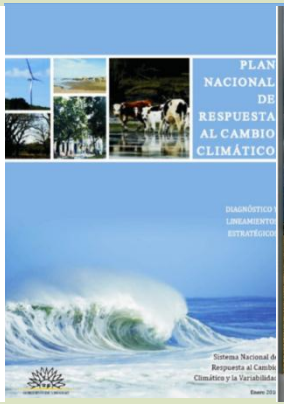
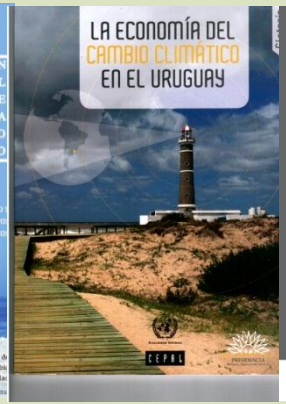
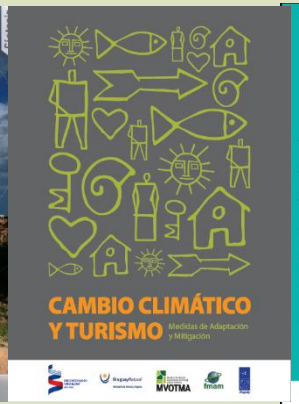
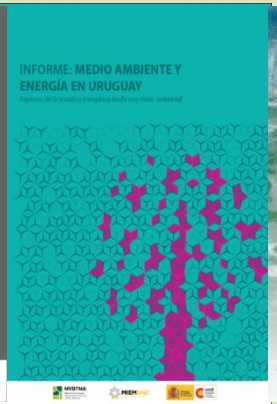
- **1994.** Beginning on the analysis of CC topic in the country: Creation of the CC Unit
- **1997**. First National Communication UNFCC
- **2004**. Second National Communication UNFCC
- **2004**. *Program of General Measures of Mitigation and Adaptation to CC (PMEGEMA)*
- ***2010***. Third National Communication UNFCC
- ***2010***. *National Response Plan to CC*
- ***2016***. *Fourth National Communication* UNFCC
- ***2017***. *National Policy to CC*
- ***2017***. *Nationally Determined Contributions*











NATIONAL SYSTEM OF RESPONSE TO THE CC

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SNRCC Uruguay

Chair

MVOTMA

Co-Chair

MGAP

OPP

Members

MEF

MIEM

MREE

MINTUR

MDN

MSP

Invited members

SINAE

CI

INUMET

MTOP

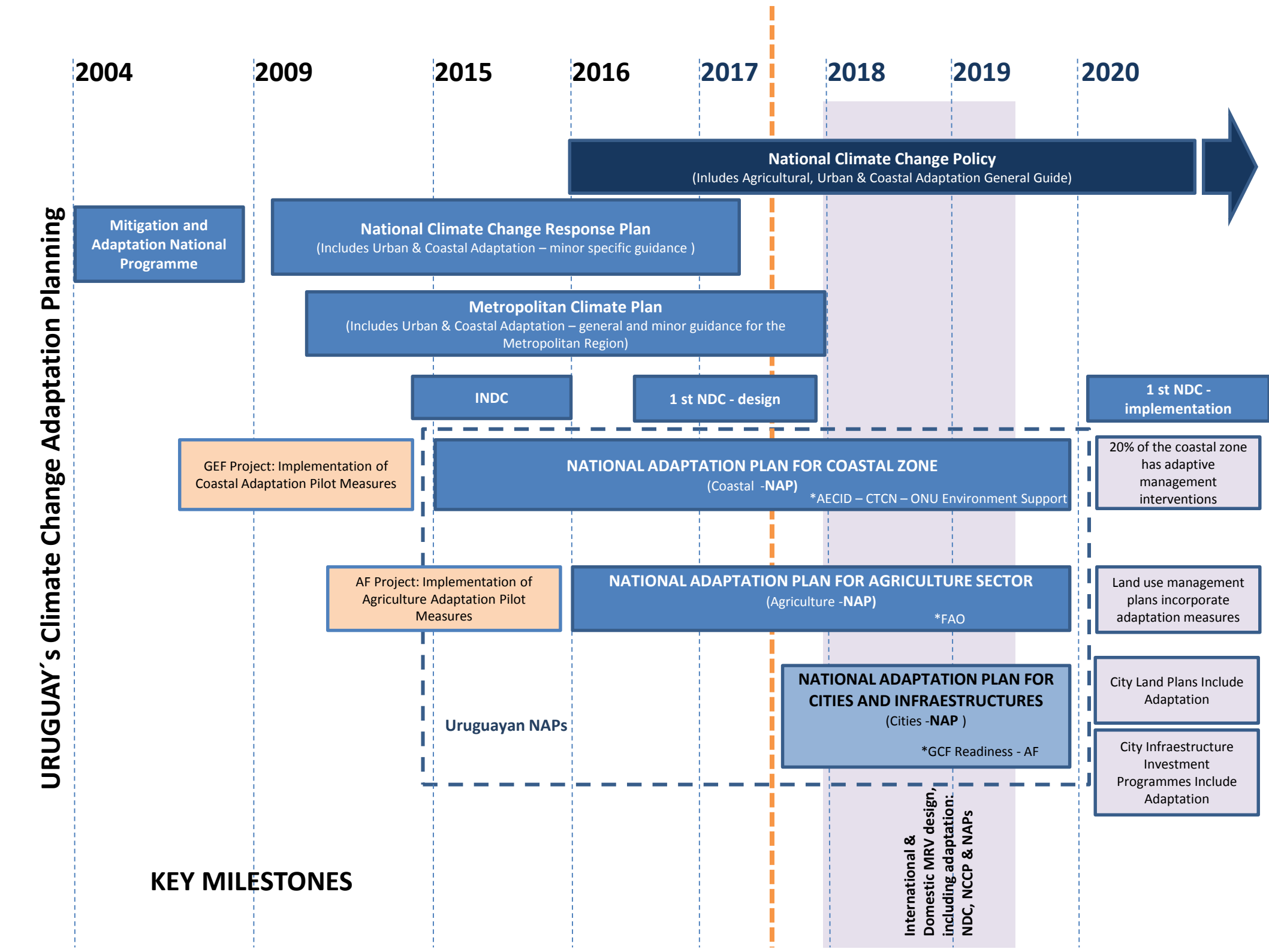
AUCI

Institutional integration

PRIORITY ADAPTATION

THEMES / SECTORS

- **PRODUCTION** (Agriculture, Cattle Raising, Forestation, Water Resources, Biodiversity, Insurance).
- **COASTAL ZONE** (Coastal & Marine ecosystens, Fisheries, Tourism).
- **CITIES** (Services, Tourism, Urban planning, Building, Health).
- **ENERGY** (Water Resources, Infrastructure, Transportation).
- **INFORMATION AND MONITORING SYSTEM**


URUGUAY´s Climate Change Adaptation Planning
2004
2009
2015
2016
2017
2018
2019
2020
National Climate Change Policy
(Inludes Agricultural, Urban & Coastal Adaptation General Guide)
Mitigation and Adaptation National Programme
National Climate Change Response Plan
(Includes Urban & Coastal Adaptation – minor specific guidance)
Metropolitan Climate Plan
(Includes Urban & Coastal Adaptation – general and minor guidance for the Metropolitan Region)
INDC
1 st NDC - design
1 st NDC - implementation
GEF Project: Implementation of Coastal Adaptation Pilot Measures
NATIONAL ADAPTATION PLAN FOR COASTAL ZONE
(Coastal -NAP)
*AECID – CTCN – ONU Environment Support
20% of the coastal zone has adaptive management interventions
AF Project: Implementation of Agriculture Adaptation Pilot Measures
NATIONAL ADAPTATION PLAN FOR AGRICULTURE SECTOR
(Agriculture -NAP)
*FAO
Land use management plans incorporate adaptation measures
NATIONAL ADAPTATION PLAN FOR CITIES AND INFRAESTRUCTURES
(Cities -NAP)
*GCF Readiness - AF
City Land Plans Include Adaptation
City Infraestructure Investment Programmes Include Adaptation
Uruguayan NAPs
KEY MILESTONES
International & Domestic MRV design, including adaptation: NDC, NCCP & NAPs

NAP COASTAL ZONE: Key vulnerabilities

Coastal Zone National Directive Act

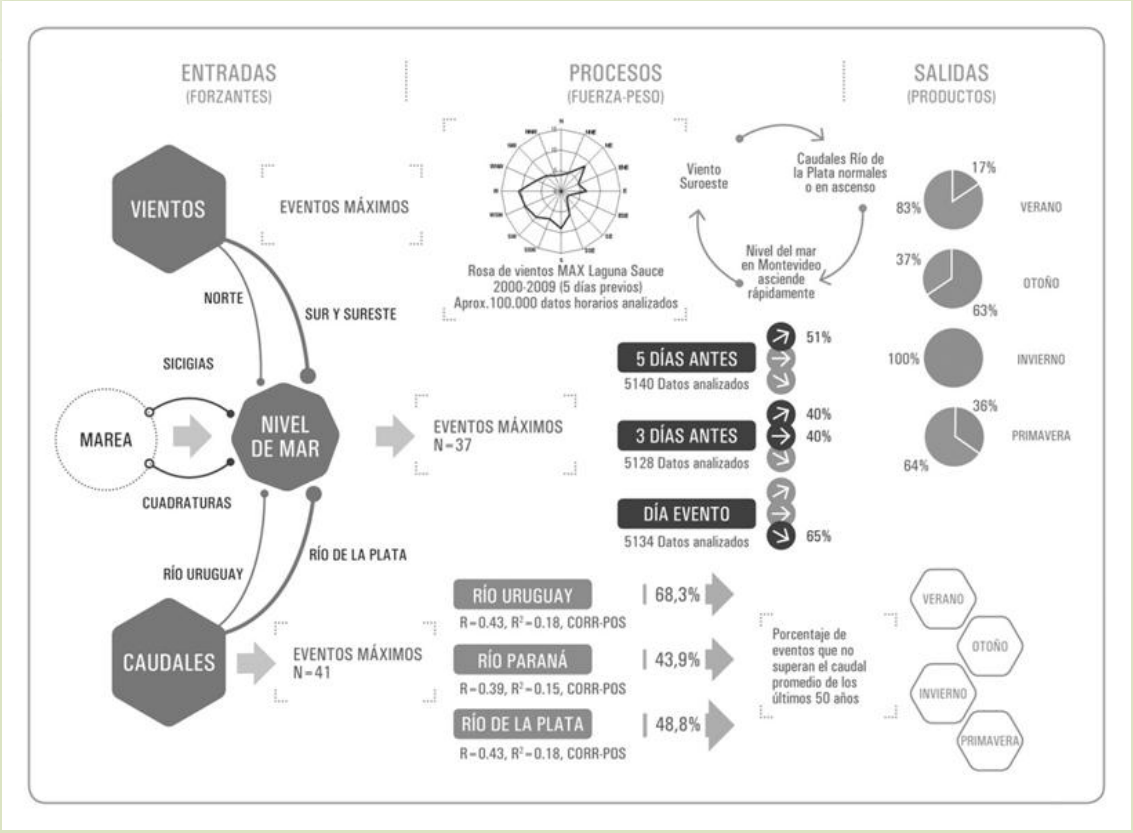
Delimitation of the coastal territory

August 2017

Conceptual model

Drivers, processes and seasonal frequency of maximum events of average sea level rise in daily and seasonal time scales for southwestern quadrant winds.

Source: UCC 2012



NAP COASTAL ZONE: Key vulnerabilities

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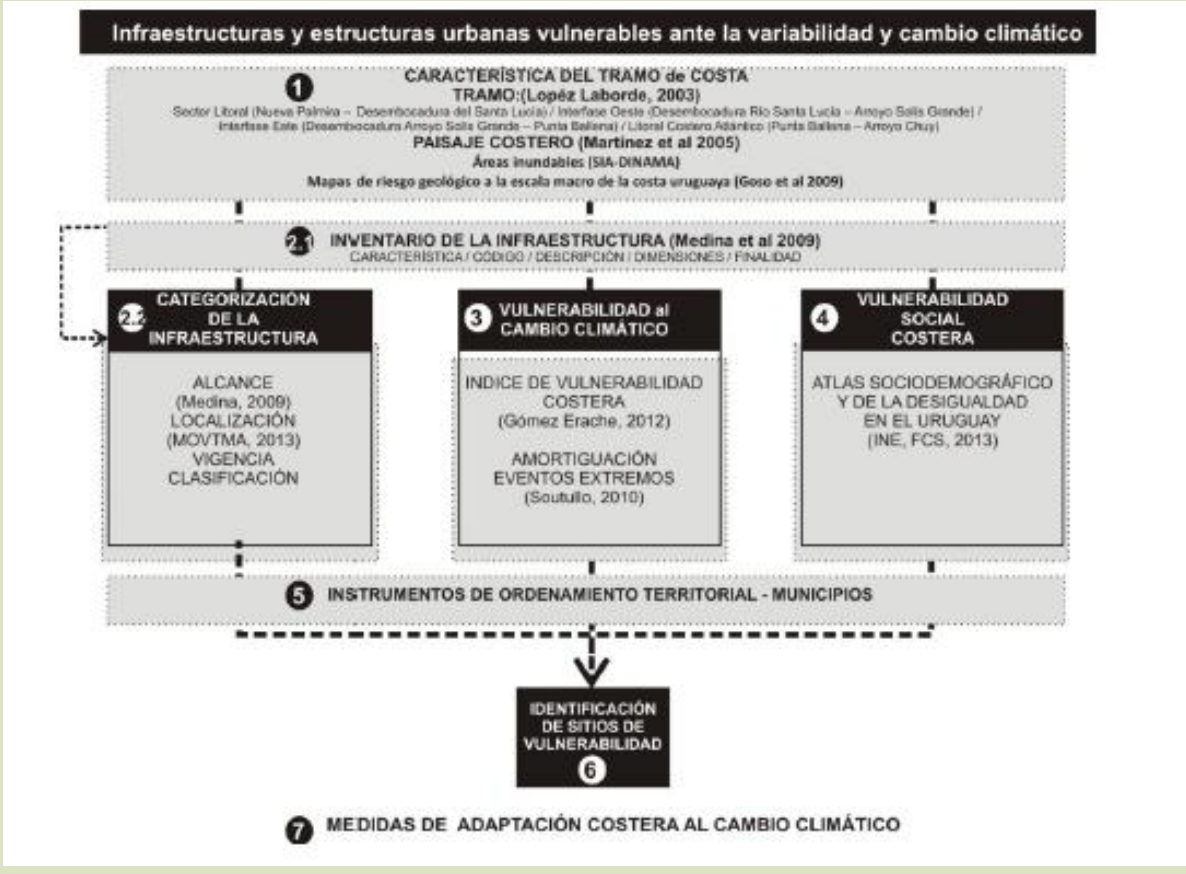
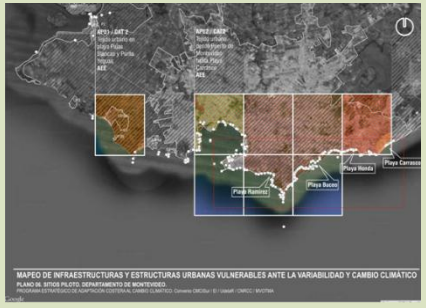
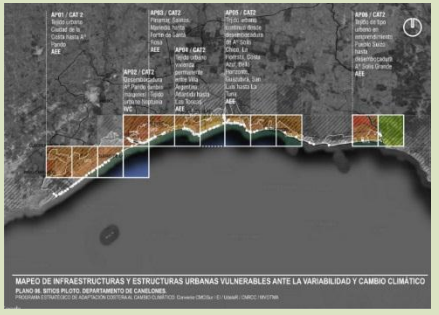
Código	Descripción	
V	Relativo a vialidad o transporte terrestre. Incluye carreteras nacionales y departamentales, caminería rural, puentes. Foto: Paseo costero en Colonia Del Sacramento- Facultad de Arquitectura. UdelaR	
M	Obra en la interfase de la dimensión terrestre con la acuática; muelles, muros costeros, espigones, malecones, embarcaderos, miradores. Foto: Campo de espigas en Playa Seré-Colonia G.Olveyra.	
R	Obras blandas de recuperación y defensa de costa, destinadas a la regeneración de playas afectadas por erosión y pérdida de arena [2] Foto: Acondicionamiento de barranca y caminería en Kiyú-"Implementación de medidas piloto de adaptación al cambio climático en áreas costeras de Uruguay". Ejecutado por División de CC del MVOTMA	
PD	Puertos deportivos Foto: Puerto de Punta del Este	
PC	Puertos comerciales Foto: Puerto de Montevideo. Facultad de Arquitectura. UdelaR	
S.	Emisarios de disposición de efluentes líquidos gasoductos, cableados Foto: Emisario en Punta Brava, Montevideo-: Facultad de Arquitectura. UdelaR	



LOCAL GOBERMENTS PRIORITY ADAPTATION THEMES

- Strengthening municipalities capacities for risk reduction
- Land use planning considering CC scenarios
- Increasing knowledge and technology transfer
- Adaptive tourism management
- Restoration and recovery of coastal ecosystems





NAP COASTAL ZONE: Ecosystem based Adaptation

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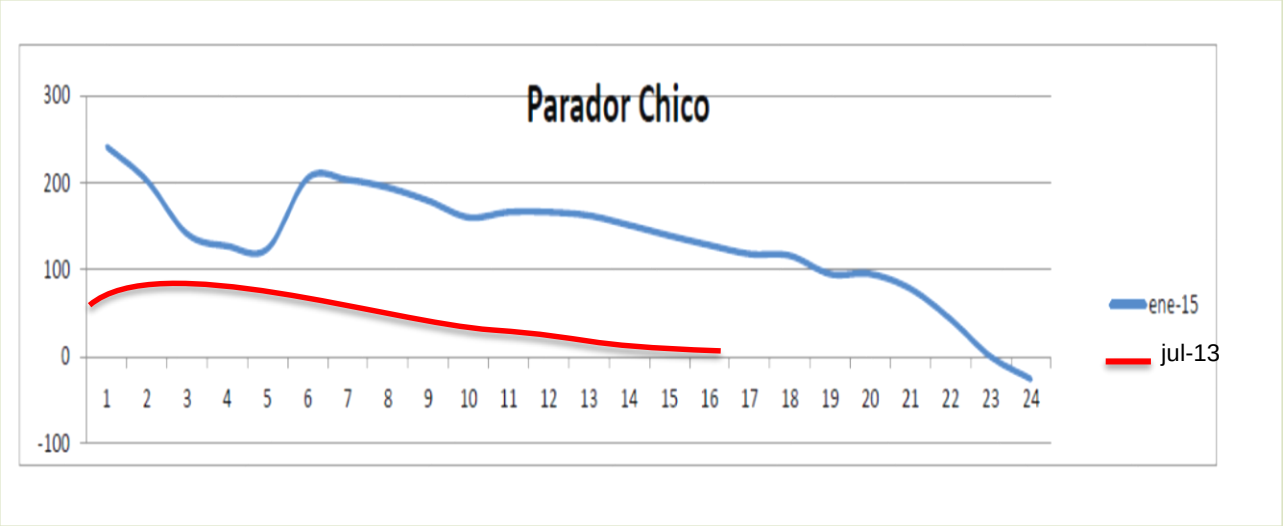
ADAPTATION MEASURES	IMPACTS ON THE COASTAL ECOSYSTEM
FENCING AND DUNE REGENERATION	Dune reconstruction & Improvement of the beach slope
IMPROVEMENT & RESTORATION OF GULLIES AND INTERNAL ROADS	Reduce erosive processes due to rainfall
SUSTAINABLE DRAINAGE OF MICRO-WATERSHEDS	Damping of erosive effects during extreme weather events (floods, precipitations)
REDESIGN OF COASTAL LANDSCAPE FOREST	Consolidation of the dune system. Improvement of coastal forest resilience to extreme events
TRAFFIC CONTROL	Prevent pressure from touristic illegal traffic in the shorefront
SIGNPOST SYSTEM FOR RESPONSIBLE TOURISM USE	Education of tourist population for the sustainable use of the coast



URUGUAY´s Climate Change Adaptation Planning

2015 2016 2017 2018 2019 2020

National Climate Change Policy

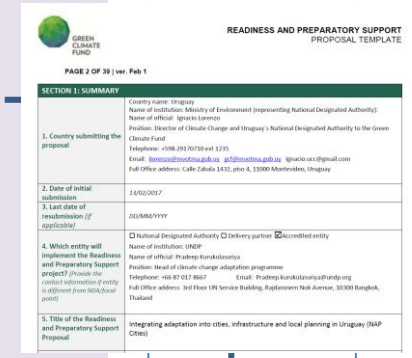
INDC

NDC

NATIONAL ADAPTATION PLAN FOR CITIES AND INFRAESTRUCTURES
(NAP - ciudades)

*GCF Readiness Support

Uruguayan NAPs

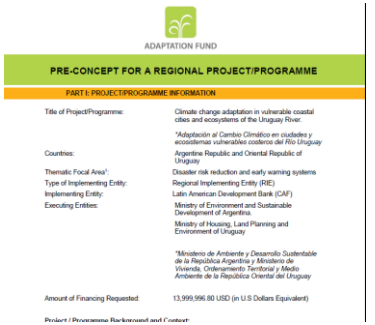

READINESS AND PREPARATORY SUPPORT
PROPOSAL TEMPLATE

PAGE 2 OF 39 | ver. Feb 1

SECTION 1: SUMMARY

1. Country submitting the proposal	Country name: Uruguay Name of institution: Ministry of Environment (representing National Designated Authority): Name of official: Ignacio Lorenzo Position: Director of Climate Change and Uruguay´s National Designated Authority to the Green Climate Fund Telephone: +598 2917 0710 ext 1235 Email: ilorenzo@mvotma.gub.uy gcf@mvotma.gub.uy ignacio.ucc@gmail.com Full Office address: Calle Zabala 1432, piso 4, 11000 Montevideo, Uruguay
2. Date of initial submission	13/02/2017
3. Last date of resubmission (if applicable)	DD/MM/YYYY
4. Which entity will implement the Readiness and Preparatory Support project? (Provide the contact information if entity is different from NDA/focal point)	☐ National Designated Authority ☐ Delivery partner ☑ Accredited entity Name of institution: UNDP Name of official: Pradeep Kurukulasuriya Position: Head of climate change adaptation programme Telephone: +66 87 017 8667 Email: Pradeep.kurukulasuriya@undp.org Full Office address: 3rd Floor UN Service Building, Rajdamnern Nok Avenue, 10300 Bangkok, Thailand
5. Title of the Readiness and Preparatory Support Proposal	Integrating adaptation into cities, infrastructure and local planning in Uruguay (NAP Cities)

CLIMATE CHANGE ADAPTATION IN VULNERABLE COASTAL CITIES AND ECOSYSTEMS OF THE URUGUAYAN RIVER
Fondo de Adaptación


ADAPTATION FUND

PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Climate change adaptation in vulnerable coastal cities and ecosystems of the Uruguay River *Adaptación al Cambio Climático en ciudades y ecosistemas vulnerables costeros del Río Uruguay*
Countries:	Argentine Republic and Oriental Republic of Uruguay
Thematic Focal Area*:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	Regional Implementing Entity (RIE)
Implementing Entity:	Latin American Development Bank (CAF)
Executing Entities:	Ministry of Environment and Sustainable Development of Argentina. Ministry of Housing, Land Planning and Environment of Uruguay *Ministerio de Ambiente y Desarrollo Sustentable de la República Argentina y Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente de la República Oriental del Uruguay*
Amount of Financing Requested:	13,999,996.80 USD (in U.S Dollars Equivalent)
Project / Programme Background and Context:	

Pre-Concept Note August

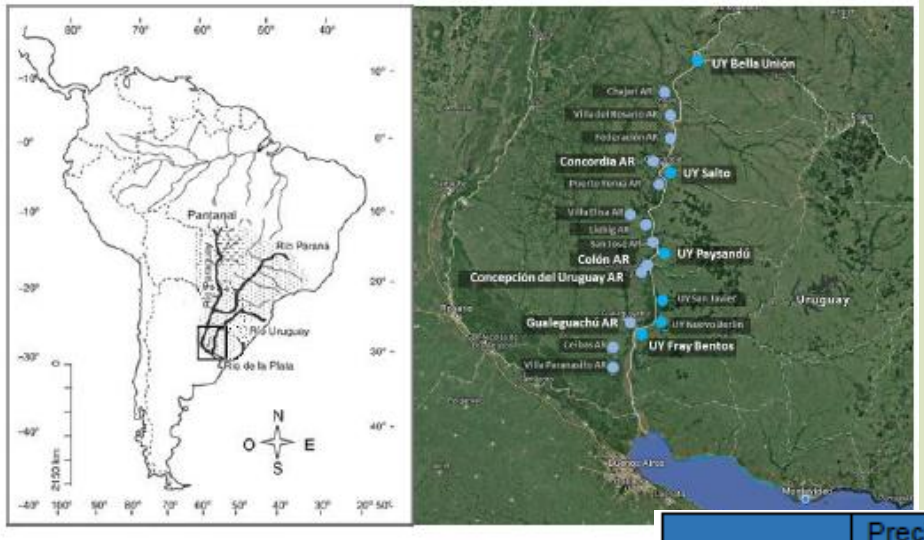
- 28/08 FA comments
- 06/09 Virtual meeting CAF-MVOTMA-MMADS

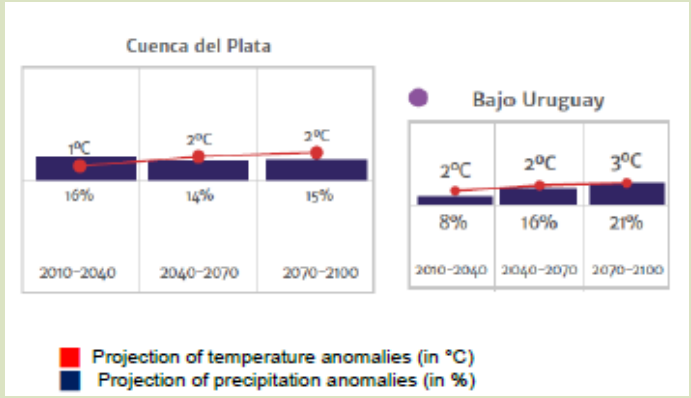
CONCEPT NOTE October

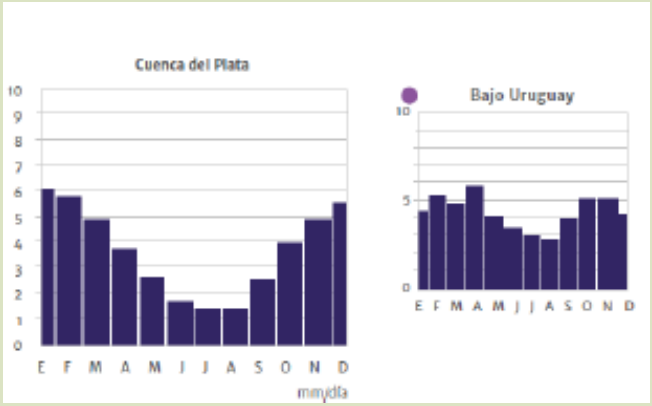
- 31/10 1st Draft
- 8/12 2nd Draft
- 22/12 Final version
- 8/01/18 Official delivery

PROJECT DOCUMENT March

NAP CITIES: Key vulnerabilities







Macro basin	Precipitation Periods			Temperature		
	2011-2040	2041-2070	2071-2100	2011-2040	2041-2070	2071-2100
Upper Paraguay	Decreases the hole year	Decreases DEF	Decreases DEF	Increases all year >2°C DEF>3,5°C	Increases all year >3°C	Increases all year >3°C DEF>4°C
Lower Paraguay	Decreases SOM-DEF	Increases MAM	Increases MAN-SON	Increases all year >2°C	Increases all year >2,5 °C	Increases all year >2,5 °C
Upper Paraná	Decreases the hole year	Decreases DEF	Increases MAM-JJA-SON	Increases all year >2°C	Increases all year >2°C	Increases all year >2,5 °C
Lower Paraná	Increases MAM-DEF	Increases MAM-DEF	Increases MAM-DEF	Increases all year >2°C	Increases all year >2°C	Increases all year >2,5 °C
Upper Uruguay	Increases MAM-SON	Increases MAM-JJA-SON	Increases all year	Increases all year >2°C	Increases all year >2,5 °C	Increases all year >2,5 °C
Lower Uruguay	Increases DEF	Increases JJA-DEF	Increases MAM-DEF	Increases all year >1°C	Increases all year >2°C	Increases all year >2,5 °C
Río de la Plata	Increases DEF	Increases DEF	Increases MAM-DEF	Increases all year >1°C	Increases all year >2°C	Increases all year >2,5°C

NAP CITIES: Constraints

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At the national level the following barriers are recognized for the implementation of adaptation actions to variability and climate change:

1. Insufficient information regarding comparable database between environmental processes, the state of infrastructure and weather variables. Consequently, flood warning systems have not been developed in cities that annually present evacuation events for their population. It does not have universal access to global data or disaggregated data or locally generated.

2. The collection of data and indicators is not systematic and therefore the monitoring and adjustment of planning strategies in cities has not yet been incorporated.

3. The country does not have participatory data platforms that use technological and social tools available at different levels of government focused on the interests and problems of cities.

4. There is little information on the design of urban storm water infrastructure, such as floodplain surveys, immediate assessment of urban floods, and evaluation of short-term, intense events within the framework of variability and climate change.

NAP AGRICULTURE: Key vulnerabilities

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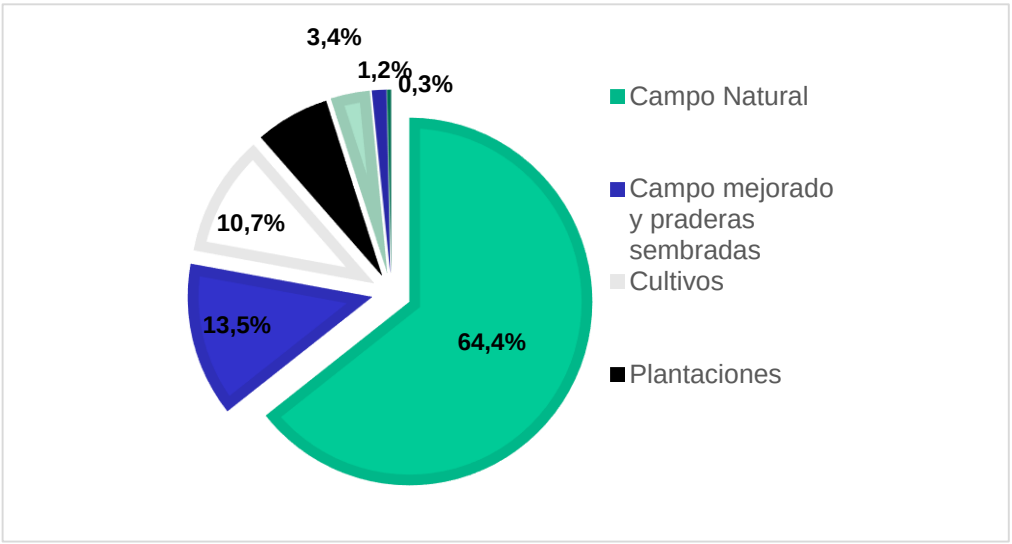
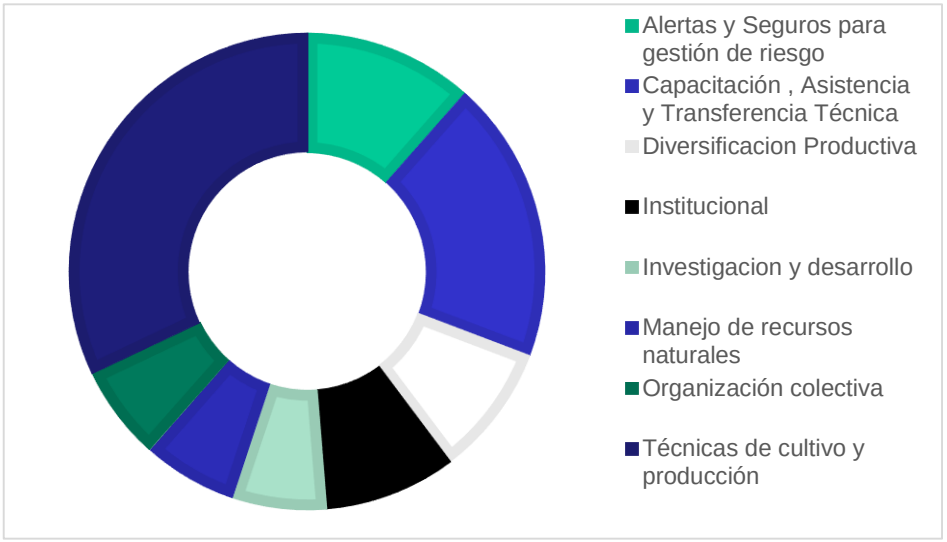
- The interannual variability of agricultural production, in a country that is not diversified in productive terms and extremely dependent on its natural resources, will face great challenges of adaptation and transformation of its socio-ecological systems.

- Adaptation to current and future conditions will depend largely on multi-sectoral strategies and the integration of multi-rural properties.

NAP AGRICULTURE: Key vulnerabilities



Percentage of land use in Uruguay
General Agricultural Census 2011



Adaptation options identified
Initial Workshop of the PNA-Agro

NAP AGRICULTURE: Adaptation measures

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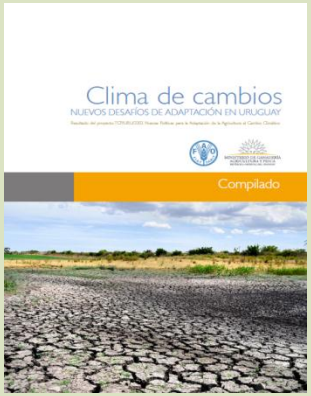
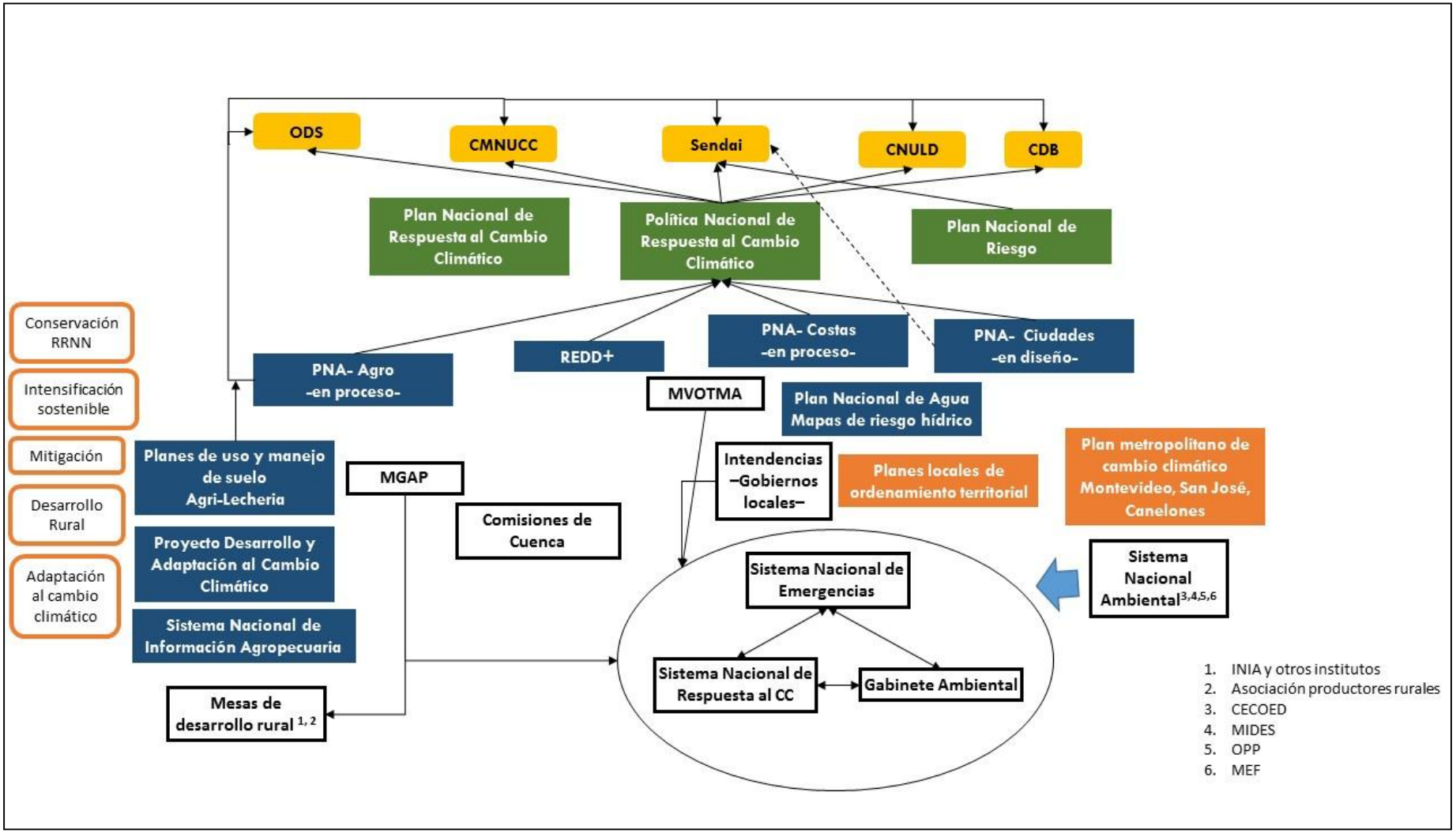
DESCRIPTION OF THE ADAPTATION MEASURES TO CLIMATE CHANGE

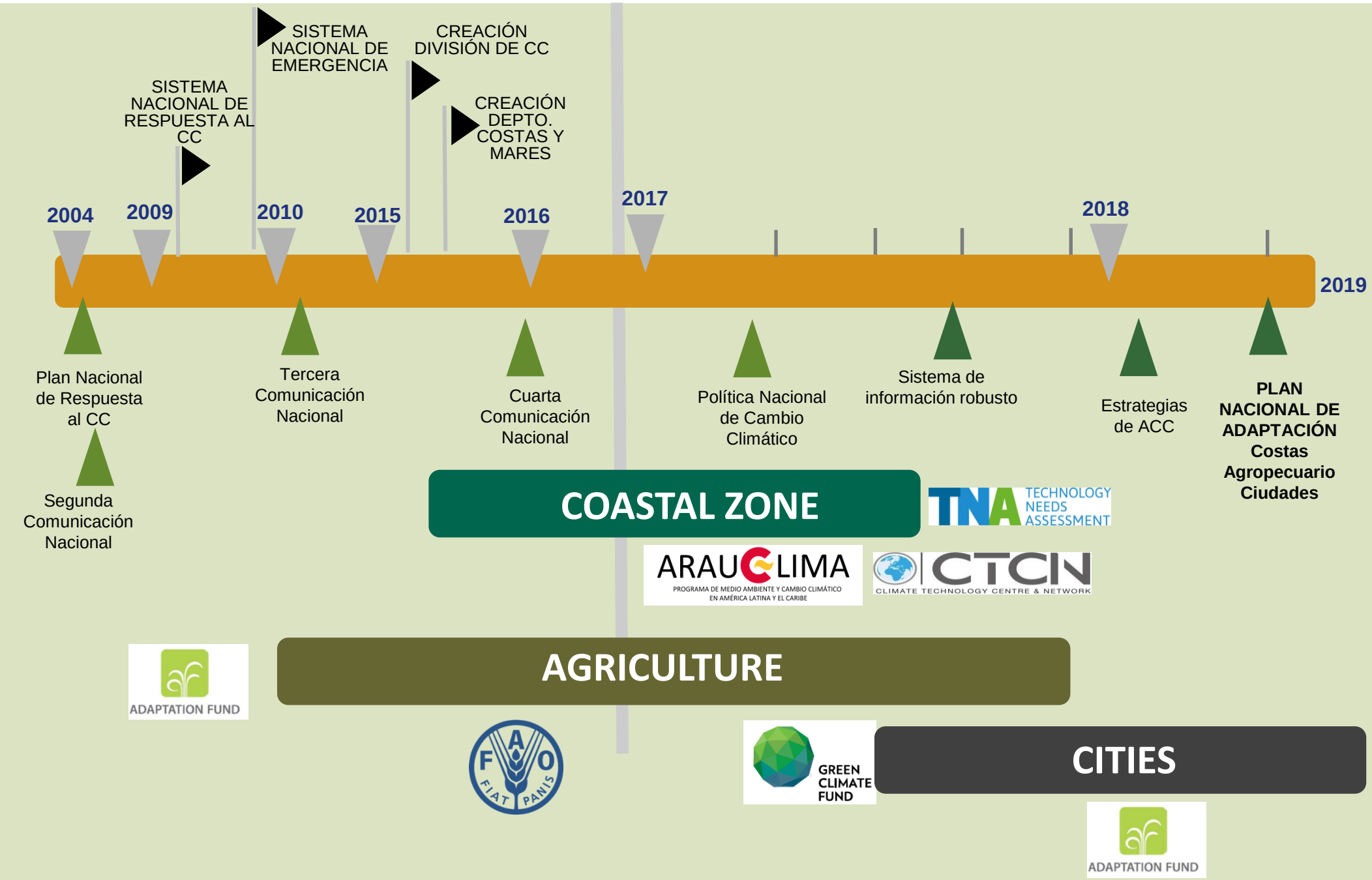


Medida	Principales características	Unidad tipo	Estrategia de resiliencia
Gestión multipredial y/o asociativa del agua para fines productivos en ganadería.	Campo asociativo para riego de cultivos para reserva y alimentación estratégica de categorías claves de productores socios. Ejercicio con terneros.	Riego de 250 ha Productores ganaderos de la UP basalto con hasta 750 ha de superficie.	Aprovechamiento eficiente y sostenible del agua de lluvia y su escurrimiento superficial. Gestión y aumento de las habilidades de organización para hacer frente a riesgos climáticos.
Adopción de sistemas de producción basados en un manejo sustentable del Campo Natural (CN) (priorizando el uso de una carga adecuada).	Manejo del CN en base a monitoreo de estado y disponibilidad. Ajuste de carga a la misma. Sistema de toma de decisiones preventivas.	Predio de productor ganadero criador de hasta 750 ha.	Aprovechamiento eficiente y sostenible de la producción a CN.
Bancos de forraje gestionados por organizaciones.	Producción de grano húmedo de sorgo en forma asociativa.	Análisis en base a un estudio de caso como base de modelización.	Gestión y aumento de las habilidades de organización para hacer frente a riesgos climáticos
Incorporación de montes de sombra y abrigo.	Identificación de factores positivos de la medida.	Para predios ganaderos de hasta 750 ha.	Disminución de stress calórico, mejora de bienestar y prevención de enfermedades de piel.

NAP AGRICULTURE: Institutionality



TECHNICAL ASSISTANCE: Comprehensive strategy



NAPs: Level of progress

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Elements of the NAP process			Step A	Step B	Step C	Step D
Sectors	Asignación de responsabilidad	Asignación de fondos	Stocktaking	• Analysing current and future CC scenarios. • Climate vulnerabilities • Appraising adaptation options	Implementation strategies	Reporting, Monitoring & Review
AGRICULTURE						
CITIES						
COAST						

Concluded

Partial advance

No progress

THANK YOU

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