

STARTING POINT



The process from a plan in the municipalities' archives to an operational tool that allows the transformation of reality



STARTING POINT

Towns law “LEY DE CENTROS POBLADOS” (1946)

Any field and any public road that , has no other access to it self, may not be placed (completely or partially) in floodplains or what is at less than 50 centimeters above the maximum water surface elevation known

But...

What is the "maximum flood known"?

Are the regulations fulfilled?

What measures should we consider as appropriate at flood areas already developed ?



Are risks always the same?



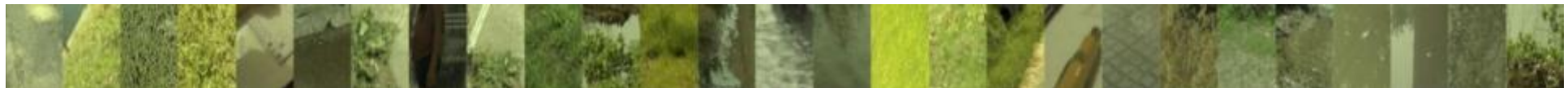
PROXIMITY- PROBABILITY (CHANCE)



Are risks always the same?



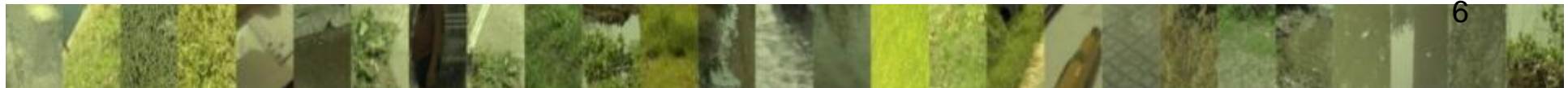
VULNERABILITY AND RISK



Are risks always the same?



ACTUAL AND FUTURE RISK
What happens If the location of housing is authorized?



Are risks always the same?



ACTUAL AND FUTURE RISK
accessibility changes



LINES OF WORK

Spatial planning could generate or prevent risks. So we collaborate in the incorporation of risk maps in land use plans **RISK MAPPING PROGRAM**

Meanwhile where there is not actual planning, we work in order to mitigate or prevent the risk of the projects. At least no public housing in flood zone **HABITAT PROGRAM (RELOCATION AND SAFE LAND PORTFOLIO)**

The new drainage infrastructure should not generate new risk areas, should control flooding to an acceptable risk and eliminate the risk of flooding to design **PROGRAM RAINWATER**



RISK MAP- What a risk map should incorporate?

WATER SYSTEM DYNAMIC

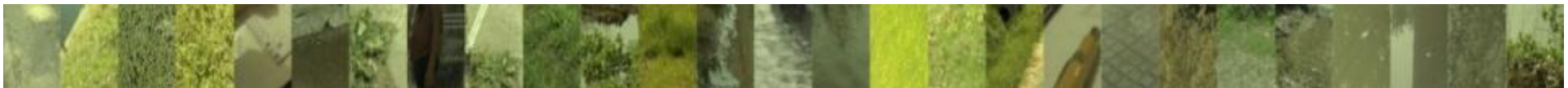
ASSESSMENT OF THE VULNERABILITY AND RESILIENCE AND RESILIENCE

TERRITORIAL DYNAMICS

DEFINITION OF THE DESIRED CITY TO BE BUILT AND THE CAPACITY TO ACHIEVE IT

Risk not only depends on the hazard but also on the levels of vulnerability and resilience and resistance of the exposed areas

The risk map will consider the desired city you want to build and shall be consistent with land use planning instruments



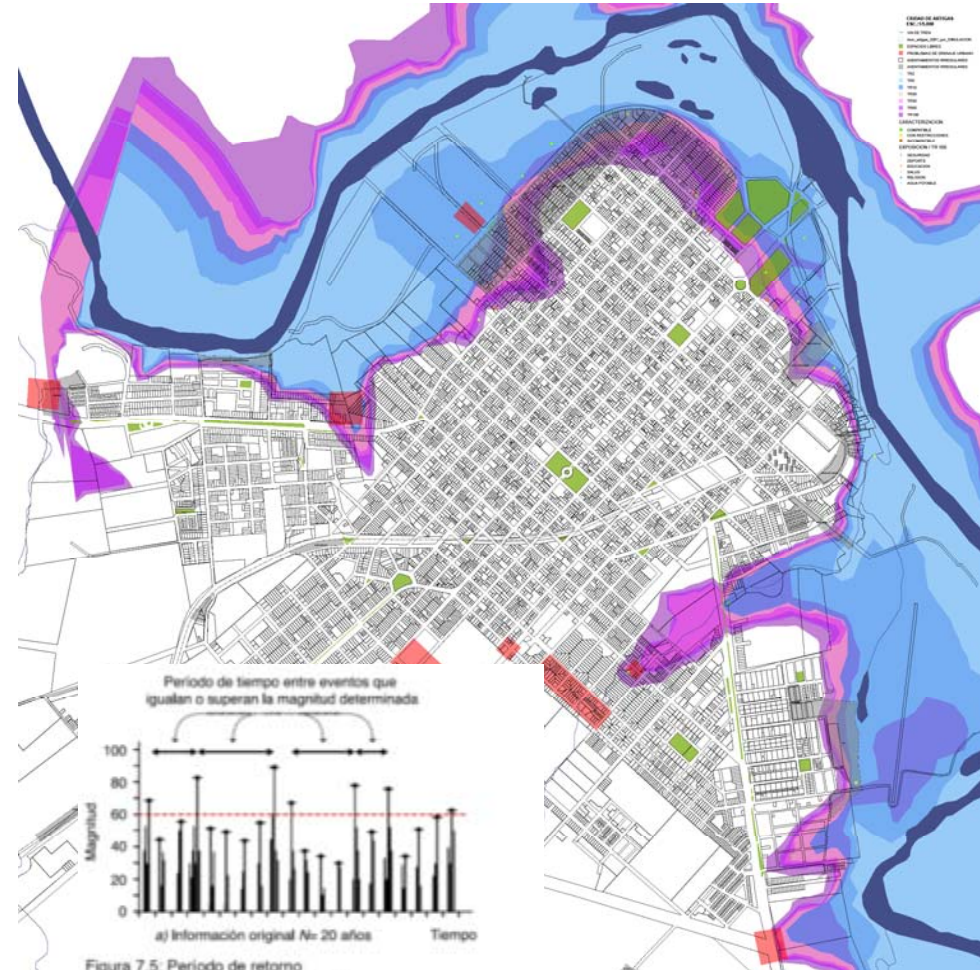
WATER SYSTEM DYNAMICS- HAZARD MAPS

EXTREME EVENTS REGISTRY



**Emergency Action Plans (EAPs) DAMS
Probable Maximum Flood. (PMF)**

MODELING INCORPORATION



WATER SYSTEM DYNAMICS- HAZARD MAPS

“The wishes”

Accurate terrain models, long time series, models of great courses and streams (models), aquifers (and aquifer) knowledge, trained staff to incorporate innovation, etc.

The progress

- (defining the hazard in Flood Guidelines (by adding modeling)
 - Collecting the best possible information (real and modeling) and implementation of metadata protocol to evaluate existing information (with SINAÉ) (existing information evaluate protocol)
 - Agreement with the Military Geographical Service for topographic survey in exchange for improved equipment
 - counterparty of ToRs of consultancies for modeling urban courses of water
 - Information from the *Emergency Action Plans* (EAPs) of Dams incorporated into the risk map
- Conflict zones
Tr 100- TR500 or PMF

NATIONAL GUIDELINE OF LAND MANAGEMENT (in Parliament)
Article 22) the urbanization of areas determined to be flooded with 100 years frequency is prohibited (collaborate not to generate new risks)



EXPOSURE-VULNERABILITY

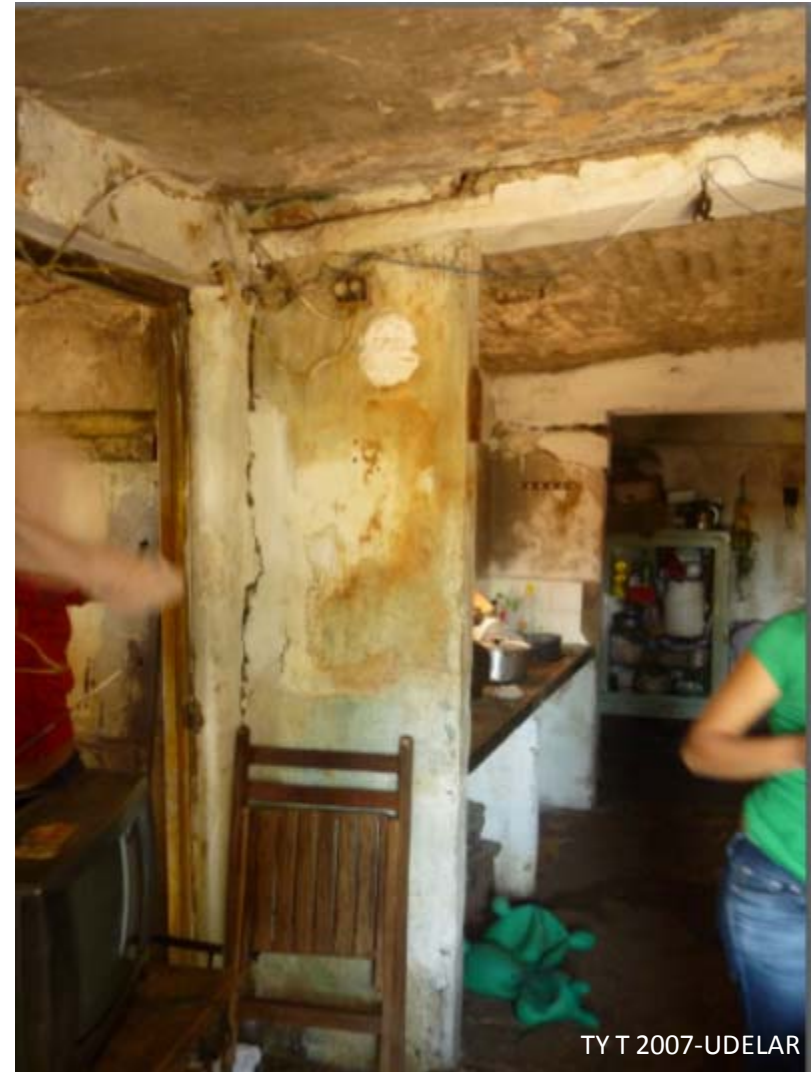
Social vulnerability index

MIDES Information System

Exposed population(census INE2011-TR100)

Survey UdelaR (dynamics and behaviors
floodplain)

Evaluation of exposed equipment



EXPOSURE-VULNERABILITY



Ciudad: PASO CARRASCO
Departamento de Canelones

ESTIMACIÓN DE POBLACIÓN Y VIVIENDA EN AFECTACIÓN

INFORMACIÓN DEMOGRÁFICA:

POBLACIÓN TOTAL:	15900
POB. ESTIMADA SEGÚN CENSO 2011:	3883
PORCENTAJE AFECTADO:	24.4%
VIVIENDAS OCUPADAS TOTAL:	5156
VIV. ESTIMADA SEGÚN CENSO 2011:	1160
PORCENTAJE AFECTADO:	22.4%

MÁXIMO EVENTO REGISTRADO DESDE 2002:

AÑO DEL EVENTO: 2014

CANT. EVACUADOS: 220

NO cuenta con Mapa de Riesgo

Curva de inundación realizada por IDU para el presente trabajo, basado en trabajos de INIA para la zona de Paso Carrasco. Ser: ¿Cuántas personas y viviendas hay en áreas inundables de las ciudades portuarias de Uruguay? Anexo 1.

INFORMACIÓN CARTOGRÁFICA:

- Populación afectadas
- Zona censal IIE 2011
- TR 100 años - ICU - DINAGUA
- Afectación 2011_POBLACION

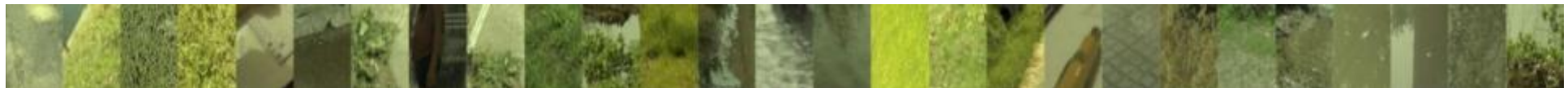
0
25
50
75
100

Imagen: Google Satellite 2013

Programas públicos de vivienda

Logos: INVOTMA, DINAGUA, and others.

Esc: 1:10000 Enero/2014 FICHA N° 4

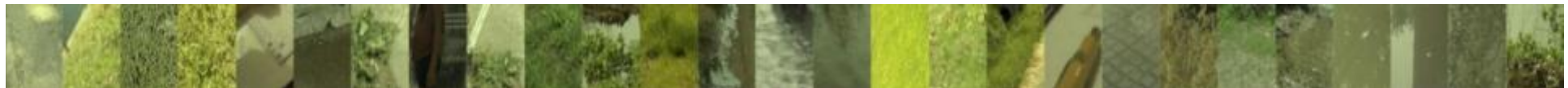


RISK MAP

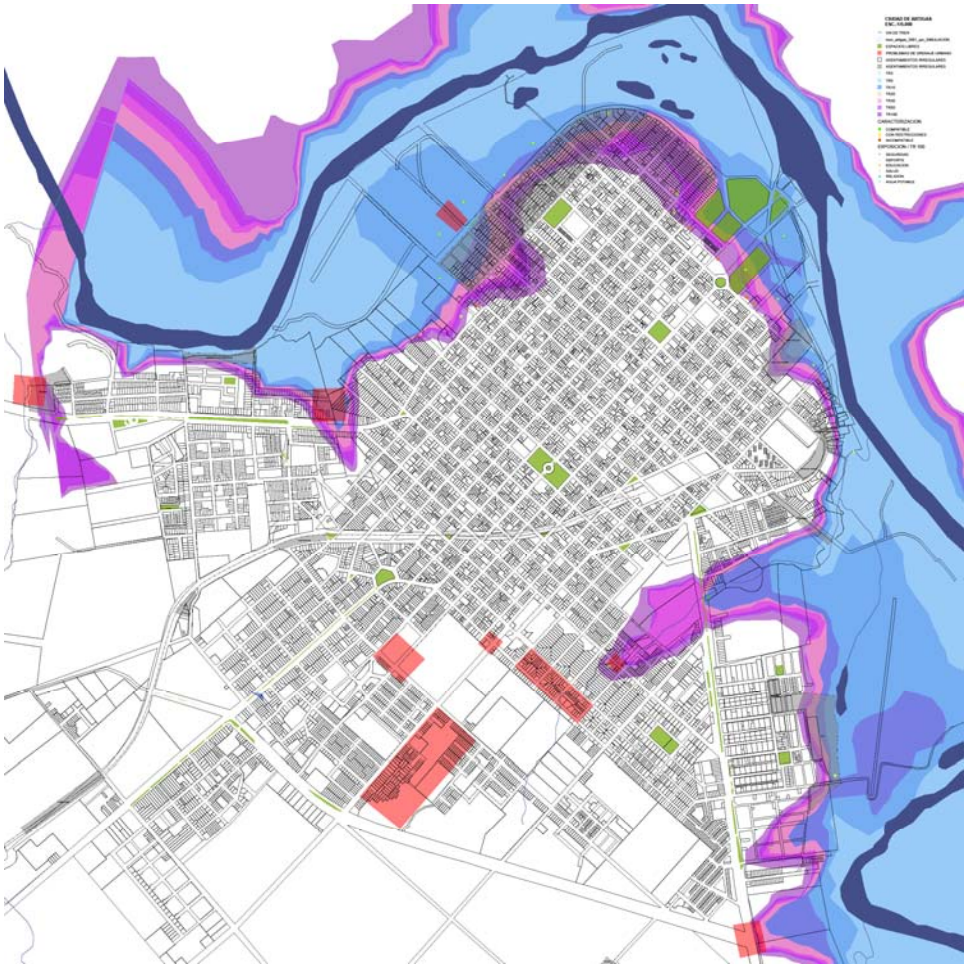
RISK	ACTION	USE CATEGORY (LOTDS)	INSTRUMENT
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CURRENT	HIGH (RED)	-DISCOURAGE INCOMPATIBLE DYNAMICS -ENCOURAGE TRANSFORMATION	SUBURBAN OR URBAN LAND WITH USES "OUT OF MANAGEMENT" BY THE FLOOD	DEFERRED PLANNING TOOLS
	MEDIUM OR LOW (YELLOW)	MITIGATION	URBAN WITH FLOOD RESTRICTIONS	INSURANCE HOUSING ADAPTATION, EARLY WARNING

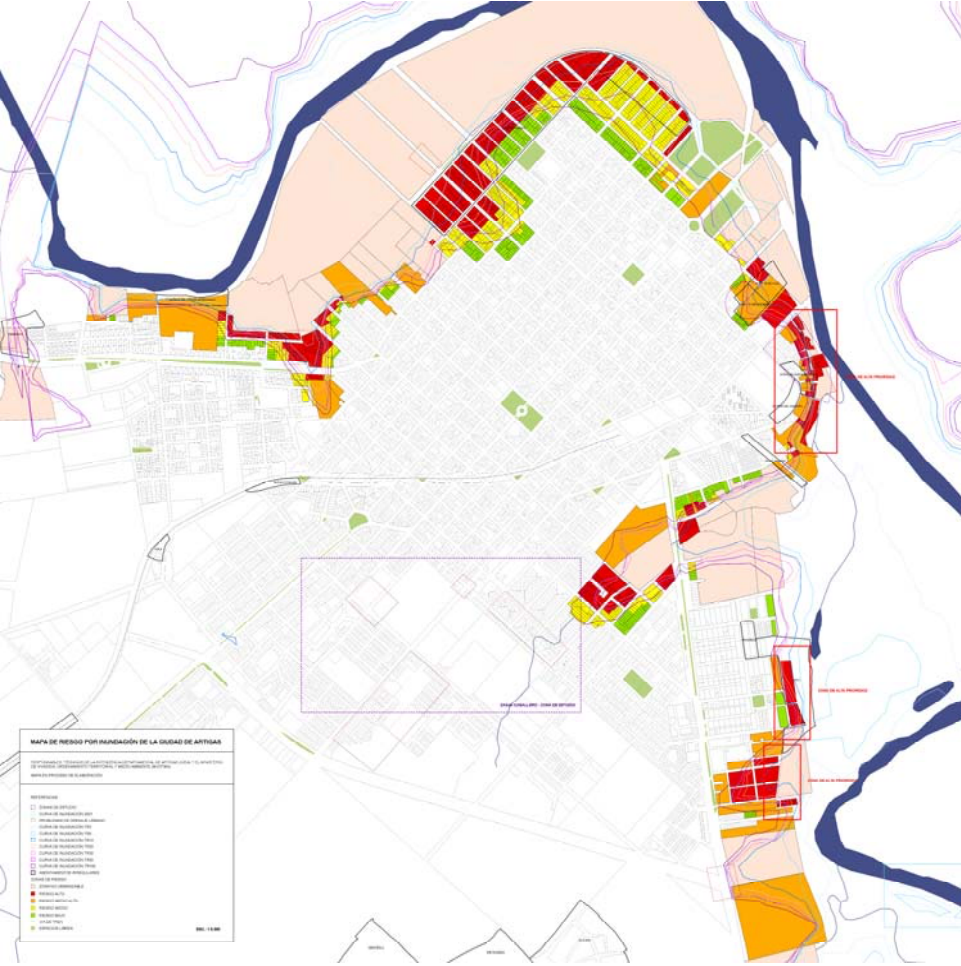
FUTURE	POTENCIAL	PREVENTION	NO URBANIZABLE (NATURAL RURAL ETC)	TR-100 EN NATIONAL GUIDELINE DE LM
				Estrategic Environmental Assessment (SEA),



ARTIGAS CITY



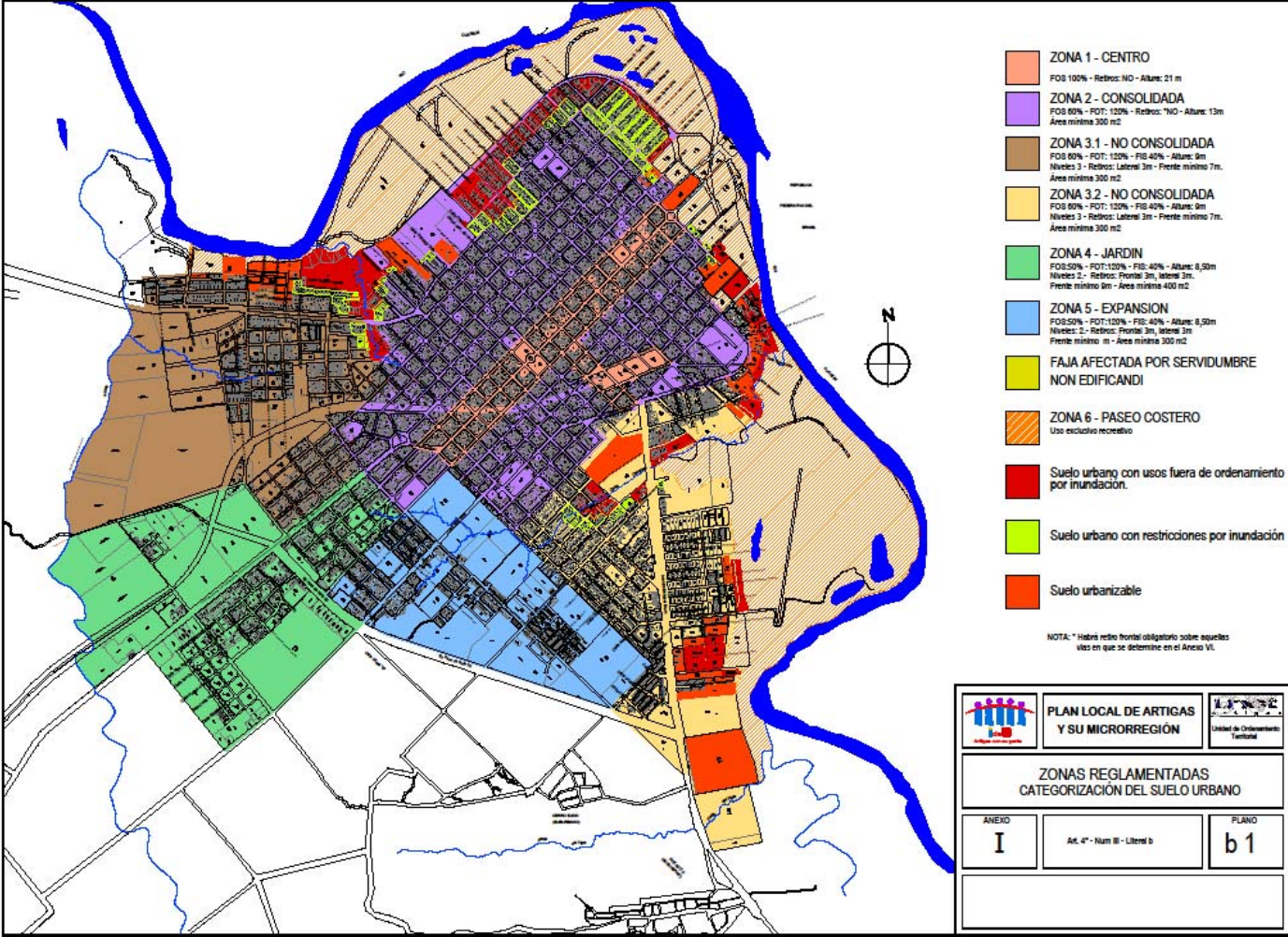
HAZARD MAP



RISK MAP



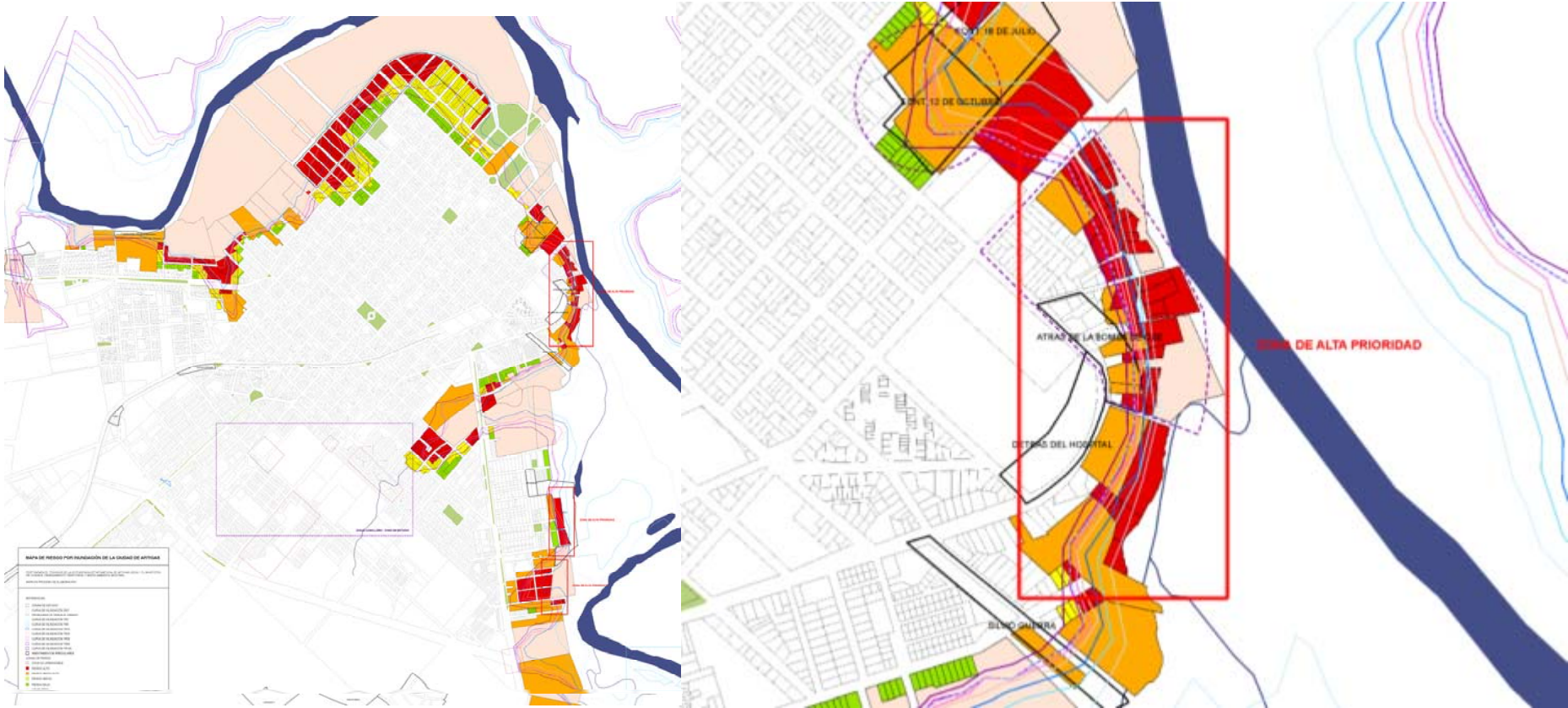
ARTIGAS CITY



USE CATEGORY



ARTIGAS CITY

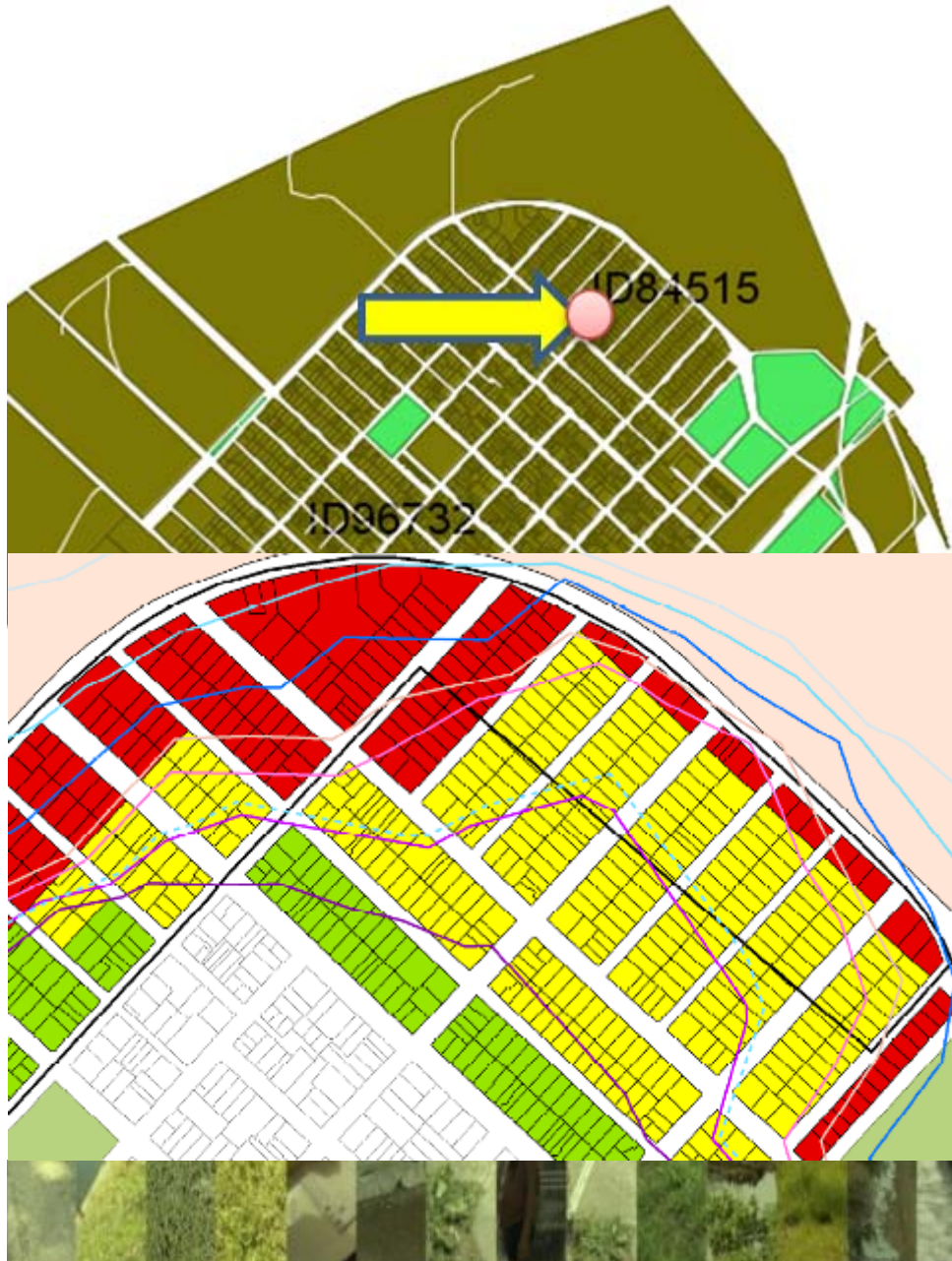


Support for identification of relocation areas



RISKMAP AND HOUSING SECTOR SUPPORT

Evaluation of land flooding
Unflooded land portfolio



Momentum for Change-12 Shining Examples of Climate Action



<http://newsroom.unfccc.int/clean-energy/2014-momentum-for-change-lighthouse-activities/>

United Nations Framework Convention on Climate Change

NATIONAL RESETTLEMENT PLAN

Planning is an urgent international issue that is being dealt with locally.

The country's National Resettlement Plan is currently processing 47 families out of 1000 people and 2000 houses and will be ready to meet the urgent need to help those affected by the effects of climate change. The UNFCCC's international climate change activities are helping the country maintain and the issue of climate change is a national and international priority.

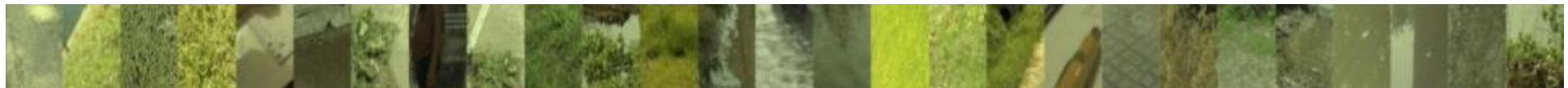
Key Facts:

- As of July 2014, 700 families have been resettled from flood-prone areas and 1000 more are being prepared.
- More than 1,000 families are currently in the process of being resettled.
- The National Resettlement Plan aims to resettle 2,000 families that live in flood-prone areas and is expected to be completed by August 2014.

Momentum for Change				Media
Climate Policy	Women in Climate	Finance for Climate Resilient Development	ICC Solutions	Contact
Lighthouse Activities	Activity Database	Advisory Panel	Events	Publications

The problem

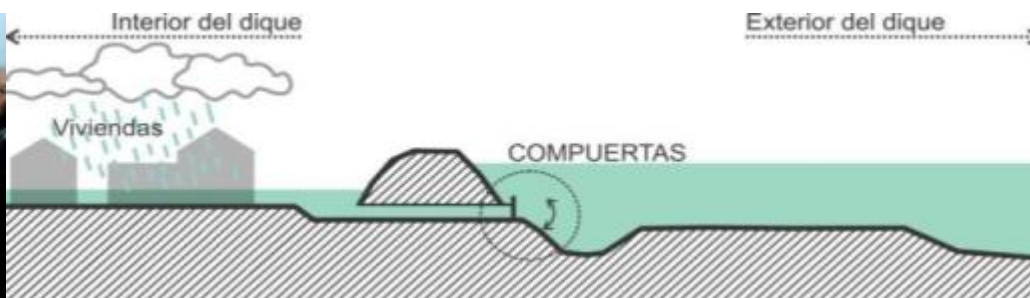
Climate change has a wide range of impacts on the world's natural resources, including rising sea levels, more frequent and severe weather events, and more frequent and severe droughts. These impacts are expected to increase the frequency of flooding, including during heavy rainstorms, in many low-lying coastal areas and in some inland areas.



CIUDAD DEL PLATA: Zona cautelar- Mapa de riesgo-Plan de aguas



-PENINO- ZONA DE PLANIFICACIÓN DIFERIDA
-DELTA- ZONA DE RIESGO POR DIQUE



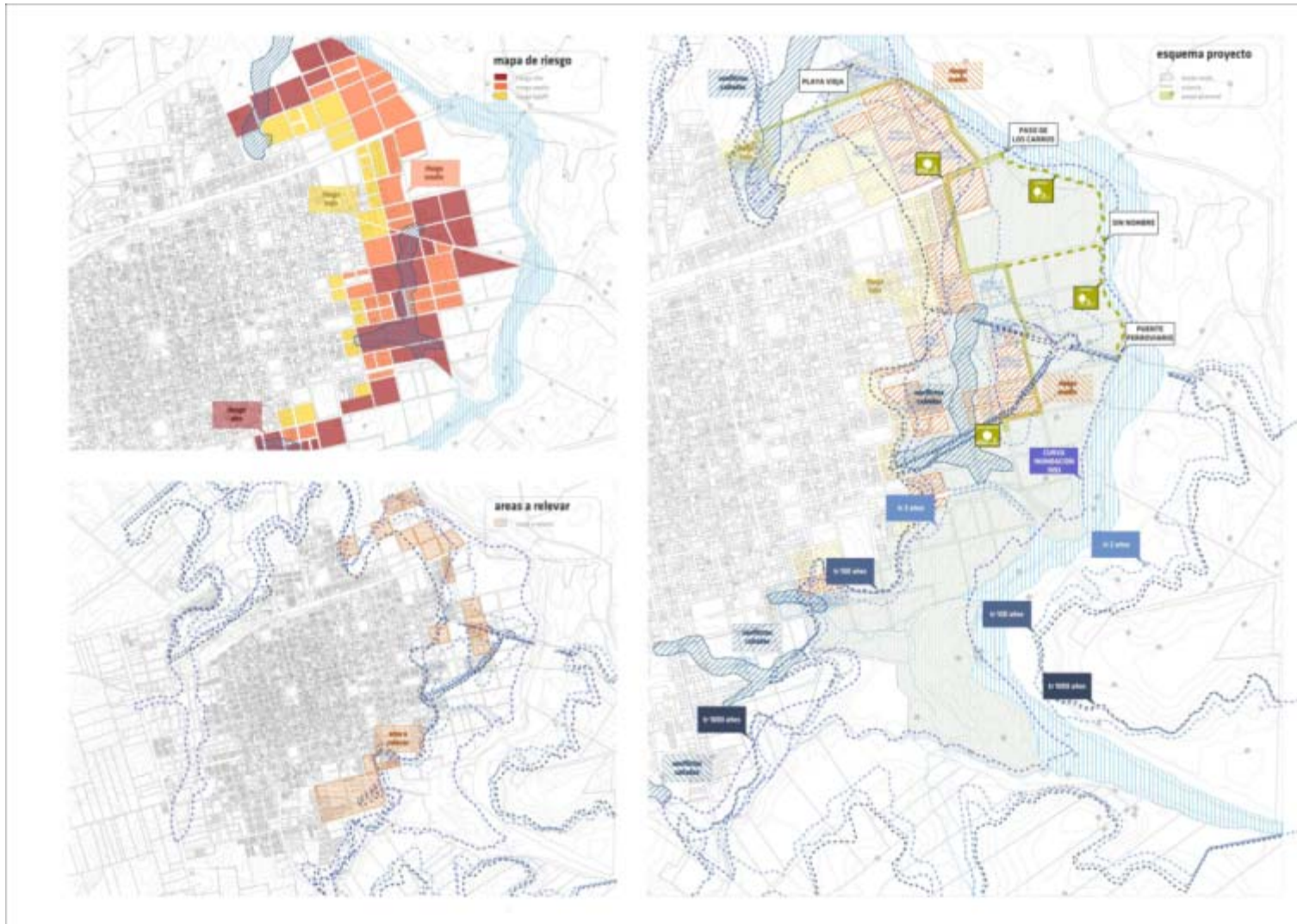
MAPA DE RIESGO –SAN JOSÉ (29 DE OCTUBRE 2014)



MAPA DE RIESGO –SAN JOSÉ (29 DE OCTUBRE 2014)



MAPA DE RIESGO –SAN JOSÉ (29 DE OCTUBRE 2014)



FINAL

The Risk Map is an instrument that **facilitates the construction of the “desired city”**

It guides future developments towards **safe zones**.

It **help in the mitigation** of risks in areas where development should remain even in low or middle flood risk.

It supports the transformation of **high risk areas to opportunity** zones by revaluating the river services.



FINAL

COMPLEXITY OF THE SOCIAL CONSTRUCTION OF RISK

The risk map is ONE of several tools of risk management. It is of great importance but can not be understood independently of the "toolbox"



SAN JOSE- Arroyo Mallada, MONTEVIDEO Arroyo Miguelete, MERCEDES, Rio Negro, SALTO, Rio Uruguay, y otras.....



PRESENTACIÓN DEL PROYECTO

RIBERA DEL MIGUELETE

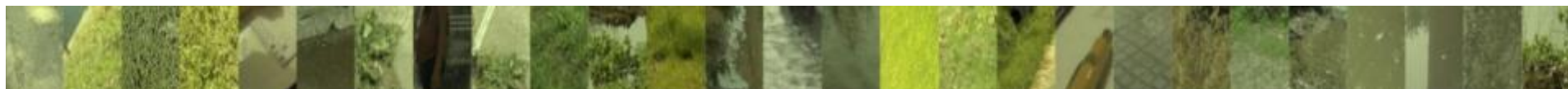
JUEVES 18
DE SETIEMBRE

15 HORAS

LUGAR
Behering y José M. Silva

NOS ACOMPAÑARÁN
LA INTENDENTA
ANA OLIVERA
Y EL MINISTRO DE
VIVIENDA
FRANCISCO
BELTRAME

En caso de lluvia se realizará en el
gimnasio de Tacurú, sobre
Instrucciones y Aparicio Saravia



**IDU-DINAGUA-MVOTMA
WORKTEAM:**

**Adriana Piperno, Juan Pablo Martínez, Alejandra Cuadrado, Antonella Piaggio, Osvaldo Sabaño, Paula
García, Santiago Benenatti, Agustín Araujo (2014)**

