

Adapting to climate variability and change along the Mediterranean coasts ClimVar & ICZM

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Presenting us & the project

SLR assessment- DIVA

Local assessment

Coastal Plan



ICZM



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ICZM



PAP/RAC

fore we begin..

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REMPEC

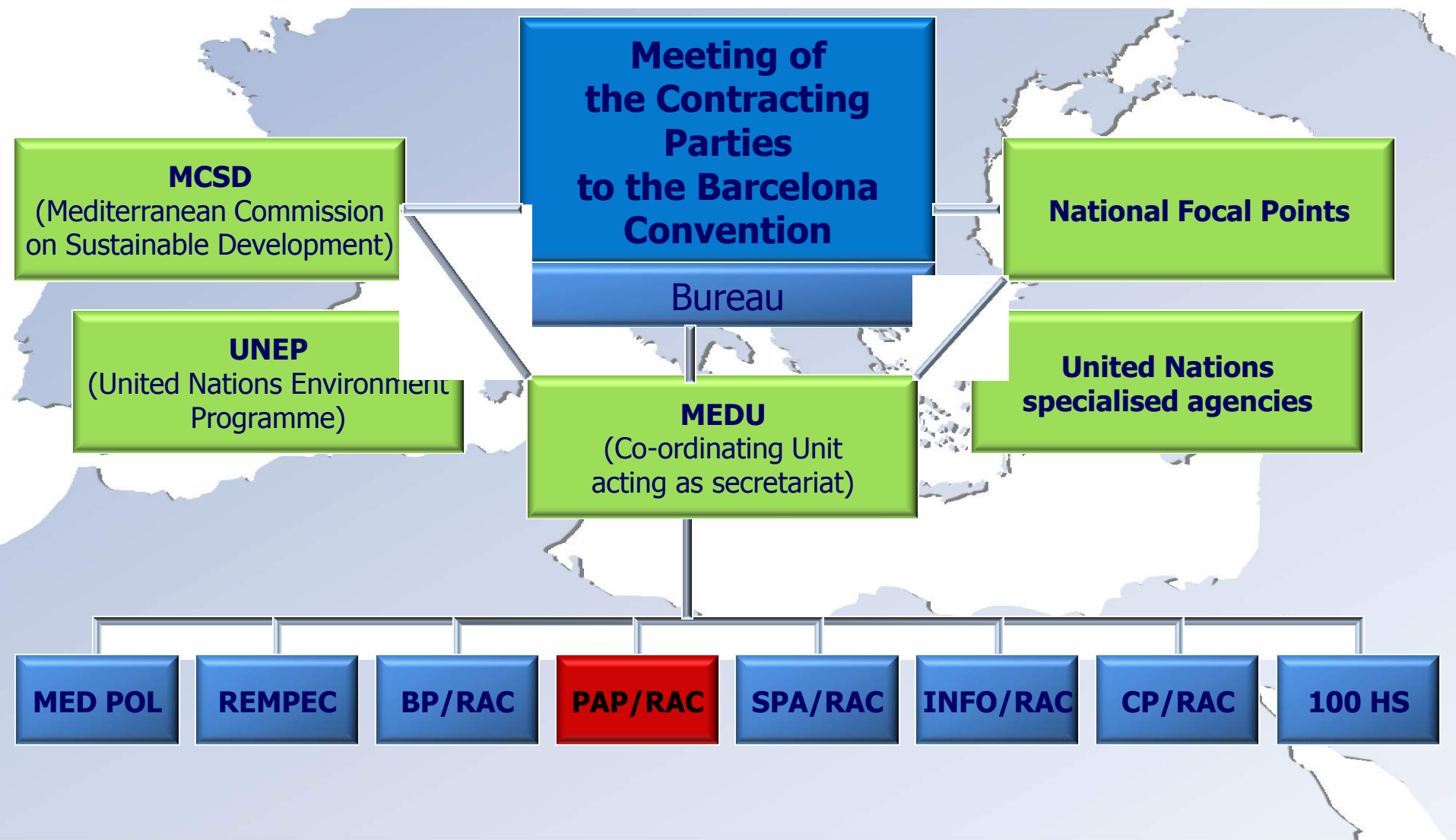
Priority Actions Programme
Regional Activity Centre

Established in 1977, as one
of 7 Regional Activity
Centres of the
Mediterranean Action Plan
(MAP)

MAP is one of 18 regional
seas of UNEP

Today's key mission of
PAP/RAC is assistance to
countries to implement the
ICZM Protocol

MAP STRUCTURE



ICZM Protocol

Madrid, January 2008

ICZM Protocol signed



a unique legal instrument
internationally

the first, and a model for
other regional seas

10 ratifications
(Slovenia, France, Spain,
Albania, EU, Syria,
Croatia, Montenegro,
Morocco and Israel)

ACTION PLAN for the
implementation of the
Protocol 2012-2019
adopted at CoP 17

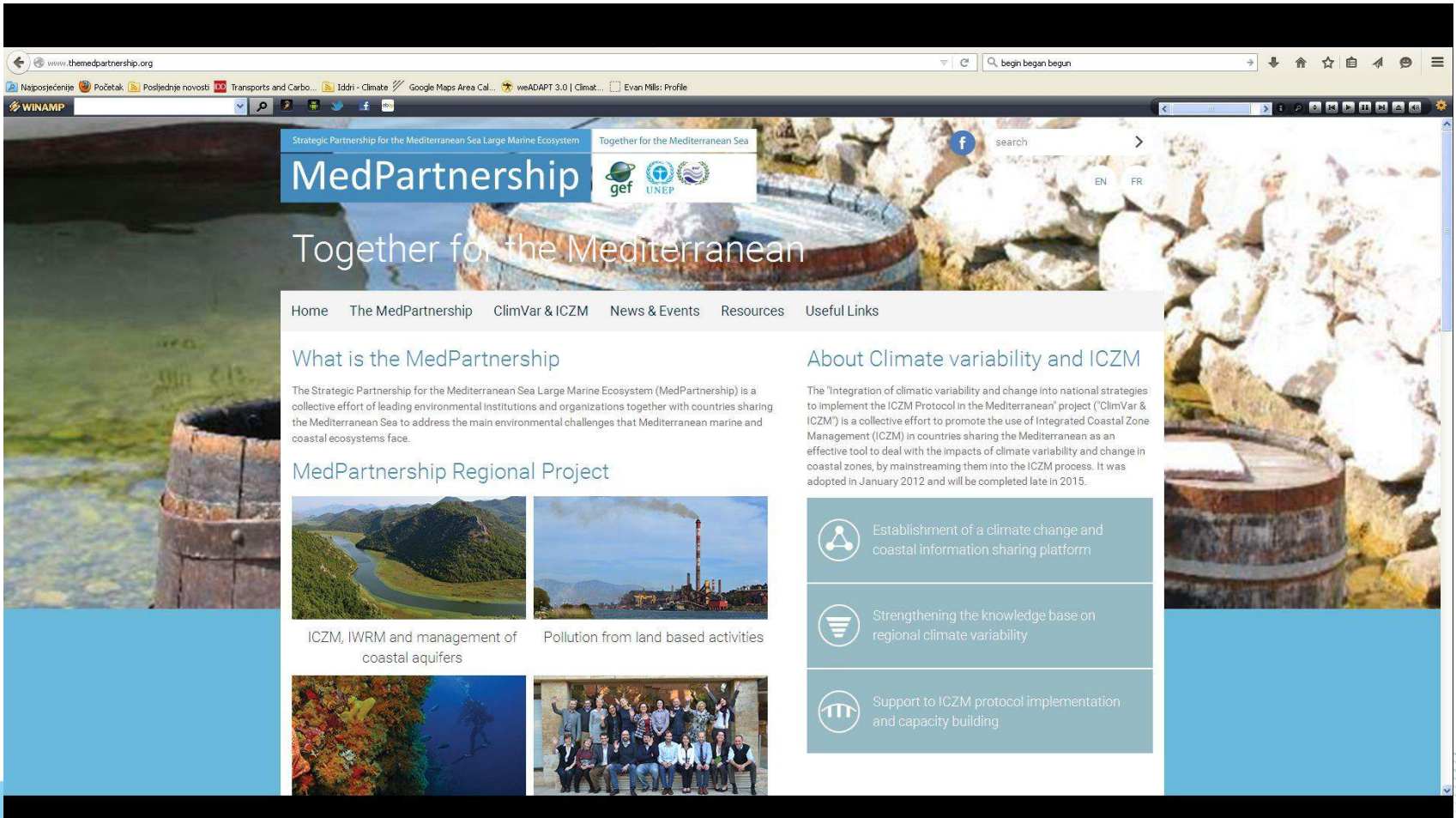
ICZM Protocol



ARTICLE 8: PROTECTION AND SUSTAINABLE USE OF THE COASTAL ZONE

.. Parties shall establish in coastal zones, as from the highest winter waterline, a zone where construction is not allowed. Taking into account, inter alia, the areas directly and negatively affected by climate change and natural risks, this zone may not be less than 100 meters in width, subject to the provisions of subparagraph (b) below. Stricter national measures determining this width shall continue to apply.

MedPartnership



The screenshot shows the MedPartnership website with a header featuring the title "MedPartnership" and the tagline "Together for the Mediterranean". The website includes a navigation menu with links to Home, The MedPartnership, ClimVar & ICZM, News & Events, Resources, and Useful Links. The main content area is divided into two columns. The left column contains a section titled "What is the MedPartnership" and a "MedPartnership Regional Project" section with three sub-images: "ICZM, IWRM and management of coastal aquifers", "Pollution from land based activities", and a group photo. The right column contains a section titled "About Climate variability and ICZM" and a list of three key activities: "Establishment of a climate change and coastal information sharing platform", "Strengthening the knowledge base on regional climate variability", and "Support to ICZM protocol implementation and capacity building".

Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem

Together for the Mediterranean

MedPartnership

gef UNEP

Home The MedPartnership ClimVar & ICZM News & Events Resources Useful Links

What is the MedPartnership

The Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (MedPartnership) is a collective effort of leading environmental institutions and organizations together with countries sharing the Mediterranean Sea to address the main environmental challenges that Mediterranean marine and coastal ecosystems face.

MedPartnership Regional Project

ICZM, IWRM and management of coastal aquifers

Pollution from land based activities

About Climate variability and ICZM

The "Integration of climatic variability and change into national strategies to implement the ICZM Protocol in the Mediterranean" project ("ClimVar & ICZM") is a collective effort to promote the use of Integrated Coastal Zone Management (ICZM) in countries sharing the Mediterranean as an effective tool to deal with the impacts of climate variability and change in coastal zones, by mainstreaming them into the ICZM process. It was adopted in January 2012 and will be completed late in 2015.

- Establishment of a climate change and coastal information sharing platform
- Strengthening the knowledge base on regional climate variability
- Support to ICZM protocol implementation and capacity building

Project presentation

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ICZM



MedPartnership activities

RISING AWARENESS

- In order to raise awareness on the risks of coastal strip urbanisation, we undertook the **assessment of possible costs of sea level rise** for Croatia and Tunisia
- **Dynamic Interactive Vulnerability Assessment (DIVA)** – deemed as the most comprehensive and politically most relevant method at present
- DIVA is a global integrated model that assesses biophysical and socio-economic impacts of the sea level rise and extreme events according to different physical and socio-economic scenarios, taking into account different strategies of adaptation



University of Kiel

bc³BASQUE CENTRE
FOR CLIMATE CHANGE
Klima Aldaketa Ikergai

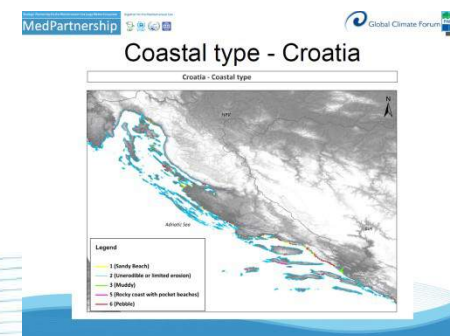
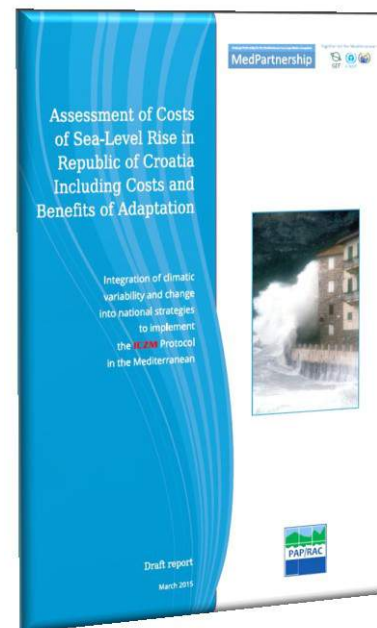
About DIVA

DIVA

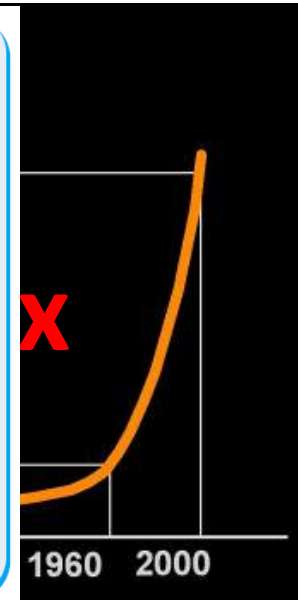
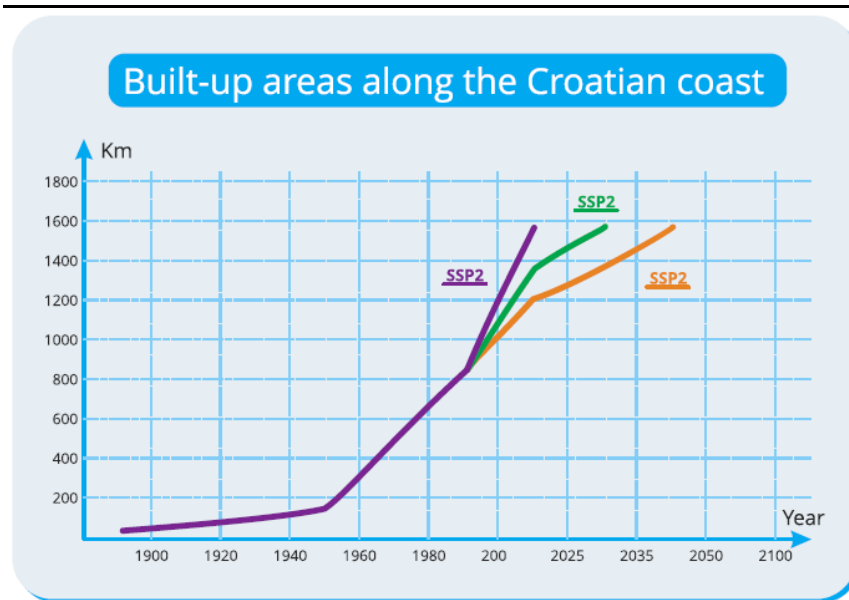
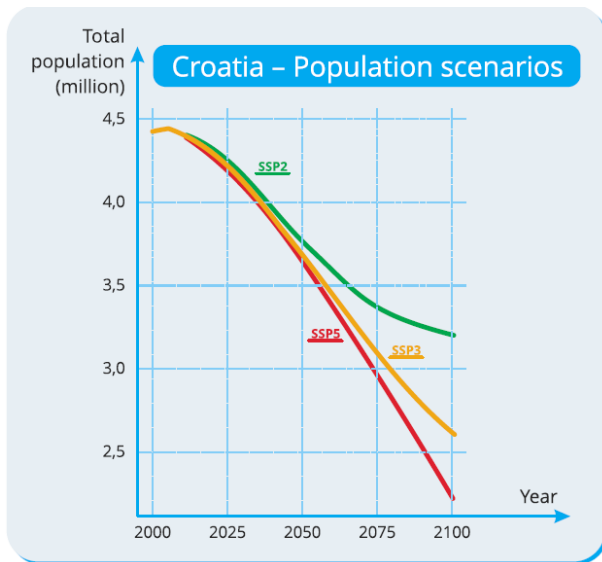
- co-developed since 2001 within the context of the EU-funded DINAS-COAST project by a number of European coastal research institutes and applied in various projects, such as PESETA, CLIMATE-COST, ADAM and BRANCH, in the UNFCCC Report on Coastal Adaptation, in an Asian Pacific Network's integrated vulnerability assessment of coastal areas of South-East and East Asia, in COMPASS project for Argentina, Brazil and Chile, and more.

DIVA

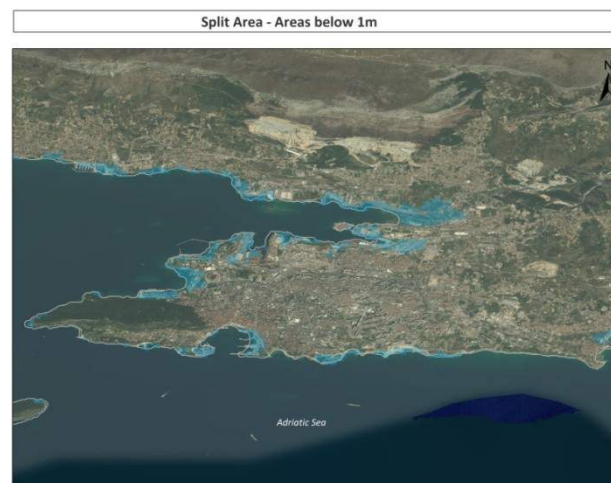
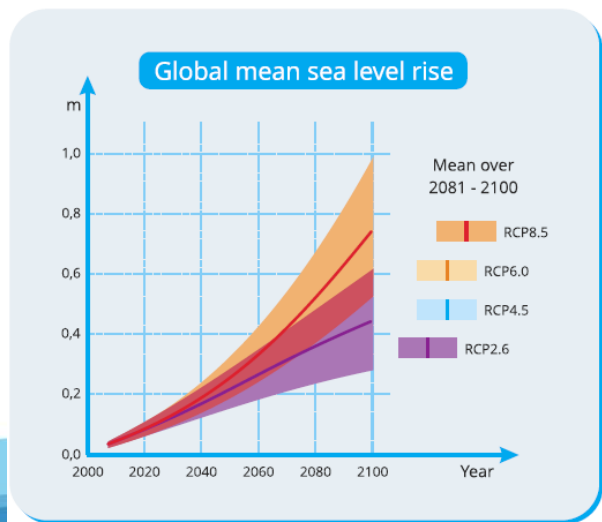
- DIVA's main units of analysis are coastline segments
- about 80 biophysical and socio-economic parameters attributed to the segments
 - global segmentation: 12,148 segments of variable length that are homogeneous in terms of coastal characteristics (average length 70 km)



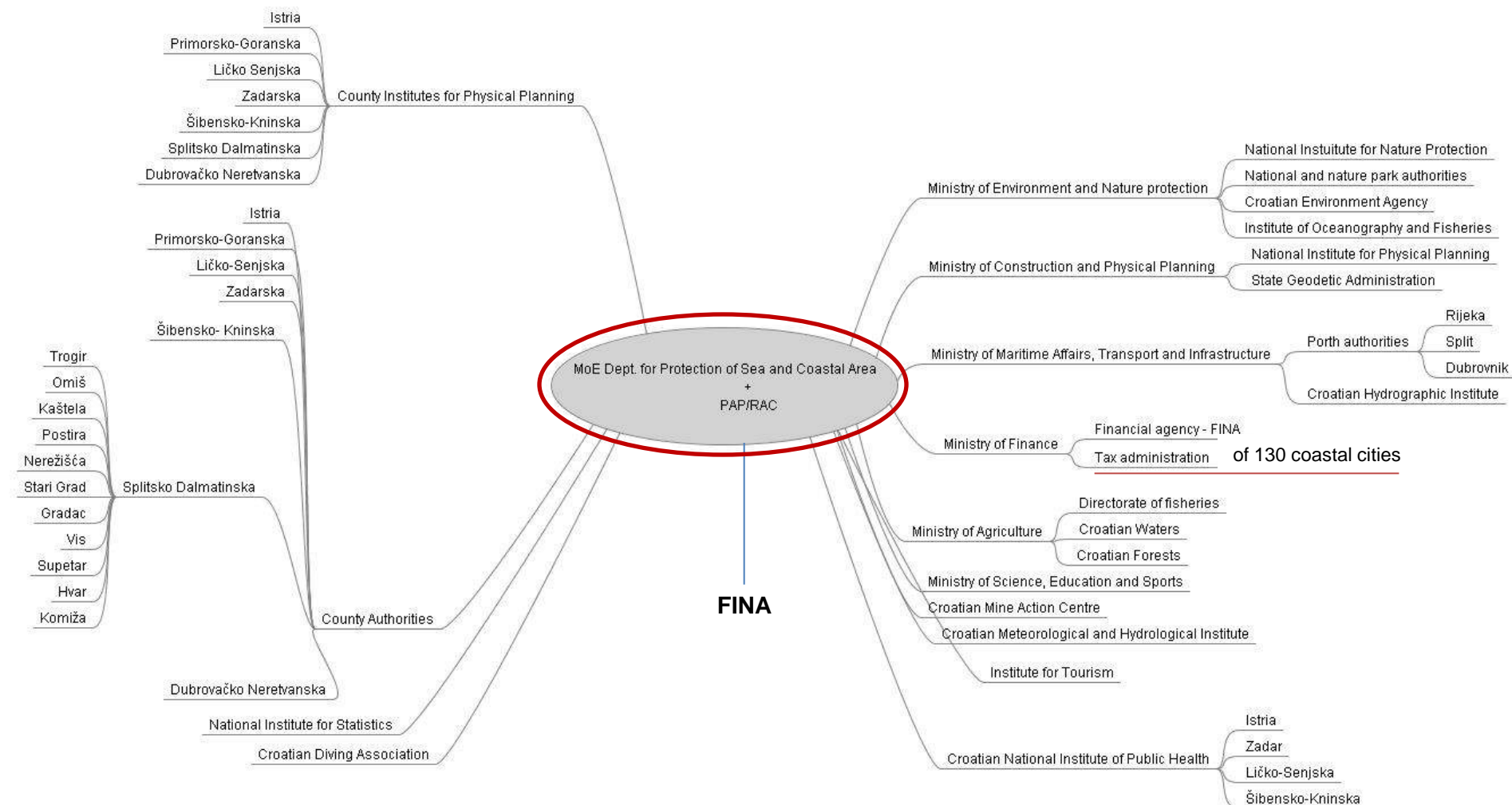
Opposite trends in Croatia



Population 4. 140.000 4. 381.000



DIVA Croatia – data collection



Results

The assessment shows that the impacts of sea-level rise in Croatia will be substantial in the 21st century if no adaptation measures are taken.

The area of Croatian coastal zone exposed to the 1-in-100 year coastal extreme water level will increase from the current **240 km² to 320-360 km²** in the late 21st century.

- The expected number of people flooded annually will increase from **17,000 in 2010 to 43,000-128,000 in 2100** and the expected annual damages from **USD 40 million in 2010 to 0.9 to 8.9 billion per year in 2100**.



Findings

Potential floodplain area

Neretva Delta

Zadar

Murter – Kornati

Pag

Mali Lošinj

Šibenik

Tar – Vabriga

Sali

Kaštela Bay

Umag

People flooded annually in 2100

Kaštela Bay

Neretva Delta

Rijeka

Zadar

Šibenik

Pula

Umag

Dubrovnik

Mali Lošinj

Crikvenica

Sea-flood cost in 2100

Zadar

Šibenik

Kaštela Bay

Novalja

Vodice

Vir

Neretva Delta

Umag

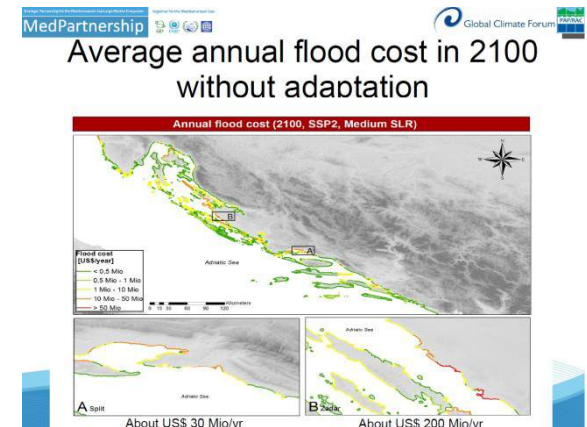
Privlaka

Sukošan



Adaptation costs

If we considered protecting segments which have **>30 inhabitants/km²** in the flood area, this would result in protecting **83.7%** of the coastline (4870 km). For segments with **>100 inh/km²** it would mean protecting **67.5%** of the coastline (3930 km), and for segments with **>200 inh/km²** the share would be **49.6%** (2890 km). Average dike height is around 1.2 m.

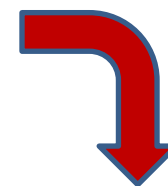
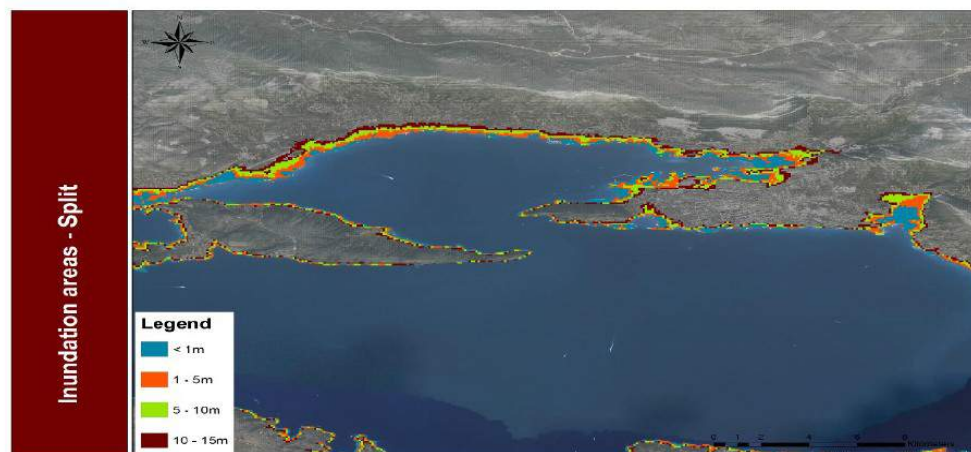


	Construction cost [million US\$]	Maintenance cost [million US\$]	Total [million US\$]	Avoided annual flood damages [million US\$]
Initial cost	6 500-11 200	65-112	6 565-11 312	N/a
Annual cost, 2100	5 – 108	48 – 125	53 - 233	190 – 5,200

Integrating findings into policy

Remark

- Protection based on demand for safety is not very efficient for Croatia, because the average flood plain is very narrow

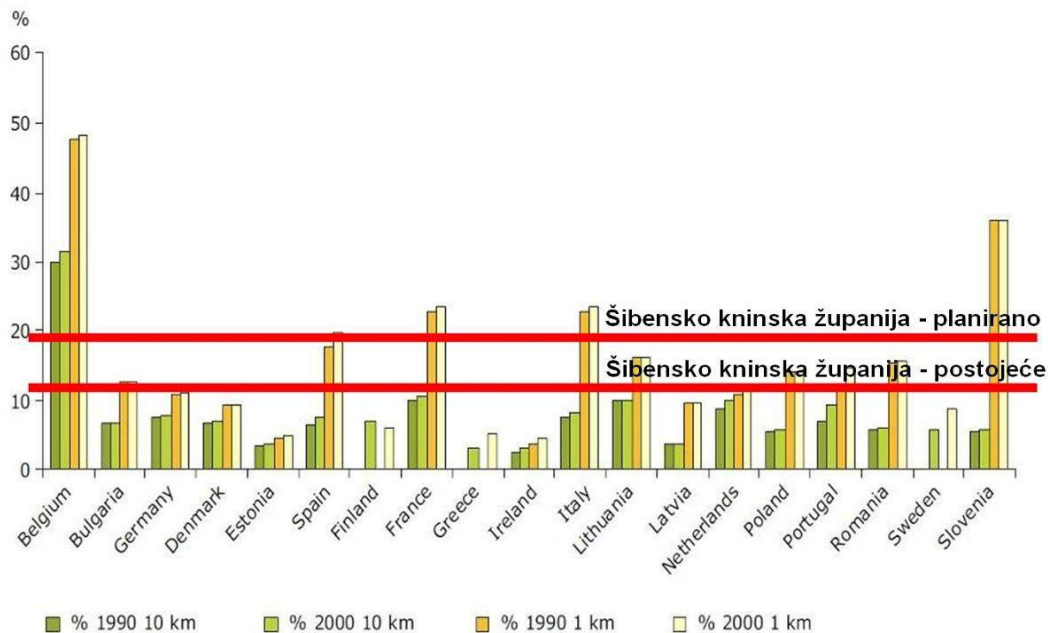


National Marine & Coastal Strategy

Inter-Ministerial Committee

Another insight

Figure 2 Built-up area in the 0–1 km coastal strip versus the entire 10 km coastal zone (1990–2000)



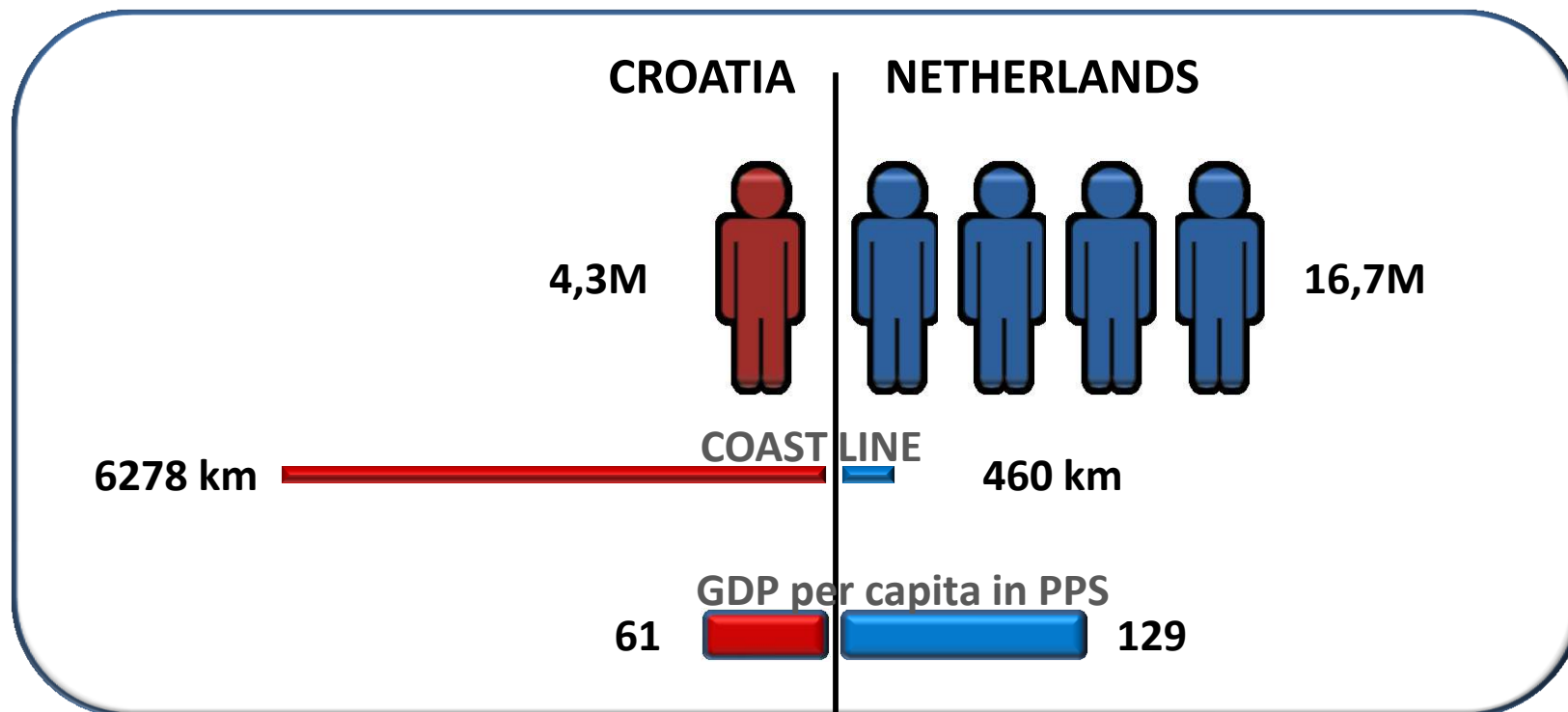
CROATIA

Region	Inhabitant/ km2
Croatian Adriatic	57,15
Primorsko-goranska	82,55
Ličko-senjska	9,51
Zadarska	46,63
Šibensko-kninska	36,65
Splitsko-dalmatinska	100,18
Istarska	73,96
Dubrovačko	68,82

FRANCE

Region	Inhabitant /km2
France (national)	116
French coast	285
French Mediterranean coast	366
Provence-Alpes-Côte d'Azur (NUTS2 level[58])	729

WHO WILL BEAR THE COSTS...



the guardian

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Scandal of Europe's 11m empty homes

Housing campaigners denounce 'shocking waste' of homes lying empty while millions cry out for shelter

Rupert Neate

The Guardian, Sunday 23 February 2014 21.09 GMT

[Jump to comments \(1233\)](#)


There are more than 700,000 vacant homes in the UK, something housing campaigners say is a shocking waste. Photograph: Martin Godwin

More than 11m homes lie empty across Europe – enough to house all of the continent's homeless twice over – according to figures collated by the Guardian from across the EU.

In Spain more than 3.4m homes lie vacant, in excess of 2m homes are empty in each of France and Italy, 1.8m in Germany and more than

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Fears over decision to remove homeless

guardianjobs

Core Arts Membership Manager

Salary: £30,000 p.a. 35 hours per week. One year fixed term contract - Hackney, London E9 6DU - CORE ARTS



Chief Executive

Up to £42,000 for 35 hours a week - Harrow, Greater London - HARROW CITIZENS ADVICE BUREAU


[Browse all jobs in this category](#)

Featured job

Head of Adult Social Care

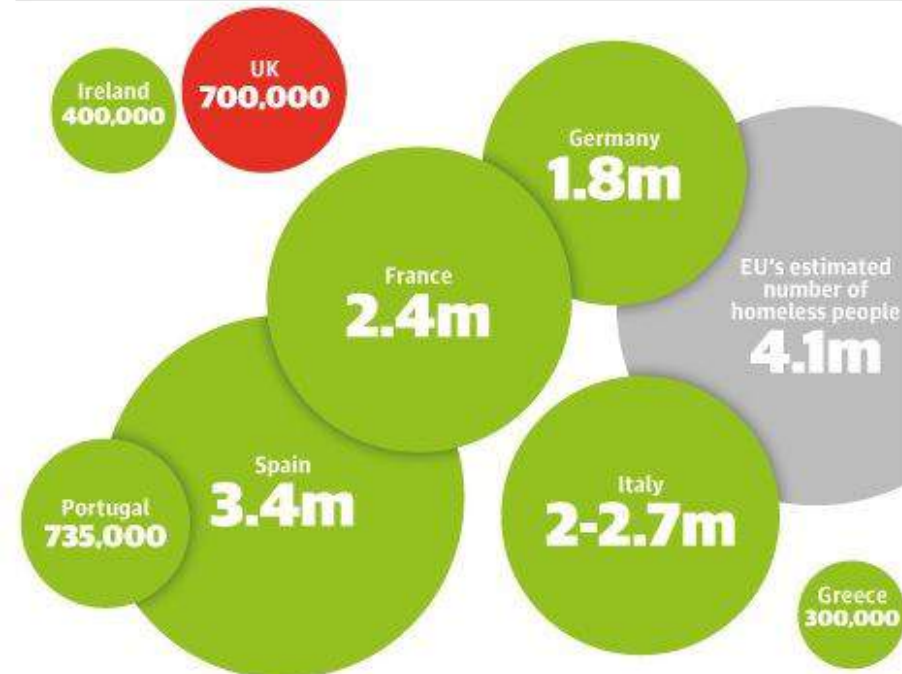
Up to £90,000 | Windsor Royal Borough Windsor and Maidenhead



Guardian Sustainable Business

Can the financial

Number of empty properties across Europe



SOURCES: UK: LEA DATA COLLATED BY THE EMPTY HOMES CAMPAIGN. SPAIN: 2011 CENSUS. FRANCE: INSEE GOVERNMENT RESEARCH BUREAU 2012. GERMANY: 2011 CENSUS. ITALY: ITALIAN STATISTIC INSTITUTE ESTIMATED 2.7M IN 2011. UNION CGIL ESTIMATED 2M IN 2012. PORTUGAL: 2011 CENSUS. IRELAND: IRISH NATIONAL INSTITUTE OF REGIONAL AND SPATIAL ANALYSIS (NIRSA) 2012. GREECE: HELLENIC PROPERTY FEDERATION (POMIDA) ESTIMATE 2012.

Project presentation

SLR assessment - DIVA

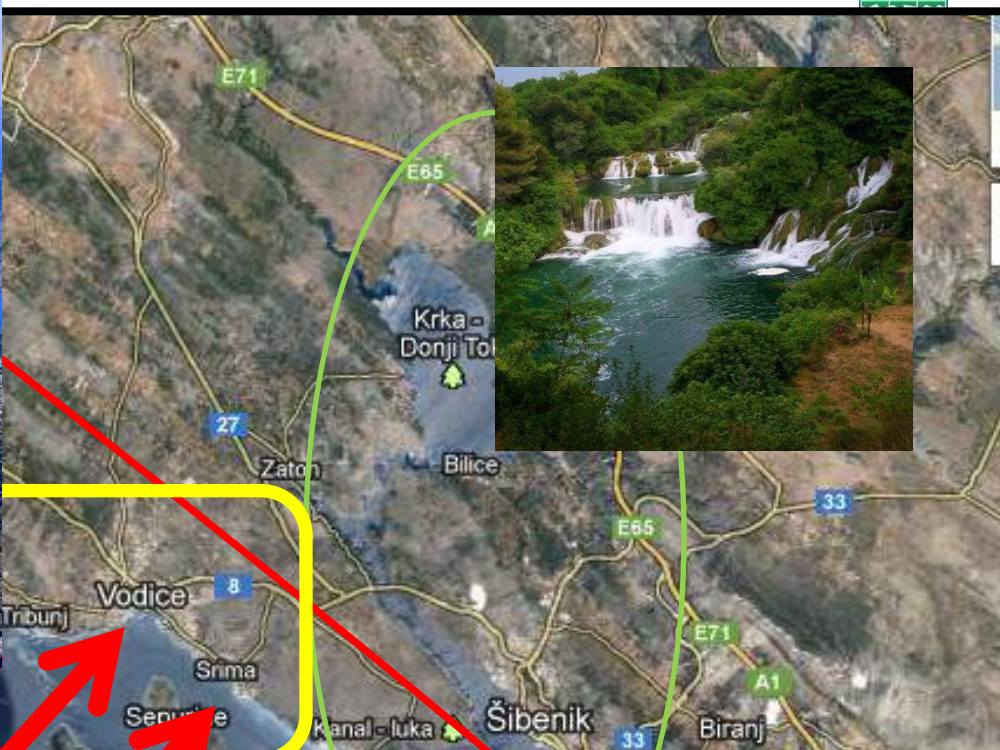
Local assessment

Coastal Plan



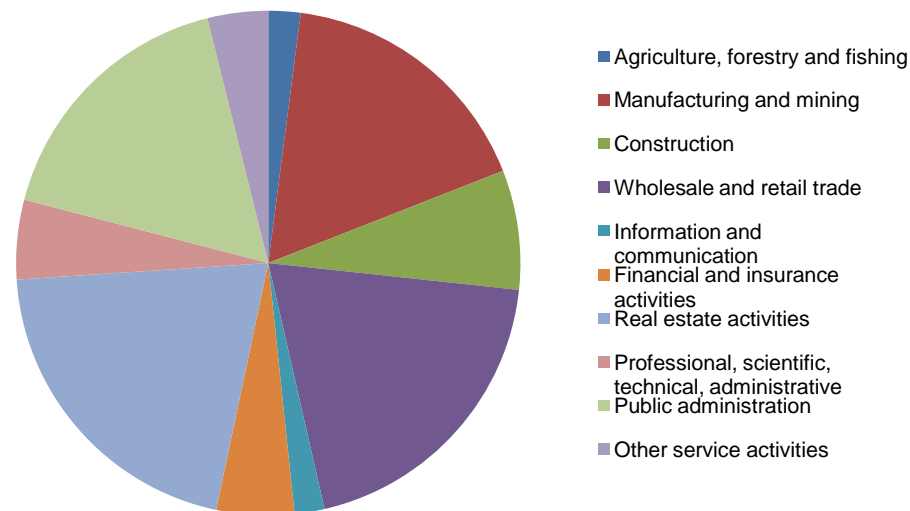
ICZM





Šibenik-Knin County: Key Features

- Covering 5.3% of country and 19.2% of all islands
- Median age is 44.1 (42.4 for Croatia)
- Population 109,000 (2.6% of Croatia)
- GDP 6.4 billion HRK (2% of national GDP)
- Per capita income 58,995 HRK (77% of Croatia average)
- Development index for the county was 81% of Croatian average in 2013, which is higher than in 2010 when it was 63%.



Local Assessment of Vulnerability (LAV)

- **Assessment of impacts of climate variability and change on:** tourism, nautical tourism, agriculture, fisheries, aquaculture, maritime transport, energy, water management, forest fires, national parks, health and culture
- **Assessment shows** that although impacts on economy may be significant, **costs of the sea floods** still present the major threat
- **Policy recommendations** integrated into the Coastal Plan for the Šibenik-Knin County and feed into the County spatial plan and regional development strategy



7.8 % of the total number of people at risk of flooding
18.75 % of the total sea flood costs

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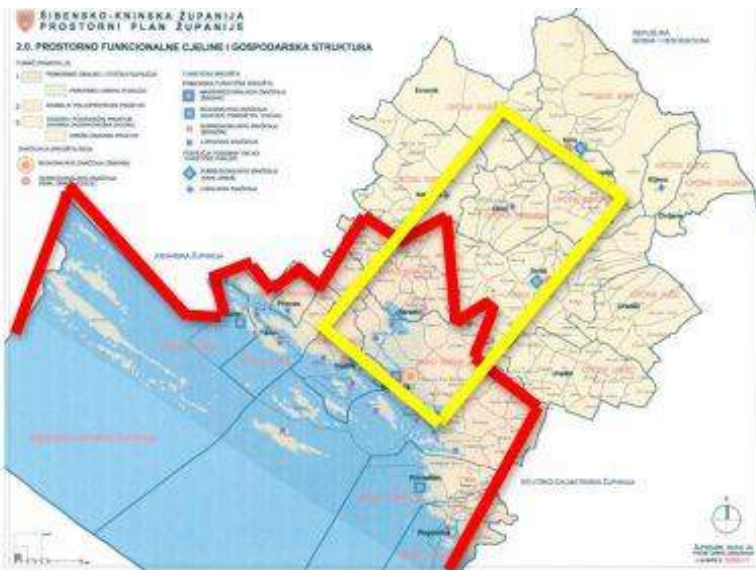
ICZM





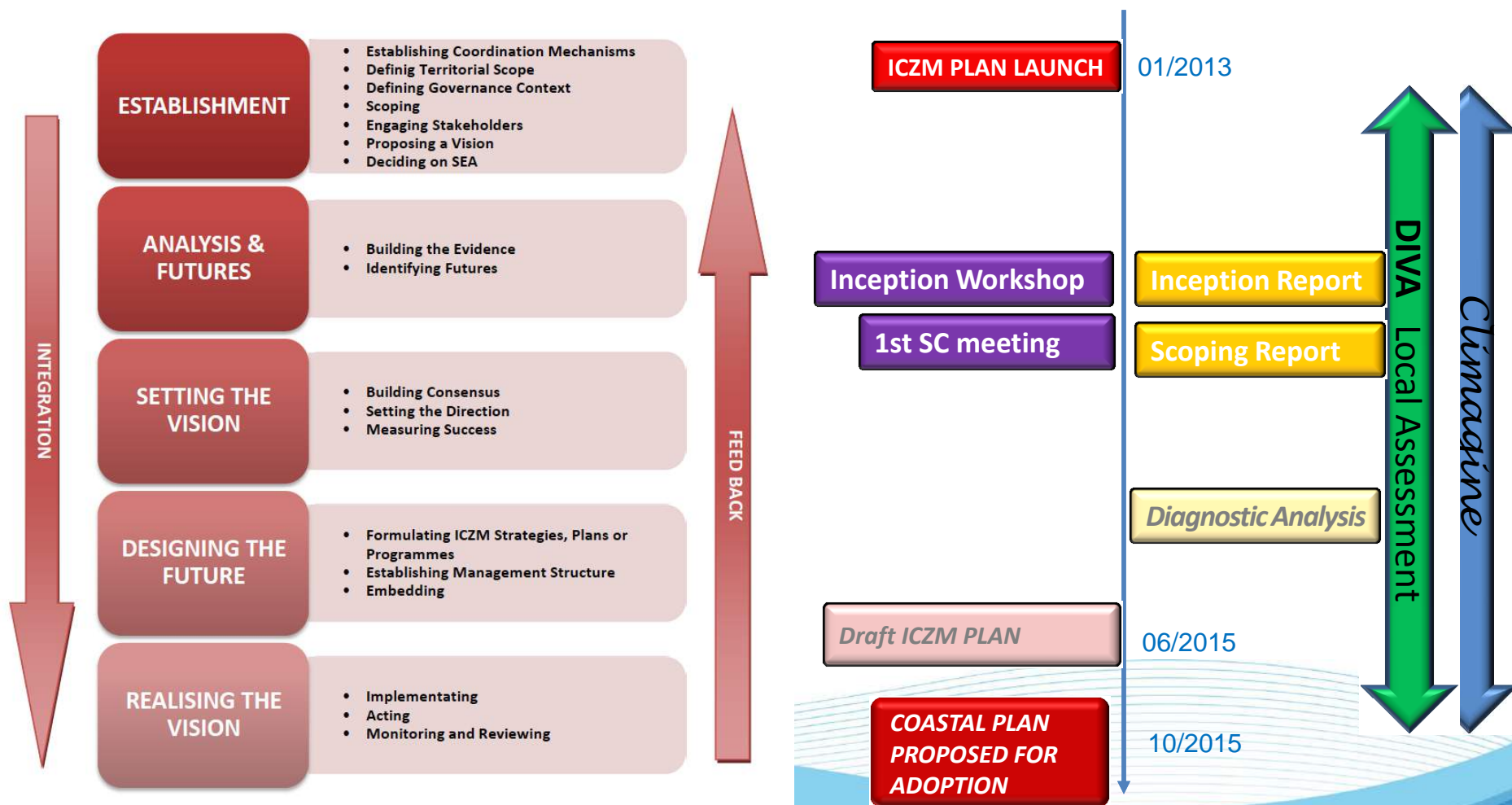
OBJECTIVES:

- Establishment of an **integrated system** for **coastal management**
- establishment of an **overall policy** for the **sustainable coastal development**
- **harmonising** sectoral development policies and plans with the objectives of the overall policy for sustainable coastal development
- **identification** of the **zones** and **sectors vulnerable to CVC** with adaptation proposals to be integrated into future spatial and other development plans.



ICZM Process

COASTAL PLAN PREPARATION PROCESS



CLIMAGINE

- a participatory method that, by engaging stakeholders within a participatory process, intends to describe, assess and examine the past, present and future levels of sustainability of a local system by means of indicators, setting goals and monitoring the system's progress towards sustainable development, with a special focus on climate change.

- An important input for the ICZM Plan for ŠKC, while ICZM Plan assists in implementing Climagine!
- 100 carefully selected relevant stakeholders invited – around 60 participants met four times
- Identified issues - inputs for the ICZM Plan and Local Assessment of Vulnerability
- Combining expert and local knowledge is the key for success!



Scoping

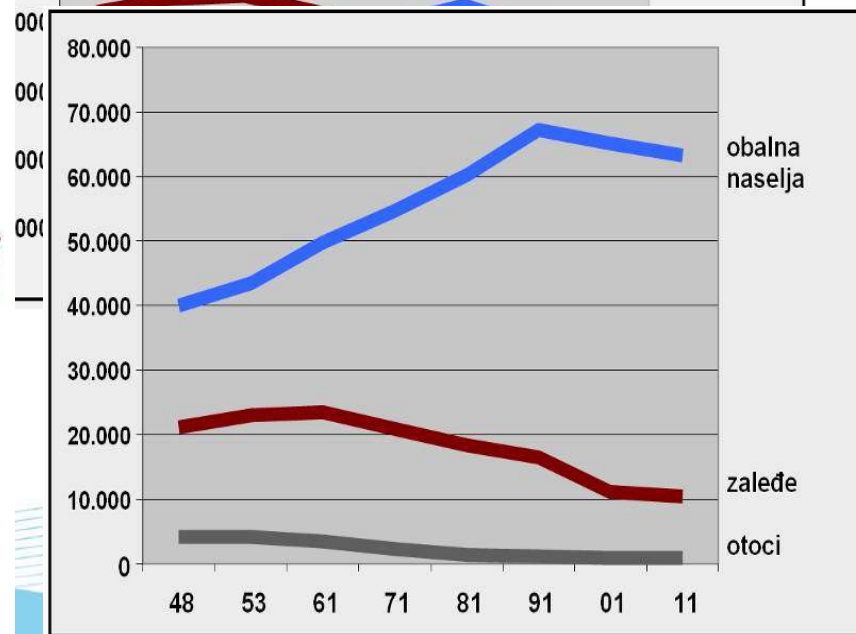
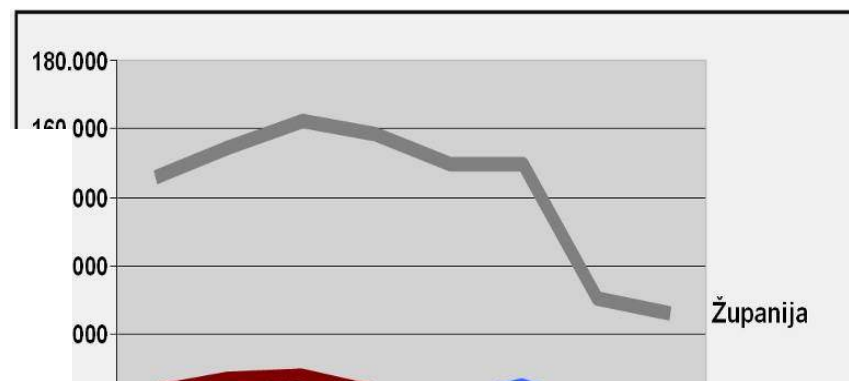
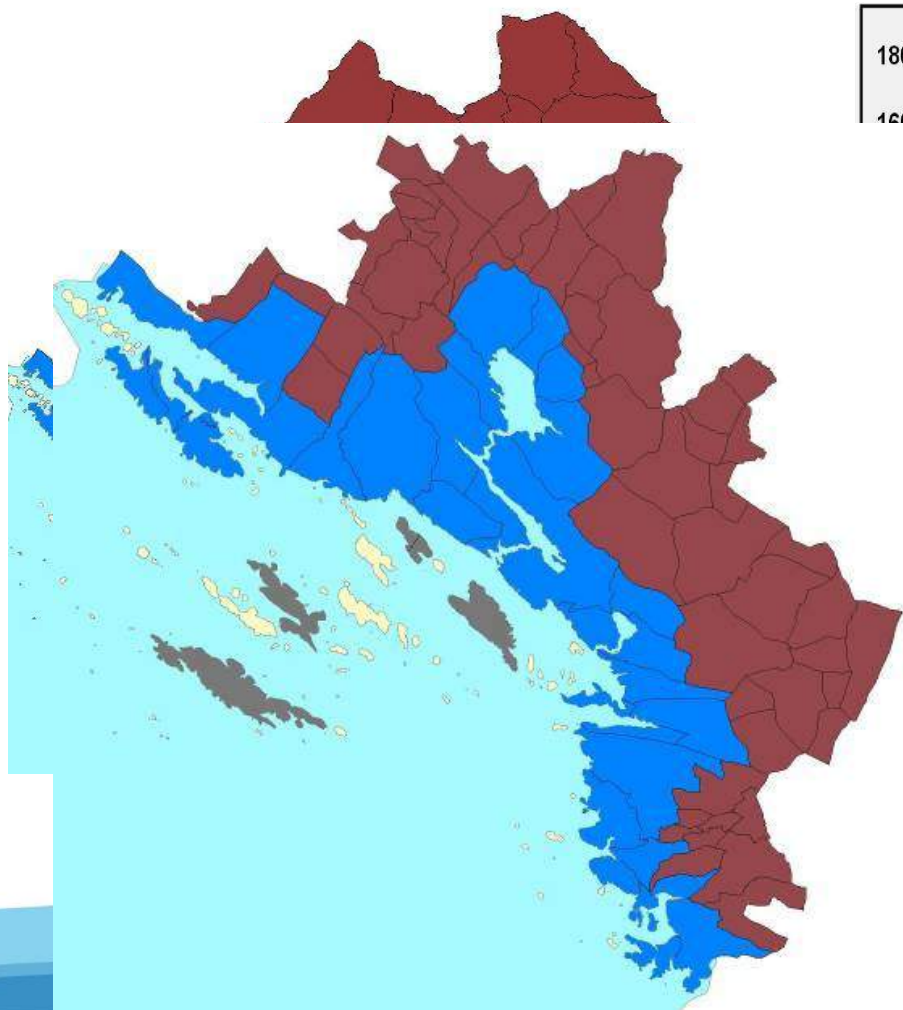
- Spatial development
- Expected climate change impacts
 - on water management
 - forest fires
- Landscape management



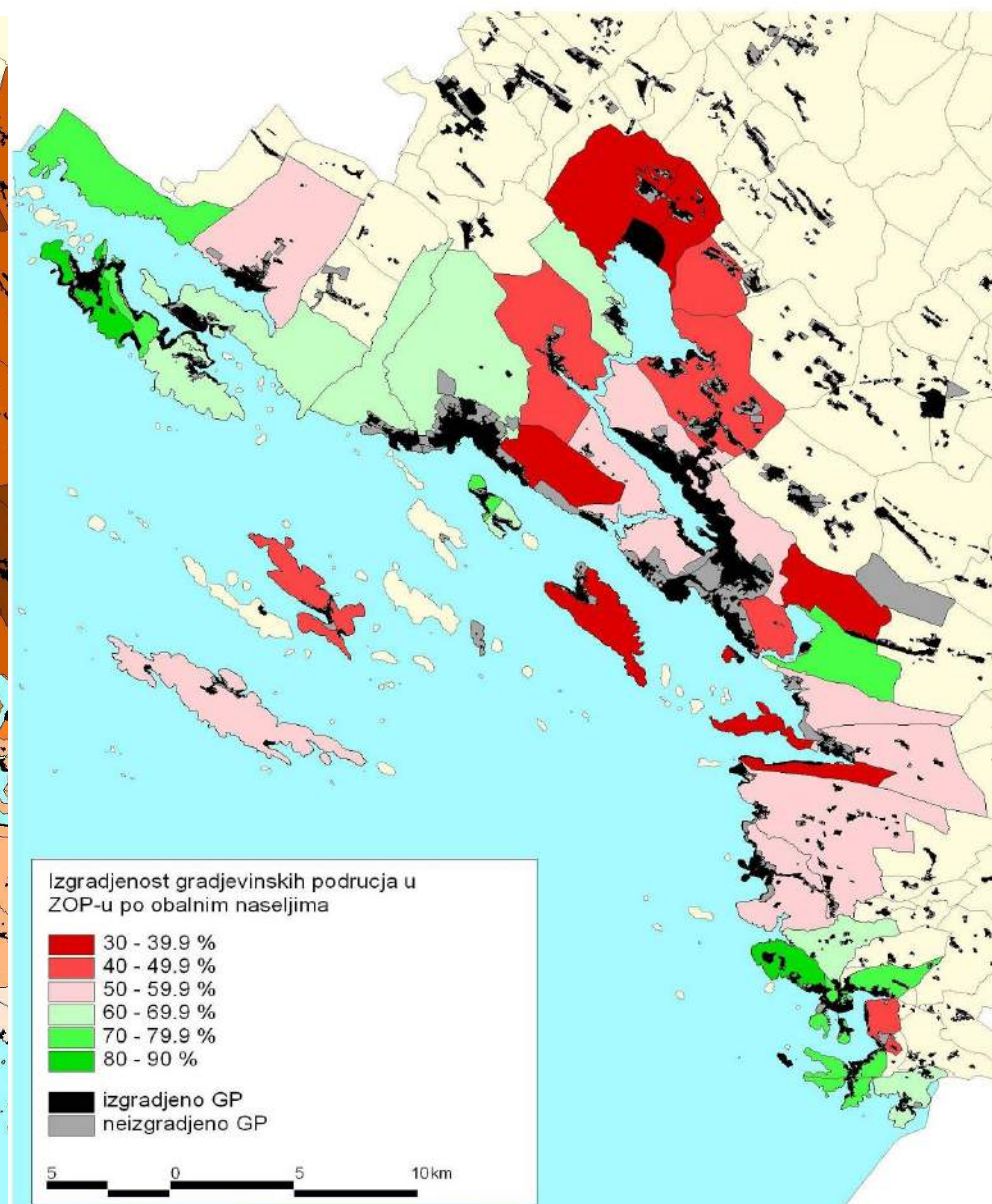
Diagnostic Analysis

- Focus on priority themes: themes less analysed in other plans such as climate change
- Better understanding of the development context in the coastal area of the County

Population

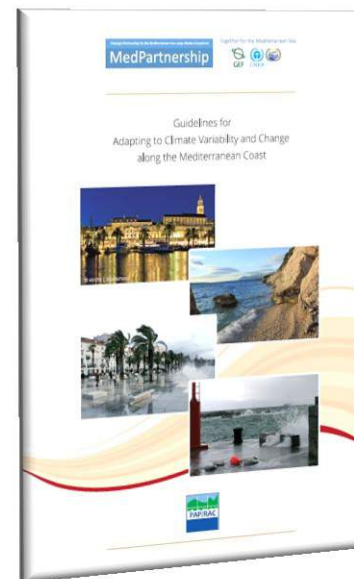


Spatial development

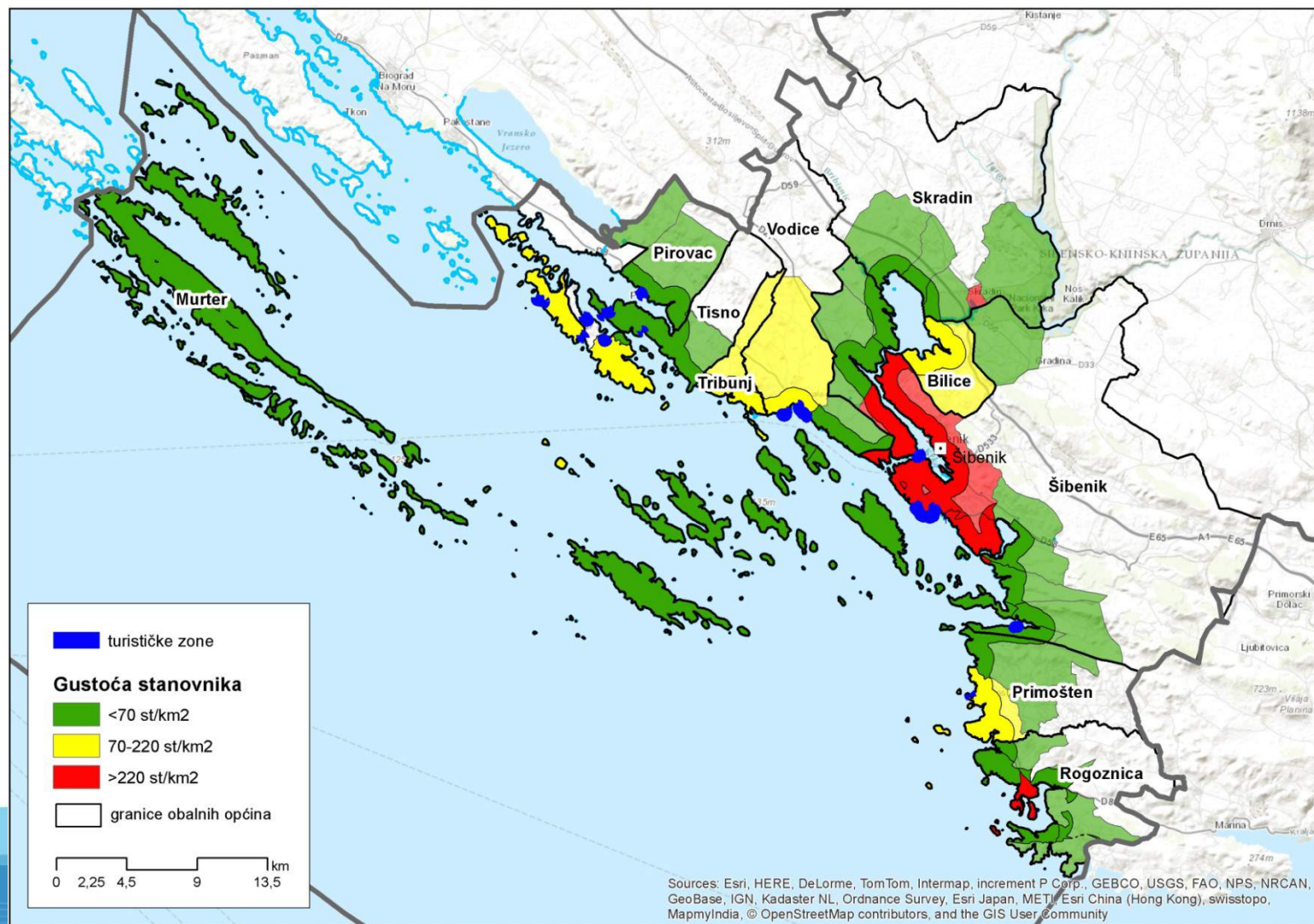


Plan

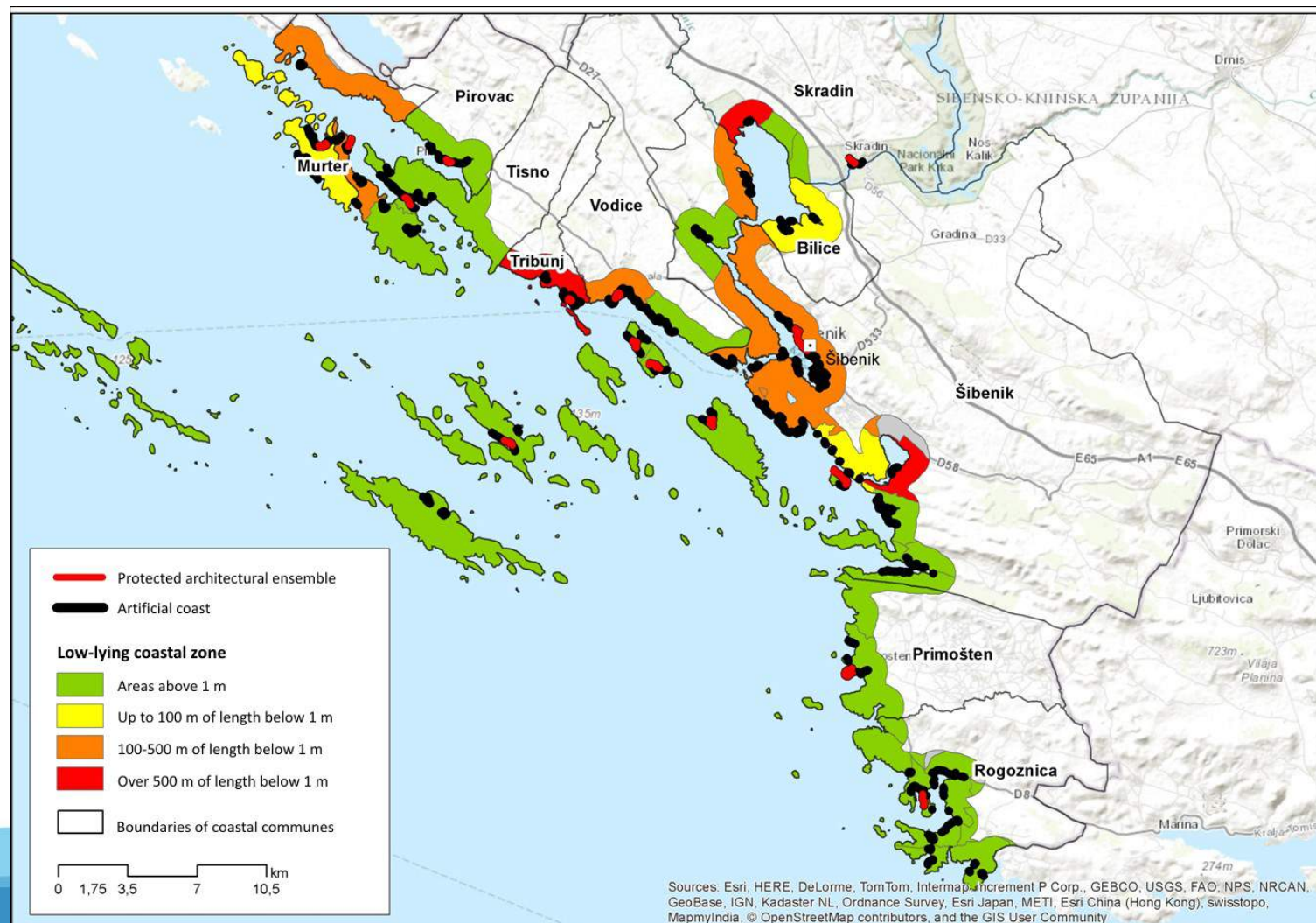
- Diagnostics
- Future scenarios
- Vision
- Coastal policies:
 - Spatial development
 - Economic development
 - Water management
 - Building resilience
- Specific measures
- General measures



Coastal hazards



Sea level rise



Lessons learned

- Mediterranean coastal cities and municipalities need to adapt
- **Who will bear the cost of adaptation?**
- We shall have to decide on priorities - **inhabitants** or expected **damages**
- Countries with coastal tourism will face additionally difficult challenge
- Countries with decreasing population will face additionally difficult challenge
- **Solidarity** with inland should be built into all coastal policies
- No more coastal development plans should be made without taking climate change into consideration
- Building **awareness** is crucial



iczm a better way
visualising the coastal future you want
...enabling you to achieve it



Thank you for your
attention

Merci pour votre attention

شكراً لانتباهكم