

BUS TERRITORY
MAPS INVESTMENT WASTE
ECONOMY MOBILITY
URBAN PLANNING PARKS
RIVERSIDE AREAS PEOPLE
PRICES AMB Àrea Metropolitana
de Barcelona
PUBLIC SPACE BICICLETA WATER
TAXI ENVIRONMENT
SUSTAINABILITY BEACHES
ELECTRIC VEHICLE



AMB



Àrea Metropolitana
de Barcelona



The Barcelona Metropolitan Area

METROPOLITAN AREA

INSTITUTION

TERRITORY

ENVIRONMENT

MOBILITY

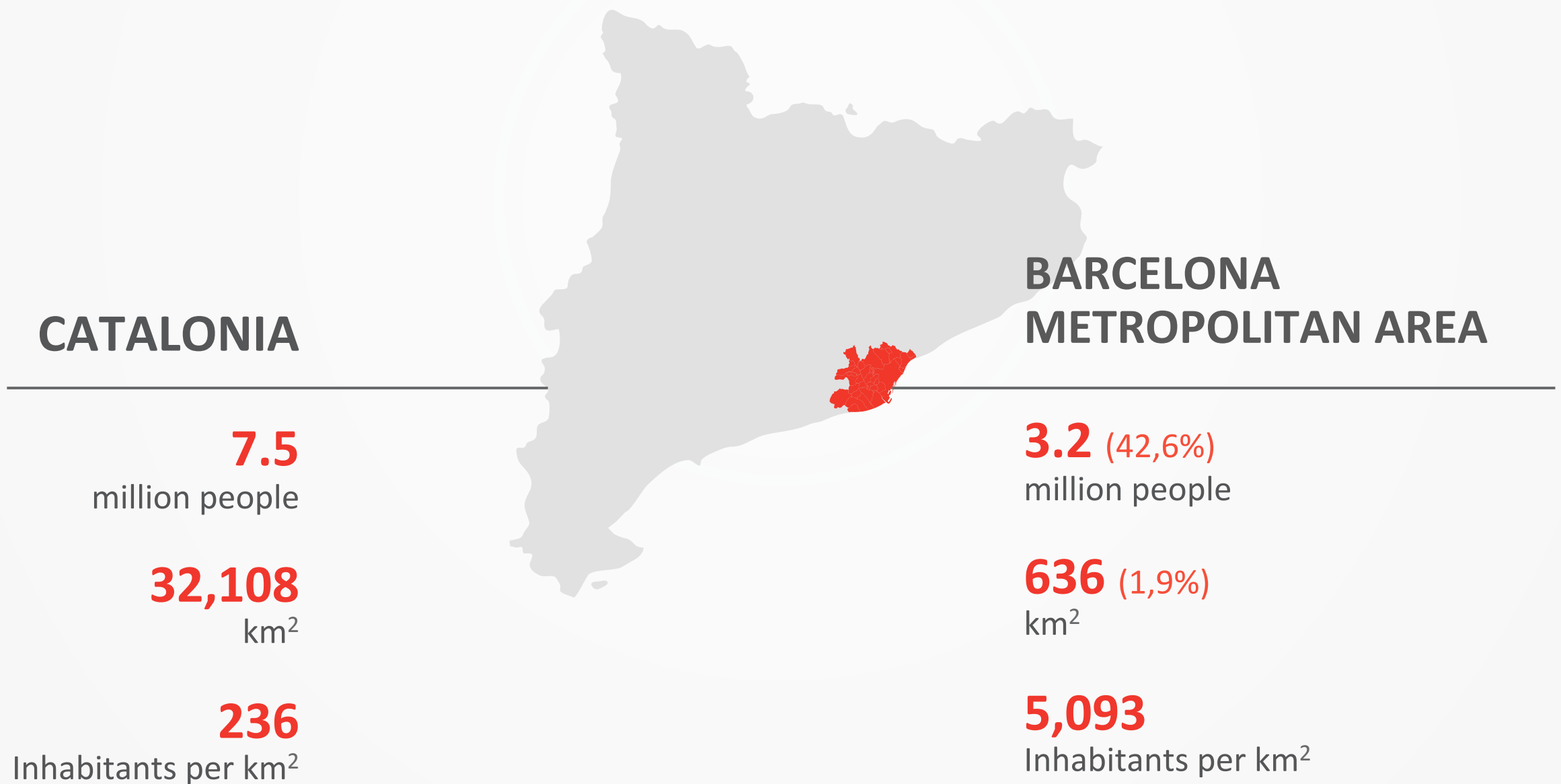
ECONOMY



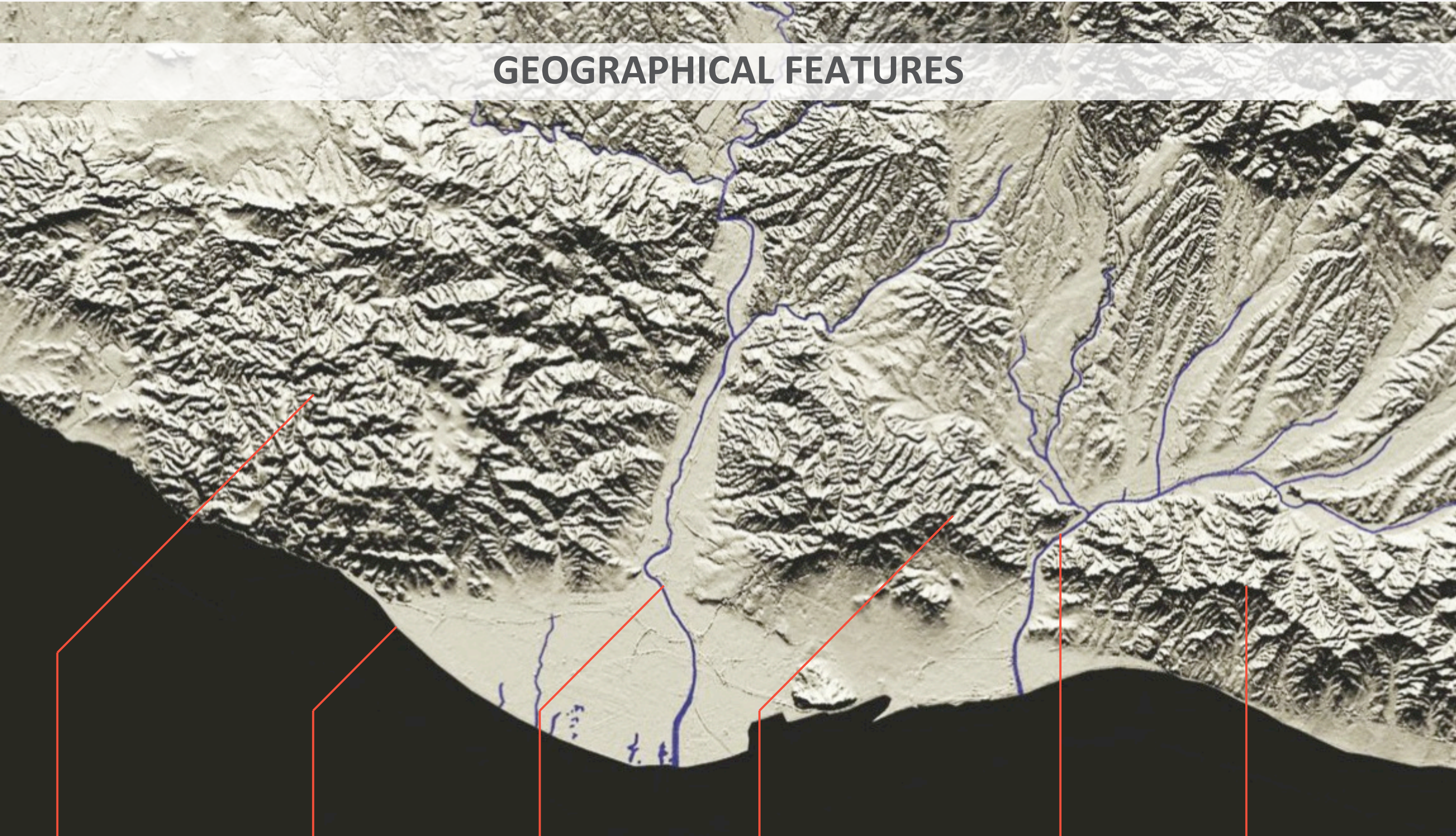
CATALONIA AND THE METROPOLITAN AREA



CATALONIA AND THE METROPOLITAN AREA



GEOGRAPHICAL FEATURES



Garraf Massif

Shoreline

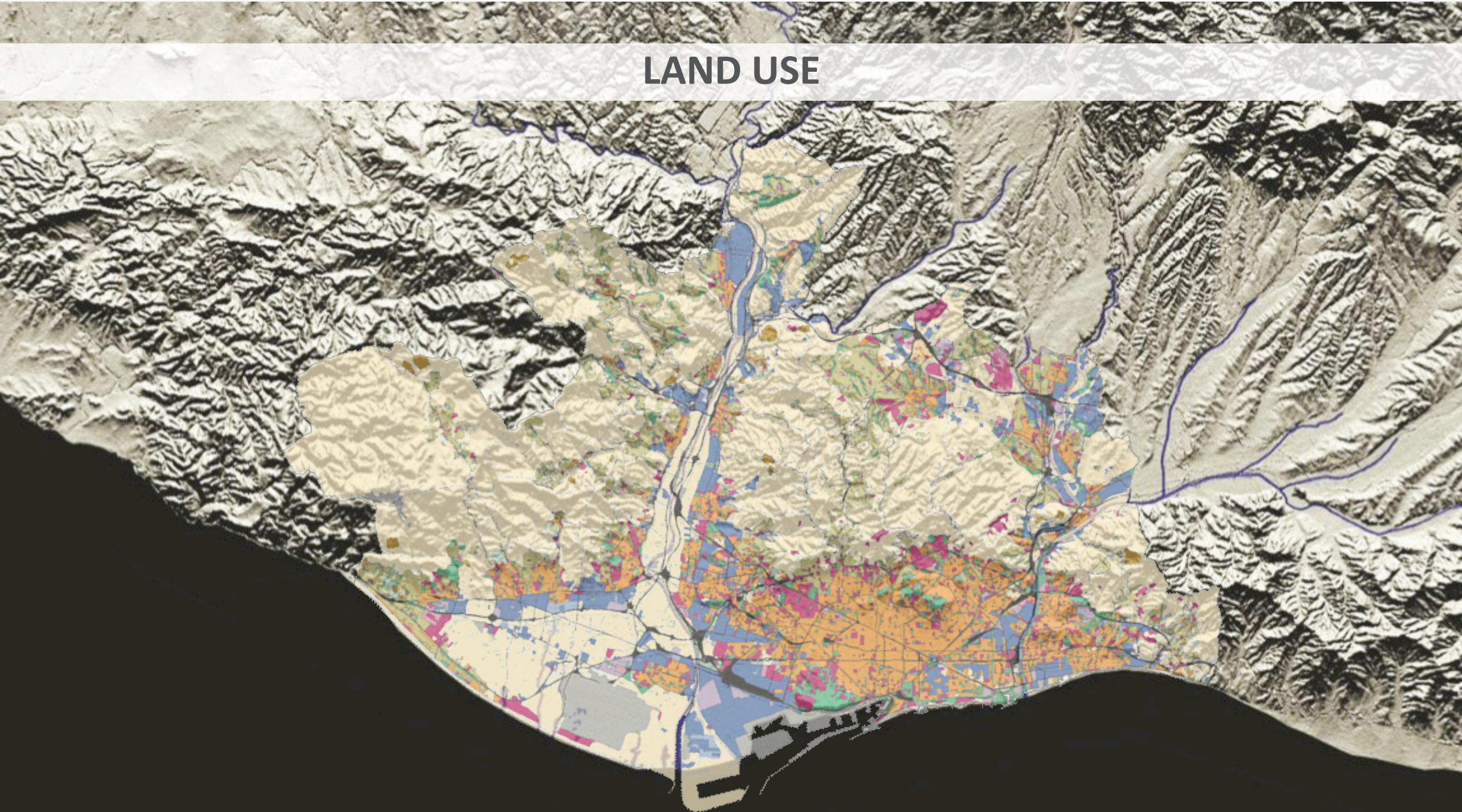
River Llobregat

Collserola Range

Riu Besòs

Coastal Range

LAND USE



■ Residential (low density)

■ Residential (high density)

■ Facilities

■ Industrial

■ Parkland



The institution

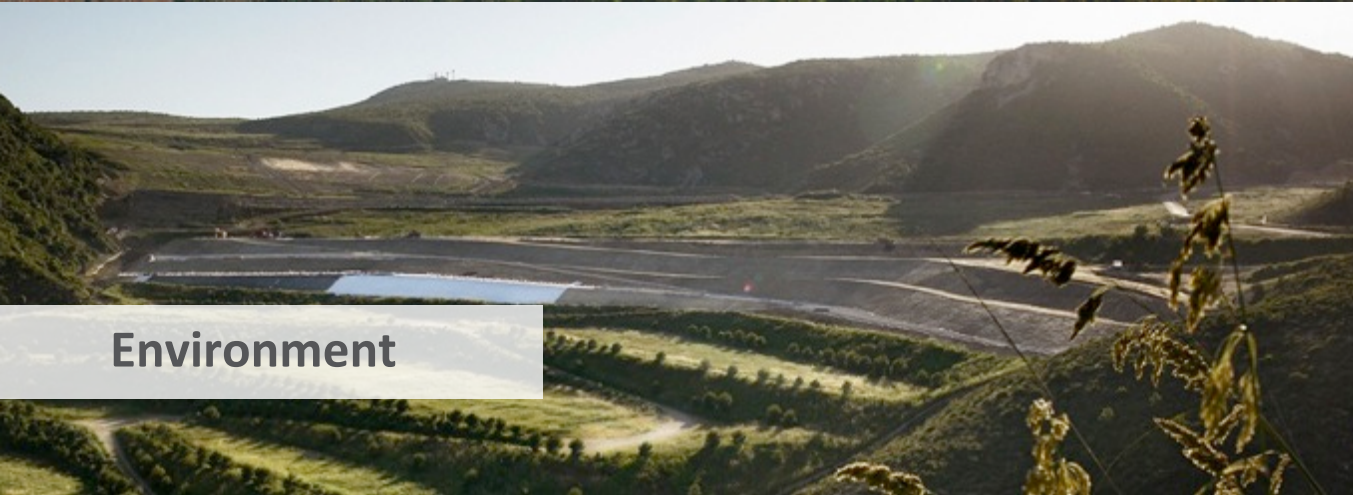
POWERS



Spatial Planning



Transport and Mobility



Environment



Housing



Economic Development



Social Cohesion



ORGANIZATIONAL STRUCTURE

AMB

Governing bodies / Management / General Services / Economy and Finance / International Relations

SPATIAL PLANNING

Urban Planning
Infrastructure
Public Space
Housing

ENVIRONMENT

Water
Waste
Sustainability

MOBILITY

Transport
Planning
Fare System

ECONOMY

Economic Development
Strategic Planning



ENVIRONMENT

WATER TREATMENT PLANTS



Purification



Supply



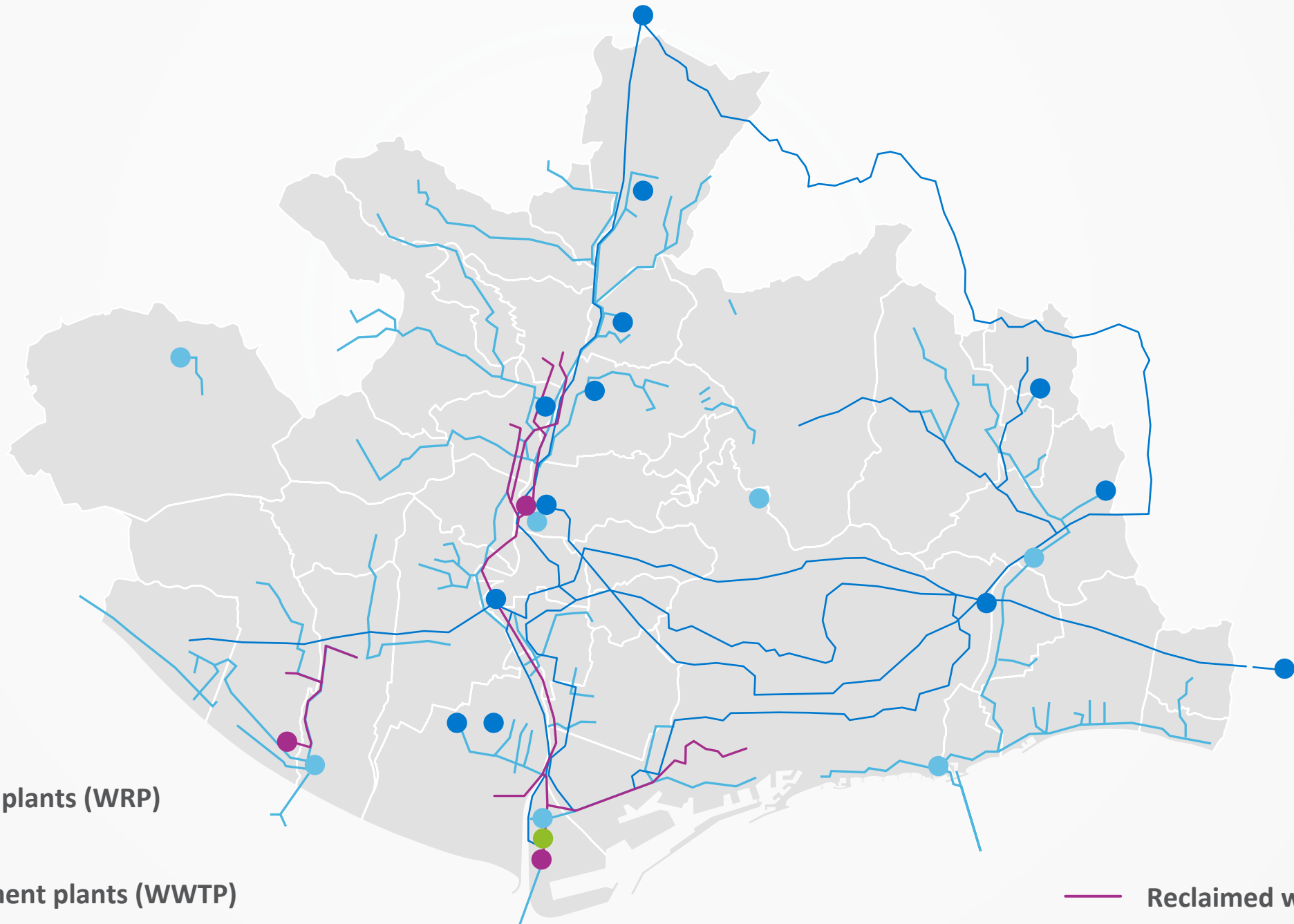
Reuse



Sanitation

INFRASTRUCTURE

Supply
Sanitation
Reuse



● Water reclamation plants (WRP)

● Desalination plant

● Wastewater treatment plants (WWTP)

● Drinking water treatment plants (DWTP)

● Strategic landfill

— Reclaimed water systems

— Sewerage collectors

— Mains supply

WASTE TREATMENT PLANTS



Energy Recovery Plant



Closed Controlled Landfill

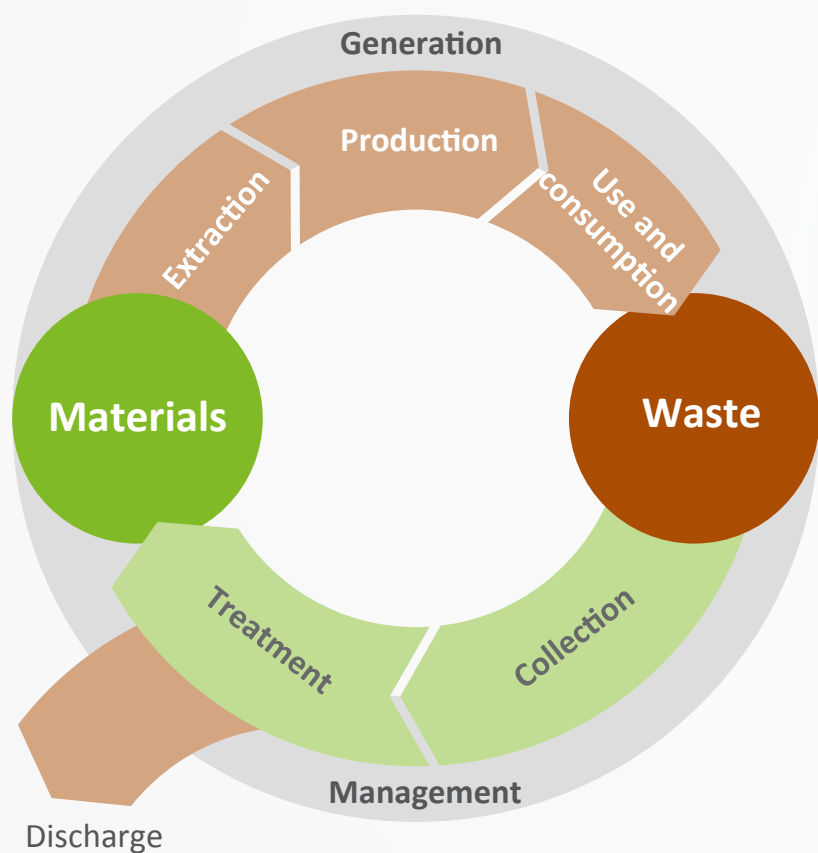


Packaging Sorting Plant



Household waste recycling centre

THE MATERIALS CYCLE



Selective collection

36.3 %
2011

35.0 %
2012 (-1.31%)

Refuse

960,000 metric
tons in 2011

906,000 metric
tons in 2012 (-5,53%)

Treated refuse

796,000 metric
tons in 2011

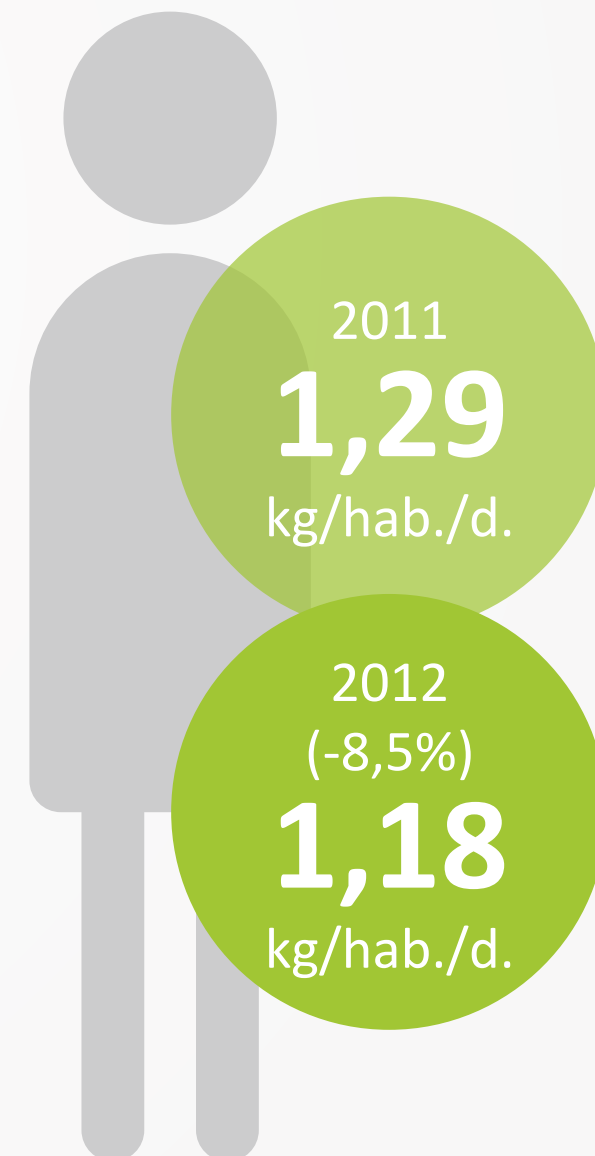
812,000 metric
tons in 2012 (+6%)

Remainder sent to controlled landfill

164,000 metric
tons in 2011

101,000 metric
tons in 2012 (-38,5)

Generació de residus



The Climate- Metropole+ Initiative



www.metropolis.org/initiatives/climate-metropole

metropolis WORLD ASSOCIATION OF THE MAJOR METROPOLISES

WHO WE ARE ▾ WHAT WE DO ▾ 30 YEARS ON ▾ RESOURCES ▾ PARTNERS ▾

EN ES FR

CLIMATE-METROPOLE +

← BACK TO METROPOLIS INITIATIVES

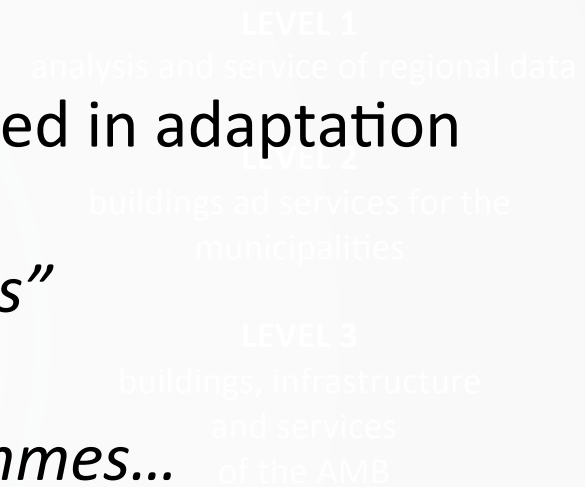


THE INITIATIVE'S PARTNER CITIES AND METROPOLITAN AREAS (BARCELONA METROPOLITAN AREA, LYON, LIVERPOOL AND BERLIN) WILL PROPOSE GOVERNANCE STRATEGIES AND ACTIONS FOR CLIMATE CHANGE ADAPTATION IN THE AREAS OF TOTAL WATER CYCLE MANAGEMENT, MOBILITY AND TRANSPORTATION, TOWN AND COUNTRY PLANNING, MUNICIPAL WASTE MANAGEMENT AND PREVENTION, AND ENVIRONMENTAL STEWARDSHIP.

RELATED EVENTS

WHY: FRAMING ADAPTATION IN CITIES / METROPOLIS

- Definition of adaptation and related concepts (vulnerability, risk, resilience, mitigation, uncertainty...)
- Roles of stakeholders and institutional actors involved in adaptation
- Strategies for adaptation:
 - geographical scope; *“beyond the city limits”*
 - duration; *2020? 2030?*
 - integration with other strategies; *programmes...*
 - key challenges and targets;
 - categories of adaptation measures -ecologic, economic, political and cultural-;
 - relevant actions – depending on the sector (transport, public health, housing and buildings...);
 - climate change impacts and adaptation approach followed;
 - types and resources available for adaptation;
 - stakeholder involvement and consultation processes;
 - key lessons



WHO: INTRODUCING MAIN ACTORS



LEVEL 1
analysis and service of regional data



buildings, infrastructure
and services
of the AMB





HOW: LEARNING TOGETHER, EXCHANGING EXPERIENCES

- 4 WORKSHOPS HELD IN BERLIN, LYON, LIVERPOOL AND FINAL WORKSHOP IN BARCELONA
 - IDENTIFY KEY POINTS OF COMMON INTEREST: e.g. heat island effect, flooding, drought, air quality, energy,...
- DIAGNOSIS REPORT

LEVEL 1
analysis and service of regional data

LEVEL 2
municipalities

LEVEL 3
buildings, infrastructure
and services
of the AMB

WHAT: RESULTS

- *VOICE OF THE MAYORS REPORT* (starting in Berlin)
- *VOICE OF THE EXPERTS REPORT*: practical guidelines, best practices collection, main challenges in the short and long term for metropolitan cities
- *FINAL REPORT integrating diagnosis and recommendations (as well as summary for policy-makers)*

LEVEL 1
analysis and service of regional data

LEVEL 2
urban planning

LEVEL 3
buildings, infrastructure

LEVEL 4
services

NO REGRETS CHARTER (STARTING POINT)

metropolis initiatives

Integrated Urban Governance
 Chaired by:
 City of Berlin, Senate Department for Urban
 Development and the Environment

No Regrets Charter

Principles for climate change adaptation in cities

Climate change is complex, its exact patterns and impacts are uncertain. 'No regrets' strategies are based on concepts and measures that can begin to be enacted now without being certain about all dimensions of future climate change. Measures are taken and strategies are thus adopted in a precautionary sense with the aim of responding to possible negative impacts before they intensify. Such measures are advisable for future generations, but also relevant to enhancing the living conditions of people in the present. With a 'no regrets' strategy, the benefit of these measures to society therefore continues even in the absence of climate change.

Preamble

The Charter

1. establishes general principles for municipal climate change adaptation through 'no regrets' measures;
2. formulates guidelines in the implementation of adaptation strategies oriented towards the precepts of sustainability, resilience and liveability;
3. provides recommendations for cities' activities in those fields of action which have been addressed through ongoing dialogue;
4. formulates cities' expectations directed towards regional, national and supra-national political and administrative bodies concerning their legislative, financial or informational support to local and regional adaptation strategies.

The Charter is intended to contribute to the global search for guidance on sustainable urban development strategies. It is complementary to the present European Union "Climate Change Adaptation Initiative for Cities". As a working document of the Metropolis network, it is meant to be of decisive impact for long-term climate adaptation strategies that Metropolis member cities and regions are developing.*

This Charter has been developed through a Metropolis** Initiative on Integrated Urban Governance. It comes out of an extensive period of consultation, including two dialogue conferences in Berlin and Brussels entitled "No Regrets: Pre-Acting and Adapting to Climate Change in Cities".

*http://www.climatealliance.org/309.html?&tx_ttnews%5Btt_news%5D=2038&tx_ttnews%5BbackPid%5D=308&cHash=4c943abe3d4403851f84828a40292664

**Metropolis is a global network of capital cities and major metropolises. It aims at fostering international cooperation and exchanges between political authorities, public administration bodies and public and private agencies.

1



of the AMB

Photo (copyright Birgit Urban)

“With *No regrets* we are trying to set a basic principles agreement to formulate proposals on the **cross-cutting spheres of ecology, economics, politics and culture**”, Paul James, Professor of the University of Western Sydney and Director of the United Nations Global Compact Cities Programme.



CLIMATE-METROPOL+: NO REGRETS CHARTER PRINCIPLES COMPARISON.

AIM: To compare the principles and recommendations included in the No Regrets Charter with adaptation measures included in the metropolitan strategies of Barcelona, Berlin, Liverpool and Lyon.

LACKING INFORMATION:

Available and new documents on adaptation and climate change to be sent to Merience (English or French)

LEVEL 1
analysis and service of regional data

LEVEL 2
buildings ad services for the municipalities

LEVEL 3
the services of the AMB

Diagnosis: preliminary results

DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

PUBLIC DIALOGUE AND PARTICIPATION

- Develop a participation and communication strategy, including relevant stakeholders and citizens

Energy/climate round table on energy and climate change to develop studies and proposals (BMA)

LEVEL 1
analysis and service of regional data

building services for the

buildings, infrastructure
and services
of the AMB

Un observatori per al canvi climàtic



Comentaris 0

A⁺ A⁻ Mida de lletra

Enviar aquesta notícia

Imprimir notícia

ENVIA UNA CARTA DEL LECTOR

Notícies relacionades

- Estudi del potencial energètic del territori
- Ampliació del mapa de focus contaminants
- Sensibilització amb 20 anys d'experiència
- Cent mesures per ser més verds el 2020
- Autobusos híbrids i xarxa de recàrrega ràpida
- Radiografia actualitzada dels espais naturals

DISSABTE, 8 DE MARÇ DEL 2014

La creació de l'Observatori Metropolità del Canvi Climàtic és una de les propostes més avançades del PSAMB i implicarà el Grup d'Experts en Canvi Climàtic de Catalunya. En aquest punt de trobada, experts i agents implicats podran intercanviar informació i proposar mesures per a la mitigació i adaptació al canvi climàtic.



Contaminació.

Aquesta mesura inclou diferents informes de la situació actual i quatre guies de bones pràctiques, que han estat elaborades a partir dels estudis previs i coneixements aportats pels experts: «Aquest observatori marcarà el camí a seguir a l'AMB, perquè ajudarà en el moment de prendre decisions polítiques territorials i ambientals, però també servirà per sensibilitzar la població sobre l'evolució de l'entorn amb accions educatives», diu Carles Conill, director de Medi Ambient de l'AMB.



Prof. Javier Martín-Vide

DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

PUBLIC DIALOGUE AND PARTICIPATION

- Develop a participation and communication strategy, including relevant stakeholders and citizens
 - Create a sense for active citizenship, reaching under-represented groups
 - Public monitoring: identify specific indicators and reporting to monitor adaptation and keep up communication
- *Energy/climate round table on energy and climate change to develop studies and proposals (BMA)*
 - *University fellowships on climate change (BMA)*
 - *Advice to farmers to adapt production to climate change (BMA)*
 - *Promote actions through the Metropolitan Climate Change Observatory (METROBS)*

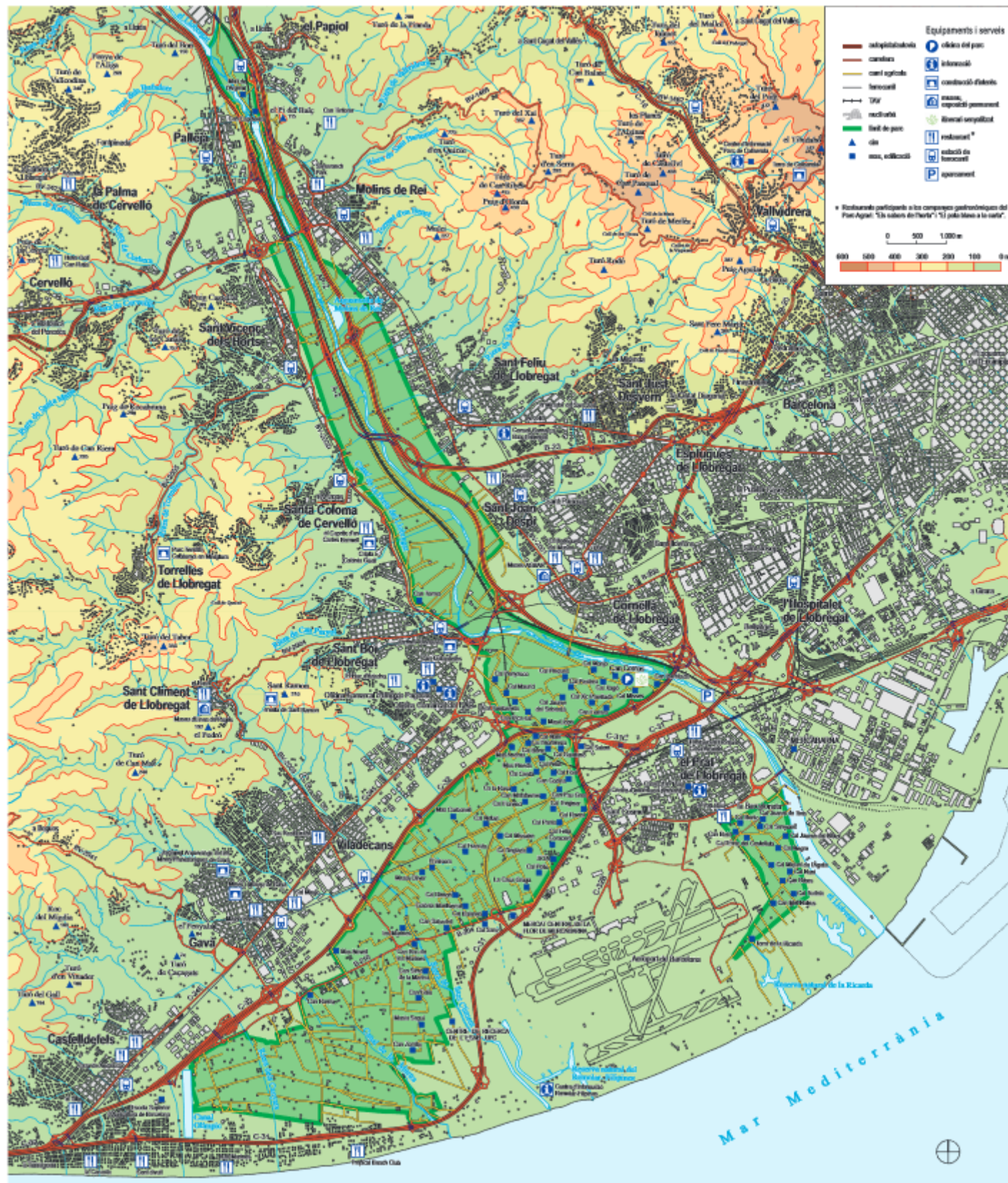
LEVEL 1

analysis and service of regional data

LEVEL 2

and services

of the AMB



Cultural, economic and ecologic value. 10' driving from BCN, within protected European Natural Area.

2,938 ha

2,200 workers (73% > 5 ha)

63% grocery products



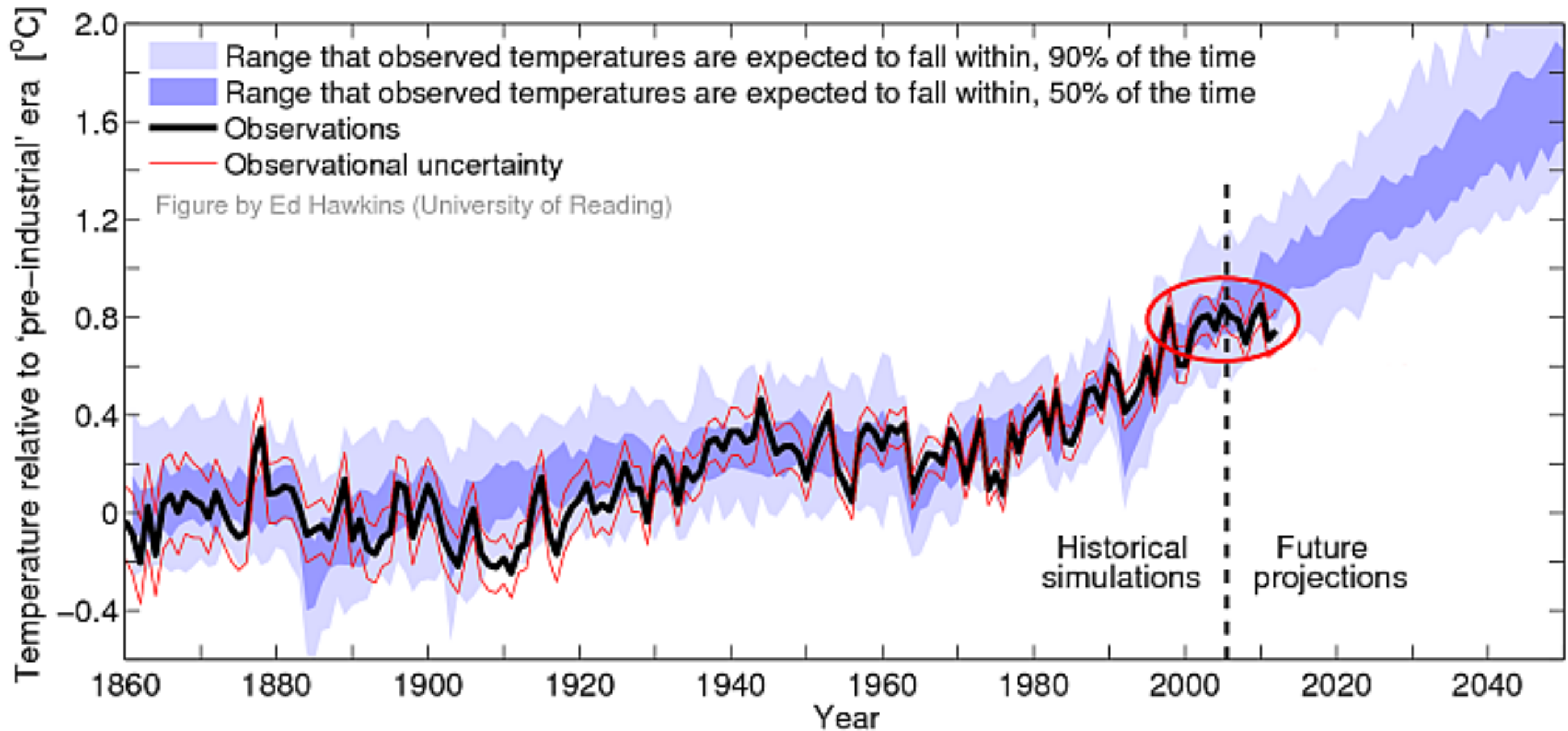
DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

DISASTER RISK REDUCTION

- Cooperation municipal, local, civil society and disaster management institutions.
- Prepare risk assessments, up-to-date data on hazards and vulnerabilities and use these as a basis for urban development plans and decisions.
- *Define specific action programmes for emergency situations coherent with civil protection plans (INUNCAT, TRANSCAT, NEUCAT, ALLAUCAT)*
- *Promote municipal adaptation plans*
- *Study effects of climate change on the coastal area, heat island effect, water resources availability, energy demand and housing, floods perception of risk, etc.*
- *Temperature model downscaling.*

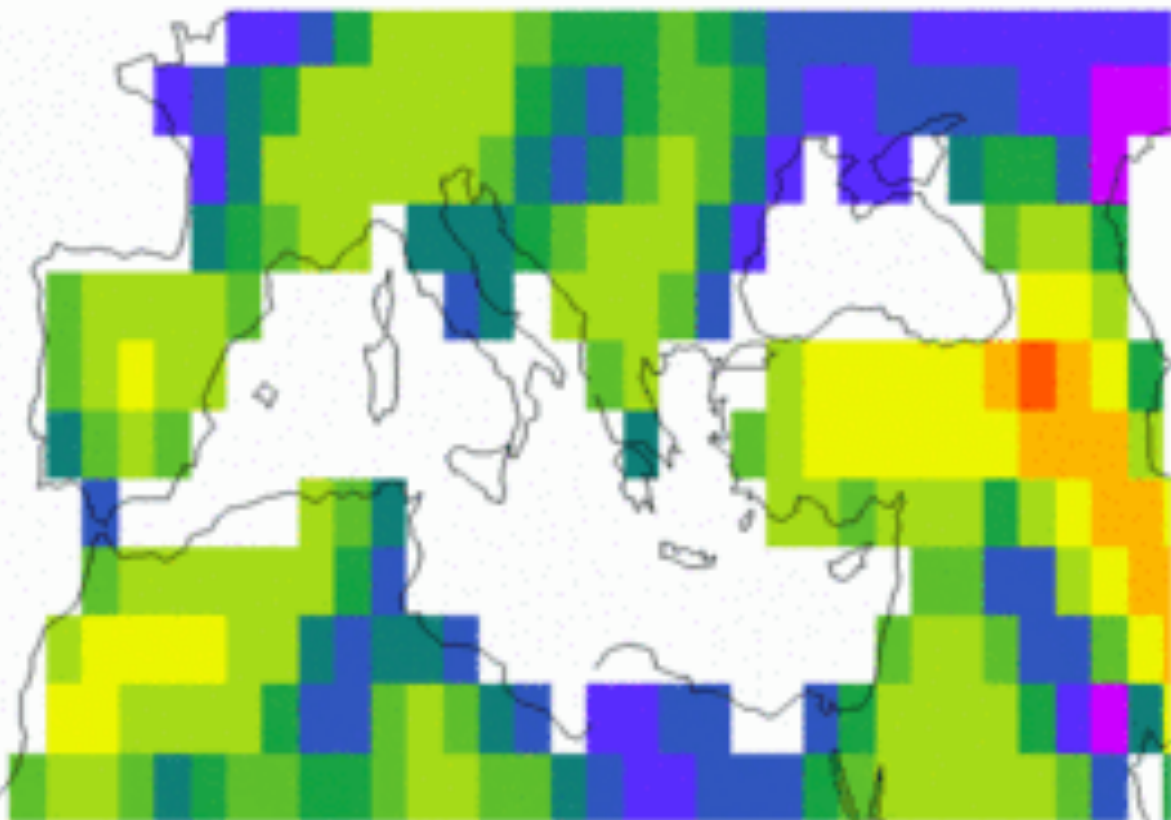
Can we trust global predictions?



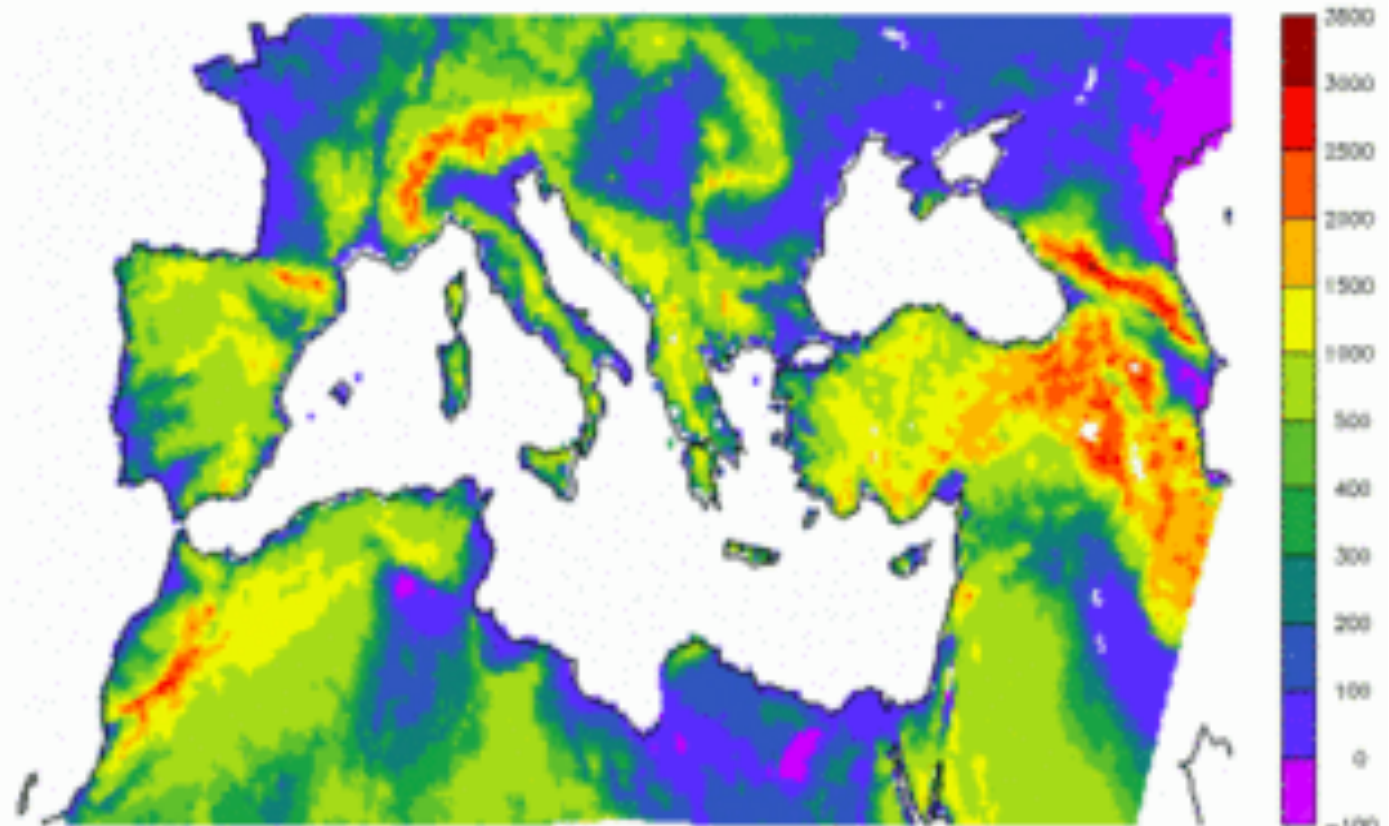
This graph of average global temperatures is generated using 42 different climate models assuming 'medium' future emissions, and compares their projections to observations from the Met Office's HadCRUT4 dataset

Global projections do not have a regional scale

Global Climate Model (~200 km)

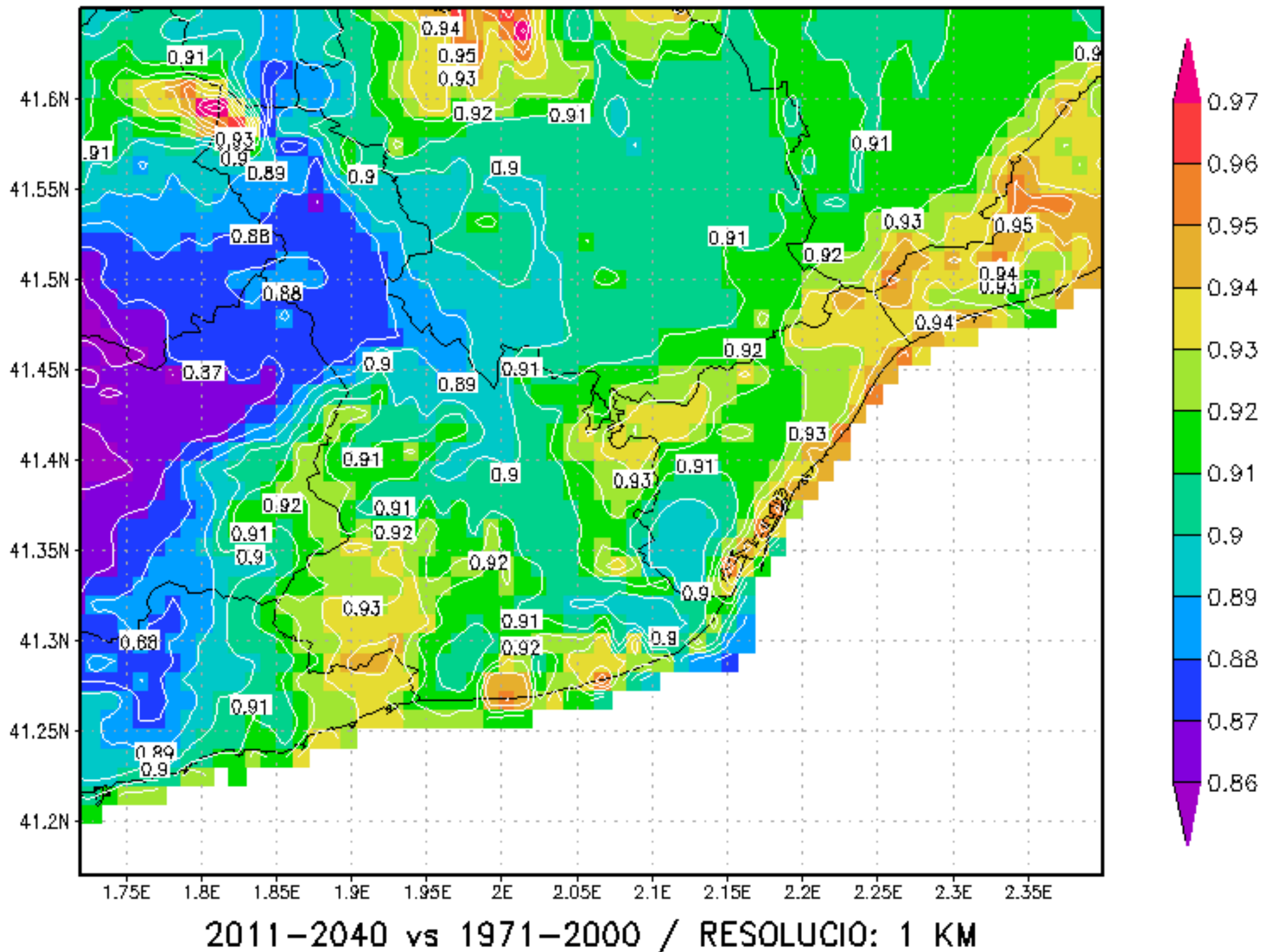


Reality



Metropolitan downscaling results: Maps of projected changes (2011-2040 vs 1971-2000)

WRF+EH50Ms1_B1: VARIACIO PROJECTADA TN MITJANA ANUAL (°C)



DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

DISASTER RISK REDUCTION

- Effective technical early warning systems translated into appropriate actions.

FLOOD MANAGEMENT

- Collaboration between urban spatial development experts and water management experts
- Adaptive building (e.g. flood proof design)
- Cooperation water managers, public space designers and real state owners to prevent flooding
- Increase 'sponge' function (e.g. water storage in above ground public space, green roofs on top of buildings)



500,000m³ (190 Olympic swimming pools)

DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

WATER SUPPLY AND DISPOSAL

- Identification of vulnerable areas
- International knowledge exchange on best management practices and sustainable urban drainage systems
- Use visualisations and interactive communication tools for sustainable drainage systems
- *Study effects of climate change on water resources*
- *Actions to reduce the risk of variation of average river flow*
- *Advice the Consortium on the Agricultural Park of Baix Llobregat to promote more efficient water irrigation*
- *Partnership to protect the Llobregat river*
- *Study the creation of meanders to facilitate water filtering through biological systems*

LEVEL 1
analysis and service of regional data

LEVEL 2
analysis and service for the municipalities

LEVEL 3
buildings, infrastructure and services of the AMB



Adaptacions al Canvi Climàtic en l'Ús de l'Aigua



CX Catalunya Caixa
Obra Social

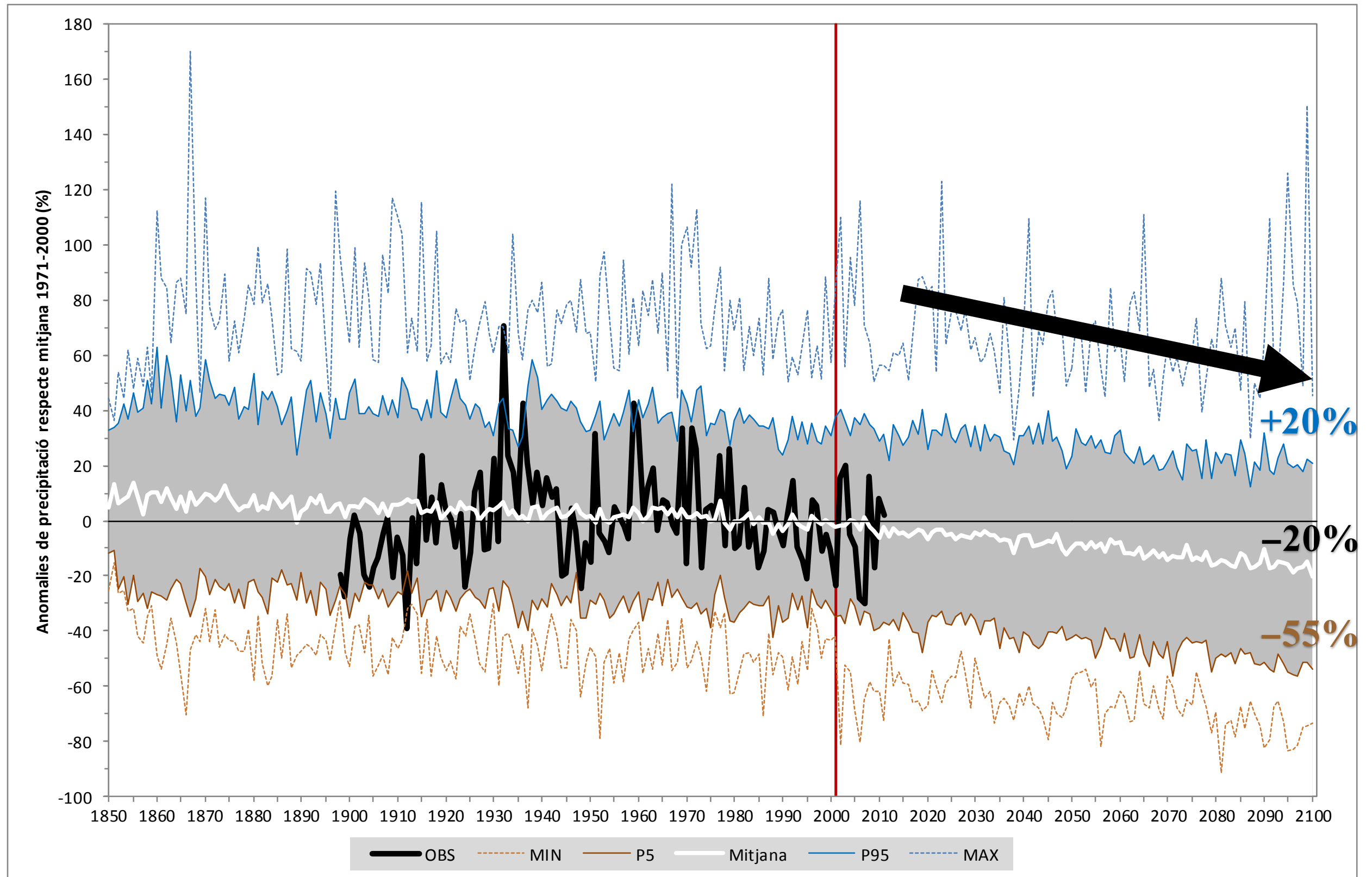


Grup d'Innovació Sostenible
UNIVERSITAT POLITÈCNICA DE CATALUNYA



IRTA
INSTITUT DE RECERCA I TÈCNIQUES
AGROPECUÀRIES

IPCC-AR4 (2007) in relation to rain in Catalonia



DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

SPATIAL PLANNING AND GREEN AREAS

- Incorporate human health as a fundamental value in planning processes
- Create multidimensional spaces in cities, which function interdependently and take into account a multiplicity of uses and needs
- Establish 'no planning' areas (keeping them green and unsealed)
- *Adaptation measures for workers exposed to climate conditions.*
- *Bus float converted to hybrid or electric.*

LEVEL 1
analysis and service of regional data

LEVEL 2

municipalities

LEVEL 3

buildings, infrastructure

2015-2020

DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

SPATIAL PLANNING AND GREEN AREAS

- Spatial planning strategies to support urban climate adaptation (e.g. cities greener, cooling cities, shade from vegetation, etc)
 - *Improve ecological connectivity in hot spots (restore deteriorated zones and critical infrastructures)*
 - *Develop a metropolitan strategy on green spaces and urban biodiversity*
 - *Adapt vegetation in parks with species with low water consumption and adapted to climate conditions*
 - *Maintenance protocols to detect invasive species and plagues*
 - *Include adaptation criteria in urban and territorial plans*
 - *Study the heat island effect on the metropolitan area.*
 - *Actions related to forest fires*
 - *Promote species resistant to fire and well adapted to climate conditions*
 - *Maintain open spaces and agricultural soil*
 - *Cattle to facilitate forest management and prevent fires*



52 itineraries, 1,280 temperature registers

Some results: freshen effect of parks



DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

BUILDINGS AND ENERGETIC REHABILITATION

LEVEL 1

Analysis and service of regional data

- Measures to improve building stock and development of climate friendly standards for new buildings
- *Include **criteria of adaptation to climate change and water and energy savings in new buildings and restoration of old ones***
- *Identify **vulnerable energy infrastructures in the metropolitan area and promote its restoration with adaptation criteria***
- ***Promote renewable energy facilities***
- *Strategy to massively implement renewable **self-consumption***
- *Promote general and renewable energy self-consumption **through fiscal benefits***
- *Develop a tool to calculate CO2 in different management areas at metropolitan level*
- ***Public energy Operator***



DIAGNOSIS (PRELIMINARY RESULTS)

SPECIFIC RECOMMENDATIONS 'NO REGRETS' CHARTER (ANNEX I)

BUILDINGS AND ENERGETIC REHABILITATION

- Structure residential environment to improve outdoor quality of life (e.g. fresh air corridors and their connections to inner city green areas and forests)
- *Analyse urban fabric from an energy viewpoint. Cartography of buildings according to their energy efficiency*
- *Include energy and water savings systems and climate isolation in all new buildings*
- Involvement of different stakeholders in climate adaptation of buildings
- *Dialogue series on the Sustainability Programme of the Metropolitan Area (related to changes in patterns of energy consumption)*

LEVEL 1

analysis and service of regional data

LEVEL 3

Thank you for your attention!

Ana Romero Càlix aromero@amb.cat

*Head of Section on Sustainability and Environmental
Education*

Environmental Services Direction

Environment Area of BMA

