

PROJECT: EU4 Energy Transition Covenant of Mayors in the Western Balkans and Türkiye

Nature-based Solutions and other Adaptation Practices for SECAP

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In this presentation



The basics of Climate Risk: adaptation & mitigation;

Focus on adaptation as reducing climate risk and impacts;

Adaptation with infrastructure and with nature;

Ecosystem services for adaptation to climate change;

The SECAP approach

Adaptation Actions (AA): data for designing AA;

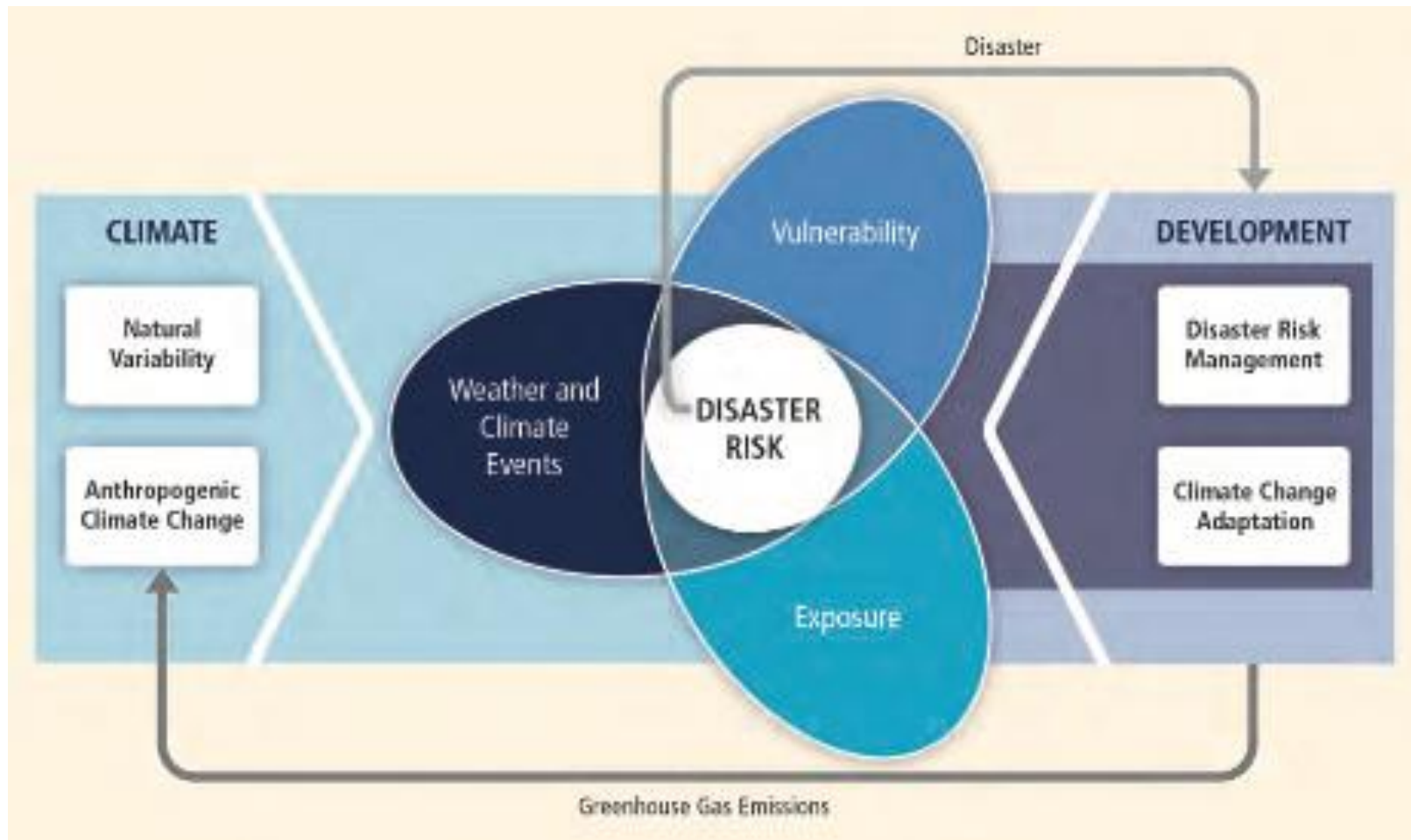
Examples: South Pacific & Spain





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Understanding climate Risk and Adaptation to Climate Change



Adaptation & Mitigation:
synergy

Adaptation options: aligned
with: *national & local Disaster
Risk Reduction Strategies* –;
Adaptation Target: aligned w/
NDCs & NAPs;

Adaptation options:

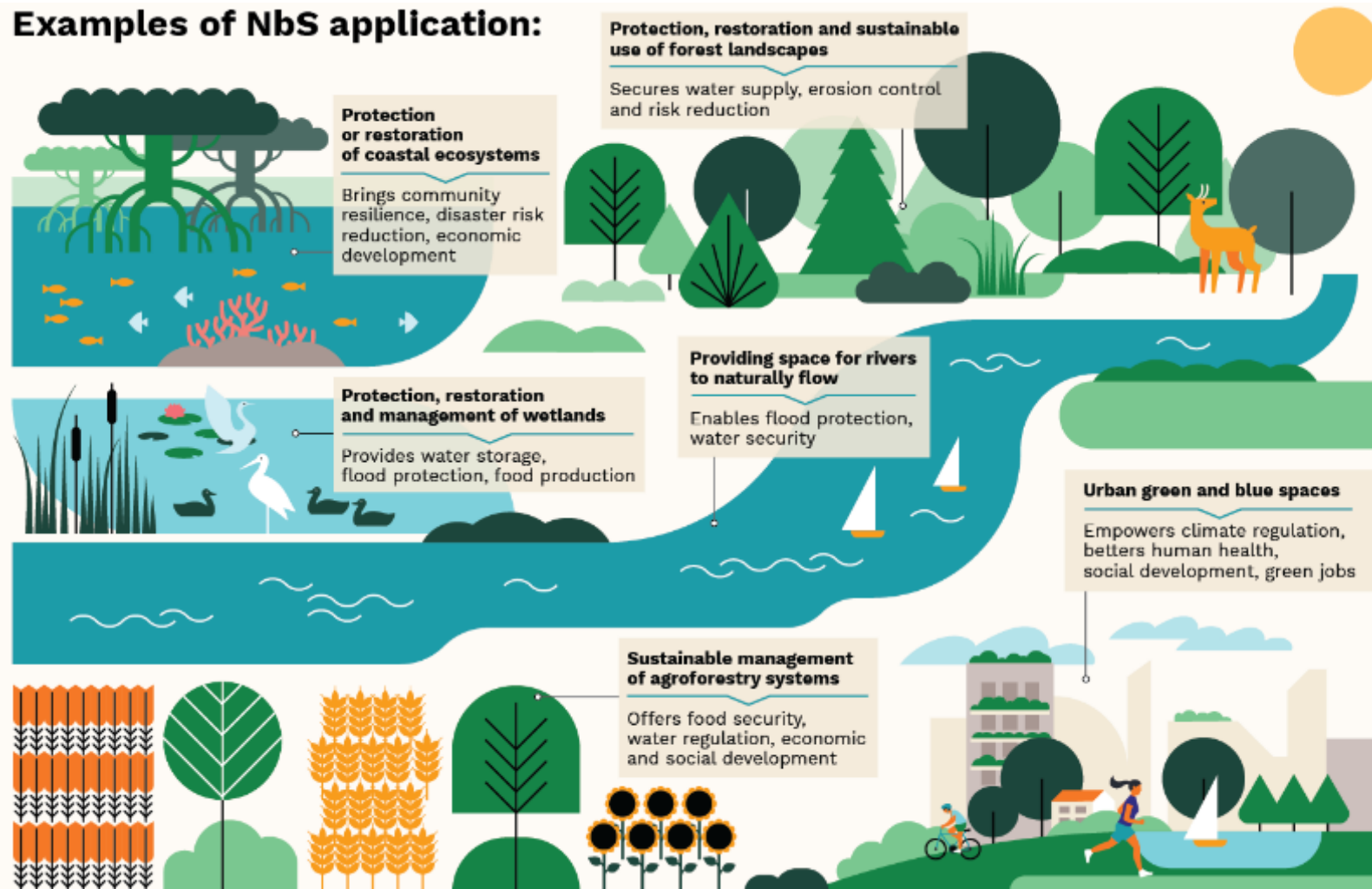
- Infrastructure,
- Nature-based Solutions
- Hybrid



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Understanding Ecosystem Services at city scale

Examples of NbS application:



Evidence:

<https://www.naturebasedsolutionevidence.info/evidence-tool/>

Ecosystem services and Services to Ecosystems

RECIPROCITY

Cornerstone of
NbS in urban
areas

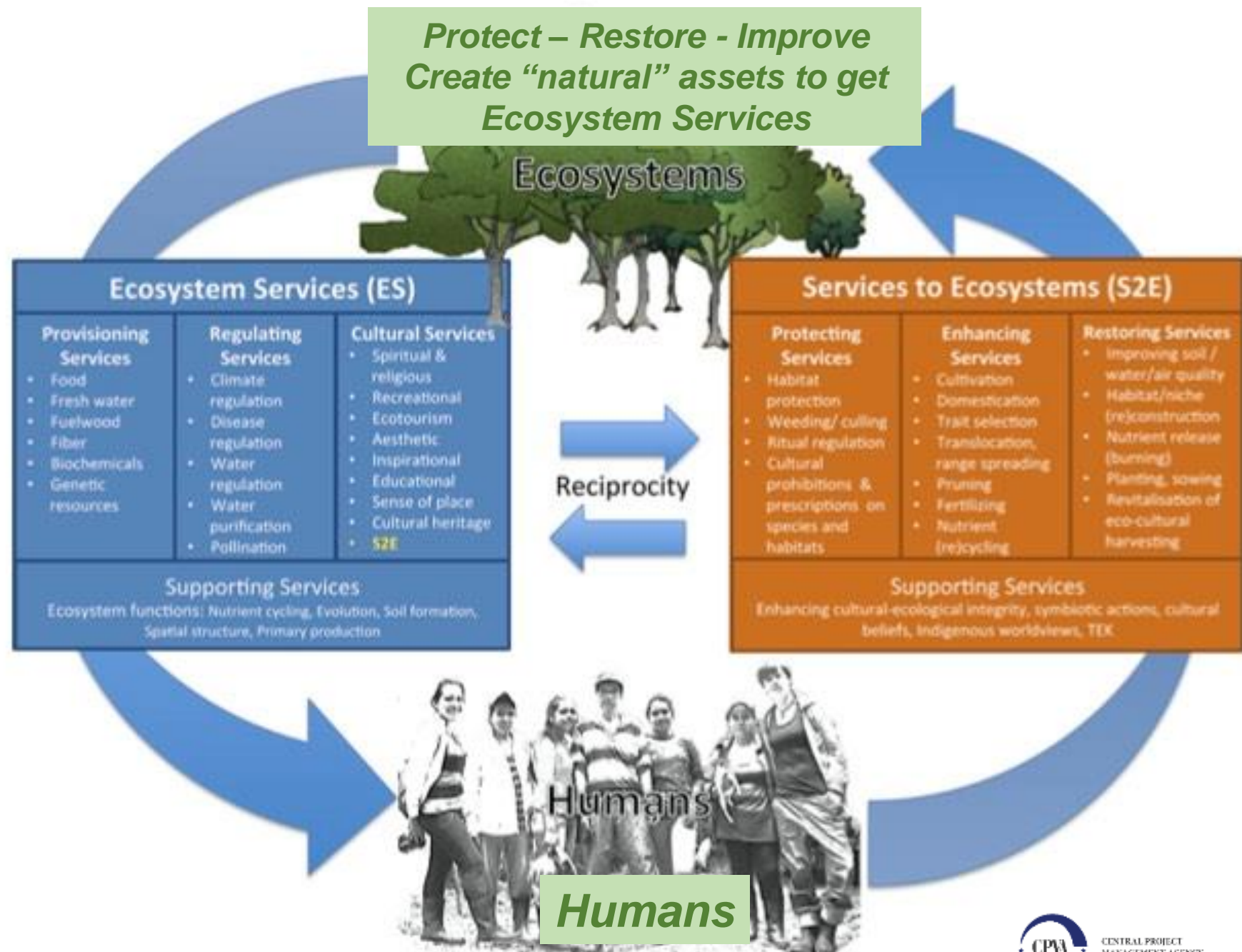


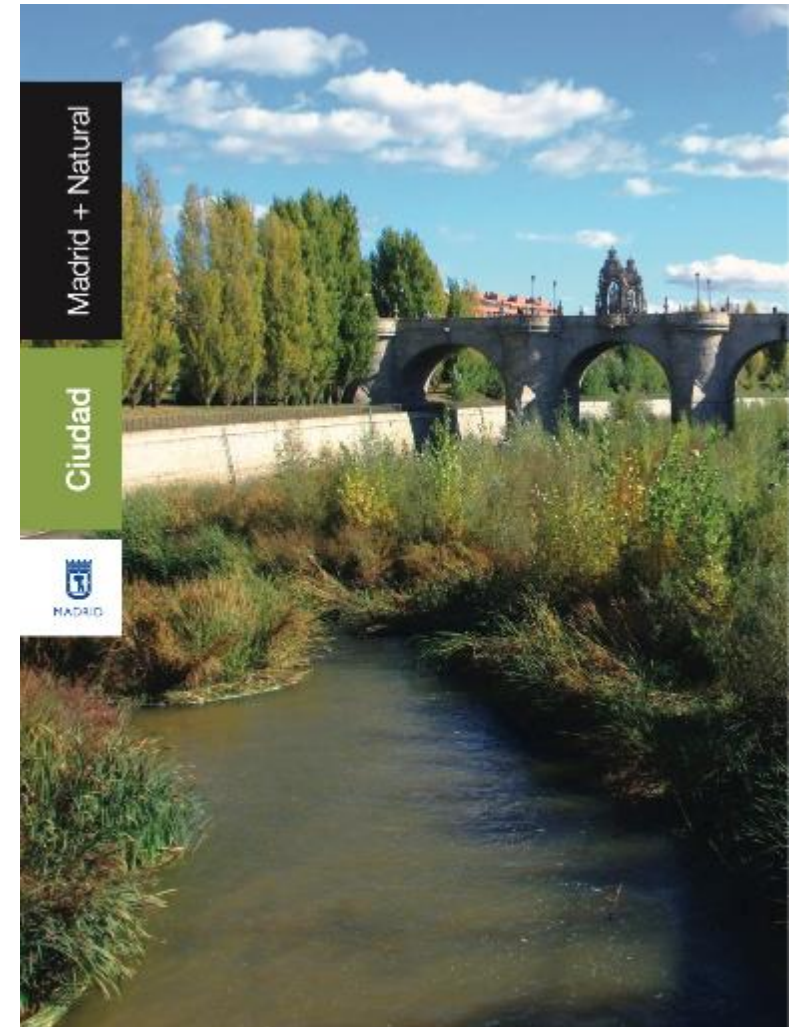
Fig. 1. A revised framework showing the ES-S2E loop of reciprocity.

Integrating Adaptation: urban planning policies & tools

Integrating Adaptation & Ecosystem-based Adaptation (EbA) in to urban planning tools** such as:

1. “comprehensive city plans”
2. “district plans” or
3. “city zoning codes”:

https://www.c40knowledgehub.org/s/article/Integrating-Climate-Adaptation-A-toolkit-for-urban-planners-and-adaptation-practitioners?language=en_US



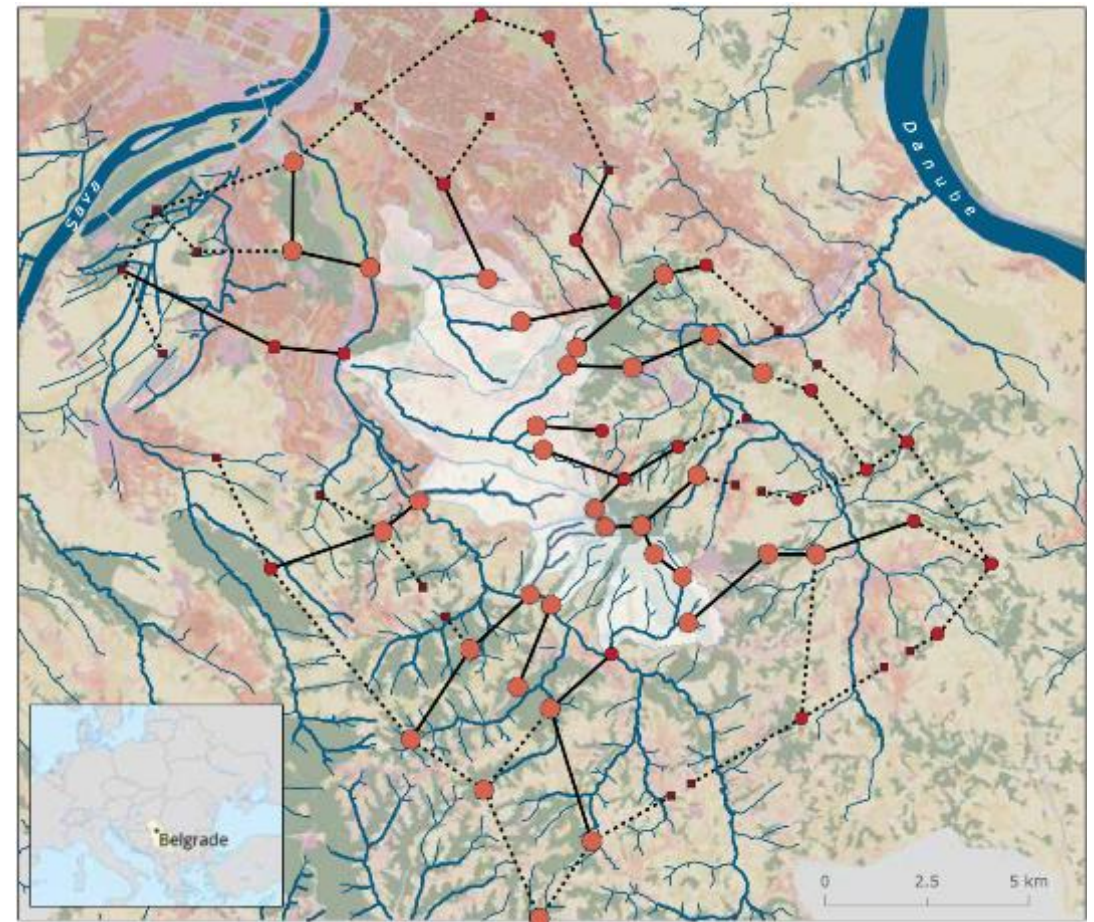


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SECAP approach to Risk & Vulnerability Assessment –

*(1) A spatially explicit approach:
TIP: “mapping” e.g. flood models –
flood maps: identify vulnerability
hotspots.*

*(2) An Indicator-Based Assessment:
a vulnerability “score”
Analysis of the city:
TIP: identify climate hazards; select
vulnerability indicators; Generate a
vulnerability score – for each hazard.*





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Suggested CAP Structure [4/11]: Risk and Vulnerability Assessment (RVA)

- ❖ *Available climate data in the city / region: including consultation with City Council;*
- ❖ *Identification of climate hazards;*
- ❖ *Identification of city's adaptive capacity;*
- ❖ *Vulnerability analysis and risk assessment per sector;*
- ❖ *Vulnerable population groups;*
- ❖ *Adaptation target / goal: target year (e.g. 2030) & baseline year (e.g. 2010)*



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Designing adaptation actions including NbS

- ❖ SECAP: Adaptation Actions (AA) suggested template
- ❖ TIP: AA designed to respond to climate hazards with higher impacts;
- ❖ TIP: Consider AA infrastructure, NbS or Hybrid;
- ❖ TIP: collect all data available: a climate-risk profile, hazard maps and data on climate & environment;



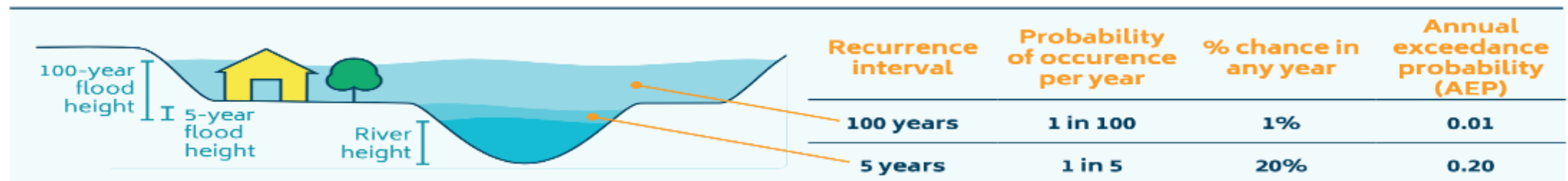


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Information and data we need

TIPS for designing Adaptation Actions:

- ❖ Define adaptation targets: NDCs & NAPs;
- ❖ Climate risk profile;
- ❖ Climate risk maps: zones at risk
- ❖ Data on weather & hydrology: weather extremes;
- ❖ A history of climate risk;
- ❖ Climate change analysis;
- ❖ Environmental profile;
- ❖ Ecosystem services;
- ❖ Cost-benefit analysis;





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Example: Honiara - Solomon Islands

Disaster risk management studies:

1. UN Habitat, RMIT, 2023. Nature-based Solutions (NbS) for enhanced climate resilience of informal settlements: Honiara, Solomon Islands;
2. UN Habitat, RMIT, 2019. NbS for Climate-resilient Honiara;
3. World Bank, et al., Honiara Flood Risk Management Study & Plan;
4. UN Habitat, RMIT, 2016. Honiara Urban Resilience and Climate Action Plan;

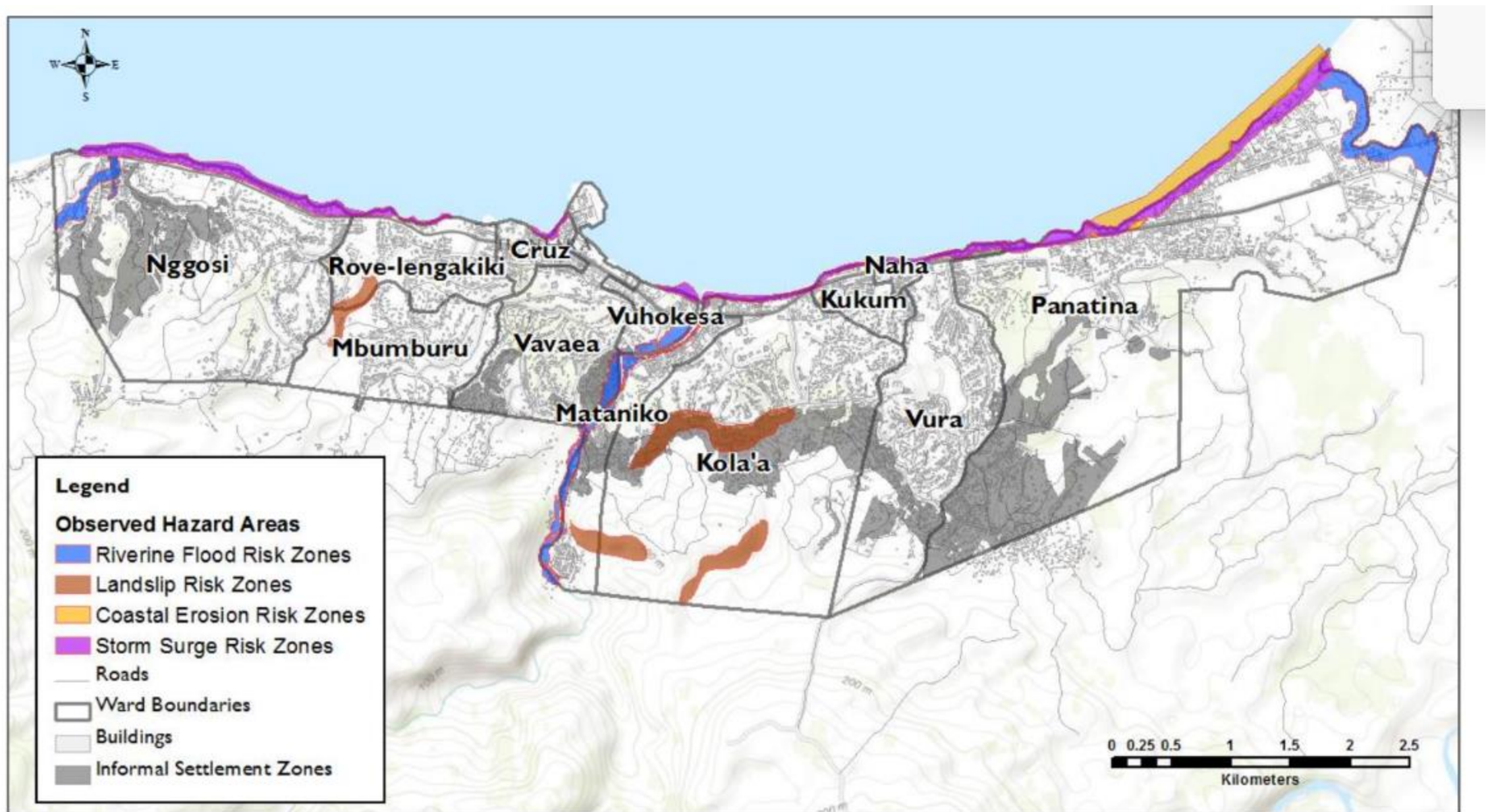
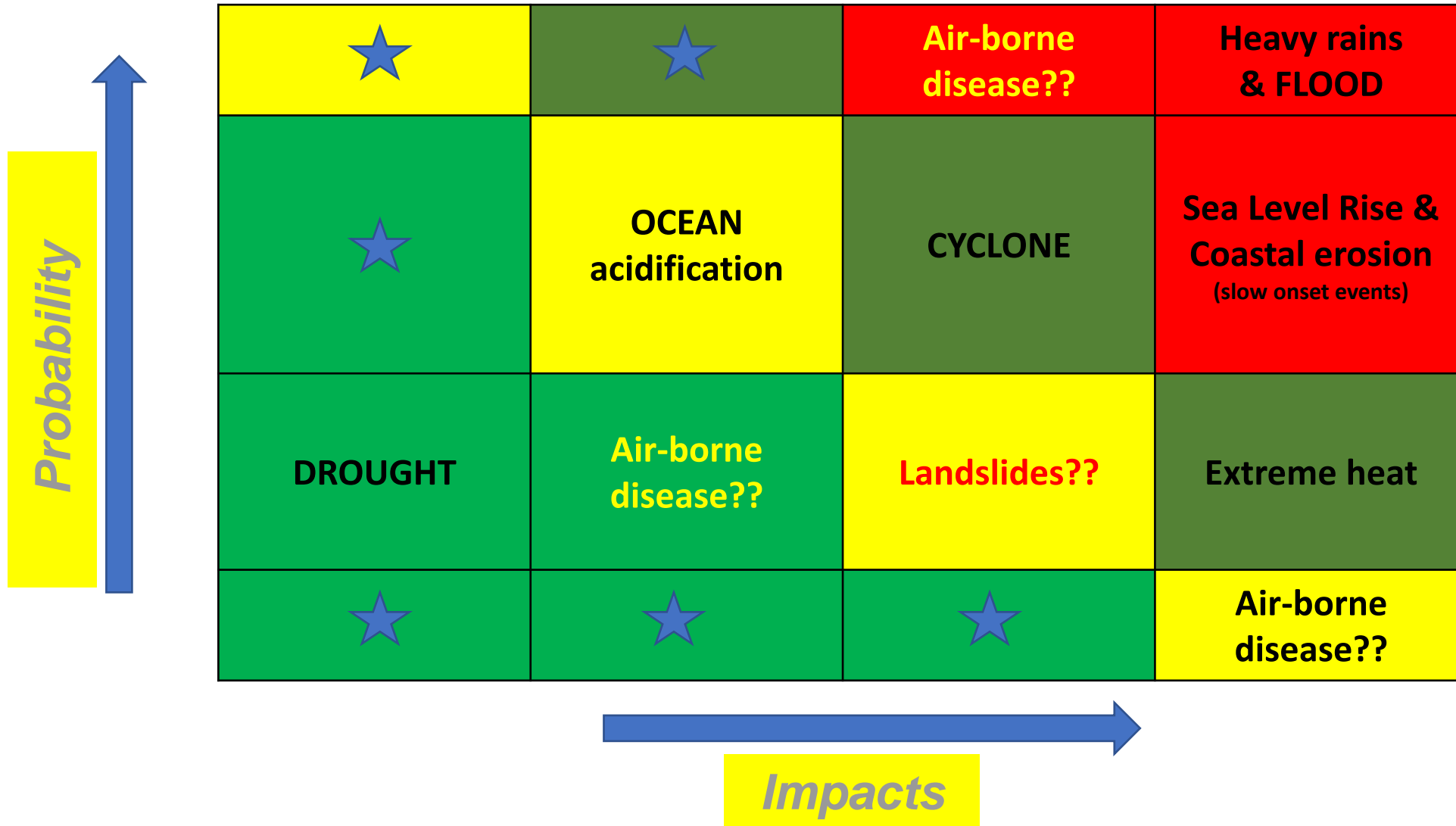


Figure 13: Identified Climate-related Hazard Areas (data sourced from MLHS, UN-Habitat and MECCDM)

TIP: validate hazard matrix with Honiara City Council



TIP: deliver a NbS *catalogue* for the city to prioritize

Flood risk management

1. Stabilize river catchment and slopes to reduce flood impacts - ;
2. Establish ecological corridors with multiple functions;
3. Create a long-term plan for flood-sensitive uses in vulnerability hotspots;
4. Apply risk-based land use & development controls using the flood hazard categories for the 1 in 100 chance per year flood;
5. Relocation pilots;
6. Afforestation;
7. Detention ponds at the Moira creek;
8. Sustainable watershed

1. Sites along Lucky, White and Long rivers
2. Areas with higher opportunities for flood mitigation, erosion control and adaptation
3. Stop informal settlements creating sport fields & community gardens
4. Working with the Honey City Planning, prohibit new development in H6 hazard category and settlement on floodplains;
5. Evacuation centers, education and health facilities;
6. Key *subcatchments* affected by flash floods – Moira creek



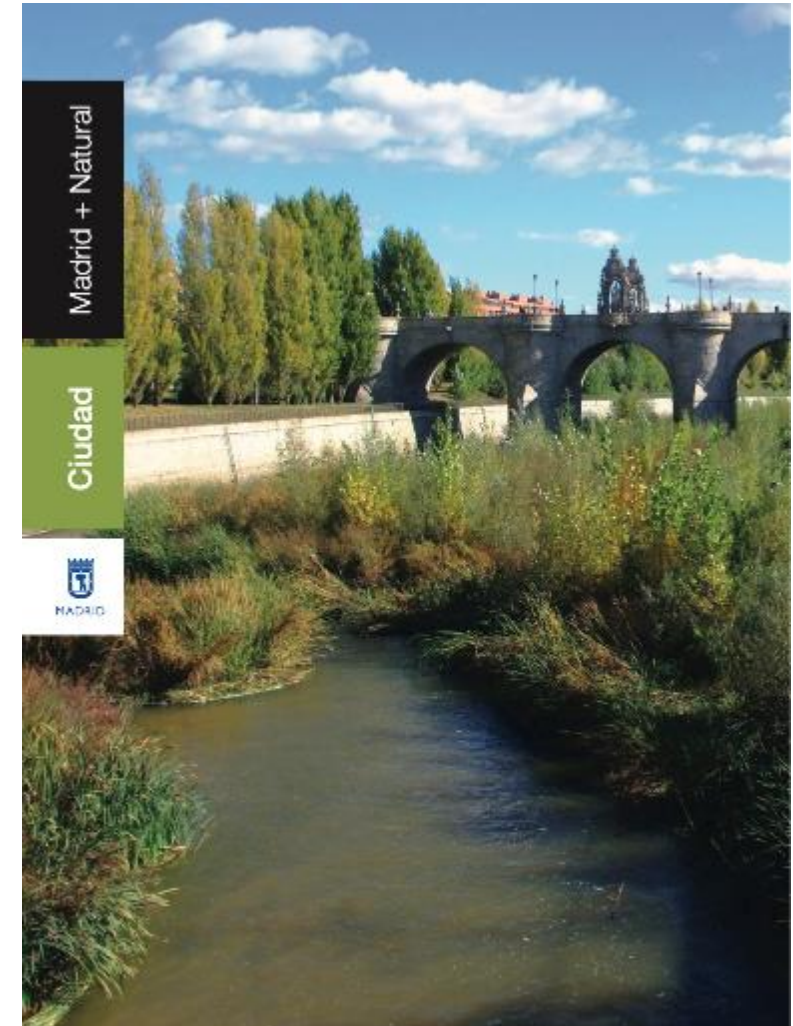
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Example 1: Madrid, Spain – *Green infrastructure & biodiversity plan* *Local CCA Strategy: 17 NbS*

Restoring the Manzanares riverside:

1. Opening dams: sedimentation: marsh vegetation & riverside trees;
2. New habitat emerged, river: green corridor;
3. Removing sections of breakwater
4. Planting 15,000 trees to connect 2 large parks
5. A bicycle lane & recreational areas are built;

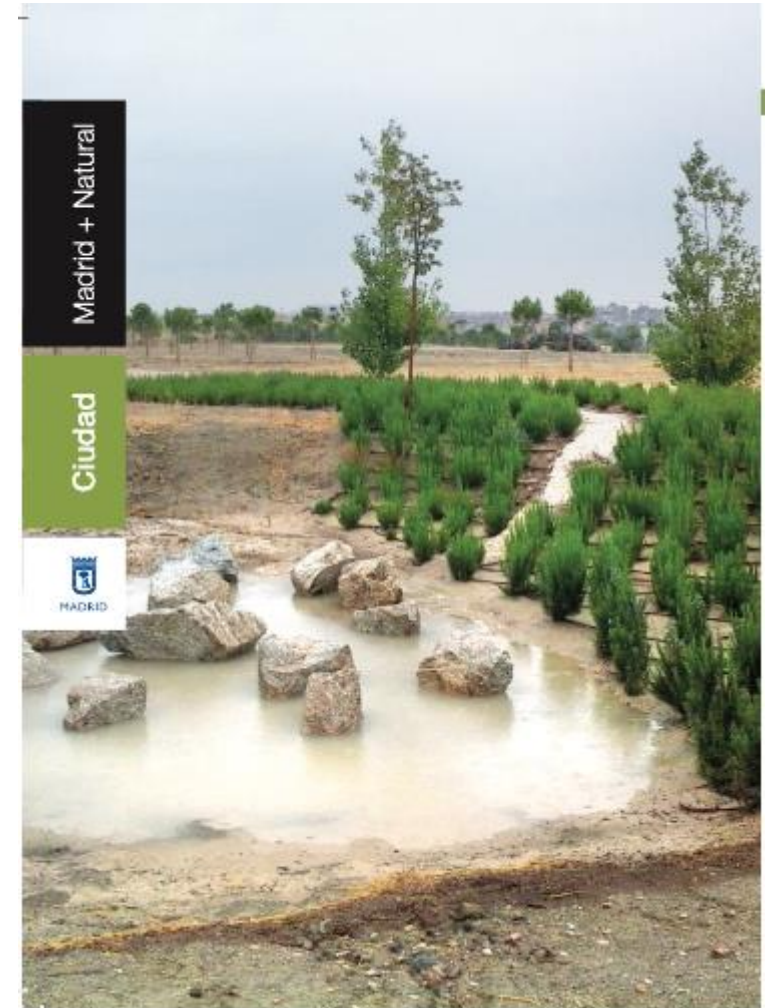




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Example 2: Madrid, Spain – Sustainable Urban Drainage Systems: *Green infrastructure & biodiversity plan*

1. Designed in 2005: conventional drainage system
2. Only treats rainwater flows;
3. Ideal conditions to implement SuDS;
4. Natural patterns are preserved & vegetated - permeable surfaces increased;
5. Rain gardens are introduced;
6. Permeable pavements of different types installed



Greening Milan: Innovating Urban Spaces Through Nature-based Solutions

- PLANS: Spread green infrastructure and NbS
- Development of public green areas: G129 Park
- A new green hub for Tibaldi Station: different green solutions





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Conclusions and way forward

- ❖ Adaptation actions: Infrastructure, Nature-based & Hybrid;
- ❖ Adaptation actions in synergy with Mitigation actions;
- ❖ NbS deliver co-benefits: mitigation, environment, livelihoods & health;
- ❖ Designing adaptation actions: information – maps;
- ❖ Integrating Adaptation into Urban Planning Tools;
- ❖ Adaptation targets: realistic and in synergy;





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Thank you very much!