Preparation of technical documentation for climate proofing in MFF 2021-2027

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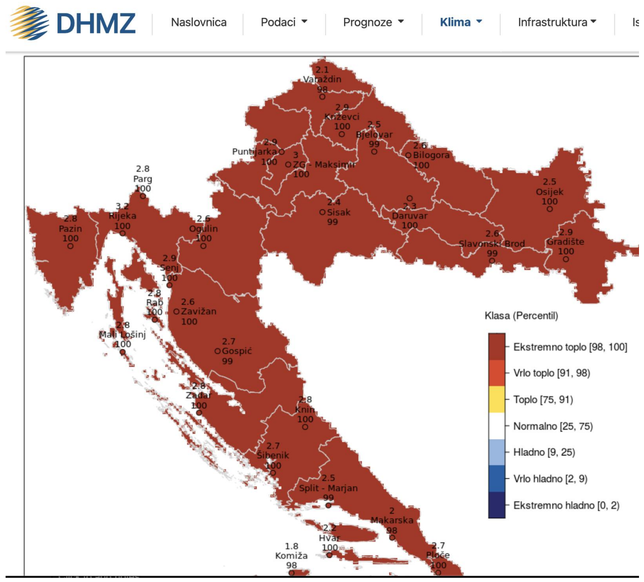
Climate proofing – what and why?

- Climate proofing is a process that should contribute to the resilience of infrastructure on climate change effects
- It is a process that adresses mitigation and adaptation activities in the development of the infrastructure projects
- Climate proofing enables that decions making process is in line with Paris agreement, Directives that regulate energy efficiency and climate change adaptation

WHY?



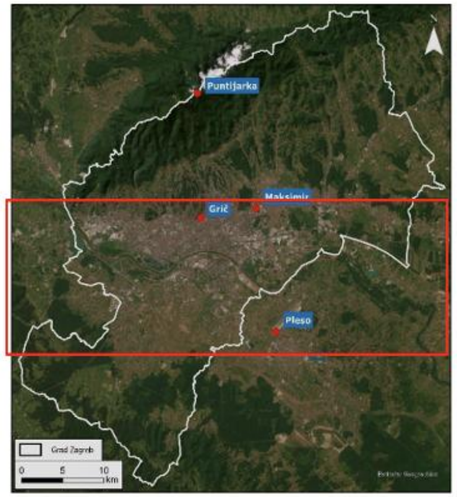
Drought damage Croatia 2022 – 800 mil EUR

Rijeka, 29.9.2022. – 288 l rain/single day

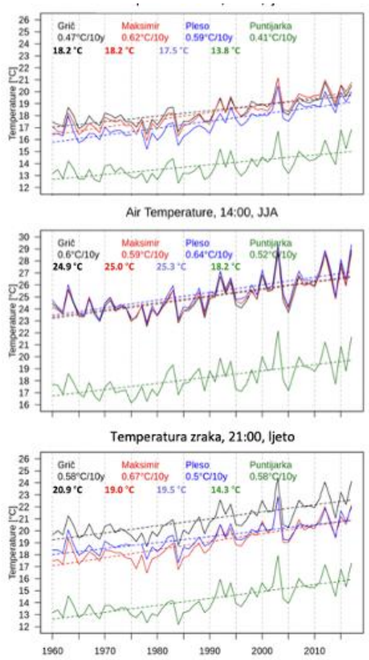
February 2022: Eunice storm Belgium, Germany, Ireland, Netherlands, Poland, Great Britain, 4,3 bililon USD;

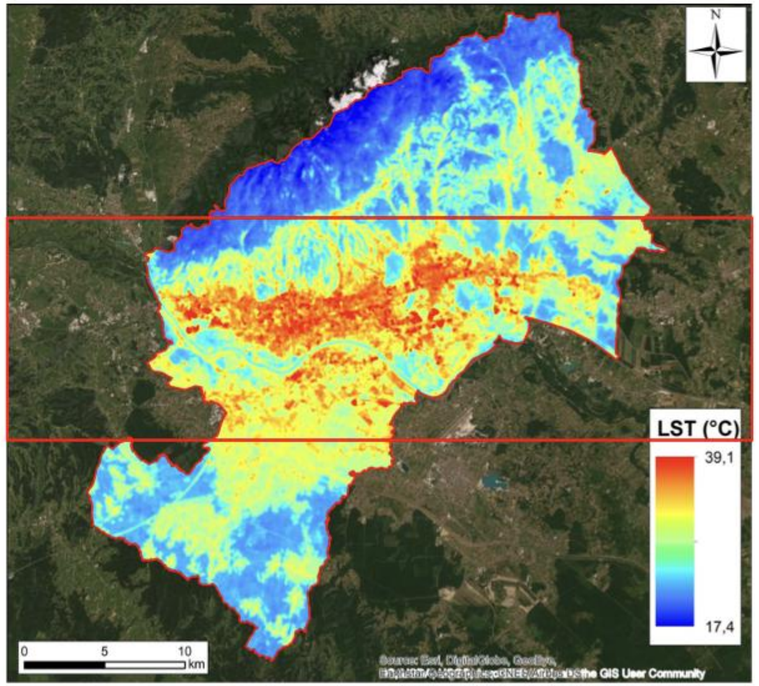
June – September 2022: EU Drought, 20 billion USD;

Sectorial analytics – of an extreme importance



Slika 3.1: Grad Zagreb i položaj meteoroloških postaja



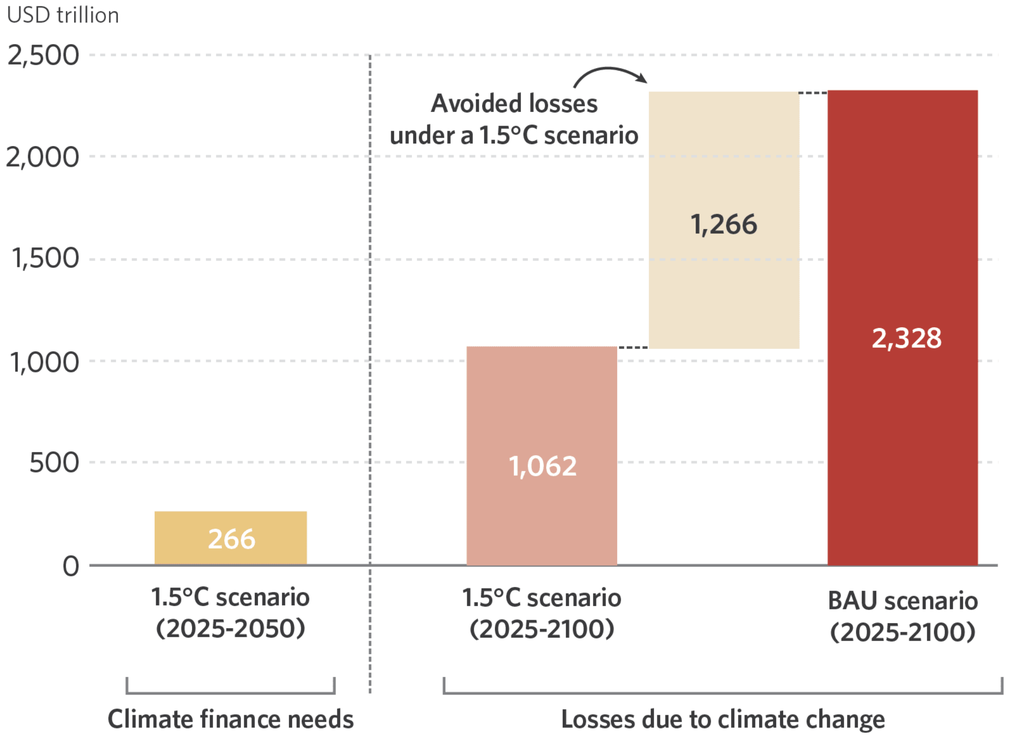


City of Zagreb case – Official reclasification of climate classes – Zagreb now has climate class that is close to the Mediterannean cities

Cost vs benefit

- Cost of climate proofing is still considered to be relatively low, especially in relation to benefits (avoided costs if climate proofing was not done)
- Costs of climate proofing in later stages of project phases are significantly more expensive, technically often impossible (timing of the process is crucial)
- Set of options for climate proofing includes in most cases at least one option to mitigate risks and it also brings other benefits – social, environmental and economic (win-win climate proofing)

Figure ES4: Cumulative climate finance needs vs. losses under 1.5°C and BAU scenarios



Source: Climate Policy Initiative

Background…

- Majority of infrastructure has a long life-span and is built to be used for long time. The one built now will be used in the second part of the century, or even longer.

- The economy will be carbon net zero by 2050 – achieve climate neutrality in line with Paris agreement and EU climate regulations

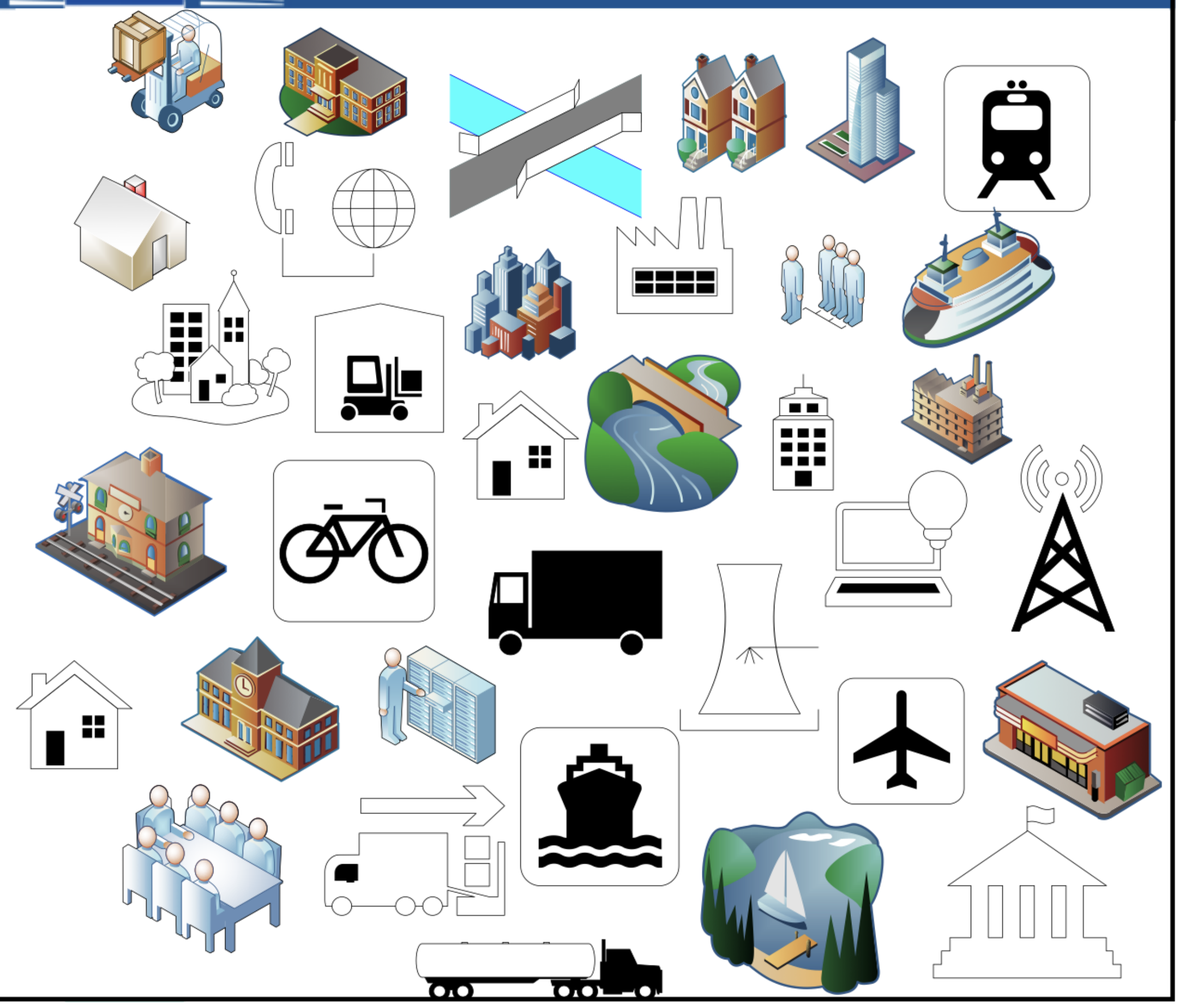
- However, effects of climate change will remain, will get more extreme, more frequent and harsher. EU needs to become resilient to climate change effects and decrease its vulnerability

Infrastructure

Climate proofing 2021-2027

Infrastructure is a broad concept encompassing buildings, network infrastructure, and a range of built systems and assets.

For instance, the InvestEU Regulation includes a comprehensive list of eligible investments under the sustainable infrastructure policy window.



Climate proofing 2021-2027

Climate Neutrality

Screening
Phase 1 (mitigation)

Detailed analysis
Phase 2 (mitigation)

The climate proofing process is divided into two pillars (mitigation, adaptation) and two phases (screening, detailed analysis)

Climate Resilience

Screening
Phase 1 (adaptation)

Detailed analysis
Phase 2 (adaptation)

Mitigation, GHG monetisation

Climate proofing infrastructure (mitigation, climate neutrality)

2021-2027

Climate Neutrality

Mitigation of climate change

Preparation, planning, resources, ...

Screening – Phase 1 (mitigation)

With reference to the screening list, is the project of a category requiring a carbon footprint assessment etc.?

YES

NO

Climate neutrality screening documentation

Detailed analysis – Phase 2 (mitigation)

Quantify and compare GHG emissions in a typical year of operation with the thresholds for absolute and relative emissions.

If above emissions threshold:

Monetise GHG emissions using the shadow cost of carbon, firmly integrate "energy efficiency first" in project design, cost benefit and options analysis.

Verify the project's compatibility with a credible pathway to the overall 2030 and 2050 GHG emission reduction targets.

Climate neutrality proofing documentation

Adaptation, resilience

Climate proofing infrastructure (adaptation, climate resilience)

2021-2027

Climate Resilience

Adaptation to climate change

Preparation, planning, resources, ...

Screening – Phase 1 (adaptation)

Based on the sensitivity, exposure and vulnerability analysis, are there any potentially significant climate risks warranting detailed analysis?

NO

YES

Climate resilience screening documentation

Detailed analysis – Phase 2 (adaptation)

Climate risk assessment including the likelihood and impact analysis in accordance with this guidance.

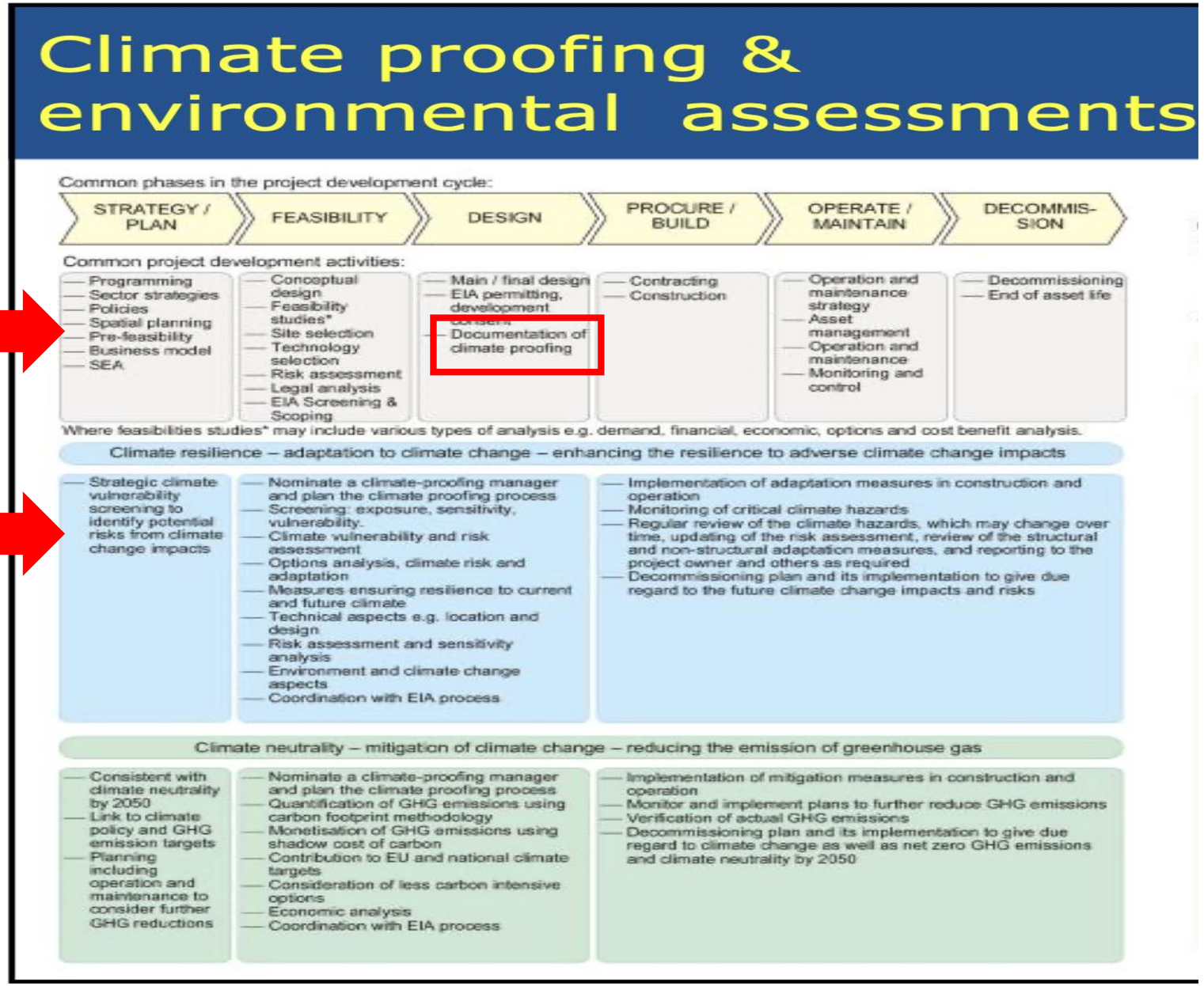
Address significant climate risk through the identification, appraisal, planning and implementation of relevant adaptation measures.

Assess the need for regular monitoring and follow-up for example of critical assumptions in relation to future climate change.

Verify consistency with Union and, as applicable, national, regional and local strategies and plans on the adaptation to climate change

Climate resilience proofing documentation

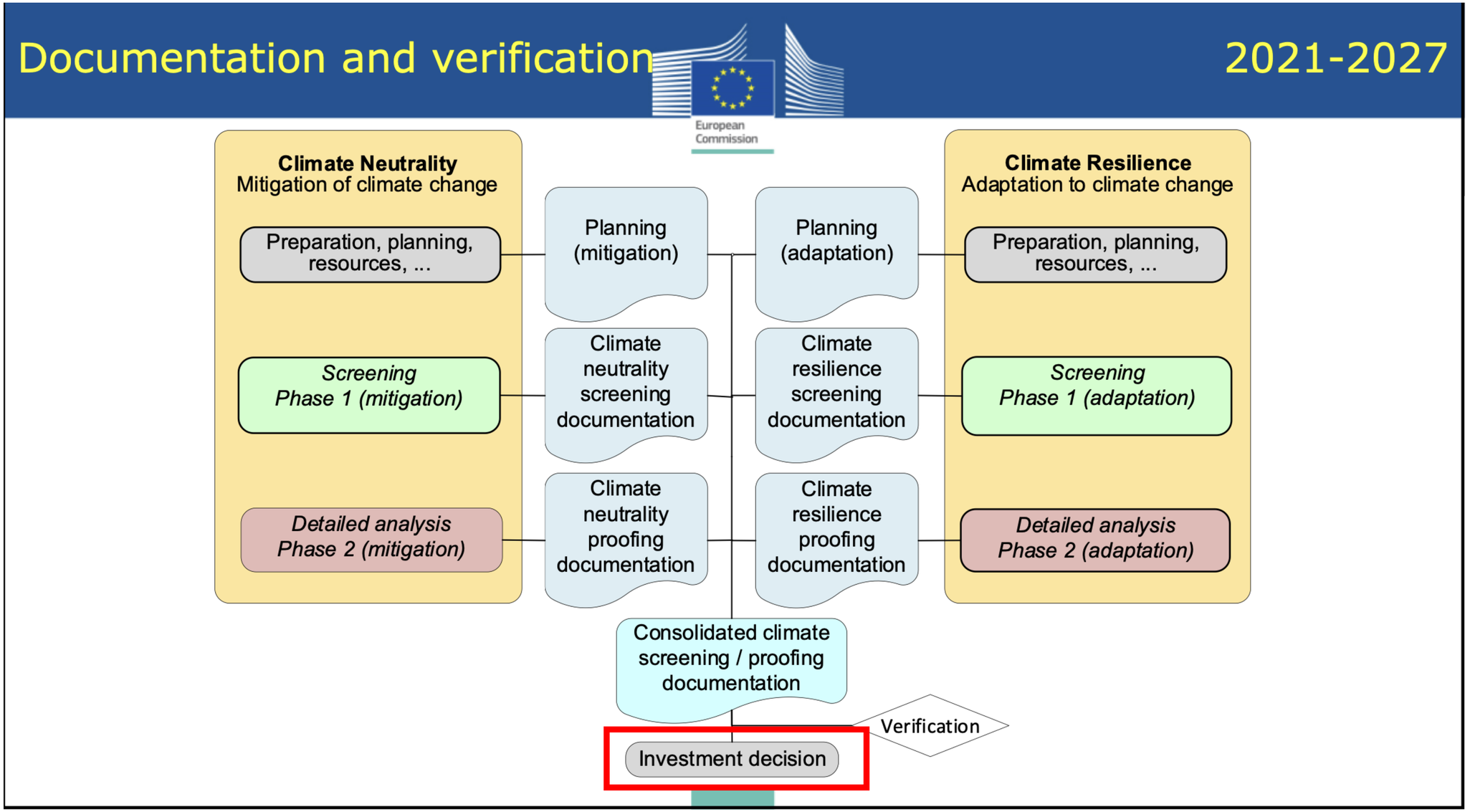
Positioning of climate proofing



Don’t think only on projects, basis should be in:

- **Development strategies**
- **Spatial plans**
- **Budgets**

Consolidated documentation (mitigation and adaptation in synergy)



How does it look?

Annex 1 - Overview of the climate risk assessment for buildings, heat pumps, and charging stations

Climate risk	Risk probability	Expexted effect	Risk impact	Risk assessment	Adaptation measures to anticipate risk in the design project	Link to the design project (map, page, reference)
Extreme heat	Almost certain	Increased energy demand for cooling (health and safety)	Moderate	**Extreme**	*Proposal:* *Sun protection, ventilation, and heat pump.*	
Extreme cold	Unlikely	Increased energy demand for heating (health and safety)	Moderate	**Medium**	*Proposal:* *Thermal insulation and heat pump.*	
Extreme wind speed events	Likely	Physical damage to the building (building elements, installations, and equipment)	Major	**Extreme**	*Proposal:* *External elements have been additionally reinforced to withstand the impact of strong winds.*	
Tornado and waterspout	Unlikely	Physical damage to the building (building elements, installations, and equipment)	Major	**High**	*Proposal:* *External elements have been additionally reinforced to withstand the impact of tornado and waterspout.*	
Hail	Likely	Physical damage to the building (building elements,	Moderate	**High**	*Proposal:* *Materials with significant mechanical resistance will be used.*	

Lessons learnt, advices…

- Think of climate proofing in relation to all of the processes in your cities/regions
- It is mostly related to infrastructure projects, but not solely
- Timing is crucial – the sooner the climate proofing is done the better
- Cooperation of experts for climate proofing with all other experts (civil engeneers, architects, mecanical engineers, electrical engineers, NBS experts…) is a MUST

Thanks for positive energy!
North-West Croatia Regional Energy and Climate agency

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