# Climate Science Partnership

*Climate knowledge for transitioning*
*to climate neutral and resilient societies*

***Proposal by Austria, Belgium, France, Germany, Italy and Norway***
*Presented by Anne-Hélène Prieur-Richard (French National Research Agency)*

# Why now a Climate Science Partnership?
## Major knowledge gaps identified by IPCC, March 2023

- Climate change is yet crossing the 1.5°C line this decade, with expected & **unexpected climate records** in flood, drought, heat waves, storms, etc.
- **Require new bunch of climate knowledge** to cope the climate overshooting above 1.5°C, as
  - Missing climate observations, processes & modelling
  - Development of climate extreme resilience solutions
  - Innovative approaches to recapture at large scale greenhouse gases
- **Reduce the time-lapse between policy/society needs & science progresses** to jointly mitigate and adapt to compound risks & cascading impacts
- **Assess the impact of climate actions**, plans & investments for resilience, adaptation and mitigation, and trade-offs between them

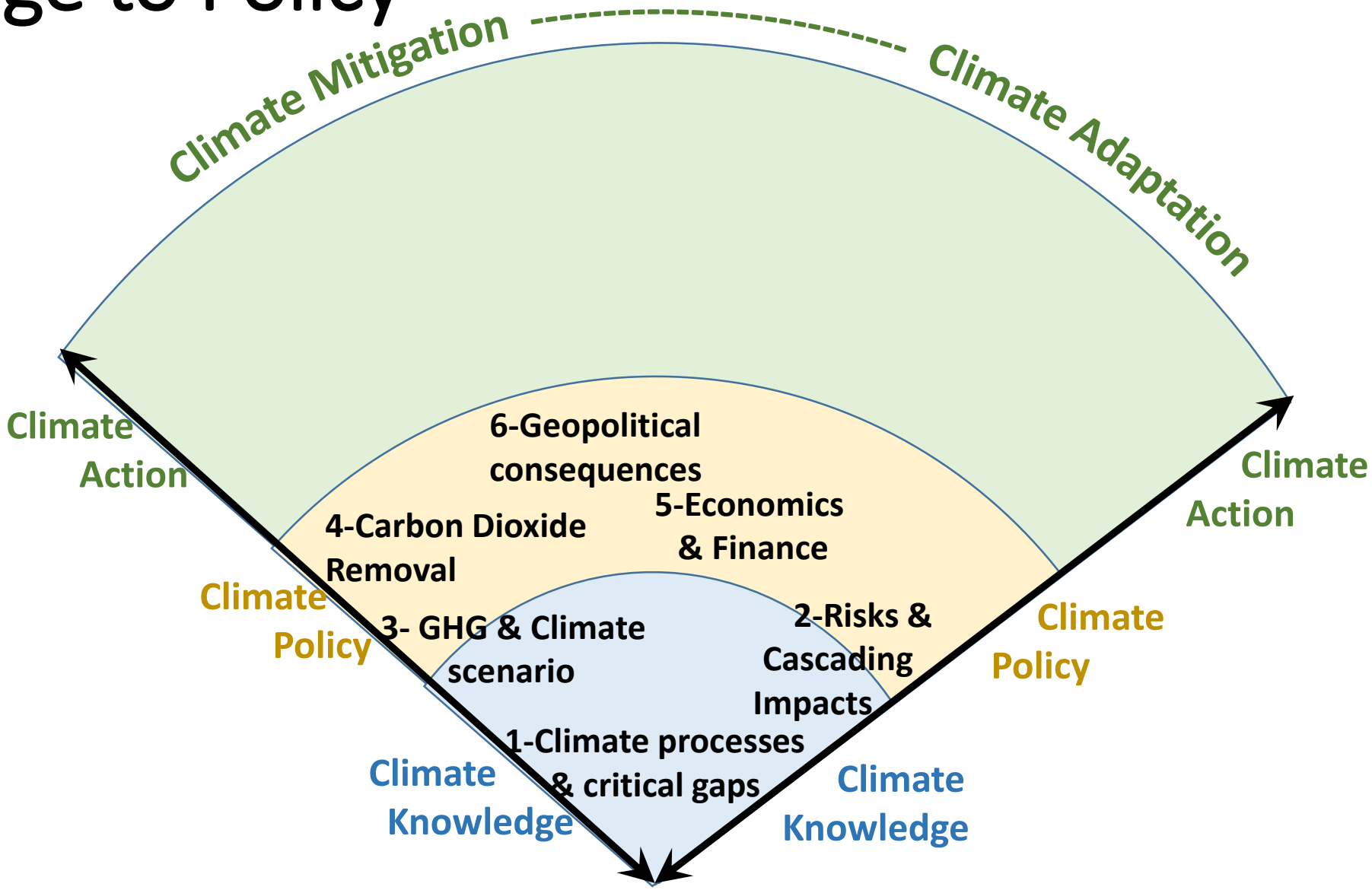
***>>> Europe needs to boost its climate knowledge to face a world beyond 1.5°C***

# Why coordination is needed on Climate Science ?
## A fragmented landscape between MS/AC/EC

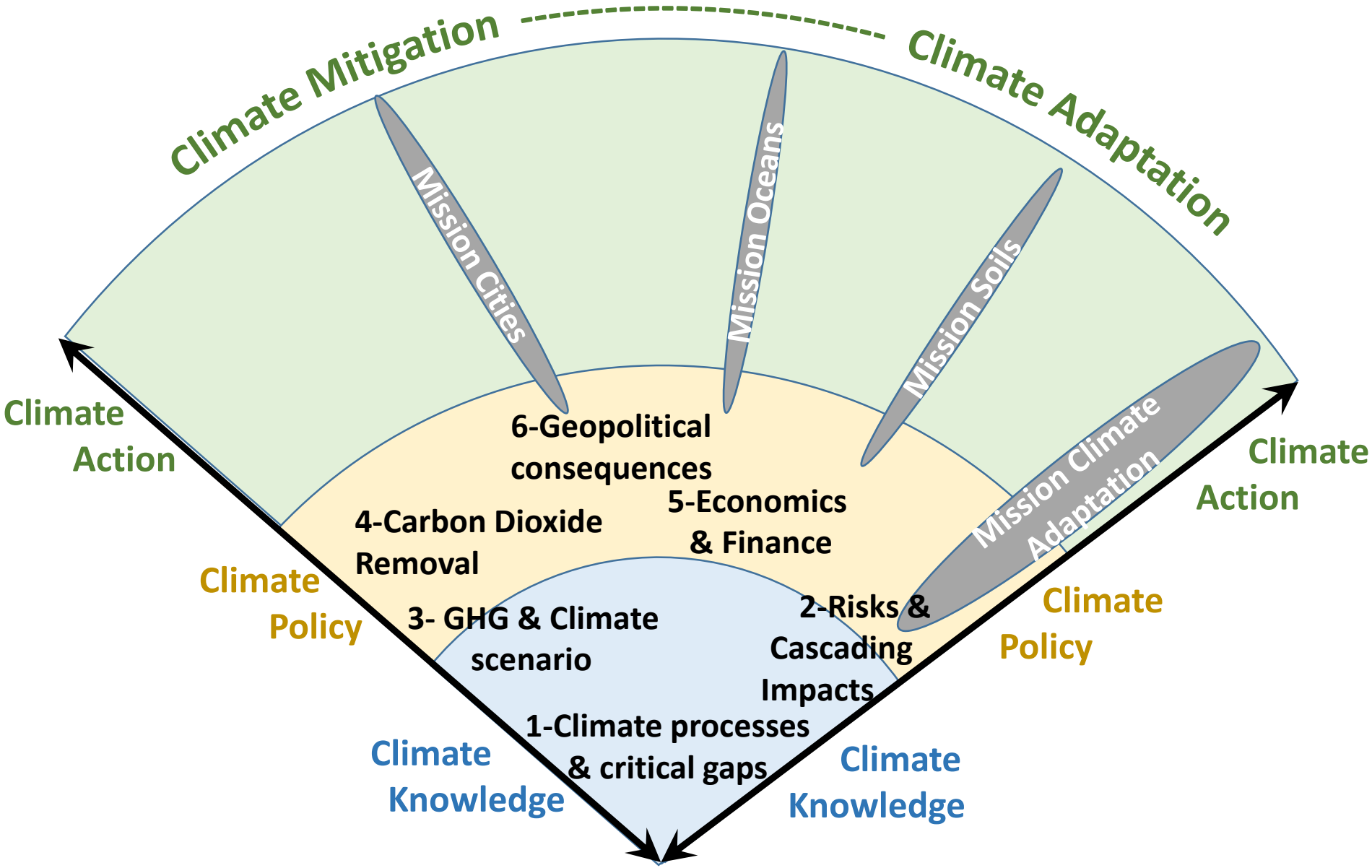
- While Climate Action represented around 35% of R&I in HEU and in main MS/AC, **Climate Science itself is only 1% to 2%** (from Physics to Social Sciences & Humanities)
- In practice, large countries as **Germany, France & Italy spend yearly more on climate science than HEU** Cluster 5/Destination 1 (1b€/7yrs)
- At European scale, 1% on Climate Science represents around **10b€/7yrs** but there is a **lack of coordination mechanisms between the national/regional RFOs & RPOs,** despite the competitive HEU calls

***>>> Europe needs high visibility coordination to defragment its Climate Science***

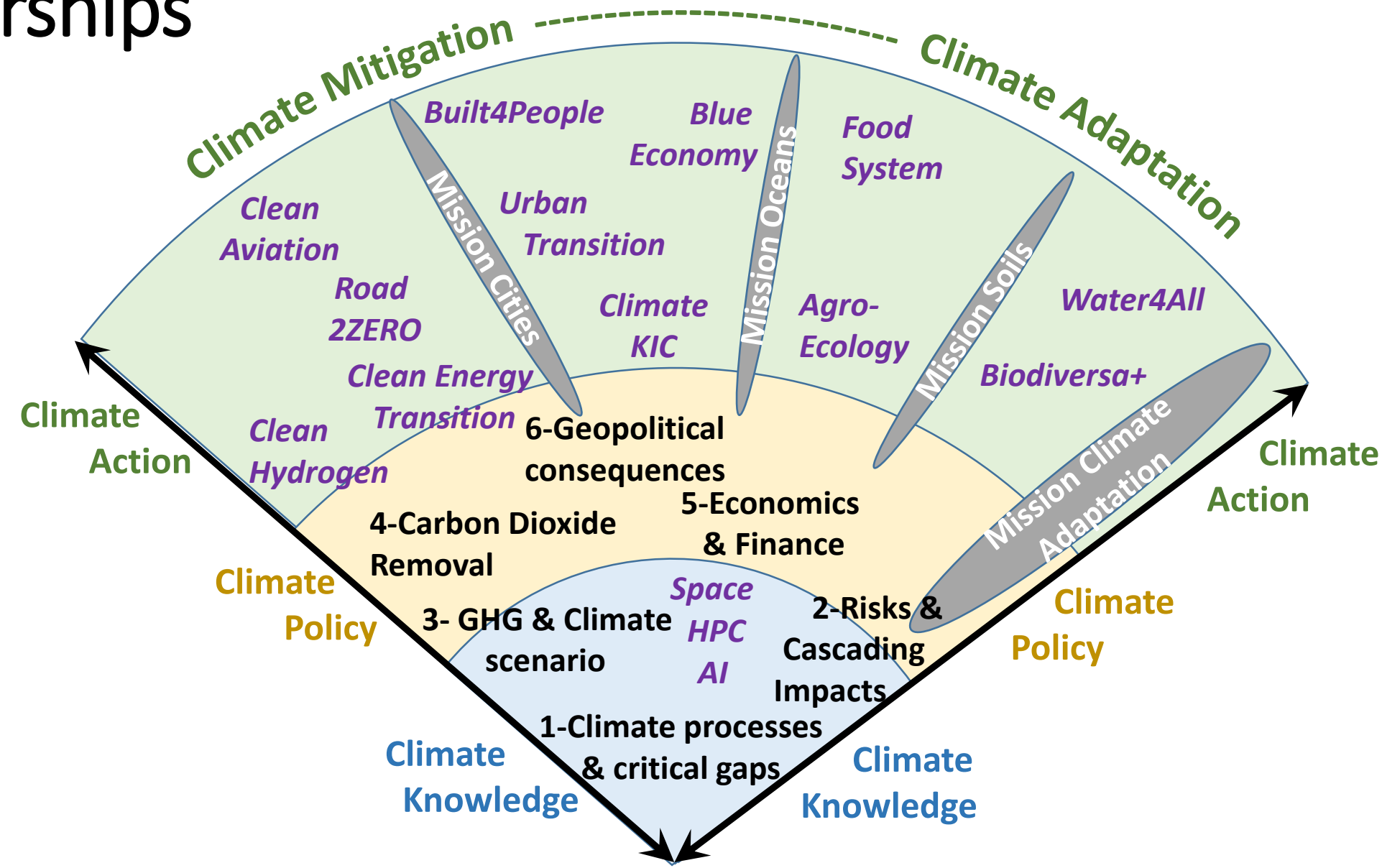
# Directionality : 6 Objectives for Climate Science from Knowledge to Policy



# Complementarity with Climate Action Missions



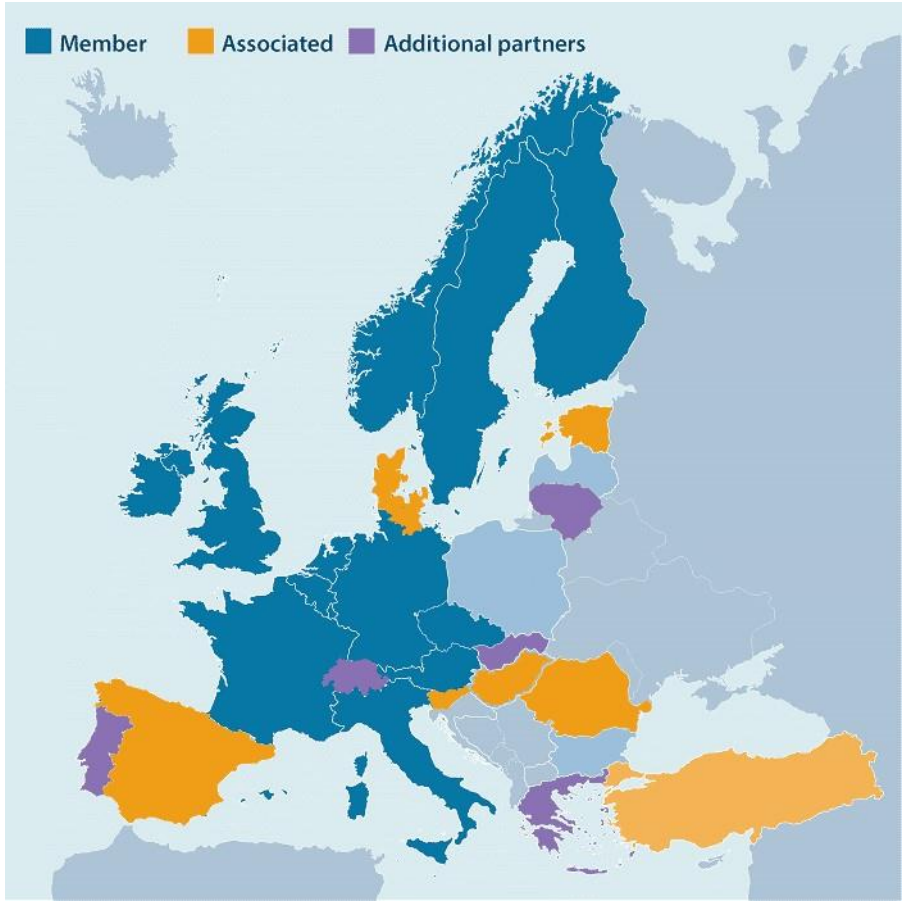
# Complementarity with Climate Action 1st Wave Partnerships



# Coherence and synergies of the partnership

- **Catalyser** to upscale & synergize usable climate change knowledge **across relevant Clusters, Partnerships & Missions** as well as Pillar 1 and 3
- **Attractor** for different types of **national, regional & private** partners (relevant Ministries, research funding & performing organizations, broad types of stakeholders)
- **Provider** of climate change **processes & knowledge** on key areas
  - **Polar and sub-polar** regions (in collaboration with EU PolarNet)
  - Regions at high risk such as the **Alpine** region
  - **Mediterranean** region (without duplicating the work conducted in Prima)
  - European **Eastern** region

# **JPI Climate:** 12yrs experience for Climate Science in Europe




- **24 countries** involve in Europe since 2011
- **6 International cooperation**: Brazil, China, India, Japan, Thailand, USA
- **1 Knowledge Hubs** (Sea level) and 1 COST Action (SHS)
- **2 Biennial Conference/Forum** (ECCA, Climate Neutrality Forum)
- **9 calls for 200M€** (2 Atmosphere & Oceans, 3 SHS&CH, 2 Services, 1 sustainable transformation, 1 Arctic)
- EC support: **4 CSAs & 2 ERA-NETs**
- **8 European Research Infrastructures** involve, as ATMO-ACCESS, ICOS, IAGOS, ACTRIS, eLTER, Euro-ARGO, Concordia, PRACE
- **Contributor** to- and **user** of **COPERNICUS** and **DESTINATION Earth**

***>>> Extension to Eastern and Southern Europe should be proactive***

# Extended Consortium following ERA-NETs legacy

**ERA4CS 2016-2021 - European Research Area for Climate Services**

- Joint calls
  - Cash Call with 13 RFO (commit 32,3 M€)
  - In-Kind Call with 30 RPOs (comm. 29,4 M€)
  - 26 projects of 4yrs – 61,7 M€ with EC top-up
- Total of activities : 64,6 M€ including 21,2 M€ EC top up (67% added value)
- Outcomes
  - 88 prototype climate services
  - 772 publications
  - 131 numerical datasets
  - 54 softwares

**Other JPI Climate calls 2010-2023**

- 8 calls for (2 Atmosphere & Oceans, 3 SHS&CH, 1 Services, 1 sustainable transformation, 1 Arctic)
- 34 projects of 3yrs : 134M€ with 5M€ EC top-up (95% added value)

# A 10yrs partnership for Climate Science 2025-2034

**Co-funded** partnership **cash and in-kind** to

- **Building on the SRIA** developed by **the CSA Magica**
- **Attract RPOs** for in-kind activities & coordination
- **Enlarge to Eastern and Southern** Europe
- **Strengthen Polar Areas** R&I
- **Extend to economics and finances** issues
- **Extend to private research**
- **Strengthen Science-Policy-Society**
- **60+M€ biennial calls** on the 6 objectives
- **Overall cost 300+M€** with cash (RFOs), in-kind (RPOs) and EC top-up

***>>> Co-coordination involving FR-NO-DE-AT-BE-IT***

# Contribution to relevant megatrends

- Accelerating technological change & hyperconnectivity
- Climate change & environmental degradation
- Diversification of education & learning
- Widening inequalities (in education, work, health, gender and territorial inequalities)
- Expanding influence of East & South
- Growing consumption
- Shifting health challenges
- Maladaptation (lack of good understanding of trade-offs between mitigation & adaptation; between sectoral solutions)

# Foreseen outcomes

- **Accelerate** knowledge generation on key gaps of climate system
- **Transfer** from science to climate policy & action.
- **Support** implementation of EU policies (Climate Law, Climate Neutrality, Green Deal)
- **Build** on existing Partnerships & Missions but adding value by integrating their sectoral/topical outcomes for climate change adaptation-mitigation-resilience.
- **Develop** a polar approach not present in the other partnerships

# *Thanks for your attention and interest*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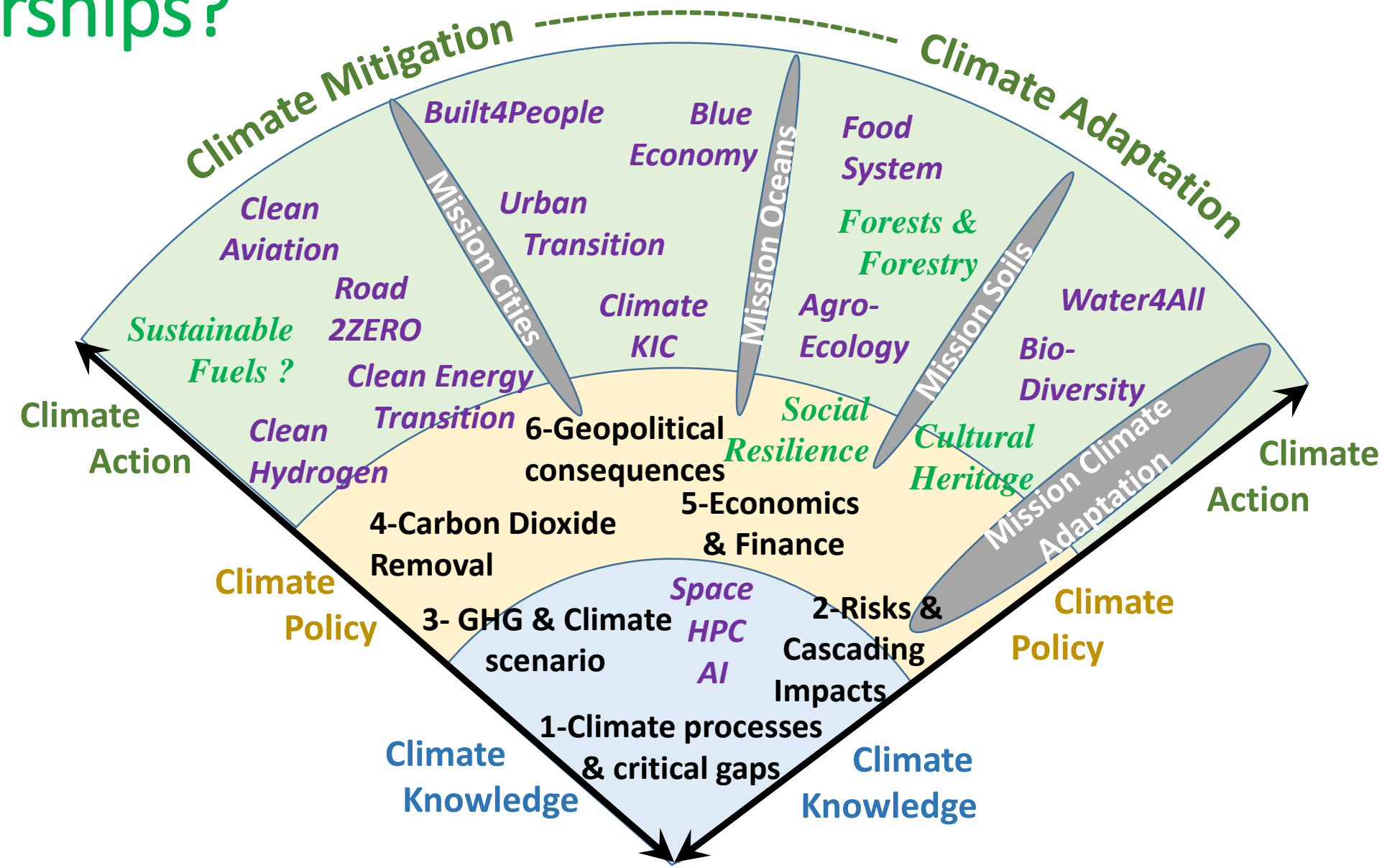
# Extra slides

*For questions*

# Complementarity with Climate Action 2nd Wave Partnerships?



# Short description

- Co-funded partnership.
- An urgent need exists for an integrated knowledge base to achieve Europe's climate goals as stated in the recently released IPCC 6th Assessment Report. This support is crucial for effective decision-making and transformative action across industry and society.
- Climate knowledge is currently scattered among initiatives that, in their focus on specific systems or sectors, often overlook the consequences of acting and does not account for compound risks emerging from interactions of climatic and non-climatic factors.
- These challenges request better coordination through a partnership “Climate knowledge for transitioning to climate neutral and resilient societies” between the European Commission, Member States, and Associated Countries.
- It will play a coordinating role in providing a solid integrated climate change knowledge base across Europe and contribute to the mission-oriented deployment of the Horizon Europe budget to achieve EU Climate targets.

# Directionality

- The Partnership aims to accelerate knowledge generation and transfer from science to climate policy and action.
- It supports the implementation of EU policies such as Climate Law, Climate Neutrality and Green Deal.
- It builds on existing Partnerships and Missions adding value by integrating their sectoral/topical outcomes within a global framework to provide integrative solutions for climate change adaptation-mitigation-resilience.
- It develops a polar approach not present in the others partnership.

# Main objectives

- 1-Address critical gaps in understanding climate processes and human impacts including rare, high-impact events and the role and climate sensitivity of polar areas;
- 2-Provide guidance for assessing and managing climate risks, including economic and social ones, cascading ones and compound risks, to inform EU policies and support climate plans;
- 3-Support EU-level model intercomparison experiments to enhance global climate model development as a basis for GHG management strategies;
- 4-Advance research on carbon management strategies, seeking feasible and sustainable Carbon Dioxide Removal solutions;
- 5-Understand the political economy of climate policy and the role of financial markets in transformative innovation;
- 6-Analyze geopolitical consequences of climate policies and climate change impacts in the mid and long term.
- Attention will be given to integrate climate knowledge from natural and social sciences & humanities and to accelerate knowledge transfer and the tacking account the polar field.
- The Partnership envisions flagship projects supported by living labs in regions facing high climate change risks: polar and sub-polar areas, Alpine areas, the Mediterranean region.

# Additionality

- The Partnership will develop and transfer new knowledge across HEU Clusters, existing and upcoming Partnerships and HEU Missions on unprecedented climate change, compound risks and cascading impacts, as well as on mitigation-adaptation win-win strategies.
- The framework of a partnership allows for concentrated efforts within a stable funding structure, consolidating the fragmented climate research investments across the European Research Area.
- By gathering the main research funders and performing organizations across Europe, it enables strategic planning as well as allows coherent responses to unexpected developments.
- Being an attractive instrument, it will also include countries / funders that were not in a position to fully integrate common ERA activities yet but which are nonetheless EU member states.
- The Partnership aims to inform actions at national and regional levels, engaging experts, practitioners and local actors.
- It will serve as a convenor, engaging private sector actors offering climate-sensitive solutions.

# Coherence and synergies

- It will function as a catalyzer to upscale and synergize usable climate change knowledge across all relevant Clusters, Partnerships and Missions, as well as Pillar 1 and 3.
- By attracting different types of national, regional, and private partners (relevant Ministries, research funding and performing organizations, broad types of stakeholders), it can provide knowledge synergistically, especially on systems playing a key role in climate change processes such as
  - polar and sub-polar regions (in collaboration with EU PolarNet)
  - regions at high risk such as the Alpine region,
  - European Southeast region
  - Mediterranean region (without duplicating the work conducted in Prima).

# Existing initiatives

- The Partnership will build on JPI Climate's experience in i) supporting and enhancing societally relevant climate change research and ii) accelerating the transfer of knowledge from science to policy and actions across the European Research Area. It implemented R&I agendas within 3 CSAs, 1 COST Action on social sciences and humanities, 2 Knowledge Hubs, 8 joint calls for 200M€, including 2 ERAnets and 2 International calls with the Belmont Forum.
- The partnership will also respond to the call for action of the Equinox Summit to fill IPCC 6th Assessment report research gaps and further engage with related work being progressed by Copernicus and the European Space Agency.
- European Research Infrastructures will be also involved: ATMO-ACCESS, Euro-ARGO, ICOS, IAGOS, ACTRIS, eLTER, PRACE, Concordia, as well as DESTINATION Earth and the European Climate Research Alliance (ECRA). The IS.ENES consortium is also invited to participate.
- The proposed work on regional areas in Europe will build on collaborations with existing initiatives EU-PolarNet2 (polar and subpolar areas) and PRIMA (Mediterranean area).

# Necessity test

- A co-funded European Partnership would boost member states and associated countries to further pool resources to joint activities with both national/regional funding bodies (cash) and research organizations (in-kind).
- Such a co-funded partnership will attract countries beyond the current perimeter of JPI Climate, in particular towards Southern, North and Eastern countries or regions, as was demonstrated with H2020 ERAnet on Climate Services with 45 partners (97M€ commitment, 66M€ used after selection), and will build of on-going Widening CSA on climate related issues.

# Cluster

- Cluster 5 - Climate Energy and Mobility

- But relevant too for Cluster 6