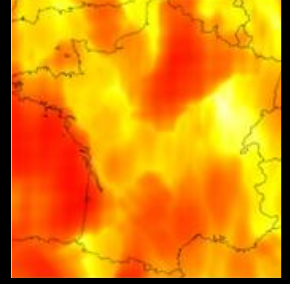

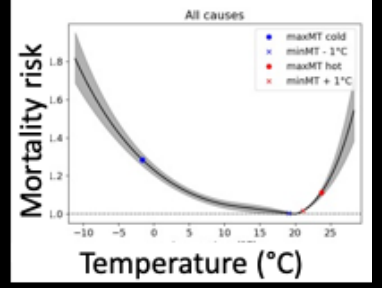

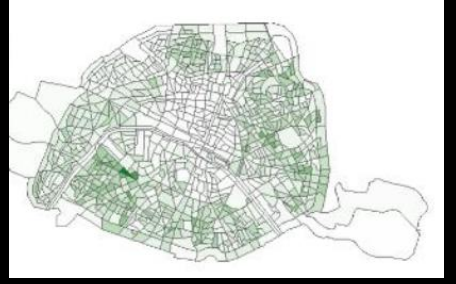

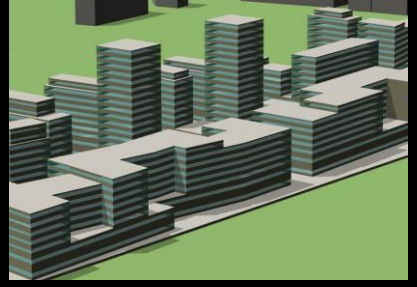

MOCAPH

A modeling chain from climate factors and atmospheric pollutants to health impacts and associated costs

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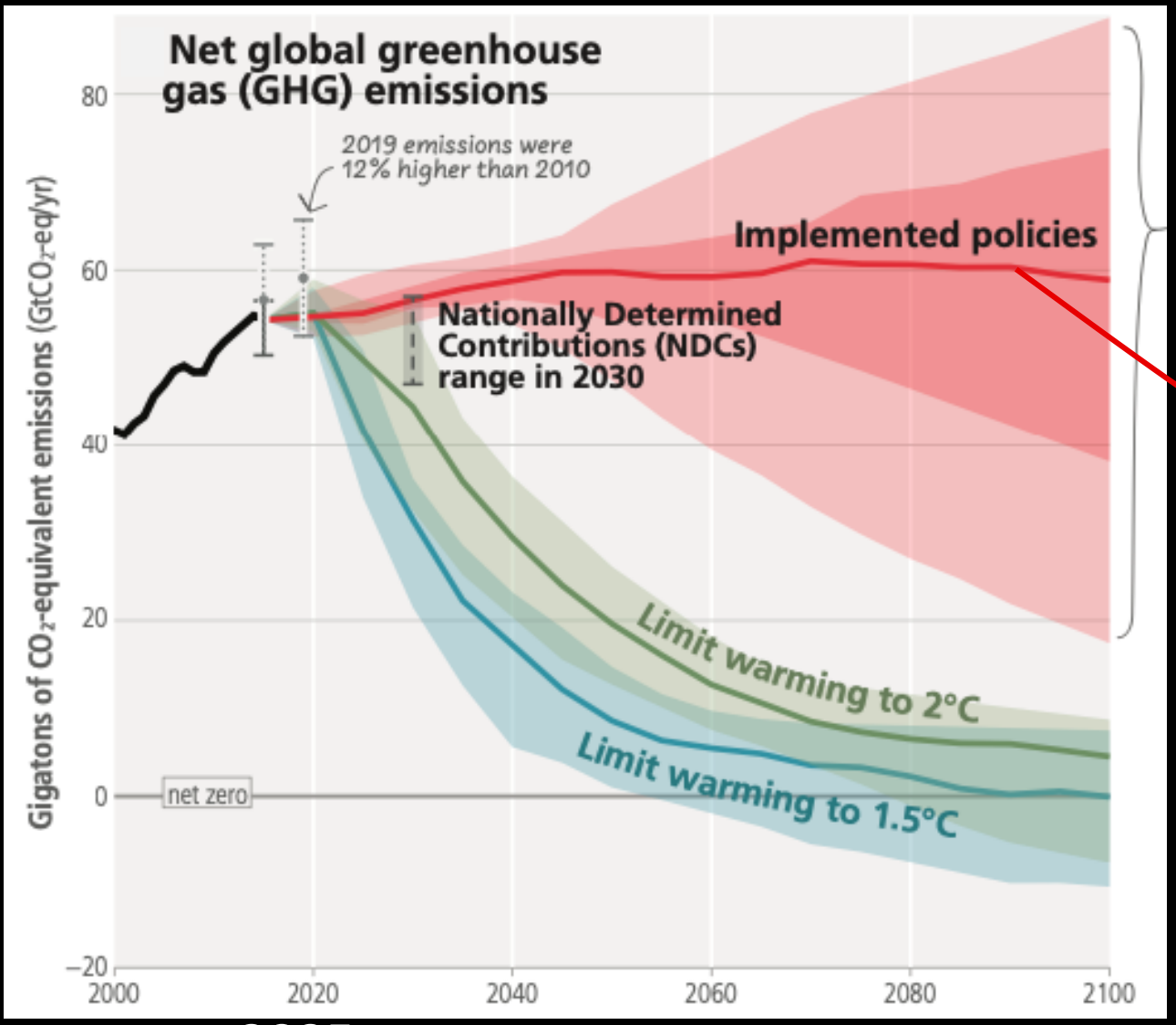
PARSEC (Paris Recherche en Santé Environnement Climat)
Institut de Biologie de l'ENS, Inserm et ENS-PSL, 75005 Paris

AG TRACCS
5 février 2026

Climate change mitigation is expected to entail huge health cobenefits

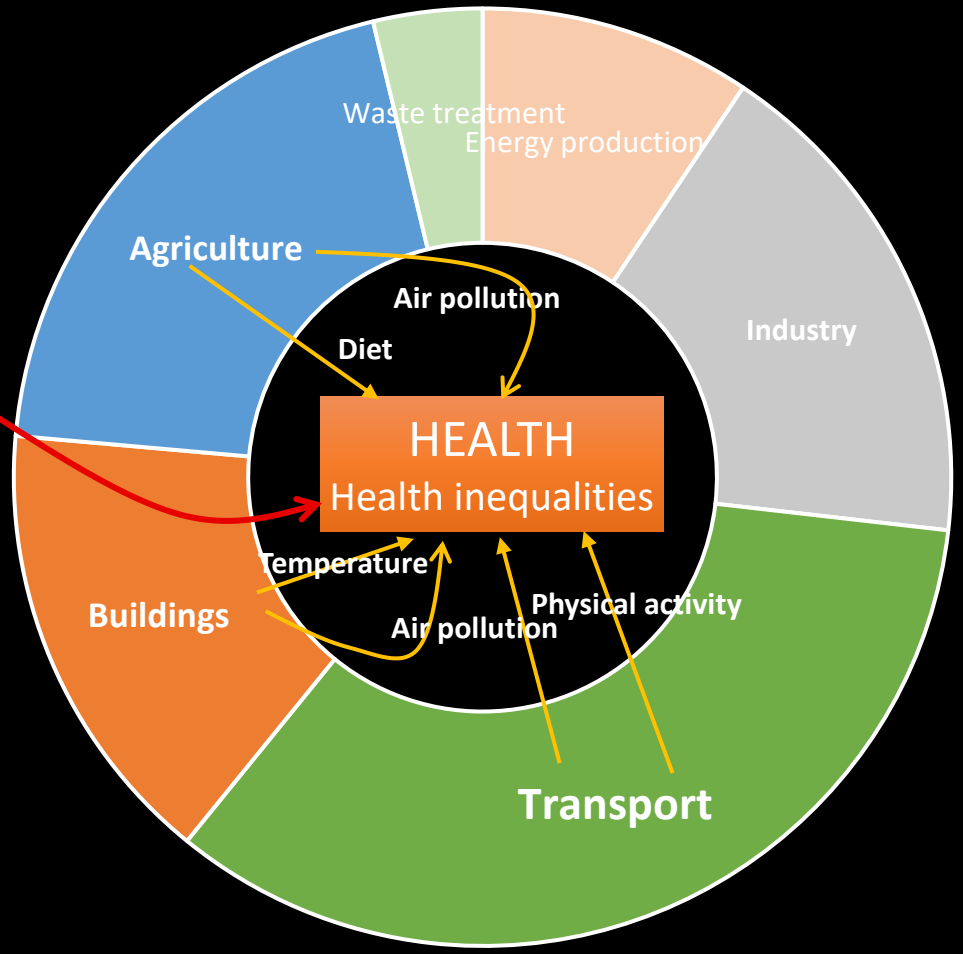


2025

Carbon intensive present

(IPCC, 2023)

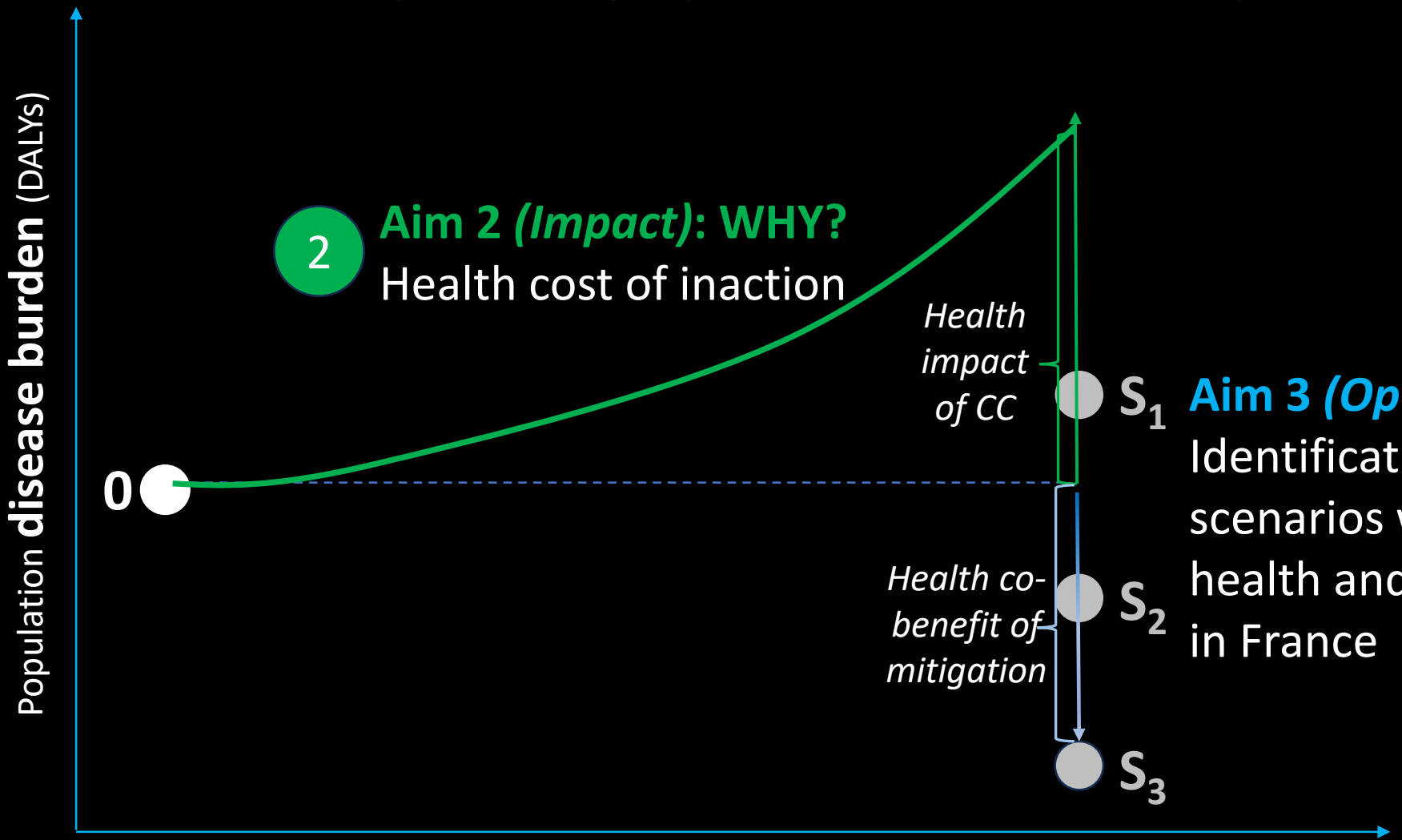
On the ***short term***, ***local***, little dependent of the action of others



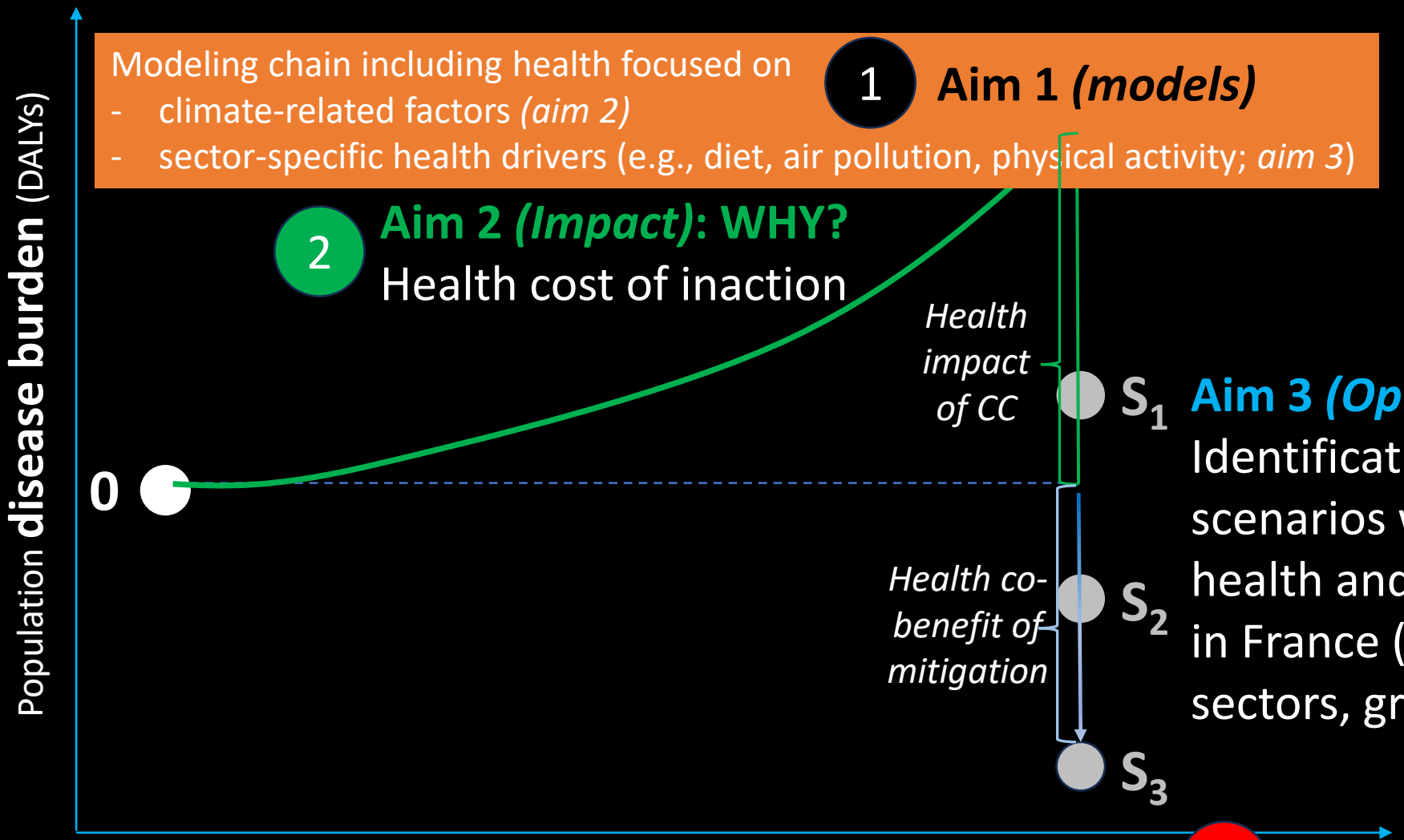
Greenhouse gas emissions (France, 2022)

(See e.g., Whitmee, *Lancet*, 2024; Hamilton, *Lanc Plan H*, 2021)

MOCAPH aim: Helping society to move towards fair and health-relevant net-zero emission strategies through quantification of health impacts, cobenefits and costs



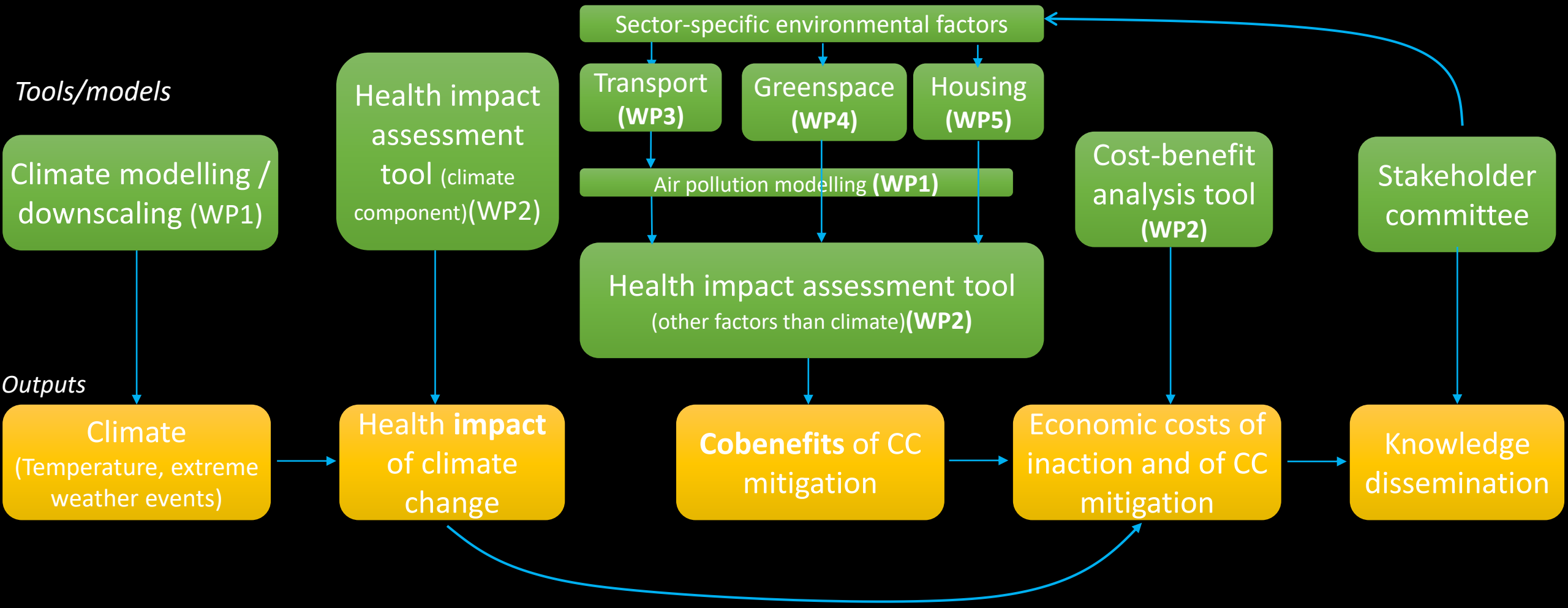
MOCAPH aim: Helping society to move towards fair and health-relevant net-zero emission strategies through quantification of health impacts, cobenefits and costs



3 **Aim 3 *(Optimization)*: WHERE?**
Identification of net-zero scenarios with the largest health and inequity co-benefits in France (transport, housing sectors, greenspace)

4 **Aim 4 *(Dissemination)*:** Help society take ownership of results

Modeling chain

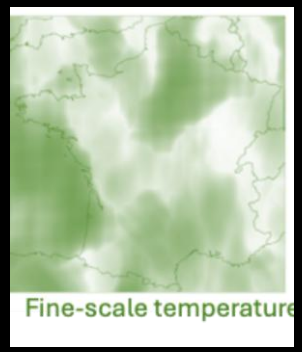


Note : liens éventuels WP4, WP5-> WP1 à préciser

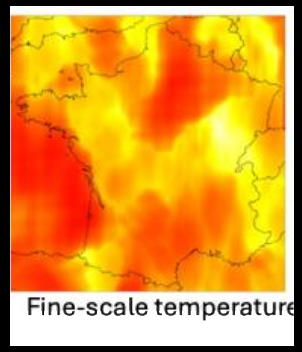
Health impact assessment (HIA) methodology

1. Scenarios:
2 or more counterfactual (e.g., temperature, physical activity, pollution, greenspace) scenarios

Scenario 1



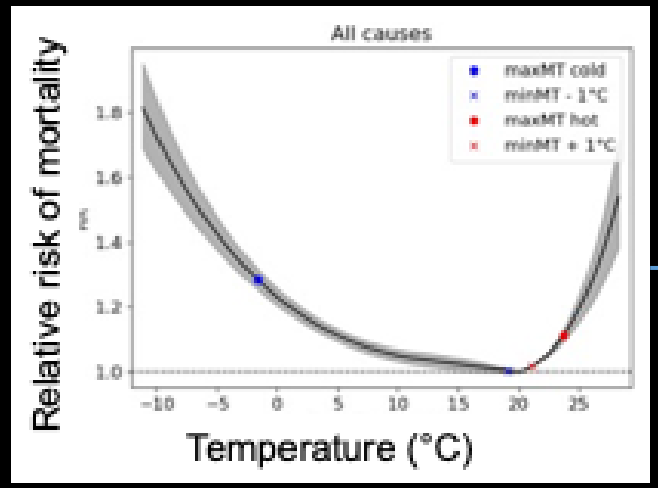
Scenario 2



x

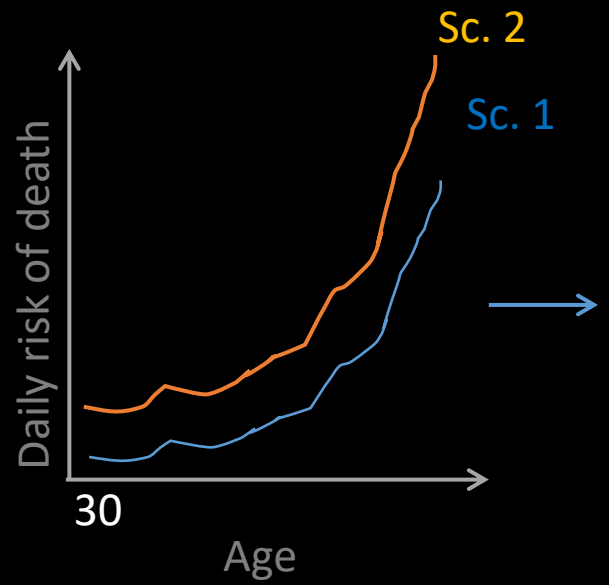
x

2. Exposure response function
From the literature ($PM_{2.5}$) or newly fitted (meteorological factors)



(Lehmann… Slama, *Am J Epid*, 2022)

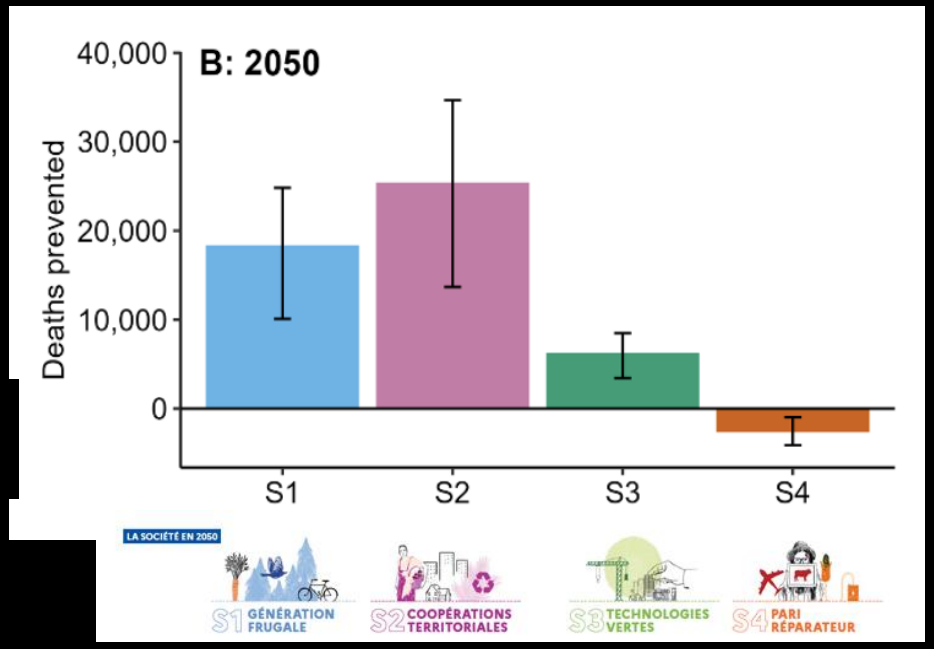
3. Microsimulation model
French population or specific city (Paris, Lyon, Grenoble), followed until death under the considered exposure scenarios



Difference in life expectancy, life years lived and associated cost between the compared scenarios

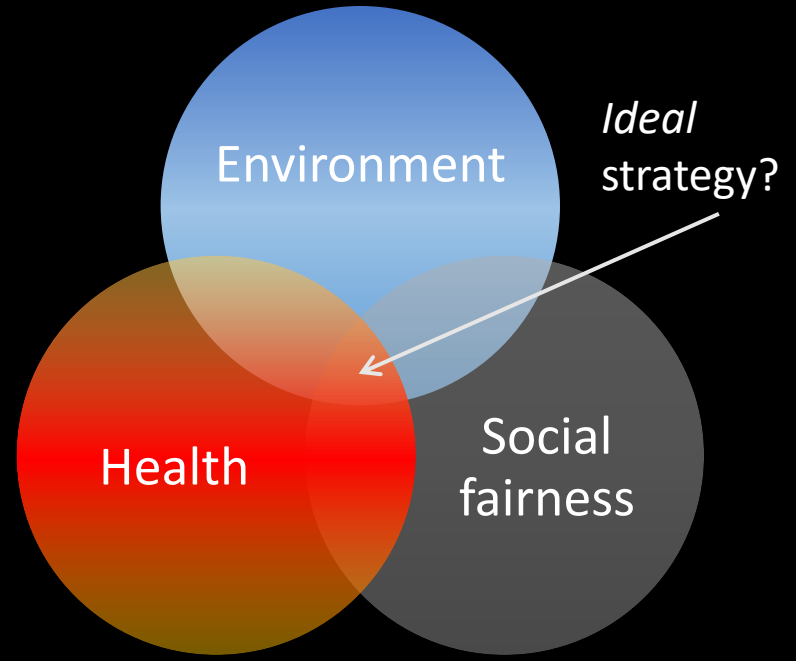
(see Rigaud… Slama, *Env Health*, 2024)

Illustration of expected results: Existing studies on cobenefits of decarbonization strategies (ADEME 4 scenarios) in the transport sector (France)



(Moutet et al., *Environ. Res.: Health*, 2024)

In France, Moutet… Jean (2024) focused on health cobenefits associated with physical activity and highlighted strong heterogeneity in health cobenefits across the 4 ADEME scenarios



To our knowledge, no study in this sector in France considered health cobenefits due to several pathways and simultaneously considered the social fairness of each scenario

Objectives of the WP

- Evaluate the impacts on **health and inequalities** of various climate mitigation scenarios in the transport sector
- The pathways will include physical activity, exposure to $PM_{2.5}$, and could also include exposure to noise and green spaces

MOCAPH societal, scientific, structuring effects for *faster*, *fairer* and *healthier* mitigation

- Societal relevance, climate services, support to public decision
  - Quantification of climate change health impacts at the national level, including via extreme weather events
  - Consideration of social inequalities in impacts and cobenefits
  - Identification of the health co-benefits of mitigation strategies – which are local and will occur fast
  - Sectors with large expected cobenefits (transport, housing, urban health/greenspace in cities)
  - **Participatory research** (national and local decision-makers, NGOs)
- Tools
  - Multi-domain Health Impact Assessment; cost-benefit analysis
  - Relevant for a future upscaling of the project at the EU level
- Structuration of the *climate-health-society* research community
  - A strong **interdisciplinary consortium**: climate research, health research, engineering, economics
  - **PARSEC: Emergence of a unique research structure at the nexus between climate change and health** in France, supported by ENS-Paris, PSL-University and Inserm
  - Interactions with TRACCS community (in particular specific targeted projects)

PARIS RESEARCH in PARSEC
HEALTH ENVIRONMENT CLIMATE

Merci pour votre attention !