

# Societal Challenges of Climate Change

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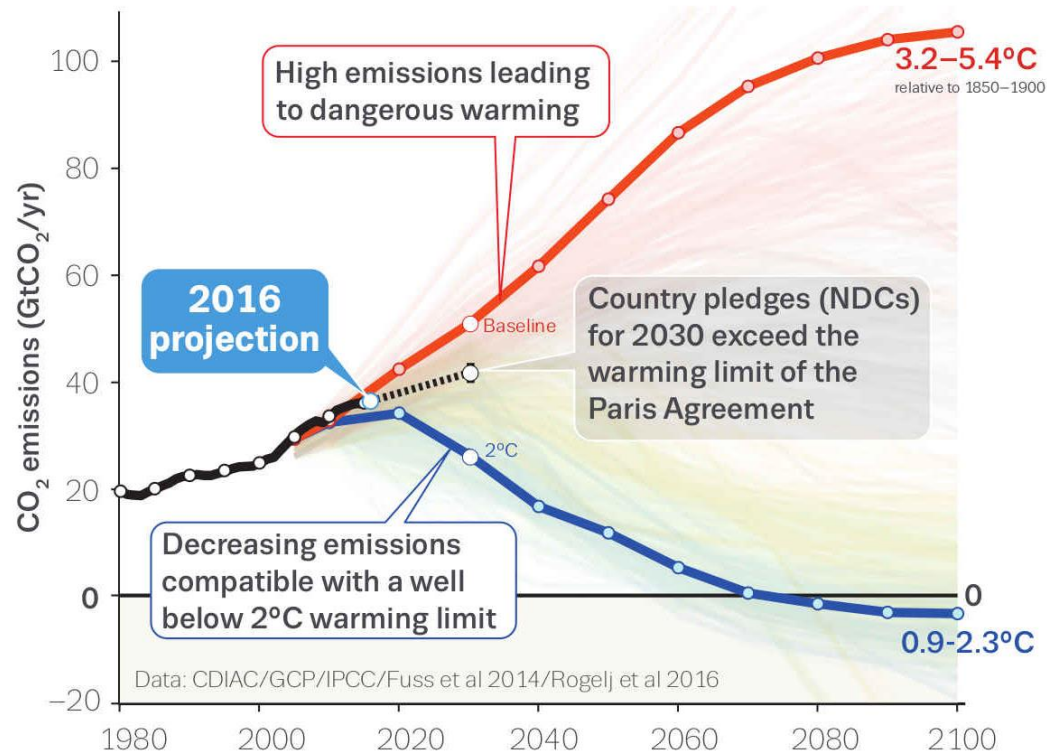
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# Outline

- Between the Paris agreement and the Marrakesh plan of action
- From challenge to response
  - Visions and futures
  - Knowledge
  - Governance
  - Innovations
- **Conclusions**

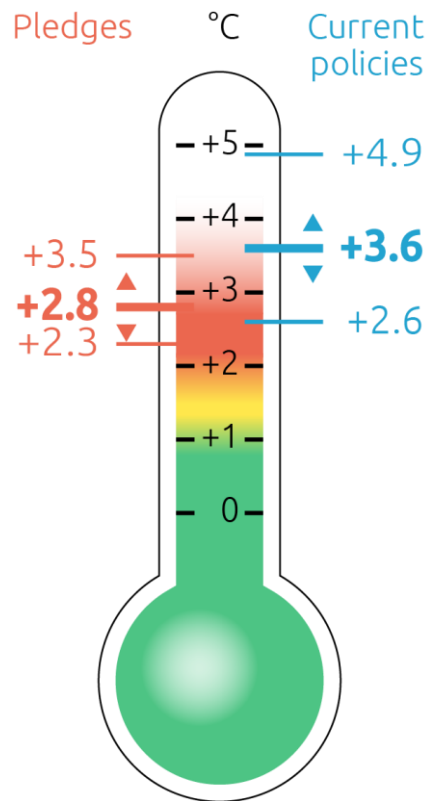
# Between the Paris agreement and the Marrakesh plan of action, we are here



# Effect of current pledges and policies on global temperature

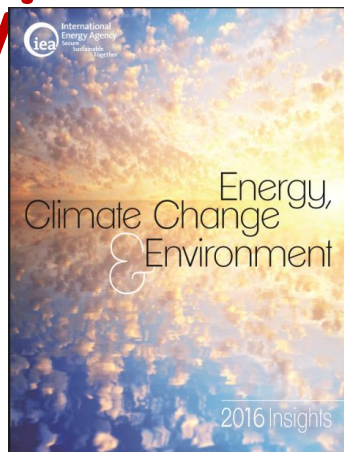
November 2016

The emissions pledge pathway (INDCs) has over 90% probability of exceeding 2°C

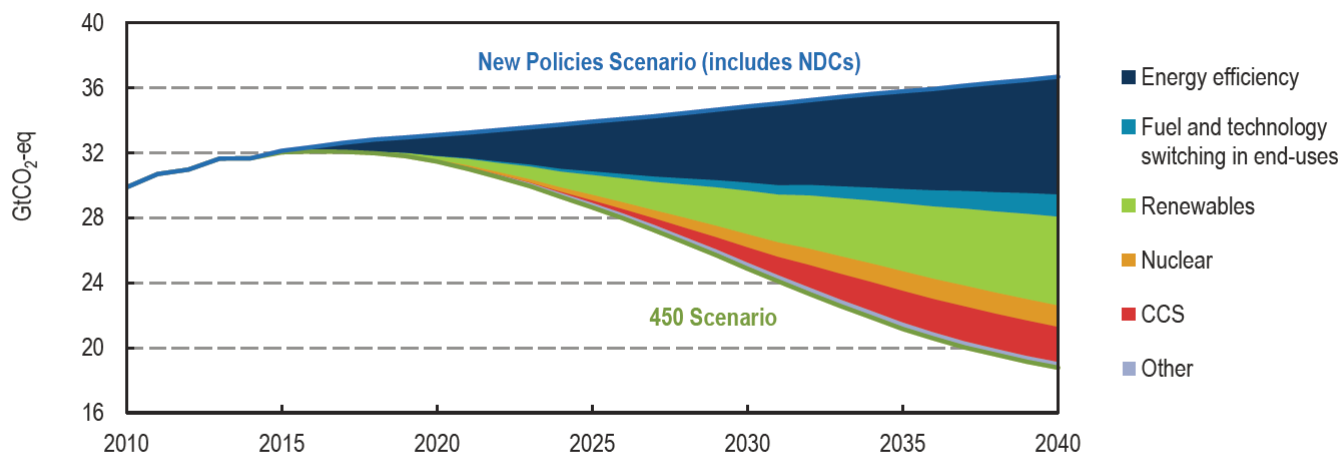


The current policy pathways have a higher than 99.5% probability of exceeding 2°C.

# IEA v.



## Measures needed to surpass current NDCs to reach 2°C trajectory (450 Scenario), through 2040



Note: The New Policies Scenario (NPS) is the central scenario of the World Energy Outlook and includes the energy-related components of NDCs submitted by 1 October 2015.

Source: Adapted from IEA (2015b), World Energy Outlook 2015.

We are not facing just climate change challenge

Future outlooks for Europe

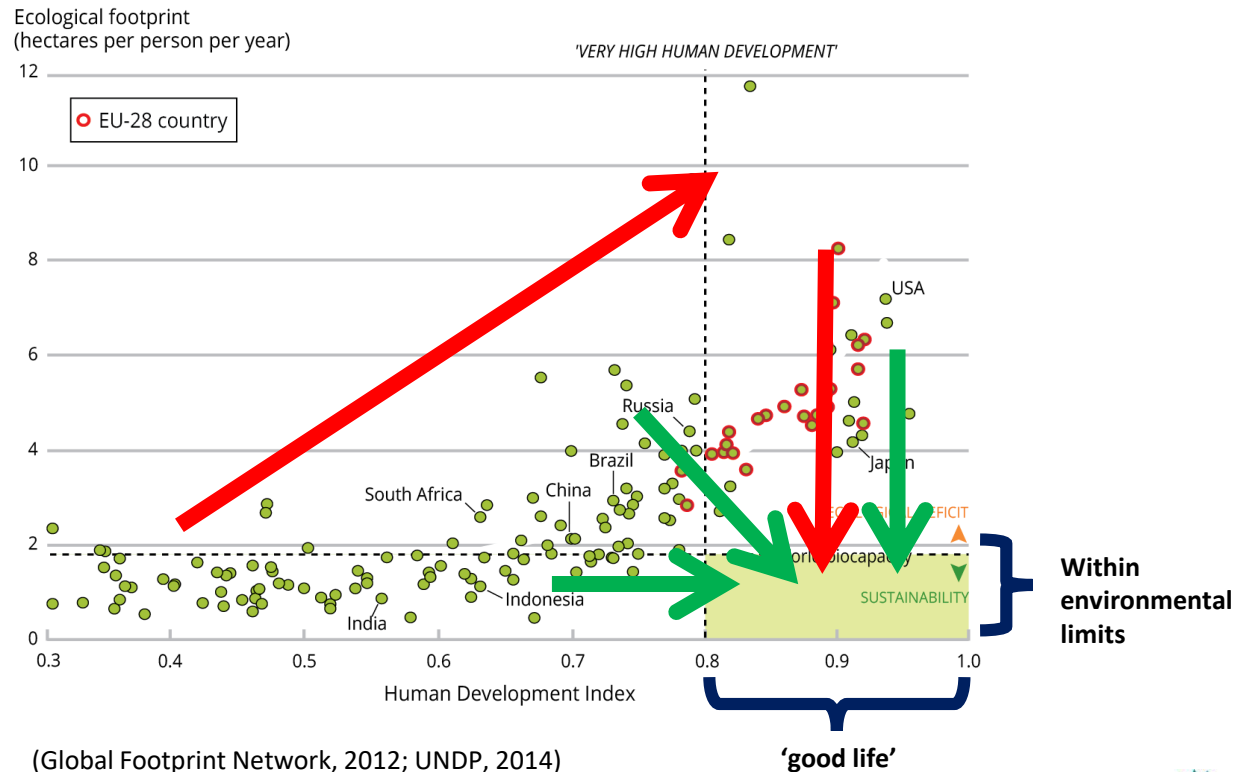
**The changing global context**

- Competition for resources
- Pressures from outside Europe
- Planetary boundaries

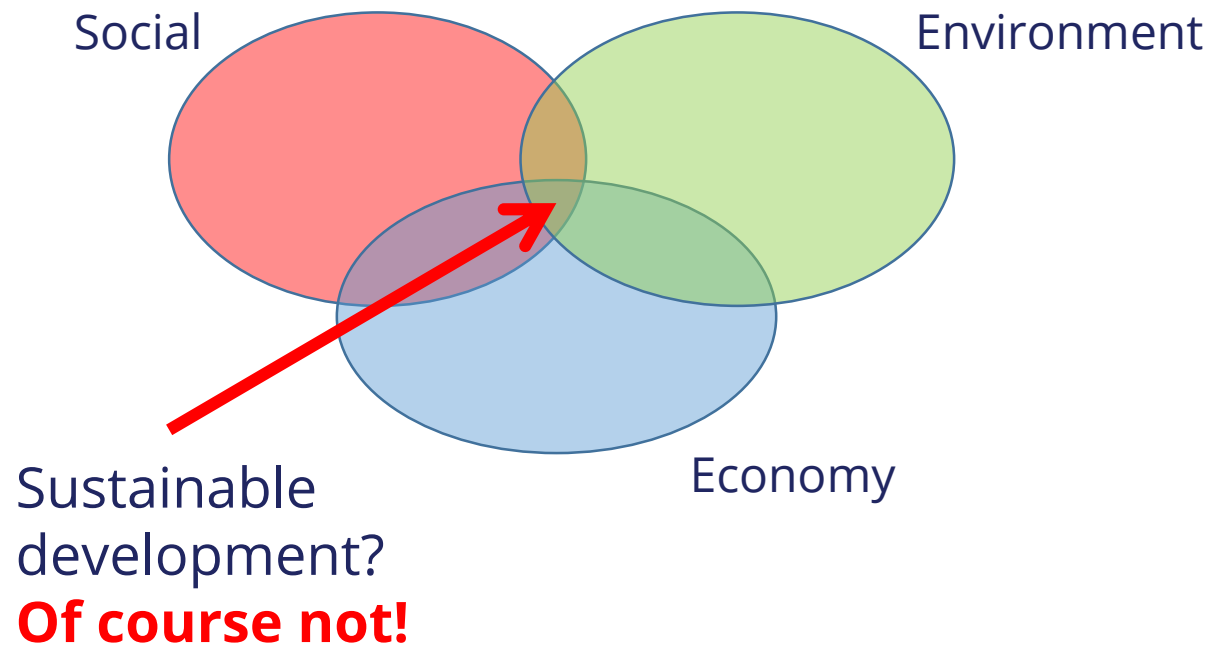
**Systemic characteristics of environmental challenges**

- Complexity
- Uncertainty
- Environmental, social and economic interdependencies

# Global systems of production and consumption need to be reconfigured

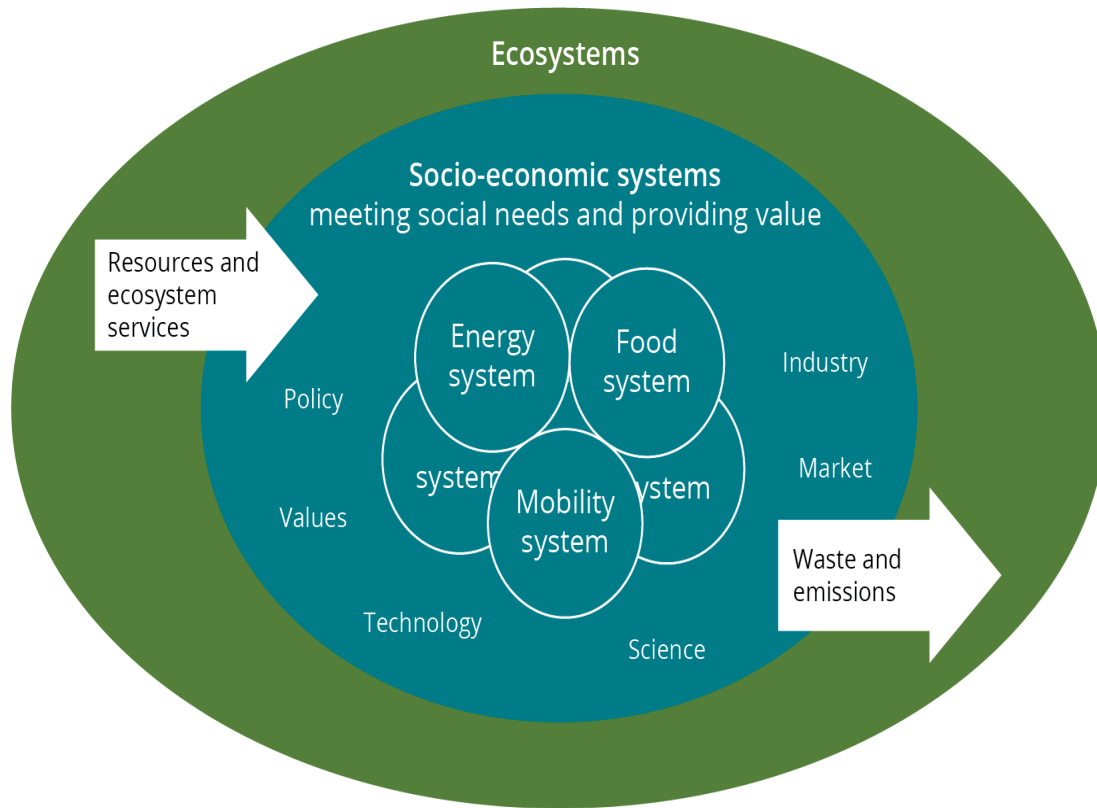


## Sustainability revisited

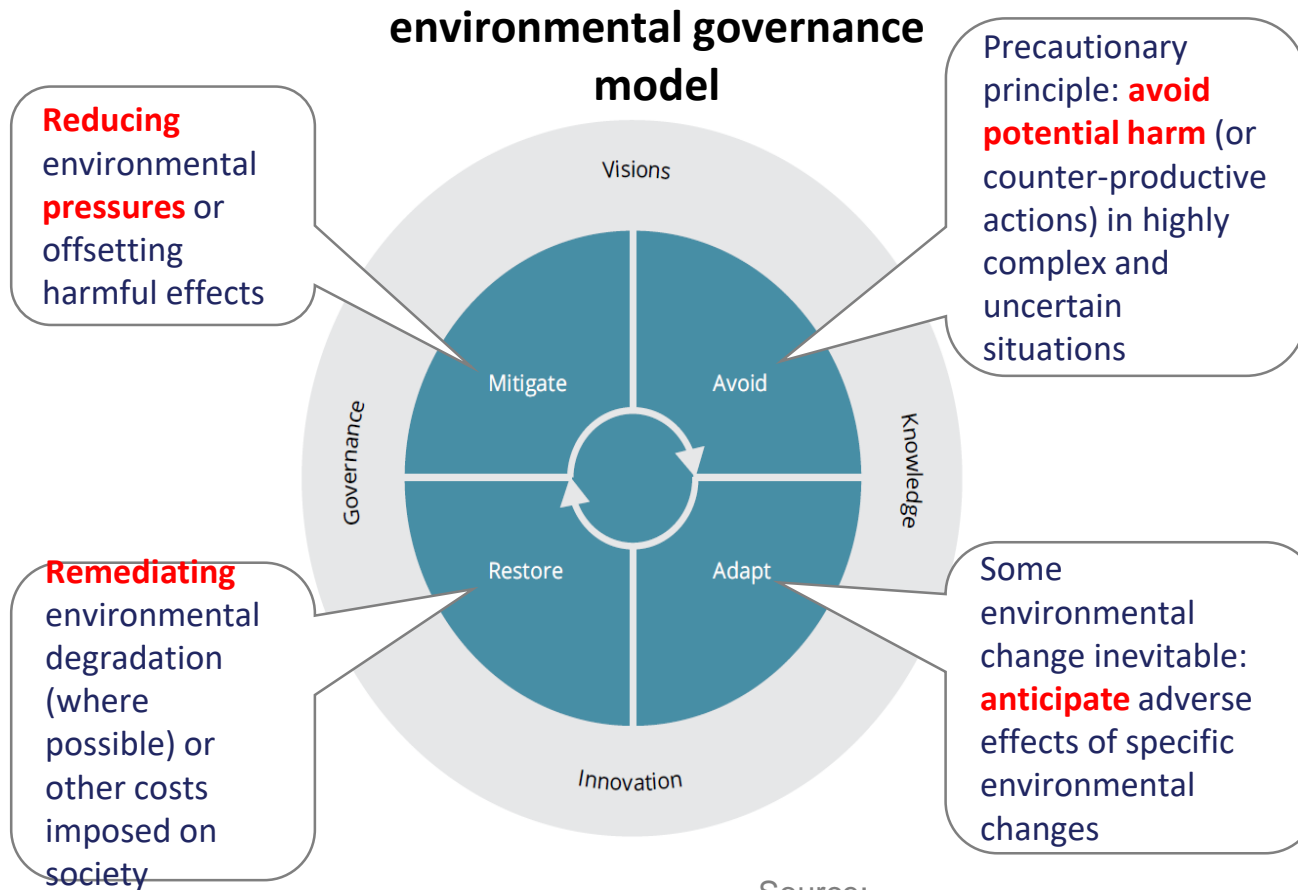




# Living within environmental limits



# From challenge to response



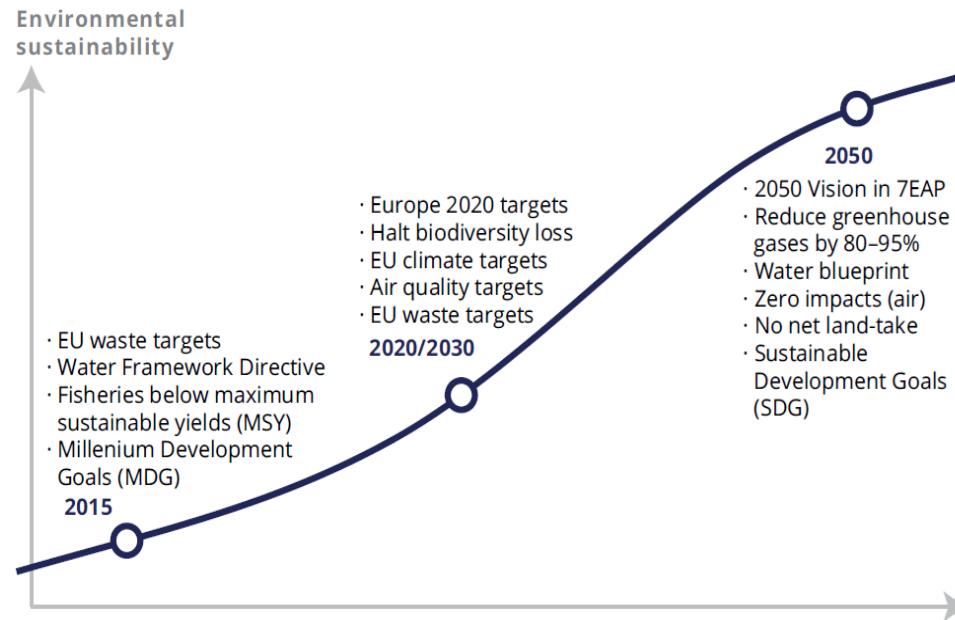
Source:  
EEA.

## From challenge to response

- Visions and futures
- Knowledge
- Governance
- Innovations

# VISIONS

EU vision: (9 billions people?) living well within the limits of the planet by 2050



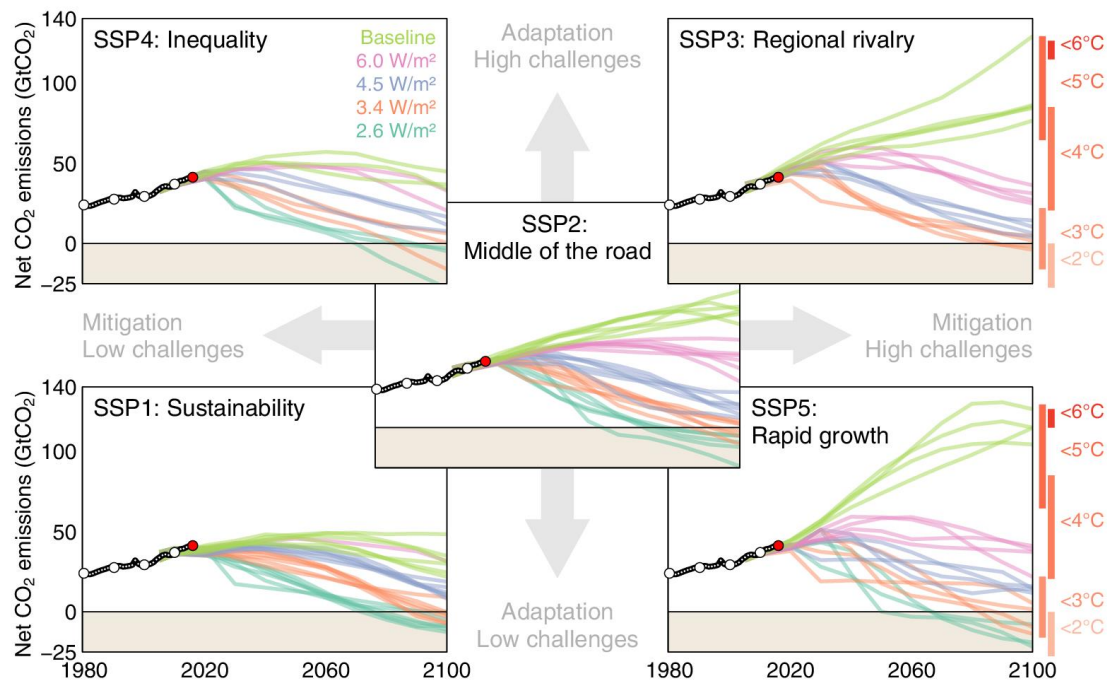
EEA, 2015

# The future is unknowable

- Failure to consider a range of possible futures equates to making the implicit assumption that future vulnerability will be similar to today's: a highly unlikely prospect.
- One has to **explore a range of possible futures**, and to generate insights that can be useful to inform policy-making.
- At a minimum, it is preferable to develop **at least 3 visions** of the future: pessimistic, optimistic and a continuation of current trends. Depending on the decisions to be taken, developing worst-case or best-case socioeconomic scenarios may be particularly relevant.

Five Shared Socioeconomic Pathways (SSPs) have been developed to explore challenges to adaptation and mitigation. Shared Policy Assumptions (SPAs) are used to achieve target forcing levels ( $\text{W}/\text{m}^2$ ).

# New generation of IPCC scenarios: possible future socioeconomic developments



# Futures

- **SSP1: Sustainability – Taking the green road**

inclusive development that respects perceived environmental boundaries.

- **SSP2: Middle-of-the-road**

social, economic and technological trends do not shift markedly from historical patterns.

- **SSP3: Regional rivalry – A rocky road**

resurgent nationalism, concerns about competitiveness and security and regional conflicts, weak global institutions

- **SSP4: Inequality – A road divided**

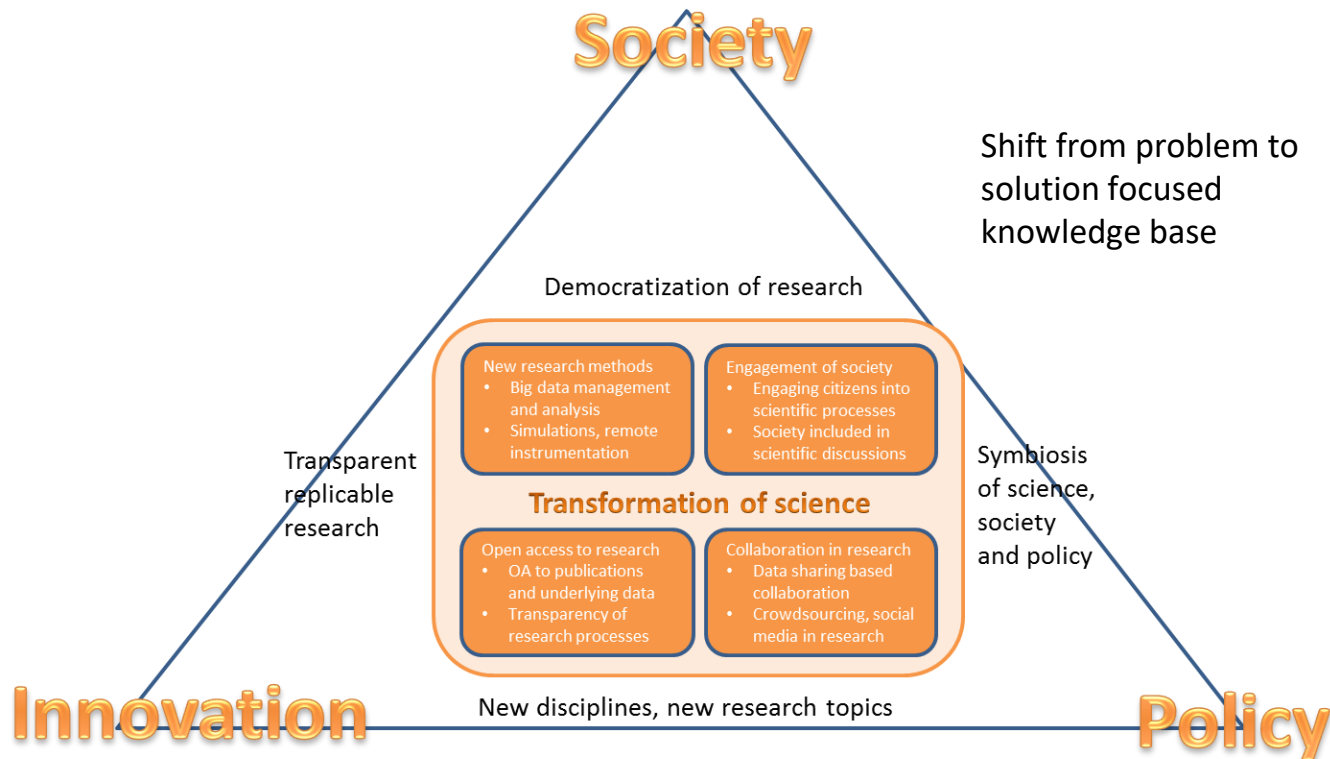
highly unequal investments in human capital, combined with increasing disparities in economic opportunity and political power

- **SSP5: Fossil-fueled development – Taking the highway**

driven by the economic success of industrialized and emerging economies, this world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development.

# KNOWLEDGE

Open science relies on technological development and cultural change





# GOVERNANCE



# Key dimensions of climate governance

- **Building strategic capacity**

Leadership

Knowledge and the provision of expert advice

Defining the national interest and elaborating a strategic policy framework

Building organizations focused on a low carbon emission economy

- **Integrating climate change into development decision making**

- **Societal mobilization**

Finding approaches to activate dynamic forces in society to engage with the climate challenge.

# Societal mobilization

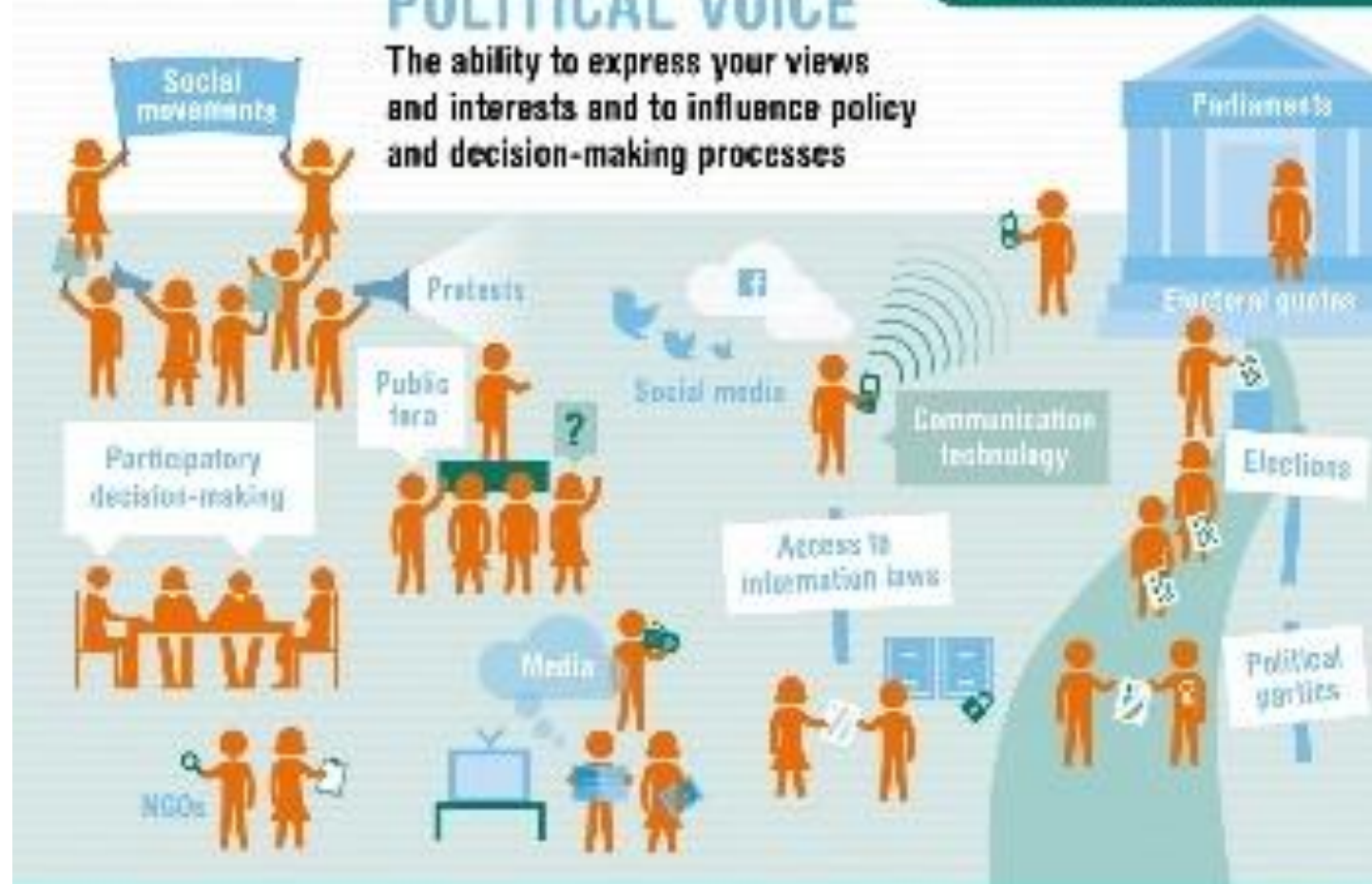
- **sending consistent economic signals** that encourage some behaviors and discourage others throughout society
- **developing public education about climate change** (changes to the curriculum of schools, colleges and universities, activities to raise the awareness of journalists. Professional organizations, business associations and trade unions also have an important educational potential.
- **engaging cities and localities.** If mitigation and adaptation activities are to become concrete for ordinary citizens, cities and local governments are key.
- **encouraging participation of stakeholders in key socio-economic sectors.** Many of the concrete strategies for emissions reduction and adaptation must be developed and applied at the sector level,
- **encouraging informed public discussion.** Climate change governance involves complex and contested decisions and difficult policy choices. These decisions affect long term societal welfare and the distribution of costs and benefits. It is only right that citizens be involved in these decisions.



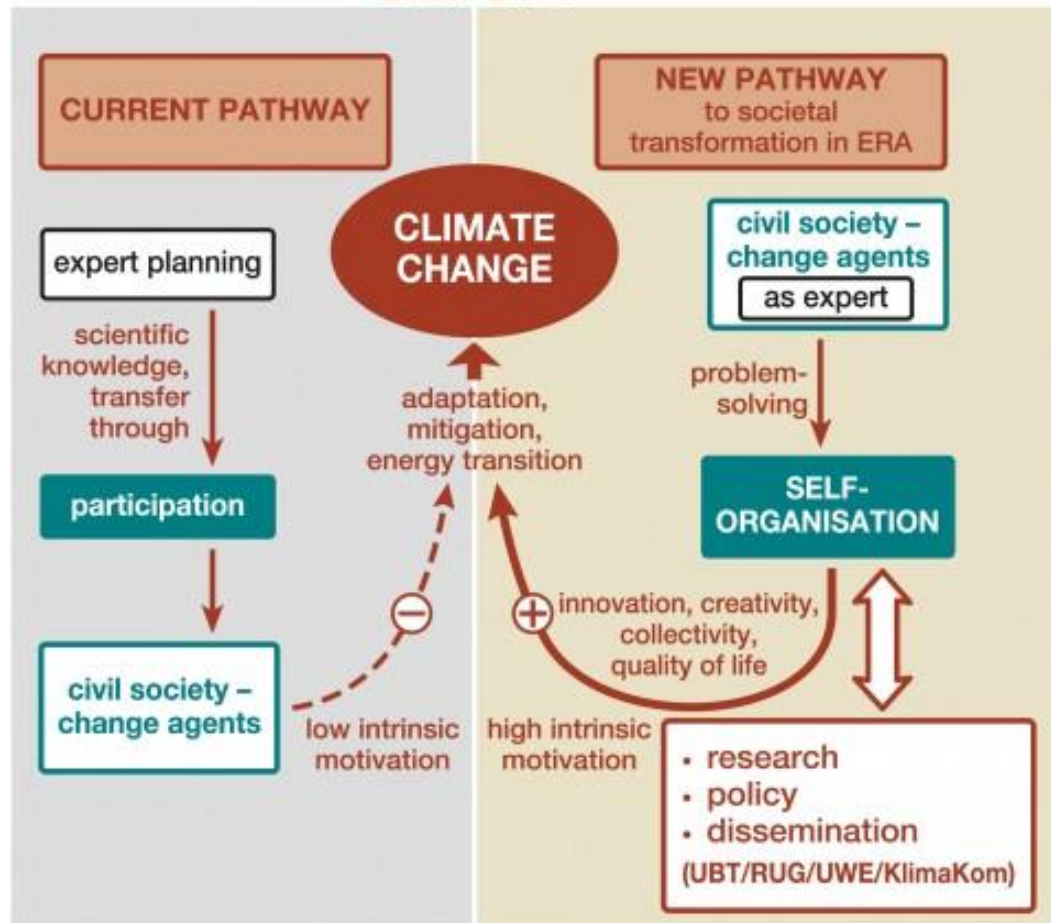
How do people make their voices heard?  
Link: [www.ipsos.com/uk](http://www.ipsos.com/uk)

## POLITICAL VOICE

The ability to express your views and interests and to influence policy and decision-making processes



## SELF CITY



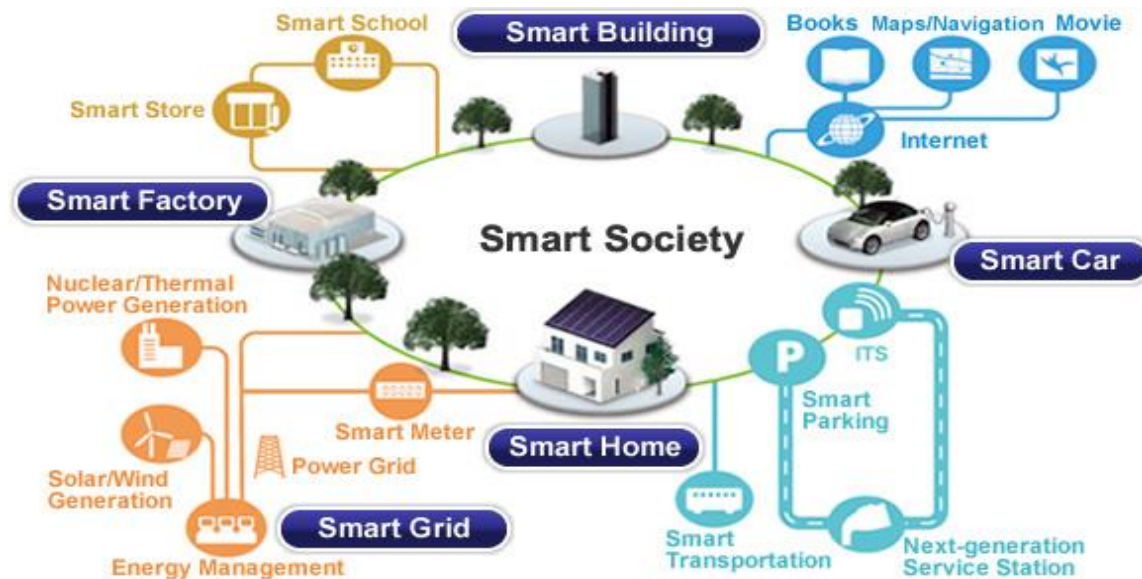
# INNOVATIONS



Institutional, infrastructure , economic, technological and social innovations

# Smart Society

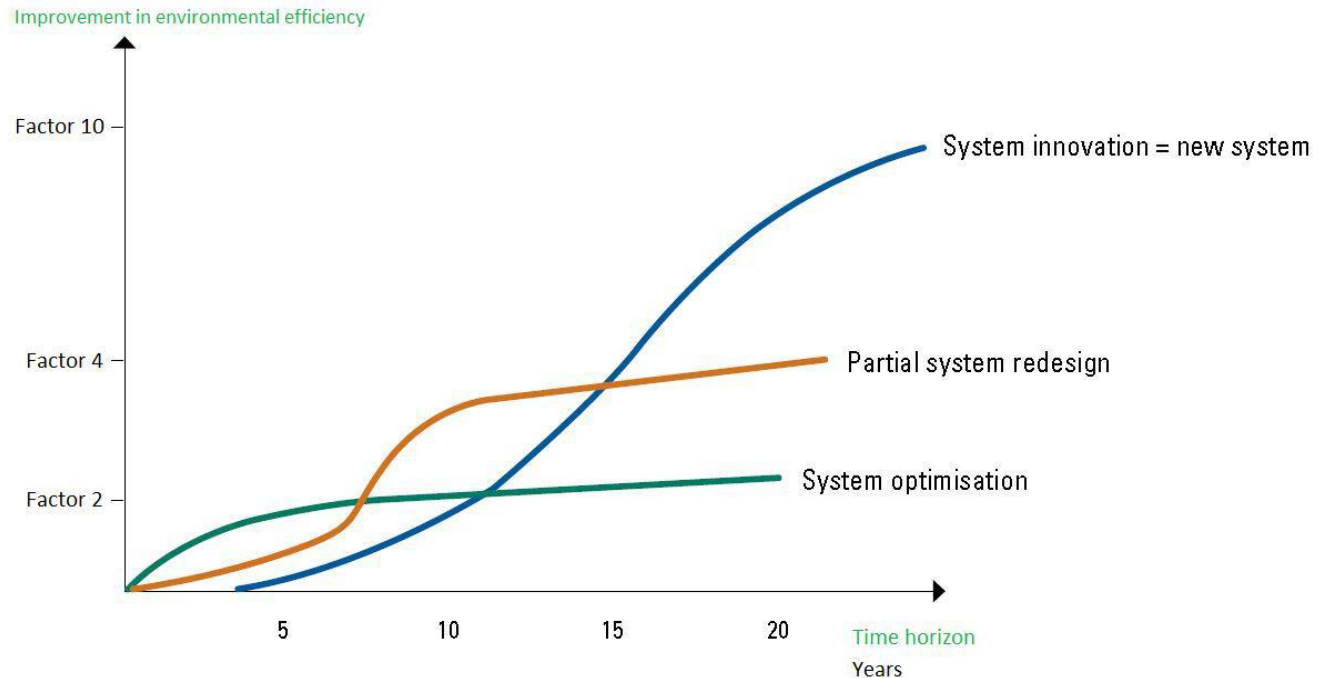
Holistic integration of technologies and services to serve people



- Big Data , Mobile devices.....
- Information exchange , mobile computing , payment , ticketing .....
- Security , privacy , identity , authentication ...

## Incremental change may not be enough

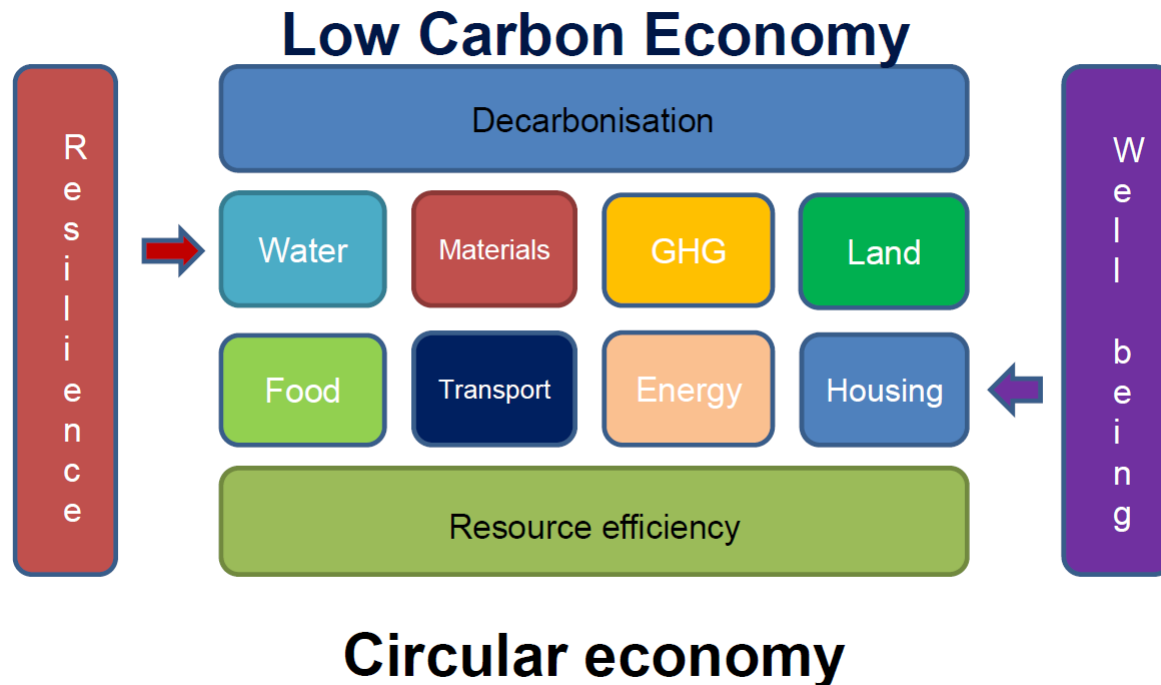
For EU the scale of the needed improvements in environmental efficiency demands systemic innovation



Source: UNEP



# An increasingly integrated, systemic policy setting



## Policies needed for supporting transitions

Policies should deliver

- **Conveners** of actors from the different research and governance communities, with the aim of facilitating the integration of different forms of knowledge
- **Translators** both across disciplines and from complex academic theory into the language of policy
- **Networkers**, helping in linking or replicating local innovations, or 'scaling up' local practices to higher institutional or policy levels
- **Analysts** of specific aspects of systems of particular importance for transition processes

# Conclusions

- Climate change is here to stay
- Achieving EU 2050 vision is possible but it depends on our actions today – we have to enter a new stage of environmental governance.
- It requires system transitions, driven by more ambitious actions on policy, knowledge and innovation.
- Systemic change must deliver decent employment, opportunities and fairness, as well as respecting environmental limits.

## Vision of the 7th Environment Action Programme

**‘In 2050, we live well, within the planet's ecological limits.**

Our prosperity and healthy environment stem from an innovative, **circular economy** where nothing is wasted and where natural resources are managed sustainably, and **biodiversity** is protected, valued and restored in ways that enhance our society's **resilience**.

Our **low-carbon** growth has long been decoupled from resource use, setting the pace for a global safe and sustainable society.’

Source: 7th EU Environment Action Programme