HORIZON 2020
and climate change research and innovation

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HORIZON 2020

Horizon 2020 – the 3 priorities

Business sets the agenda

Excellent science

Science sets the agenda

Industrial leadership

Societal challenges

Society sets the agenda

Climate change in Horizon2020

The 2014-2020 EU framework programme for research and innovation

The EU is committed to spend at least 35% of the overall budget of Horizon 2020 for climate-related research and innovation actions

This includes: physical and social sciences, technology development, climate services, energy and transport innovation, bioeconomy, earth observation, sustainable food production, water management, etc.

Societal Challenge 5: Climate action, environment, resource efficiency and raw materials

Objective: *"to achieve a resource efficient and climate change resilient economy and society, the protection and sustainable management of natural resources and ecosystems, and a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems."*

Societal Challenge 5: Approach and principles

- ✓ **Challenge-driven** and **solution oriented**
- ✓ Assess **risks** & seize **opportunities**
- ✓ Not just furthering our knowledge for the sake of knowledge *(other parts of H2020 have this mandate).*

  but…..

- ✓ Harnessing **knowledge** to come up with effective **solutions** that can be put into **practice**.

Our mandate: The "Specific Programme"
(co-decision between European Parliament & Council)

5.1. Fighting and adapting to climate change

- Improve the understanding of climate change and the provision of reliable climate projections
- Assess impacts, vulnerabilities and develop innovative cost-effective adaptation and risk prevention measures
- Support mitigation policies

Areas addressed in the first 4 years of H2020
(Societal Challenge 5)

- ✓ Earth System Models
- ✓ Climate Services (working closely with Member States – "JPI Climate")
- ✓ Economics of climate change and links with sustainable development
- ✓ Air quality and carbon footprint in cities
- ✓ Water cycle & future climate change
- ✓ Food security – low carbon energy – water management (nexus)
- ✓ Disaster resilience and climate change
- ✓ Developing in-situ Atlantic Ocean Observations
- ✓ Integrated European Regional modelling / climate prediction system
- ✓ Research supporting a robust GHG monitoring/verification system
- ✓ Risks and costs of climate change for Europe
- ✓ Cost-effective pathways towards a low-carbon transition
- ✓ Assessment of mitigation efforts (towards long-term climate goal)
- ✓ Arctic-related research (including permafrost)
- ✓ Support IPCC AR6

COP21: A historic Agreement

- A new chapter in international climate governance and action
- A win for multilateralism
  (1st major multilateral deal of the 21st century)
- A strong signal to policy makers, investors and businesses
- Great example of EU unity and leadership

Research and Innovation

Science in the COP21 decision and in the Paris Agreement

- ***High importance given to <u>science</u>, <u>research</u>, <u>technology development</u> and <u>innovation</u>.***

It requires the IPCC to provide a Special Report on 1.5°C impacts and pathways in order to inform the "facilitative dialogue" foreseen in 2018, and to contribute with its Reports to the "global stocktake" that will start in 2023 and will be repeated every five years.

Support science for the IPCC Reports

- *Within the **6th Assessment Report (AR6) cycle** (WGI April 2021, WGIII July 2021, WGII October 2022), **3 Special Reports (SR)** have been decided:*

  1. *1.5°C warming impacts and pathways (Sept. 2018);*
  2. *Ocean and the Cryosphere (Sept. 2019);*
  3. *Agriculture, land use, land degradation, … (Sept. 2019)*

- *A SR on "Cities" will be held at the beginning of the AR7 cycle (2023-24)*

The way forward: WP 2018-20

Some preliminary thoughts (currently under discussion with Member States)

- ***Decarbonisation pathways*** *(including opportunities, costs, impacts, trade-offs, behavioural aspects, public acceptance, finance architecture, links with adaptation and other policies) that are consistent with the PA goals and EU objectives.*

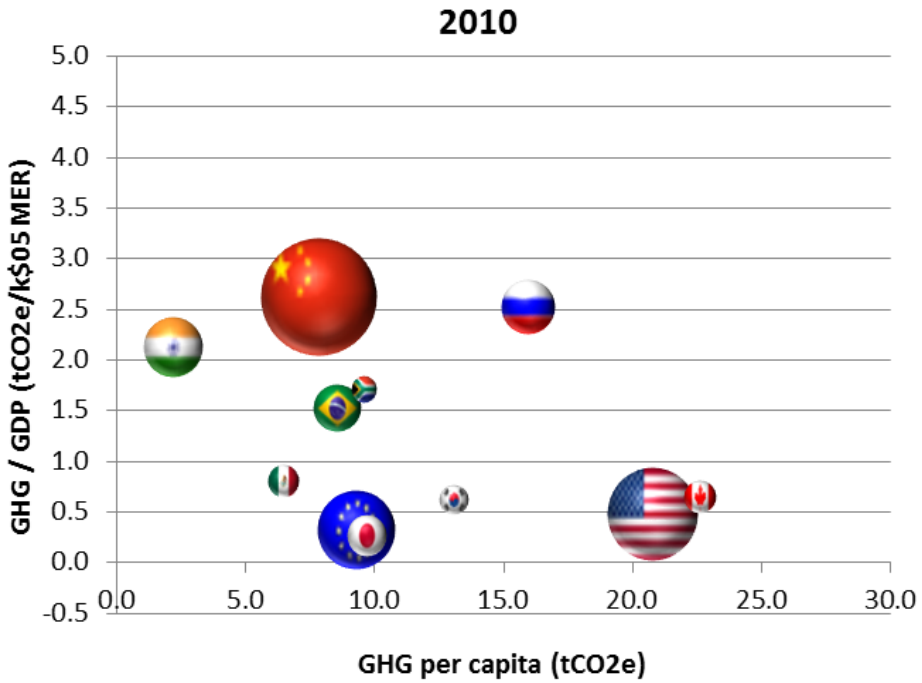
- *Robust assessments of* ***impacts, vulnerabilities and risks*** *for enhancing resilience of human systems and ecosystems and climate-proofing of assets, sectors and critical infrastructures in support of decision making;*

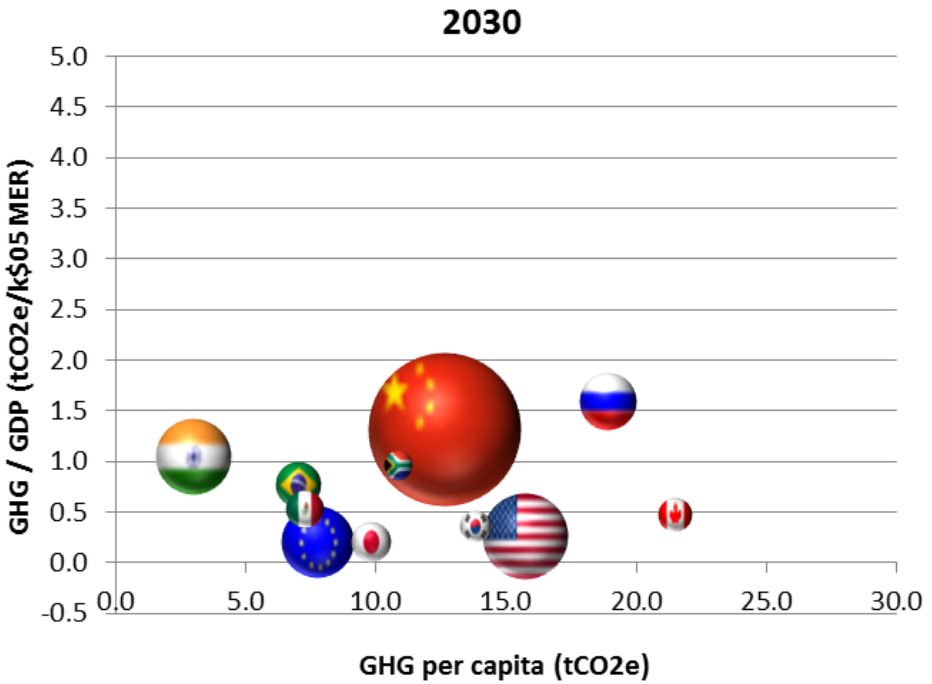
- *facilitating market development of* ***climate services;*** *development and application of methodologies and tools for* ***assessing climate risk*** *in investments, businesses and private sector*

- *impacts of climate change on* ***vulnerable areas/hot-spots*** *such as* ***oceans*** *and* ***polar regions*** *(with the main focus on the Arctic).*

- *underpinning science to address* ***emerging issues and key knowledge gaps****, enabling long-term improvement of climate science in view of producing policy-relevant information for mitigation and adaptation.*

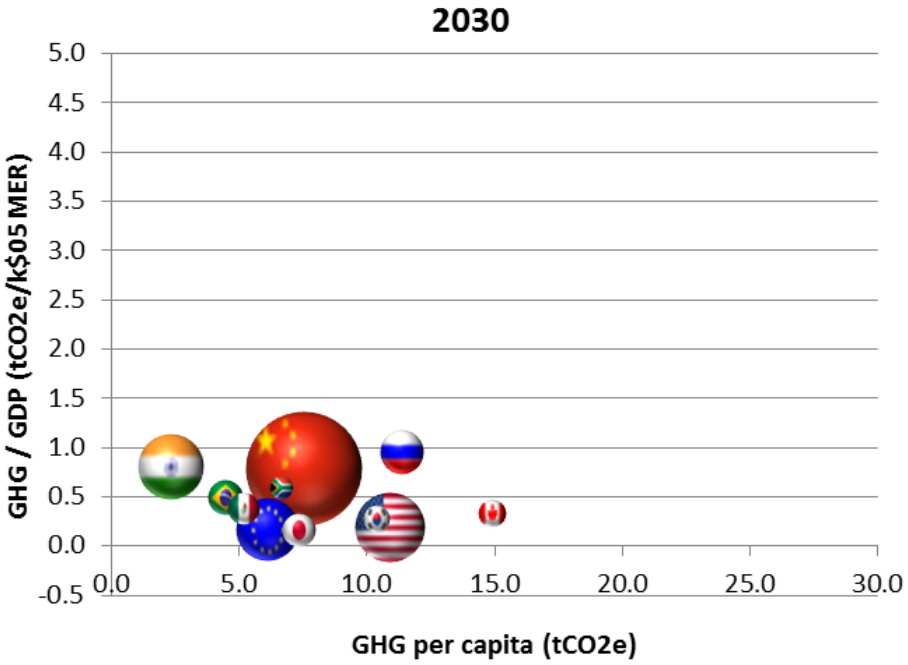
What we are up to is a fast, non-linear socio-technical transition - from this situation…..

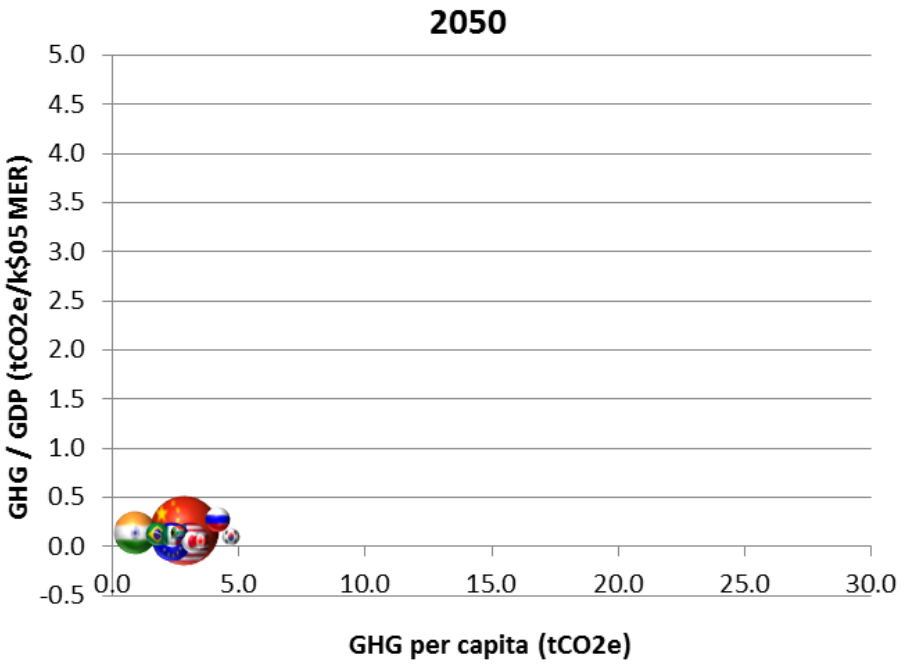




GHG emission intensity vs. per capita, major economies, 2010-2030 Baseline

…….to this, if we want to stay on the 2°C trajectory:





GHG emission intensity vs. per capita, major economies, 2030-2050 Global mitigation scenario

"We cannot solve our problems with the same level of thinking we used when we created them"

A. Einstein

Thank you
for your attention!

Find out more:
www.ec.europa/research/horizon2020

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