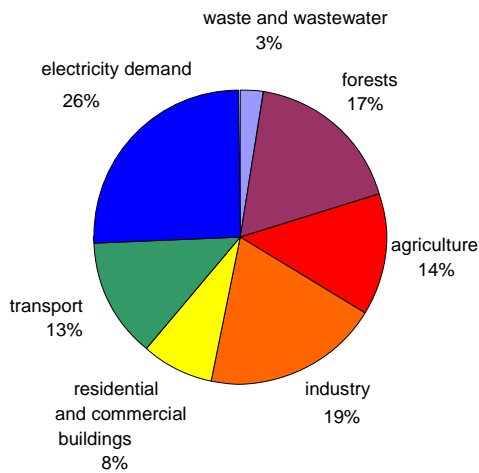


Adapting to climate change: a brief summary

What is climate change?

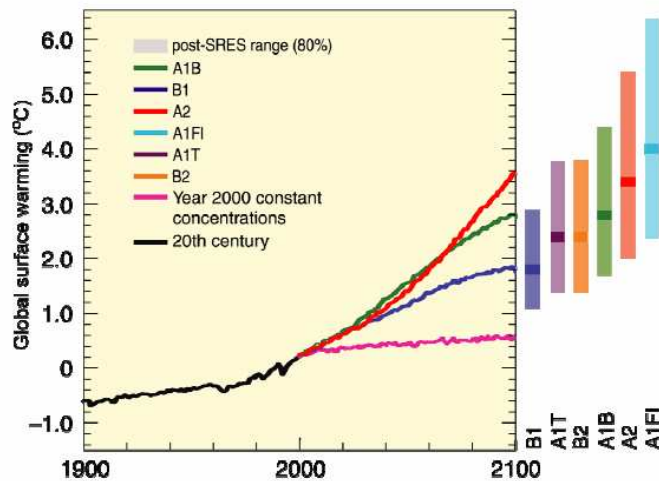
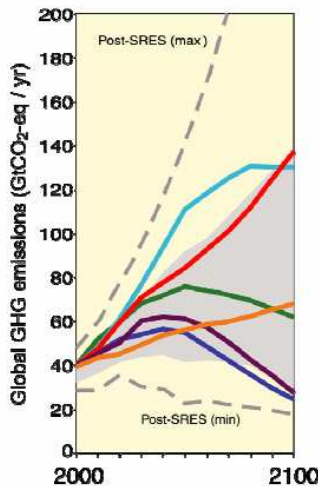


Climate change results from an imbalance in the distribution of greenhouse gases (GHG). These gases absorb the sun's rays reflected by the Earth. Between 1970 and 2004, a 70% increase was observed in man-made GHG emissions (including 80% of CO₂), which were transferred from the biosphere or terrestrial reservoir to the atmospheric reservoir. The increasing atmospheric concentration of GHG accentuates their absorbant effect, thereby raising the average temperature of the planet.

Source: GIEC (2007)

What are the foreseeable climate changes and their impact?

The scenarios of the IPCC point to a 25% - 90% increase in GHG emissions between 2000 and 2030.



Even if GHG concentrations are stabilised at 2000 levels, global warming of 0.1°C is expected for 10 years.

Source: GIEC (2007)

The rising temperature caused by higher atmospheric concentration of GHG will aggravate the situation in certain regions already affected by drought, such as the Mediterranean basin and North Africa. But climate warming is not merely a thermal change. Temperature is a factor conditioning the water cycle (evaporation, ice cap melting). Any change in temperature causes a disturbance in the cycle, causing:

- A rise in sea level (3.1 mm/year since 1993),
- Increased rainfall in Eastern North America, Northern Europe, Northern and Central Asia, and decreased rainfall in the Sahel region, the Mediterranean, Southern Africa and part of South Asia,
- Increased intensity in tropical hurricanes in the North Atlantic,

- A change in natural systems: an increase in the number and size of glacier lakes, soil instability, a change in hydrological systems, a shift in certain terrestrial ecosystems towards the North and higher altitudes.

While there is some uncertainty in these forecasts of future impact, such “catastrophe” scenarios are not purely fictional, but represent a potential reality if no measures are taken to prevent them.

What can we do? The mitigation and adaptation options

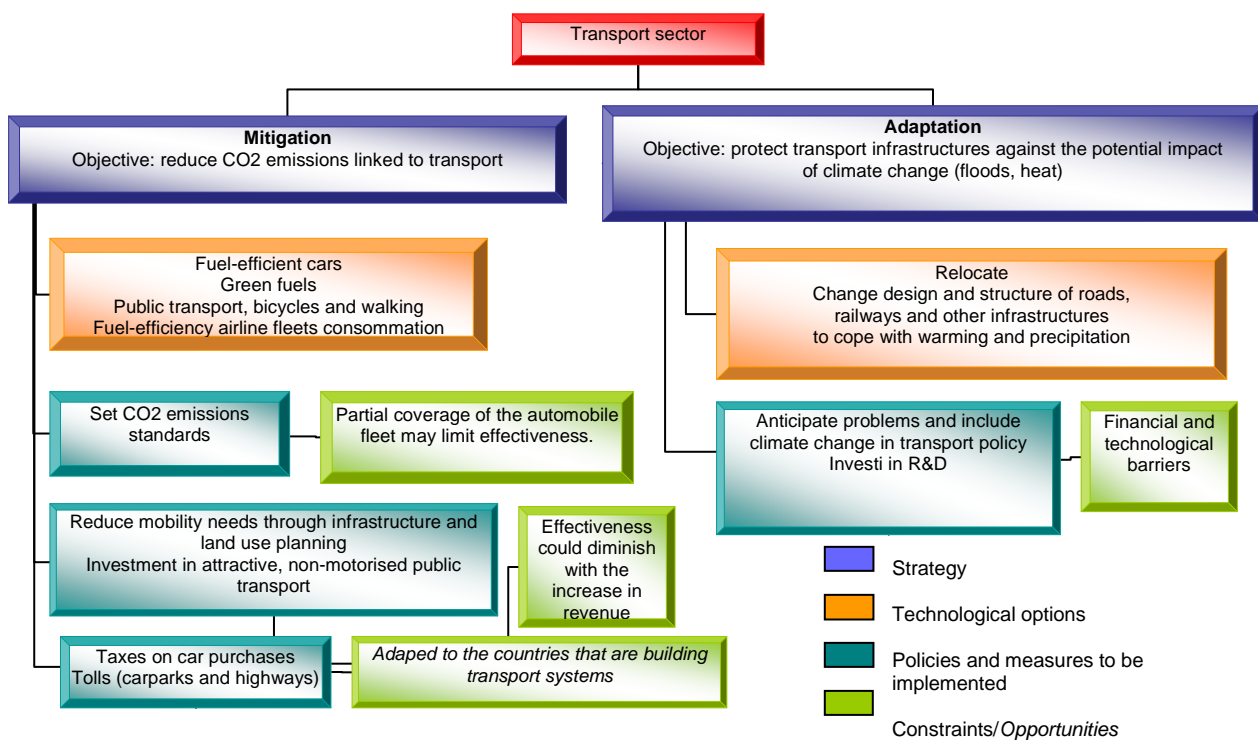
Mitigation: human intervention to reduce the source of greenhouse gas emissions or to increase the storage of these gases (sinks).

Adaptation: adjustment of natural or human systems to cope with a changing environment; adaptation can be anticipatory or reactive, public or private, autonomous or planned.

Source: ONERC¹

Mitigation and adaptation are two complementary forms of action: mitigating measures are required first to stop and then reduce the impact of global warming, but they are not enough to eliminate the risks altogether. Due to physical inertia (carbon cycle) and social inertia (numerous negotiations prior to reaching an agreement, policy implementation), present and future atmospheric concentrations of GHG, even taking mitigating measures into account, will engender negative effects such as floods, which have to be anticipated.

Example: in the transport sector



What adaptation actions have been undertaken so far?

At the worldwide level: the United Nations Framework Convention on Climate Change Adaptation was introduced with the adoption of the UNFCCC in Rio in 1992. The programme was developed throughout the conferences of the parties. The following action was taken:

- financial: 4 funds were created, including the adaptation fund, entrusted to the FEM² in Bali

¹ National observatory of the effects of global warming

² World Environment Fund

- institutional: launch of National Adaptation Programmes of Action (NAPA), financed by the LDC³ fund, intended to analyse action adaptation priorities in the Least Developed Countries (LDC); writing of a **National Communication** by all the Parties of the UNFCCC, summarising the vulnerability, needs and priorities of the countries
- methodological: developing of a “Summary of the methods and tools to assess the impact, vulnerability and adaptation to climate change” to help the countries carry out their studies on adaptation possibilities and needs.

At the European level: the Green Paper

On June 26, 2007, the European Commission published a **Green Paper** describing EU action in the area of adaptation. It presents four main focal points for action:

- 1) act immediately,
- 2) enter into alliances with partners through the world to coordinate adaptation measures,
- 3) encourage research, exchange information and integrate results in policies,
- 4) see to it that society, companies and the European public sector take part in drawing up coordinated, overall adaptation strategies.

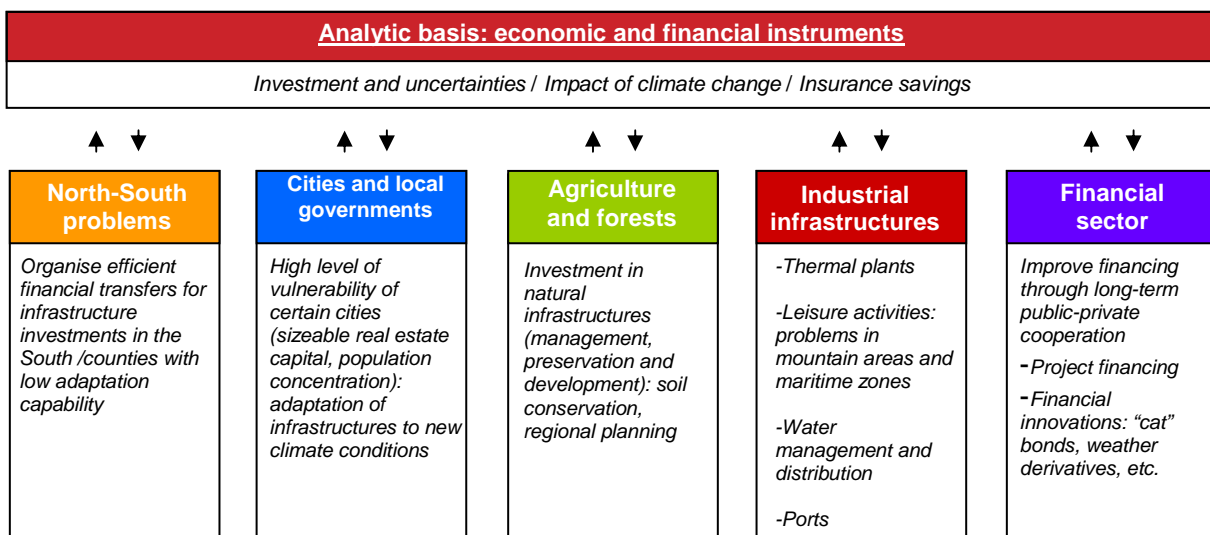
National strategies: the case of France

France is finalising a “**National Strategy to Adapt to Climate Change**” as well as a detailed adaptation programme. This objective was set by the 2004 Climate Plan adopted in July 2004.

The National Observatory of the Effects of Climate Change has played an important role in French adaptation strategies by publishing a report on adaptation submitted to the Prime Minister and the Parliament.

How can Caisse des Dépôts make a useful contribution?

Caisse des Dépôts wants to help introduce economic tools to ensure that the issue of adaptation to climate change is taken into account in the choice of infrastructures. Its Mission Climat is working with public authorities and research institutions to launch a research programme that could combine various modules:



Useful links:

- United Nations Framework Convention on Climate Change <http://unfccc.int/adaptation/items/4159.php>
- European Union (2007 Green Paper on adaptation) http://europa.eu/documents/comm/green_papers/index_fr.htm
- ONERC (National strategy for adapting to climate change) http://www.ecologie.gouv.fr/rubrique.php?id_rubrique=639
- Mission Climat of Caisse des Dépôts www.caissedesdepots.fr/missionclimat
- APREC (Association for Research on Carbon Emissions Reduction) www.aprec.net

³ Least Developed Countries