

Climate Change, Sustainability, Profitability



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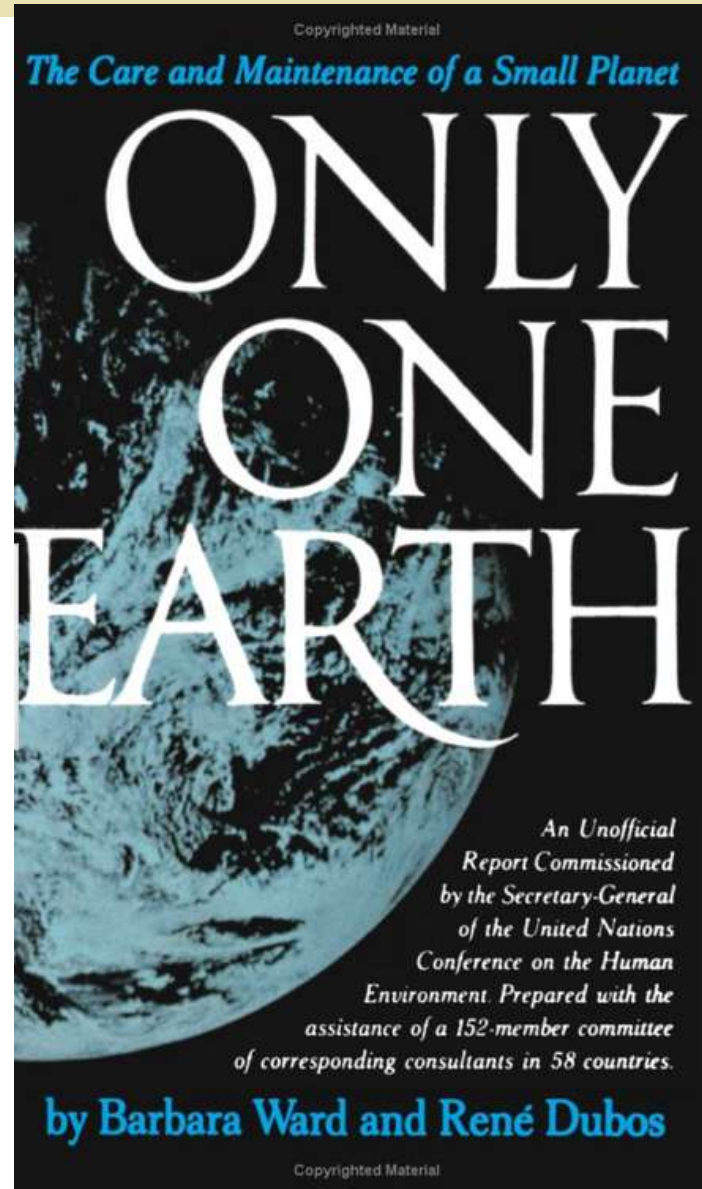
**The support of the Belgian Federal Science Policy
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What makes sustainability profitable?, Brussels, 22-2-2011

Only one Earth

“... The sum of all likely fossil-fuel demands in the early decades of the [21st] century might ... greatly increase the emission of carbon dioxide into the atmosphere and by doing so bring up average surface temperature uncomfortably close to that rise of 2° C which might set in motion the long-term warming up of the planet.”

B. Ward & R. Dubos, 1972



B. Ward & R. Dubos,
*Only one Earth: the Care and
Maintenance of a Small Planet,*
New York, London:

W W Norton & Company, (1972) 1983

Already 39 years!

- It was well before the establishment of the IPCC, in 1988
- Didn't we lose some time?

Since 1972...

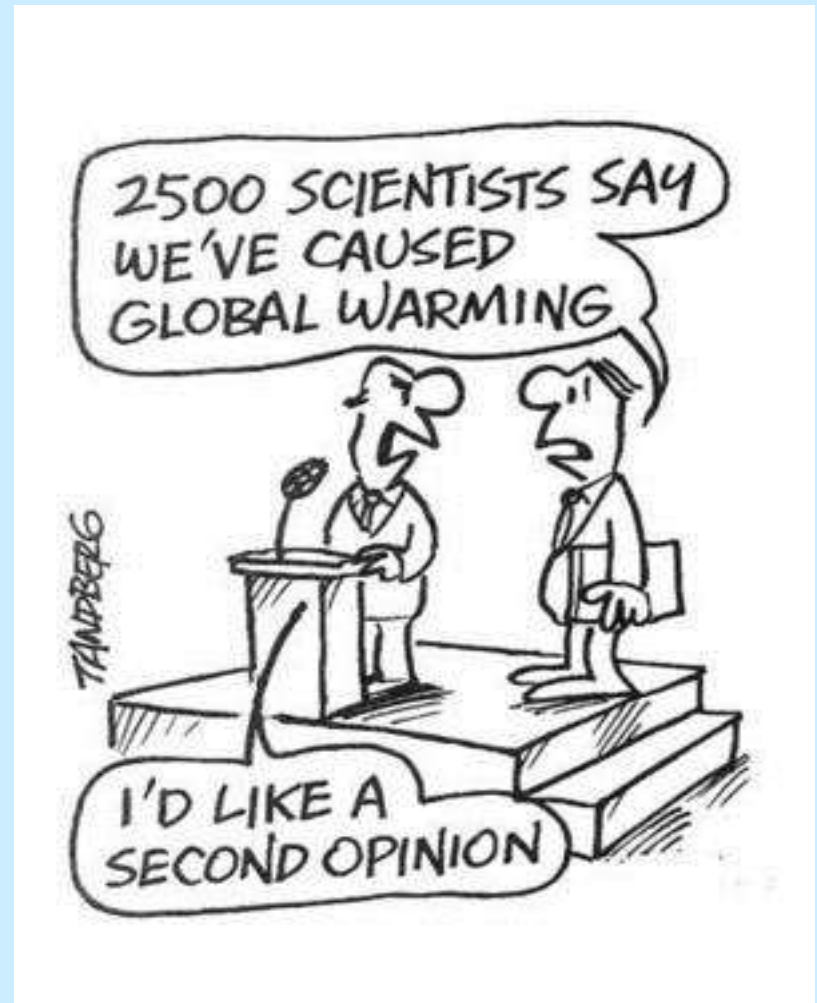
- The **carbon's cycle** continued to do its 'job', almost as described by Ward and Dubos
- The **greenhouse effect** is increasing more and more, as Arrhenius (Nobel of chemistry) had announced it in 1896
- The global warming and the associated extreme events threatens more and more the habitability of our planet

Why the IPCC ?

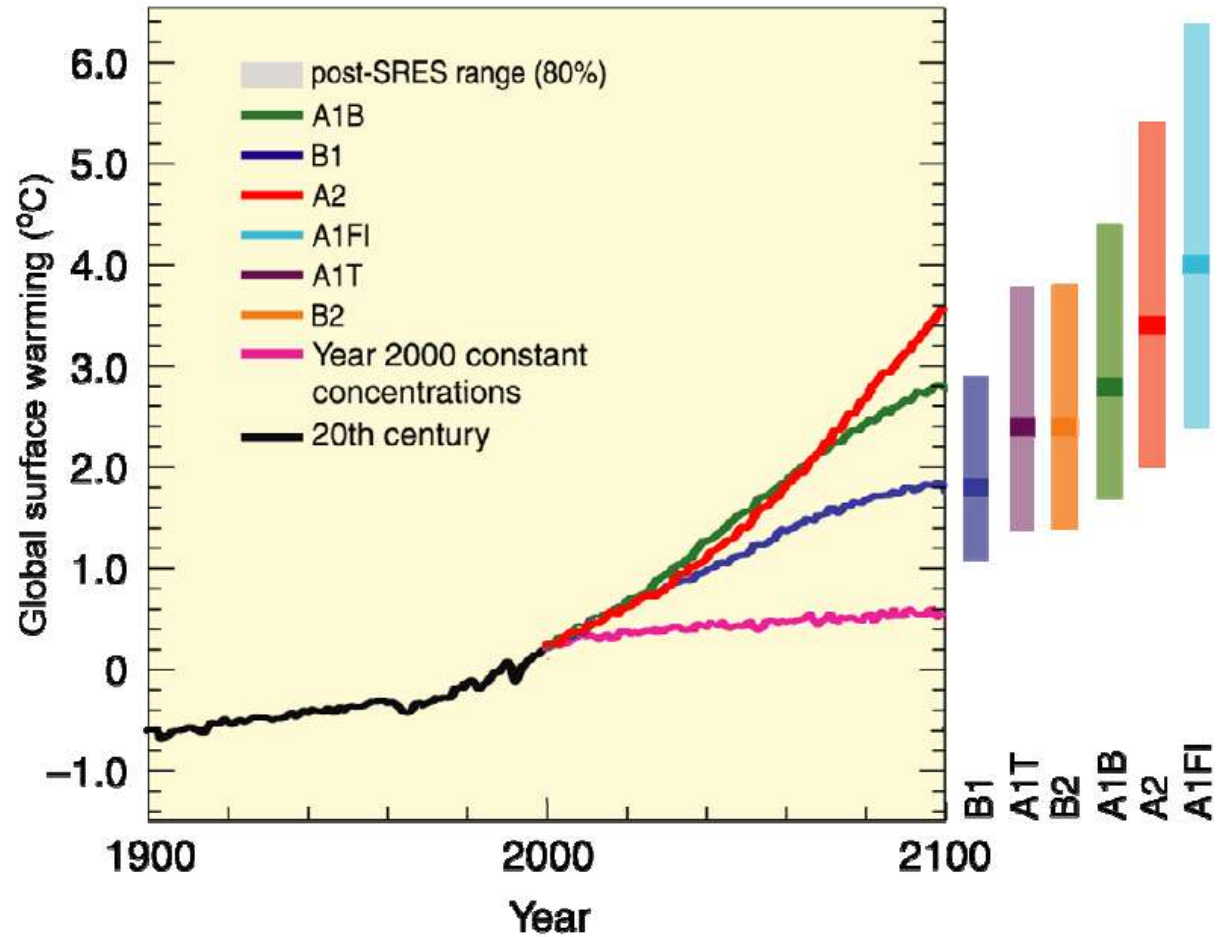
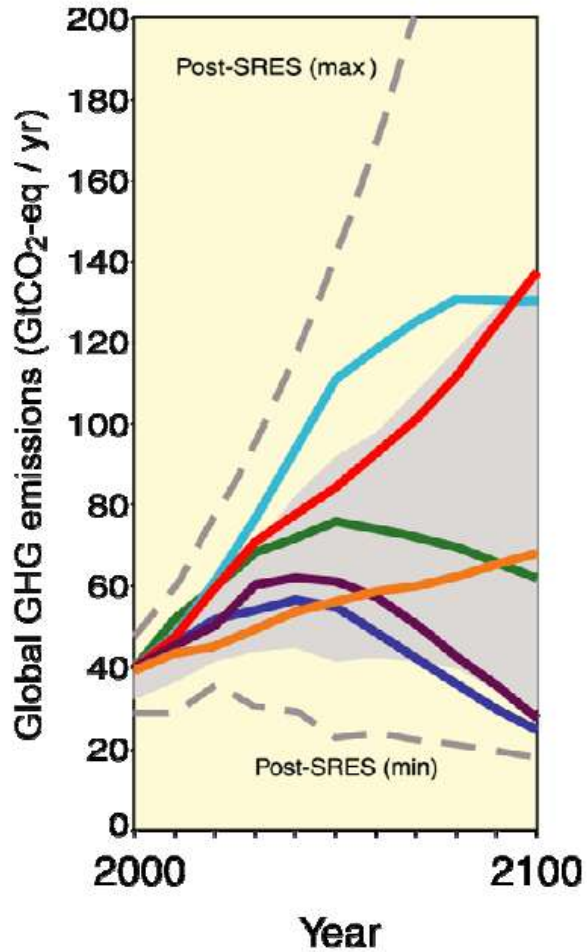
Established by WMO and UNEP in 1988

to provide **policy-makers** with an **objective source of information** about

- causes of climate change,
- potential environmental and socio-economic impacts,
- possible response options.



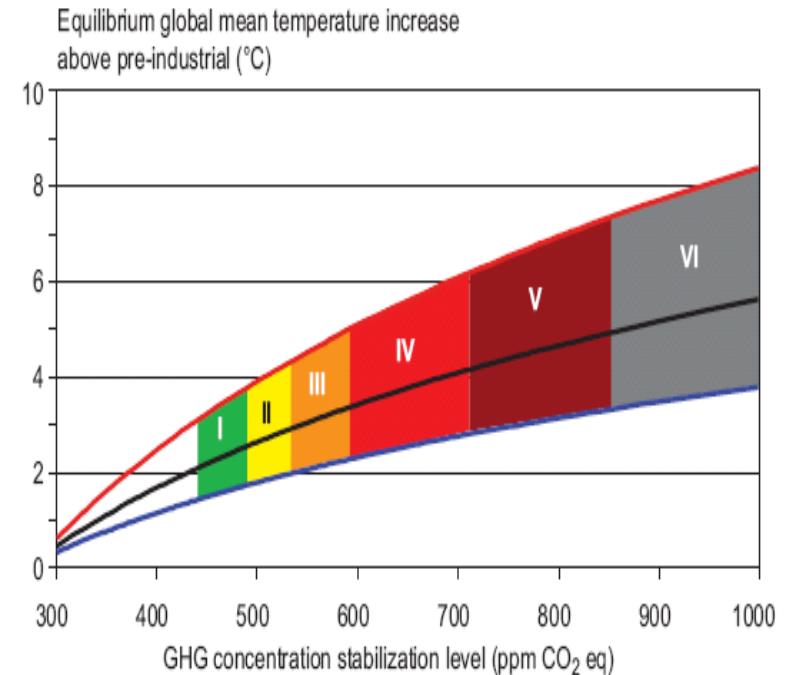
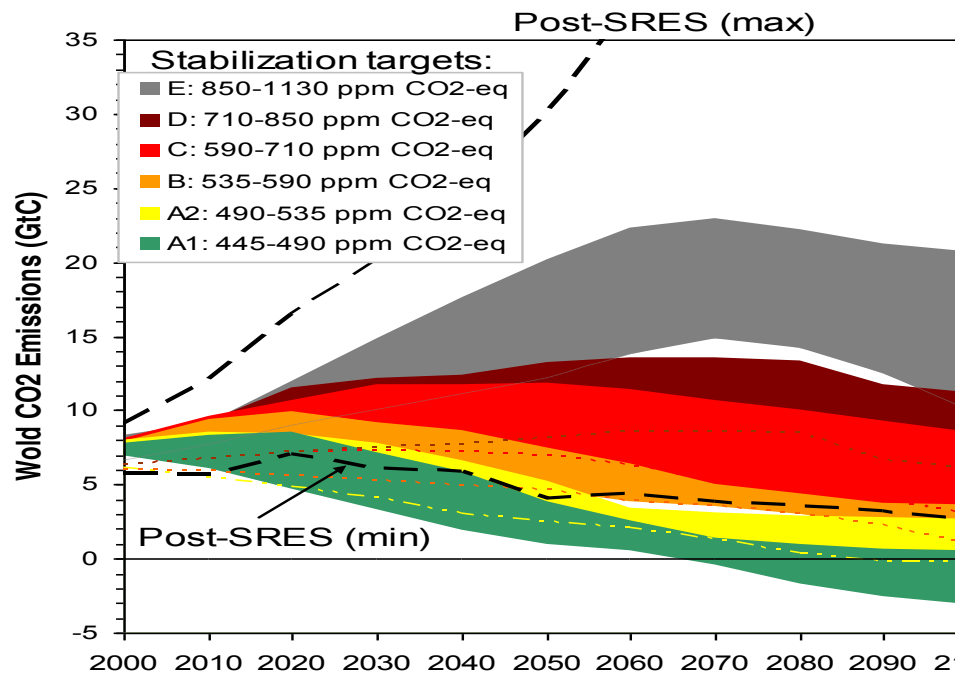
Climate projections without mitigation



NB: écart par rapport à la moyenne 1980-1999

The lower the stabilisation level the earlier global emissions have to go down

(source: IPCC AR4)



Multigas and CO₂ only studies combined

What does the IPCC (AR4) say

- **Warming of the climate system is unequivocal**
- **Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations (NEW since last week: extreme rain also very likely due...)**
- **Global T: +1.6 to 6.9° C in 2100 (w.r.t. 1750) without mitigation**
- **Negative consequences: for all sectors and ecosystems, in developing countries first, then everywhere (adaptation needed in any case)**

What does the IPCC (AR4) say

- To stabilize T below $\leq +2^\circ$ C above pre-industrial, it is necessary to reduce the CO₂ emissions to zero as soon as possible, then move towards negative emissions (global absorption) of CO₂
- The technical options and the economic instruments exist
- A global price for CO₂ would really facilitate the implementation
- There are also opportunities and co-benefits

Not said by the IPCC, but implicit:

Mankind has reached a
turning point

What is mostly **missing** is
the political, economic, and
social **'will'** to make the
right choices

Choice A

- Mankind can continue to run its business as usual, continue wasting energy and resources, and consume more and more fossil fuels responsible for greenhouse gas emissions
- NB: These fuels needed 300 million years to be formed, and we consume them in 300 years...
- Their combustion will release so much carbon in the atmosphere that the temperature is likely to be soon higher than at *any* time during the history of humanity

Consequences of choice A

- The sea level rises approximately 1 metre/century in the next 1000 years
- Heatwaves, droughts, and extreme precipitation continue to increase (frequency & intensity)
- A third or more of the known living species is at an increasing risk of extinction
- Food security is much more difficult to ensure
- Tensions are exacerbated: conflicts, refugees, epidemics
- Economic impacts become serious

Choice A...

- ... is privileging the short-term and amounts to being as clever as the ostrich hiding her head in the sand
- ... is like continuing to dance in the Titanic ballroom, while unaware of the approaching collision

Choice B

- Here, humanity pays more attention to the IPCC and to scientists who work on the subject
- Humanity uses the IPCC reports like radars antennas combined with GPS systems, which at the same time make it possible to anticipate the obstacle and to find an alternate way
- NB: Radars and GPS which missed on Titanic
- Humanity sees the beauty and the fragility of the branch on which we are all seated

Choice B

- Humanity understands that the Sun provides us each **hour** the same quantity of energy as what humanity consumes in total in one **year**
- Visionary leaders and actors at all levels see the opportunities offered by a long-term and **sustainable vision**, including in **profitability** (among other reasons because non-renewable energy and other natural resources will become more costly; **being super-efficient** means being **more competitive** as well)

My own bias for « Choice B »

- **As a scientist, I have seen the iceberg coming for 30 years now**
- **I think about my children, and about all the children of the world, who will inherit the planet that we will leave them**
- **The impression of sitting on a branch we contribute to saw is an uneasy one**

My own bias for « Choice B »

- **I am convinced the future is not a fatality, it is in our hands.**
- **Everyone shares some responsibility, but those who have the knowledge and the means have a larger responsibility than others**

Real Sustainable Development:

A true balance between the economy (with a long-term sight), the environment (shared and fragile), and the social aspects (equity between generations is only one slogan if it does not go hand in hand with the search of equity (justice), today).

This choice...

- **... is our choice, it is the choice which each one among us will make in the next months and the next years, where she/he can act**
- **This choice needs to be a conscious one, and not a choice made by default, so that nobody feels obliged starting again this talk in 39 years**

This choice...

- ... can be a *profitable* one, and I will let you decide which one of A or B is the most profitable (and satisfying) in the long term

What did « The Economist » say in 1990 already?

- **“Being dirty has lots of costs: being greener than the competition may have many advantages”**
- **“For far-sighted companies, the environment may turn out to be the biggest opportunity for enterprise and invention the industrial world has seen.”**

(Frances Cairncross, The Economist, 8 September 1990)

Useful links:



⌘ www.ipcc.ch : IPCC

⌘ www.unfccc.int : Climate Convention

⌘ www.climate.be/vanyp: many of my slides
and other documents