# Climate Negotiations at COP21
# The economics of a paradigm shift

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**Journée de la Chaire MPDD, Mines Paristech,**
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# What a climate negociation is about?


## Long term targets (the 2°C)

## Commitments on what?

- Carbon prices?
- Emissions Targets -> Emissions Pledges?
- PAMs -> NAMAs -> INDCs?

## The Common But Differentiated Responsability Principle = Burden Sharing?

- PAMs : Policies and measures
- NAMAs: Nationally Appropriate Mitigation Actions
- INDCs: Intended Nationally Determined Contributions

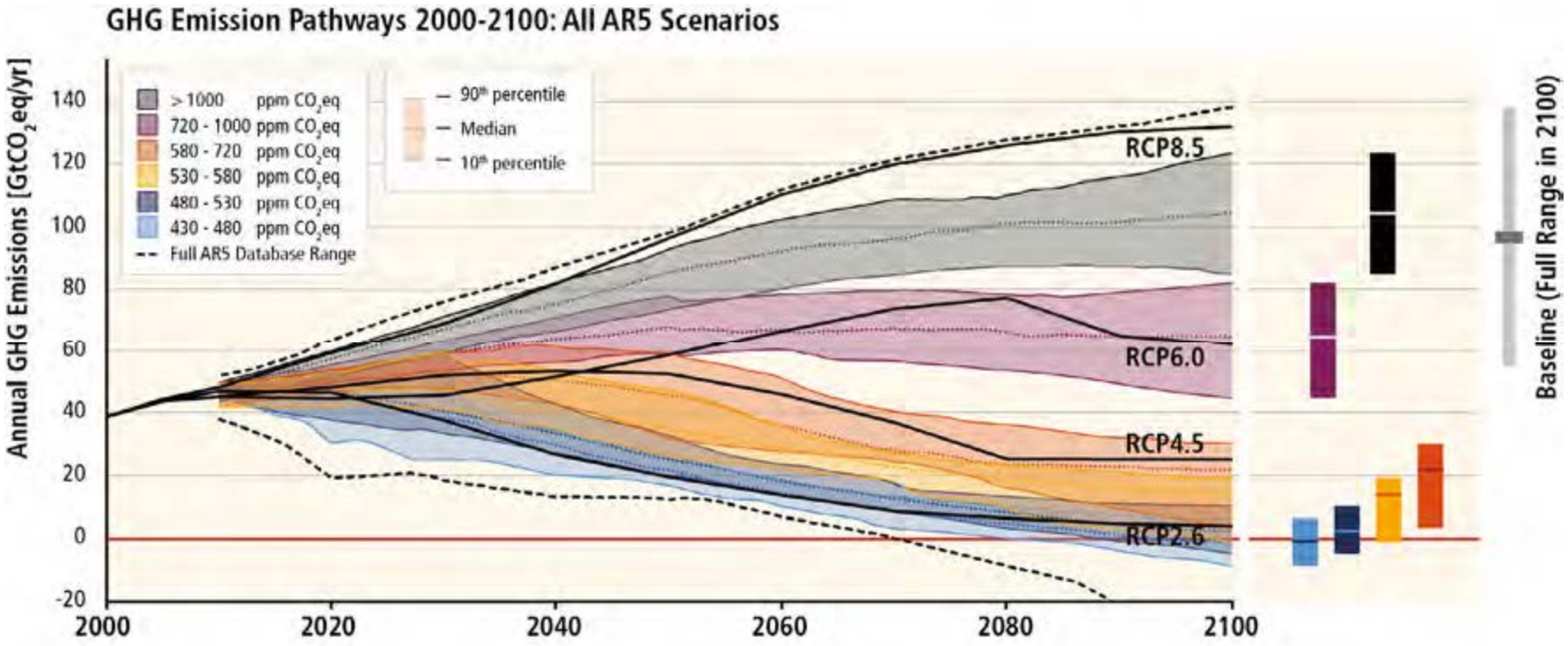
# IPCC: lessons from 1184 scenarios

Mitigation scenarios reaching about 450 ppm CO2eq in 2100 typically involve temporary **overshoot** of atmospheric concentrations ….. rely on the **availability and widespread deployment of BECCS and afforestation** in the second half of the century.

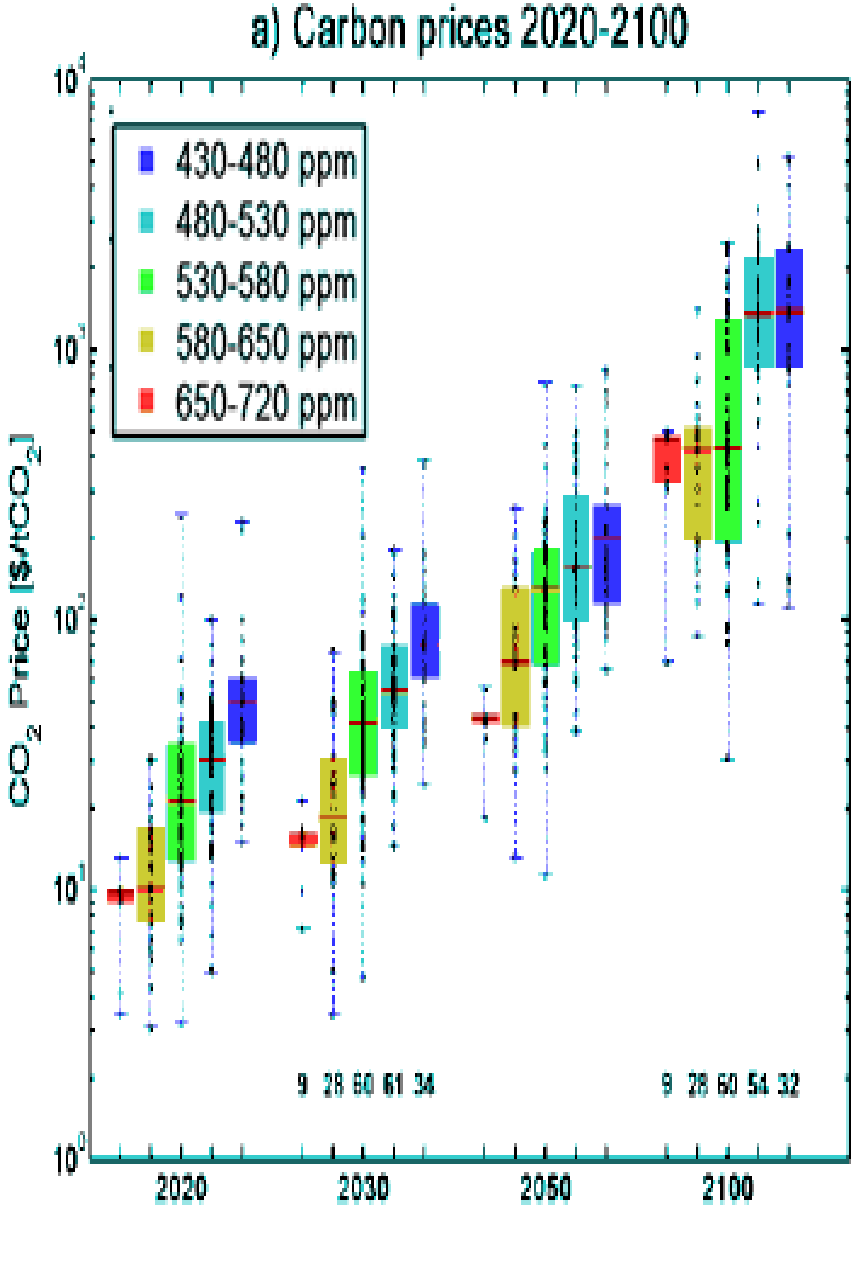
They entail **losses in global consumption** — ….. — of mitigation of 1% to 4% (median: 1.7%) in 2030, 2% to 6% (median: 3.4%) in 2050, and 3% to 11% (median: 4.8%) in 2100 relative to consumption in baseline scenarios that grows anywhere from 300% to more than 900% over the century.

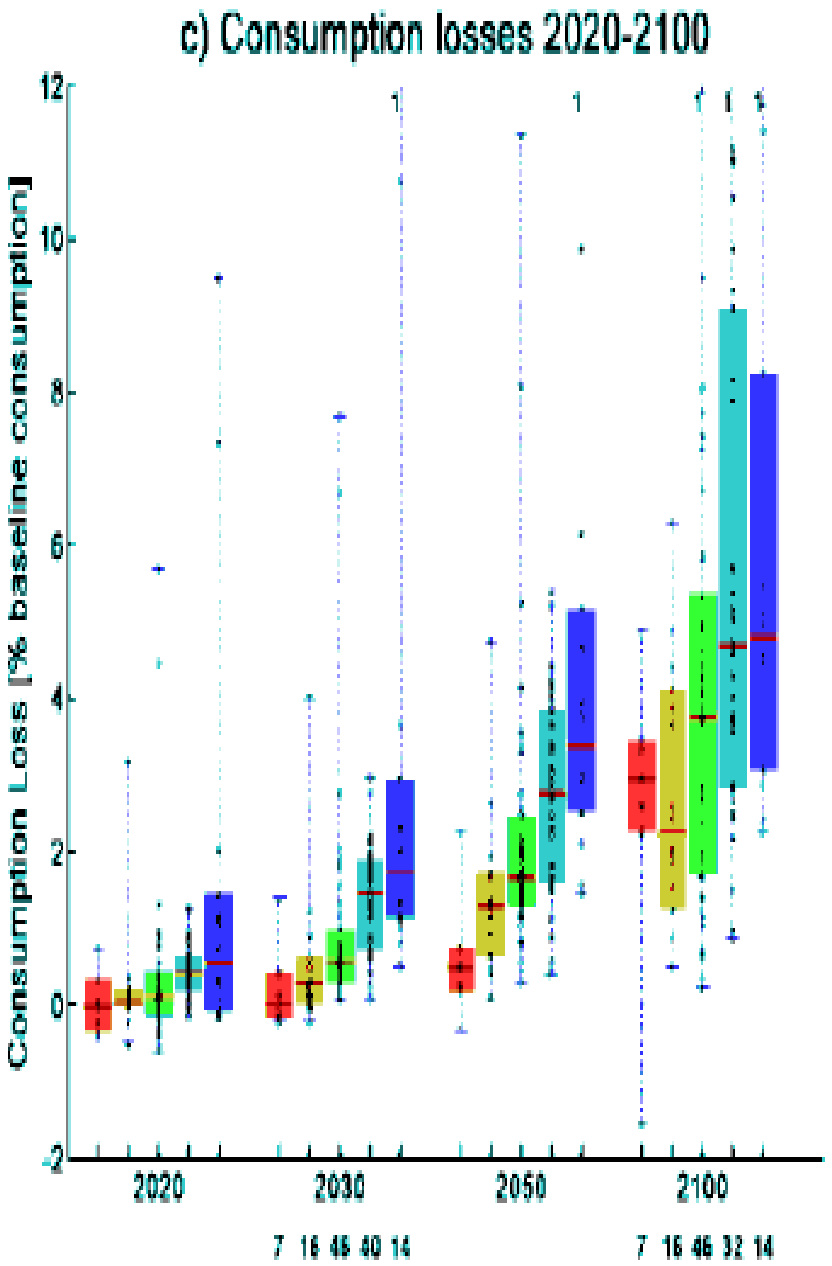
**Roughly one year delayed growth in 2030, two years in 2100**

**Good news or a mix of 'heroic' hypothesis?**




Source: AR5, 2014


a) Carbon prices 2020-2100
430-480 ppm
480-530 ppm
530-580 ppm
580-650 ppm
650-720 ppm
$CO_2$ Price [$/tCO$_2$]
9 28 60 61 34
9 28 60 54 32
2020
2030
2050
2100


c) Consumption losses 2020-2100
Consumption Loss [% baseline consumption]
7 16 46 40 14
7 16 46 32 14
2020
2030
2050
2100

# What these exercises say? What they ignore?

Chaire Modélisation prospective
au service du développement durable

***A useful (rarely read) caveat**:*

*'Most models use a global **least cost approach** to mitigation portfolios and with universal emissions trading, assuming **transparent markets**, **no transaction cost**, and thus **perfect implementation** of mitigation measures throughout the 21st century.' (AR4 WGIII SPM Box 3)*

# What these exercises say? What they ignore?


Five major assumptions behind ‘transformation scenarios’

- techniques adopted in function of their **levelized costs**
- a **unique world carbon price**
- investments made ‘on time’ i.e. **benevolent lender** (no financial constraints)
- a **widespread benevolence** to compensate the loosers
- an **equilibrated growth pathway**

Useful to say that we are not condemned to de-growth

But poor information about how to trigger action in the absence of these conditions

Something on self-fulfilling prophecies, the performative power of scenarios
Pbs of ‘credibility’, of coordination of expectations

# The ‘mental map’ behind the Kyoto’s unfinished business

A ‘mental map’ (world cap and trade with ***unique carbon price*** an c***ompensating transfers)*** which

does not indicate that significant carbon prices hurt, in the short term:

- **the existing capital stock** in developed countries
- **the industrialisation process** in emerging economies without preventing their **lock- in** carbon intensive growth pathways

leads to an **adversarial exercise about the sharing of a few remains** and **does not indicate the benefits of cooperation**

ignores that technologies are not selected in function of their levelized costs in **a ‘shareholder’ regime** of firm management

# The impossible equation of the C.B.D.R. in a «fair burden sharing » framing

Transfers to respect the **BLS condition** (convergence scenario with a unique world carbon price) in % of GDP

| | | | |
|---|---|---|---|
| Africa | +8% | India | +6% |
| Europe | -1.2% | USA | -1.7% |

**Unlikely in** adverse context of ***'depression economics', 'public debts'*** and ***rebalancing of the world economic equilibrium***:

- exarcerbates the **'donor fatigue'** in the Annex 1 countries
- Reinforces the **resistance** to carbon pricing (explicit or implicit

# The meaning of the Cancun's « paradigm shift » a pure 'wishfull thinking' ?

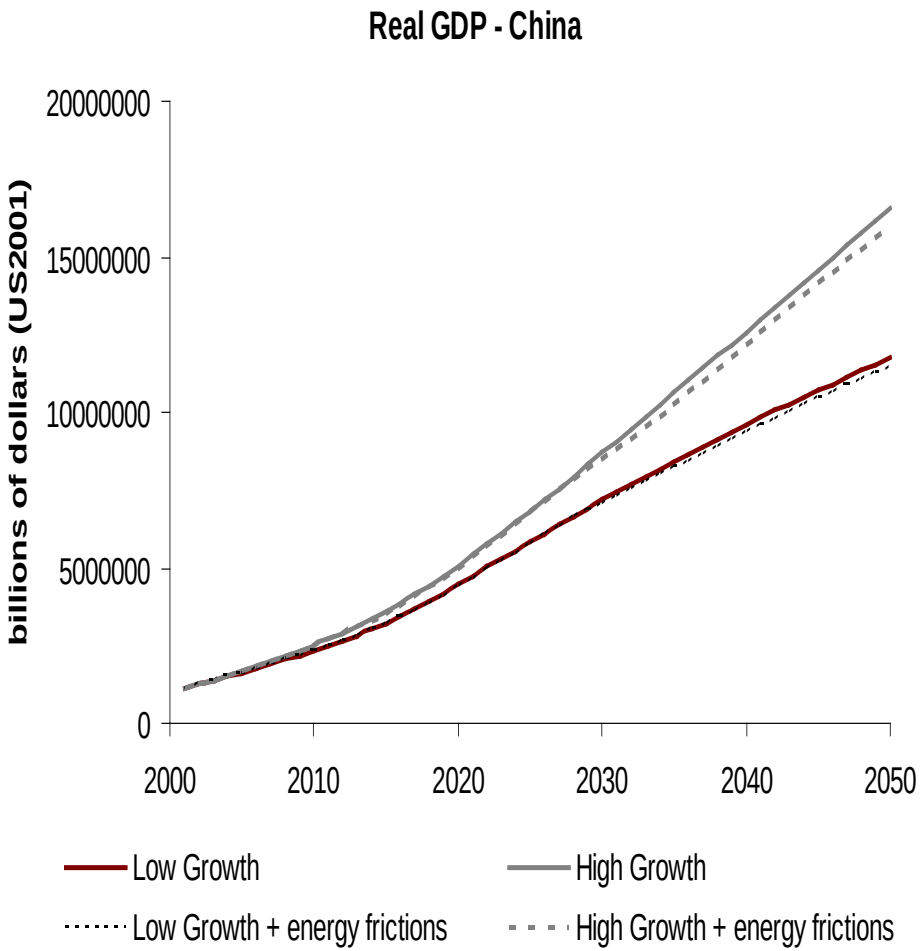
From "fair burden sharing" to "equitable access to development"

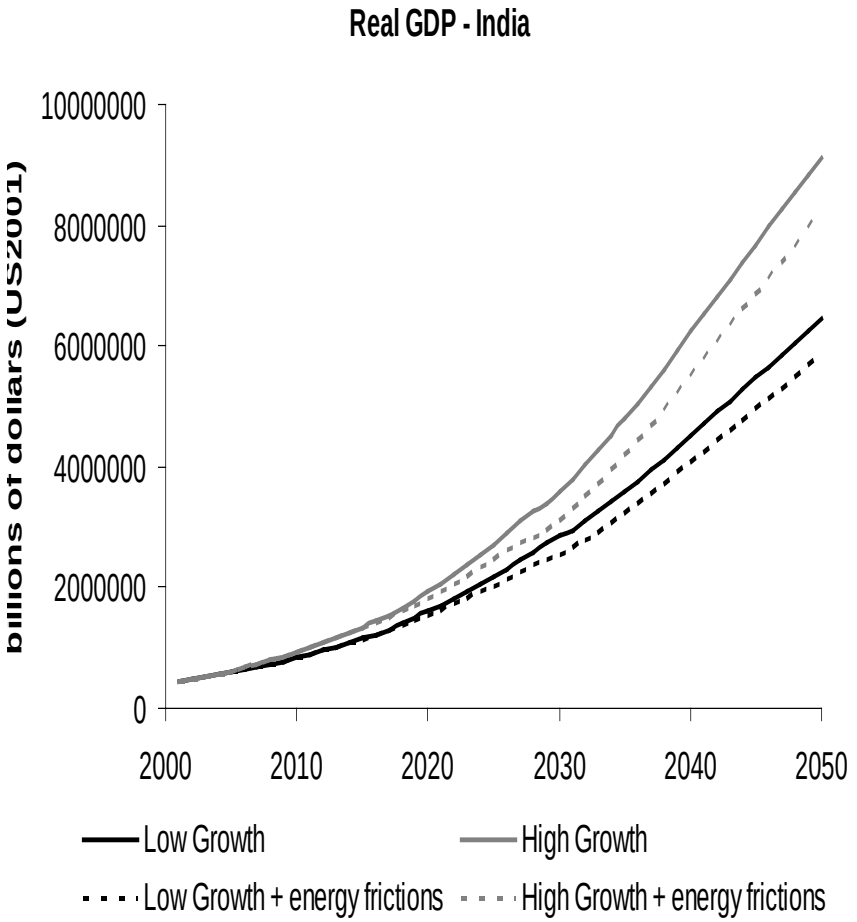
Nationally Appropriate Mitigation Action align with development objectives (Bali) -> INDCs

The Global Climate Fund as a tool for this alignment under the common but differentiated responsibility principle

« Green Growth » advocated as a new form of 'Marshall Plan' (low wave of infrastructure investment to achieve the LC transition

# Development Benefits of Climate Mitigation: the theory of a case



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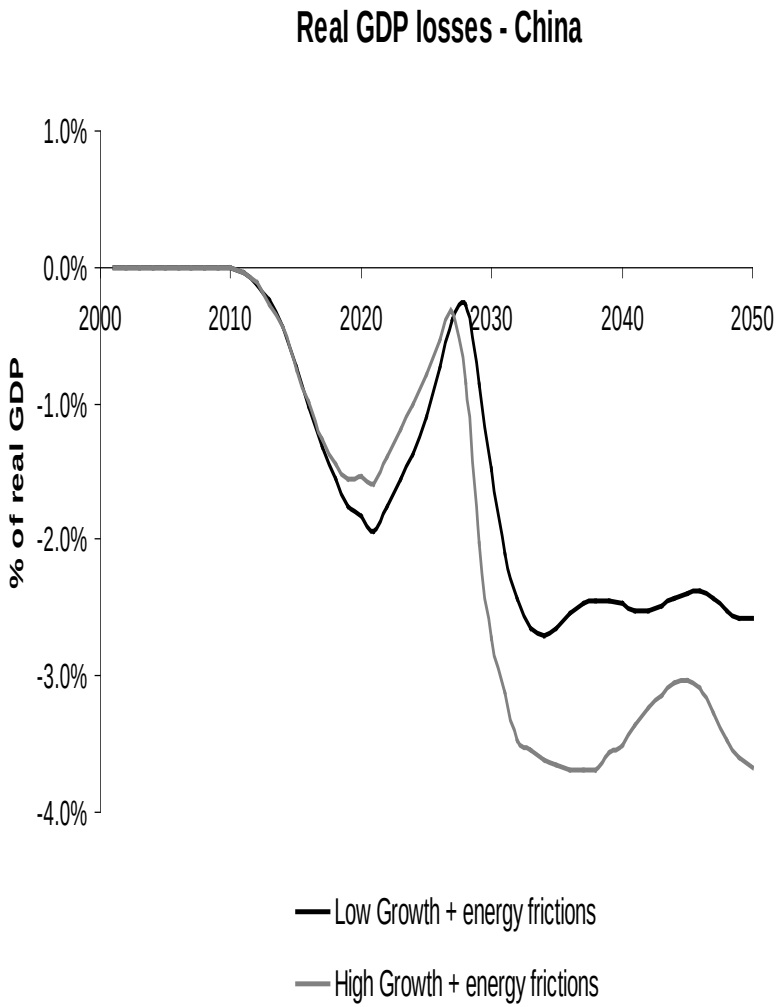


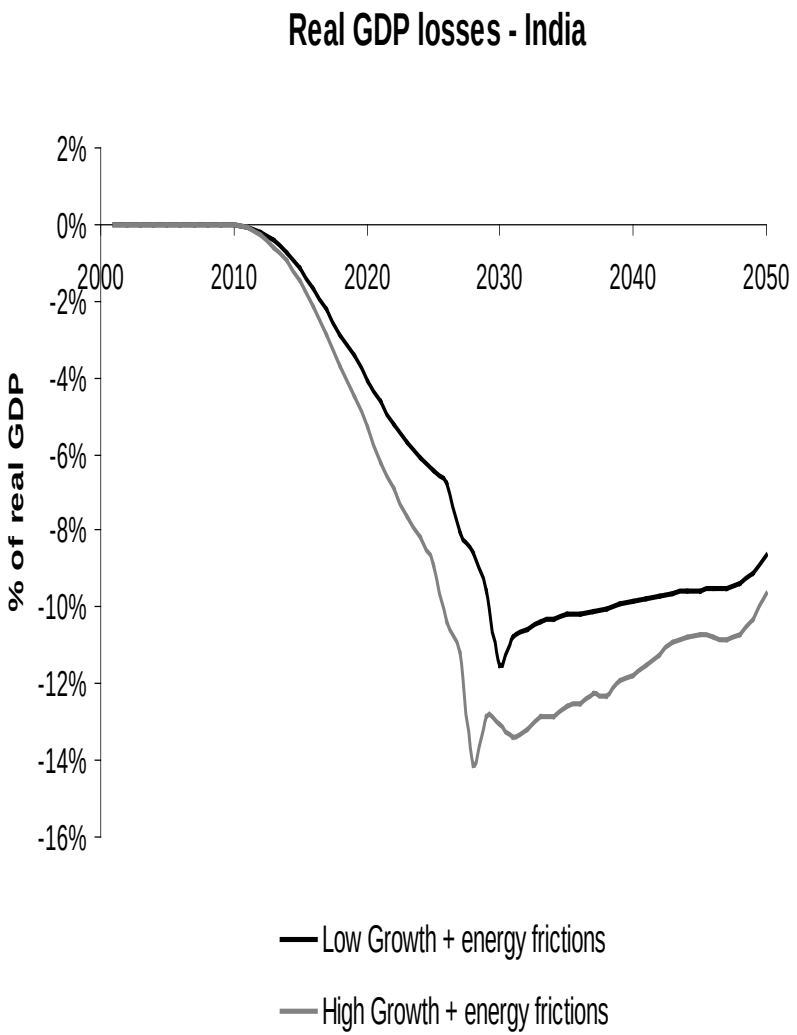

# Generalization: Carbon Prices and INDCs

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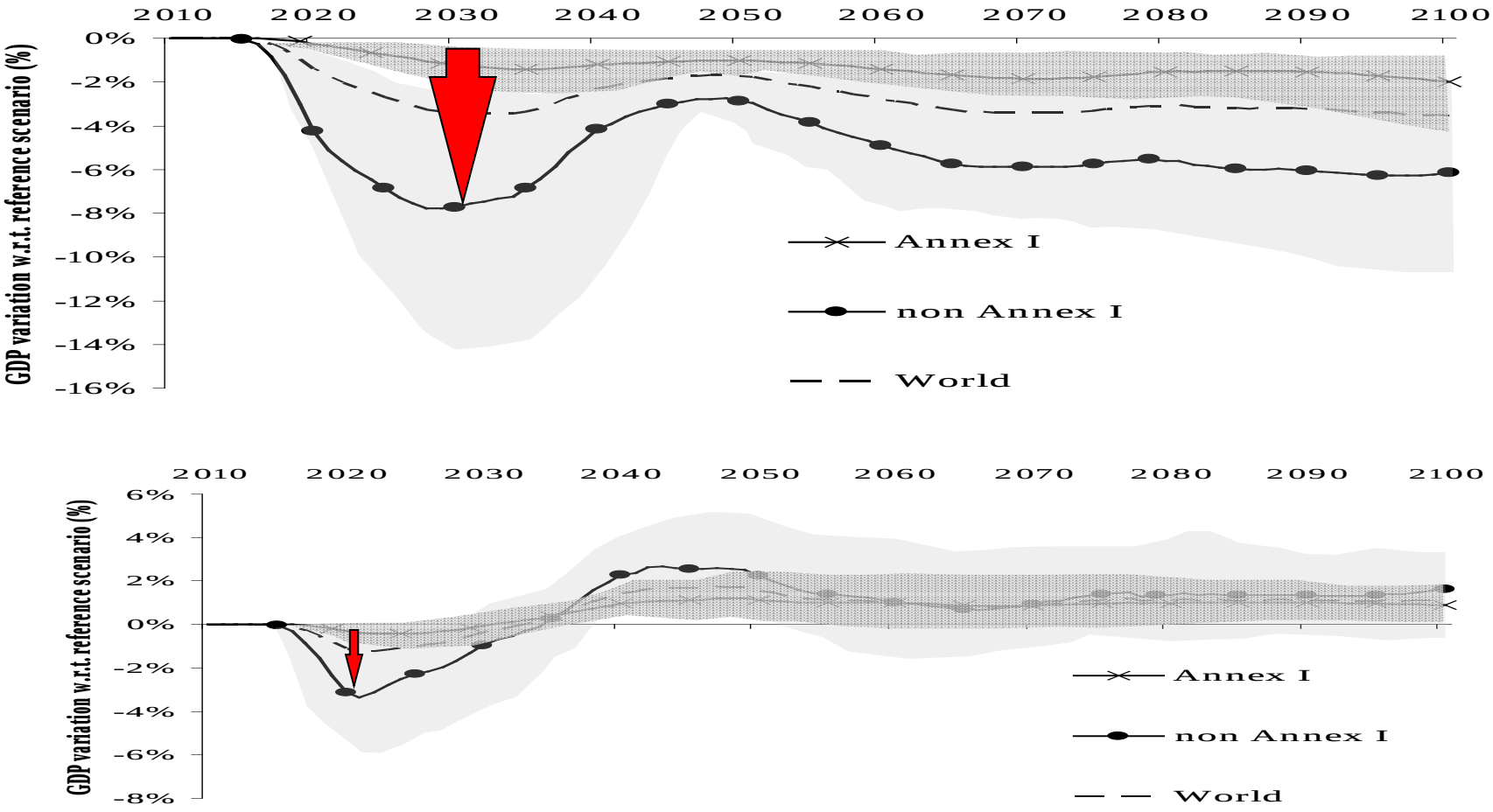


*(450ppm CO2 stabilisation scenarios)*

# The nature of the funding challenge


**Cumulated Energy Related Investments in the US up to 2035**

- BAU: between **5,5** and **6,05** trillions US$
- 450 ppm: between **5,83** and **6,39** trillion US$

**Cumulated Energy Related Investments in the EU up to 2035**

- BAU++: between **4,94** and **5,25** trillions US$
- 450 ppm: between **5,29** and **6,61** trillion US$

**Cumulated Energy Related Investments in the world up to 2035**

- BAU: between **47,44** and **54,7** trillions US$
- 450 ppm: between **39,68** and **43,17** trillion US$

**Incremental Investments < 0,5% of the GDP in non O&G countries**

**Leveraged** inv costs**< upfront** inv costs **< induced** inv costs

**Redirected investment = 8 to 9% of the Gross Capital Formation**


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# Turning the question upside down, mobilizing the 'climate agnostic' policy-makers

**Post 2008: instable growth and depression economics**

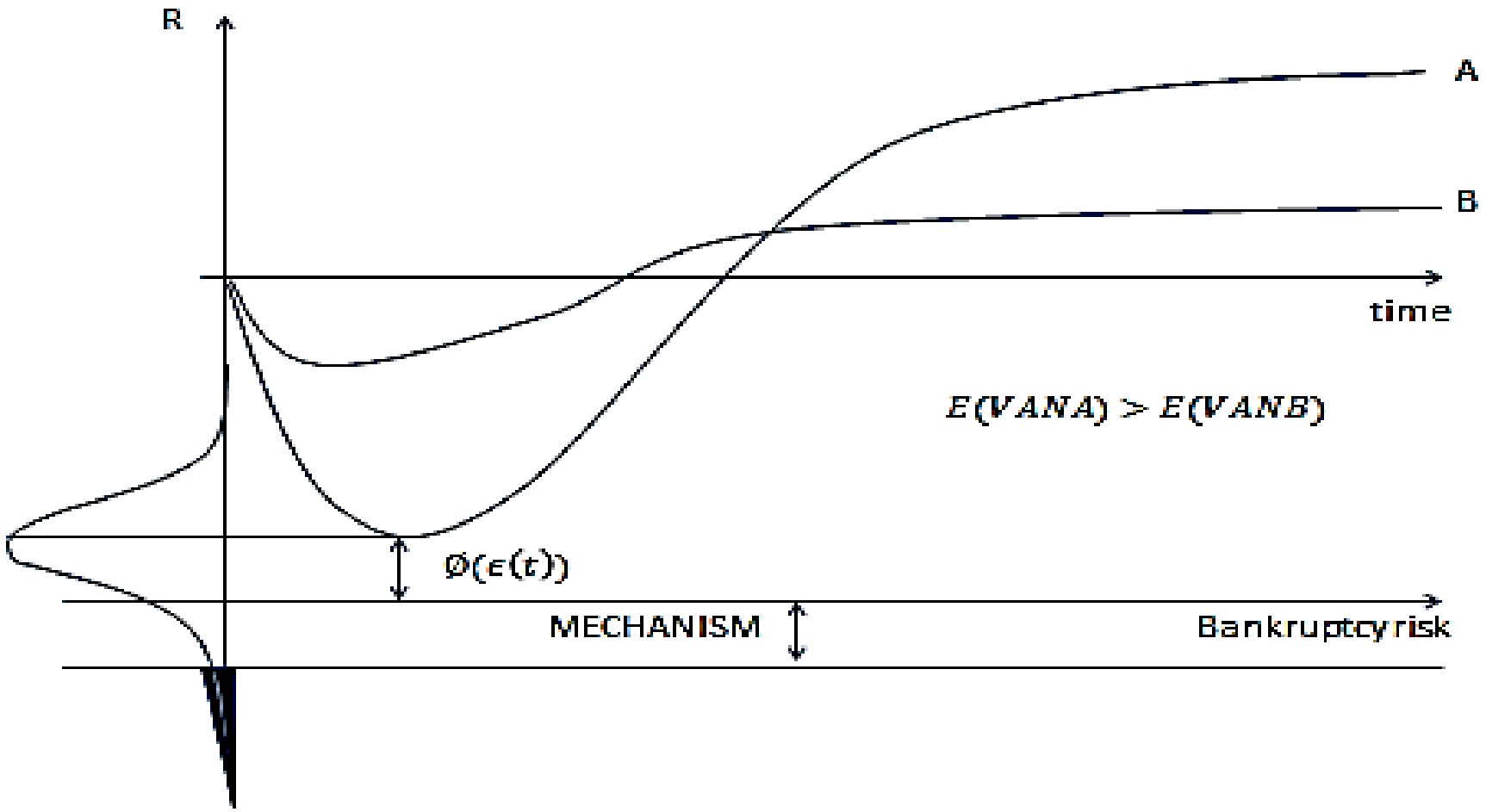
- ***« Saving glut »*** and ***« Buridan's Donkey »*** dilemma for investors
- **Risks of *depression*** vs **re-unleashing speculative bubbles**
- ***Banking systems*** still ***fragile*** and in process of ***deleveraging***
- Tensions due to a ***« currency cold war »***

***Because they imply a*** massive redirection of investments in ***40% of the economy, climate policies can***

- **redirect savings towards infrastructure and industry**
- ***stimulate an inclusive growth recovery***
- **Favor more inward-oriented industrialisation**
- **Lead to a more resilient financial and monetary order (R. Raghuran)**

**Is this a new version of the 'free lunch' illusion?**

# Reviewing the mental map: ‘Finance and energy prices in an uncertain world’



# An agreement on a Social Value of Carbon?

**Notional Price acting as Surrogate of a « price signal »**

To Overcome the « regulatory uncertainty » (the capacity of governments to commit to carbon prices increasing over time

**↘ risk-adjusted perceived costs** of LCPs (= ↘ credit interest rate and leverage global **private savings**)

To avoid the risks of **fragmentation of climate finance**

**Politically acceptable** because this is **not** a carbon price

# Key Principles for a global architecture

**Maintain a few established principles**

- ***targets and timetables per countries*** with a controlled degree of “when” and “where’” flexibility (COP3, 1997)
- leave all latitude to Parties to select the **INDCs** apt to align their climate and development policies
- CBDR principle and **assignment of a share of CRAs to the Green Climate Fund** to secure multilateral assistance

**Bindings commitments or a recoiling mechanism?**

- Motivating countries to respect emissions pledges and to narrow the gap between them and ***an aspirational emissions trajectory***
- ***depriving a defaulter country of the benefits of a system*** supported by **a club of voluntary countries**

# Climate Finance and COP21

**Is linking two sensitive issues (finance and climate) a diplomatic non-starter?**

**Perhaps but this is the only way**

- to embark **climate agnostic policy-makers** in the upgrading of climate policies;
- to provide a capital outlay for the Global Climate Fund?
- to launch a virtuous confidence circle amongts Nations