Science and Decision-Making: the Role of IPCC Assessments - insights on Rio +20

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ISAP2012 “Green economy for Sustainable Development”

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Historical background

1972 – first International Conference on the Human Environment, Stockholm

- Attended by 2 heads of State:
  - Ms Indira Gandhi (India)
  - Mr Olaf Palme (Sweden)

1992 – UN Conference on Environment and Development (Rio Summit)

- UNFCCC, Convention on Biological diversity
- 122 governments
- 108 heads of State and Government
- Huge presence of civil society

RIO+20
United Nations Conference on Sustainable Development

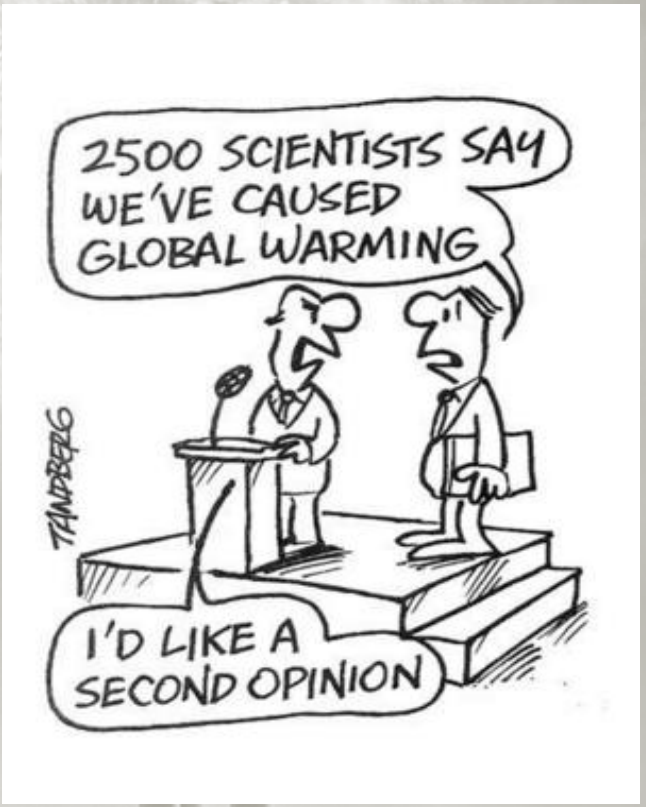
2012 – Rio +20

- Green Economy in context of Poverty Eradication and Sustainable Development (GESDPE)
- Institutional Framework for Sustainable Development (IFSD)
- Sustainable Energy for All Initiative
- Lower level of expectations

Source : UN

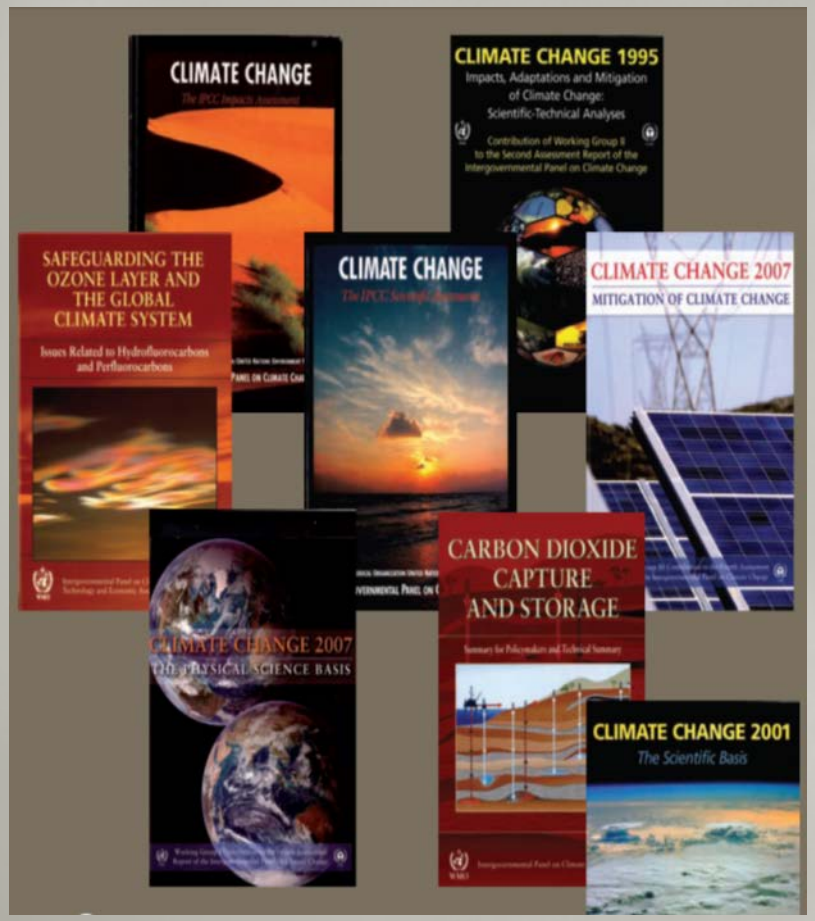
Mandate of the IPCC

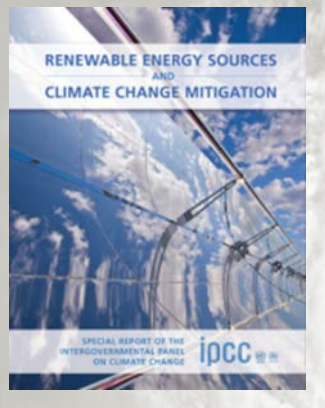
"The General Assembly […] endorses action of the World Meteorological Organisation and the United Nations Environment Programme in jointly establishing an Intergovernmental Panel on Climate Change to provide **international coordinated scientific assessments** of the magnitude, timing and potential environmental and socio-economic impact of climate change and realistic response strategies […]."



Source : UN

Work of the IPCC





SRREN

SREX

7 Critical Issues at Rio + 20

- Jobs
- **Energy**
- Cities
- Food
- Water
- Oceans
- **Disasters**

The IPCC Produces Assessment Reports, Special Reports and Methodology Reports which are policy relevant and not policy prescriptive

Source : IPCC

A progressive understanding: increased certainty in attribution

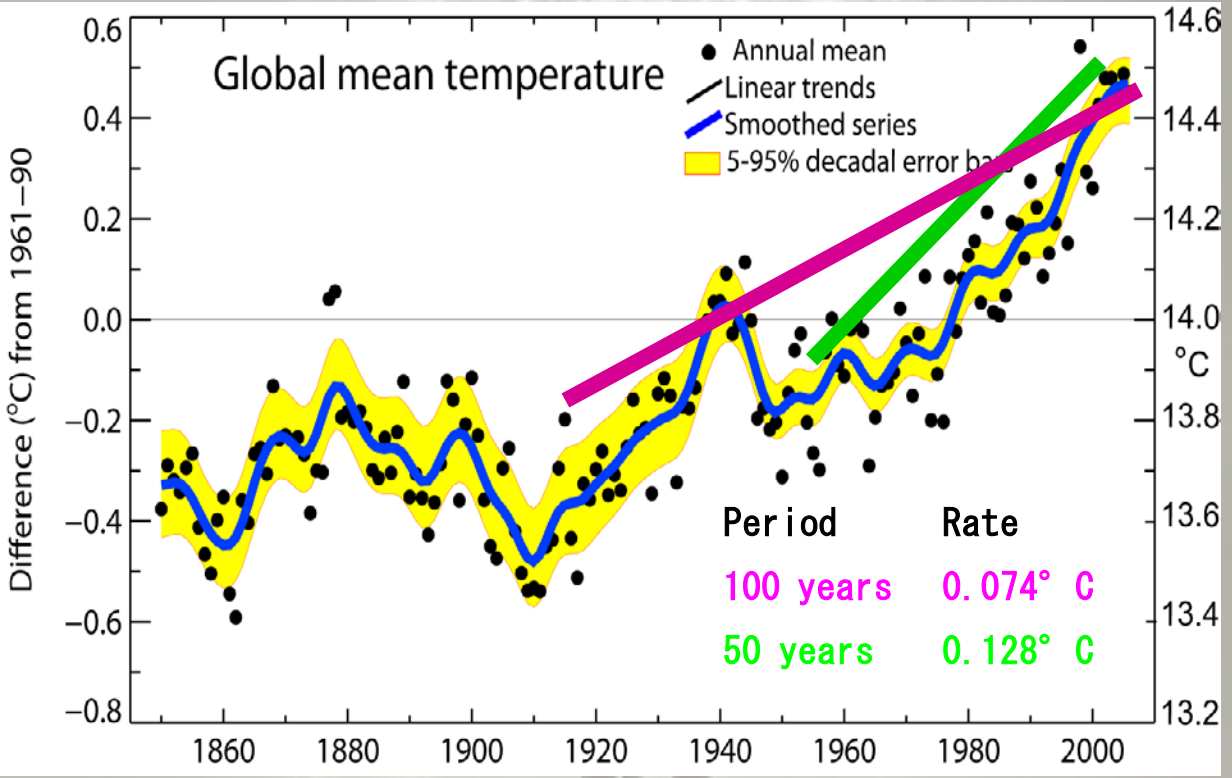
FAR (1990): “unequivocal detection not likely for a decade”

SAR (1995): “balance of evidence suggests discernible human influence”

TAR (2001): “most of the warming of the past 50 years is likely (odds 2 out of 3) due to human activities”

AR4 (2007): “most of the warming is very likely (odds 9 out of 10) due to greenhouse gases”

Changes in global average temperature

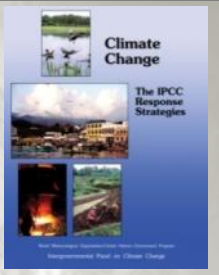


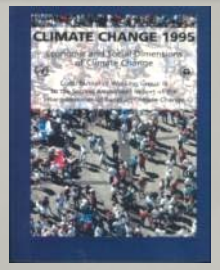
Eleven of the last twelve years rank among the twelve warmest years in the instrumental record of global surface temperature

Source : IPCC

The IPCC and the UNFCCC

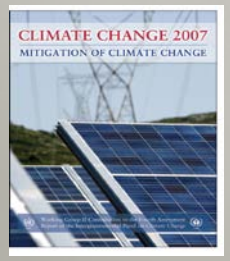
The First Assessment Report (FAR – 1990): had a major impact in defining the content of the UNFCCC.





The Second Assessment Report (SAR –1995): was largely influential in defining the provisions of the Kyoto Protocol.

The Third Assessment Report (TAR – 2001): focused attention on the impacts of climate change and the need for adaptation.



The Fourth Assessment Report (AR4 – 2007): created a strong basis for a post Kyoto agreement and long term cooperative action.

The IPCC has also contributed to promoting large-scale awareness on the scientific reality of climate change.

Source : IPCC

The Future We Want: outcome document adopted at Rio +20

§17 “[…] We recognize the importance of the three Rio Conventions to advancing sustainable development and in this regard we **urge all Parties to fully implement their commitments** under the United Nations Framework Convention on Climate Change (**UNFCCC**) […]”

§25 “We […] express our concern that the scale and **gravity of the negative impacts** of climate change affect all countries and **undermine the ability of all countries**, in particular, developing countries, to achieve sustainable development and the MDGs and **threaten the viability and survival of nations**.

§190 “[…] We reaffirm that climate change is one of the **greatest challenges** of our time, and we express profound alarm that emissions of greenhouse gases continue to rise globally. We are deeply concerned that all countries […] are vulnerable to the adverse impacts of climate change, and are **already experiencing increased impacts** […] further threatening food security and efforts to eradicate poverty and achieve sustainable development. […]”

Source : UN

Climate science at the heart of sustainable policy making

Article 2 of the UNFCCC (1992)

"The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, ***stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system****. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."*

Climate science at the heart of sustainable policy making

Without appropriate measures climate change:

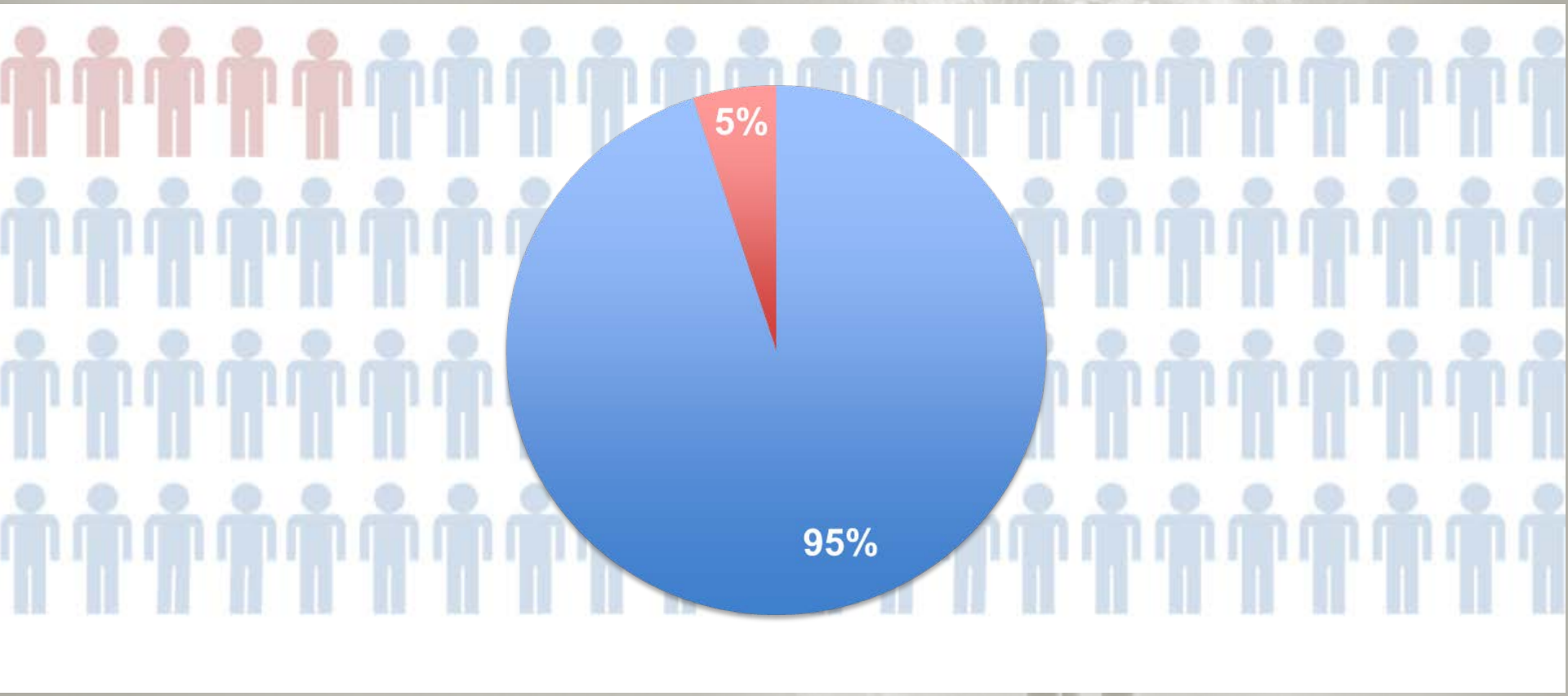
- Will likely **exacerbate poverty** and slow down economic growth in developing countries
- Will act as a '**threat multiplier**', especially in developing countries

Climate change adds to the list of stressors that challenge our ability to achieve the ecologic, economic and social objectives that define sustainable development

Source : IPCC

Climate science at the heart of sustainable policy making

Fatalities are higher in developing countries



From 1970-2008, over 95% of natural-disaster-related deaths occurred in developing countries

Source : IPCC

Rio +20 critical issue: Disasters

The Future We Want

§188 “[…]We stress the importance of stronger inter-linkages among disaster risk reduction, recovery and long-term development planning, and call for more coordinated and comprehensive strategies that integrate disaster risk reduction and climate change adaptation considerations […] in order to reduce risk, increase resilience […].”

Source : UN

Rio +20 critical issue: Disasters

The SREX finds that:

- Limits to resilience are faced when tipping points associated with social and/or natural systems are exceeded, posing severe challenges to adaptation.
- There are strategies that can help manage disaster risk now and also help improve people's livelihoods and well-being.
- The most effective strategies offer development benefits in the relatively near term and reduce vulnerability over the longer term.

SREX is a knowledge base for implementing policy decisions in disaster risk reduction

Source : IPCC SREX

Rio +20 and climate change mitigation

The Future We Want

§191 " […] We note with grave concern the significant gap between the aggregate effect of Parties' mitigation pledges in terms of […] having a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels."

Heads of State and Government at Rio +20 :

- call for the widest possible **cooperation by all countries** for an effective and appropriate international response, to reduce global GHGs
- Recognize the importance of mobilizing **funding** to support:
  - nationally appropriate **mitigation** actions (NAMAs),
  - **adaptation** measures,
  - **technology** development and transfer and
  - **capacity building** in developing countries.

Source : UN

Characteristics of stabilization scenarios

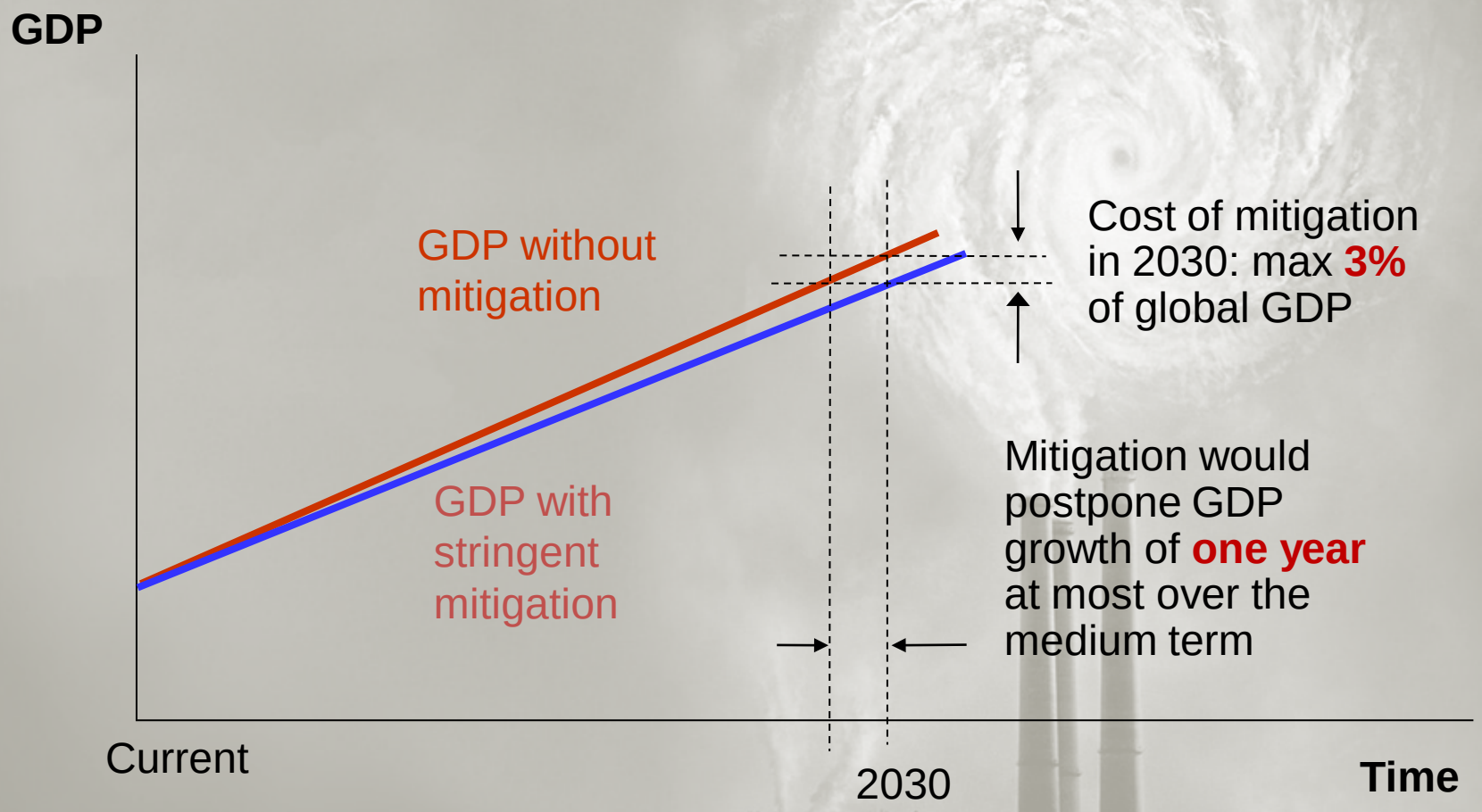
Post-tar stabilization scenarios

Stabilization level (ppm CO2-eq)	Global mean temp. increase (ºC)	**Year CO2 needs to peak**	Global sea level rise above pre- industrial from thermal expansion (m)
445 – 490	2.0 – 2.4	2000-2015	0.4 – 1.4
490 – 535	2.4 – 2.8	2000-2020	0.5 – 1.7
535 – 590	2.8 – 3.2	2010-2030	0.6 – 1.9
590 – 710	3.2 – 4.0	2020-2060	0.6 – 2.4

Delayed emissions reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts.

Source : IPCC

Impacts of mitigation on GDP growth



Source : IPCC

Co-benefits of mitigation

- **Common drivers** lie behind mitigation policies and policies addressing economic development, poverty, health, employment, energy security, and local environmental protection
- **Linking policies** provide the opportunity for no-regrets policies reducing greenhouse gases mitigation costs

CO2 mitigation potential for 2010 without net cost in India: between 13 and 23% of business as usual scenario

Source : IPCC

Mitigation from an equitable perspective

- **Article 3 of the UNFCCC** states that Parties should protect the climate system on the basis of equity; in accordance with their common but differentiated responsibilities.
  - Accordingly, **developed countries** should take the lead in combating climate change.
  - Eventually, an approach based on global equity could be to entitle every individual an **equal per capita GHG emission allowance.**

Source : IPCC

Rio +20 critical issue: Energy

The Future We Want

§128 "[…] We recognize that improving energy efficiency, increasing the share of renewable energy, cleaner and energy-efficient technologies are important for sustainable development, including in addressing climate change."

Source : UN

Rio +20 critical issue: Energy

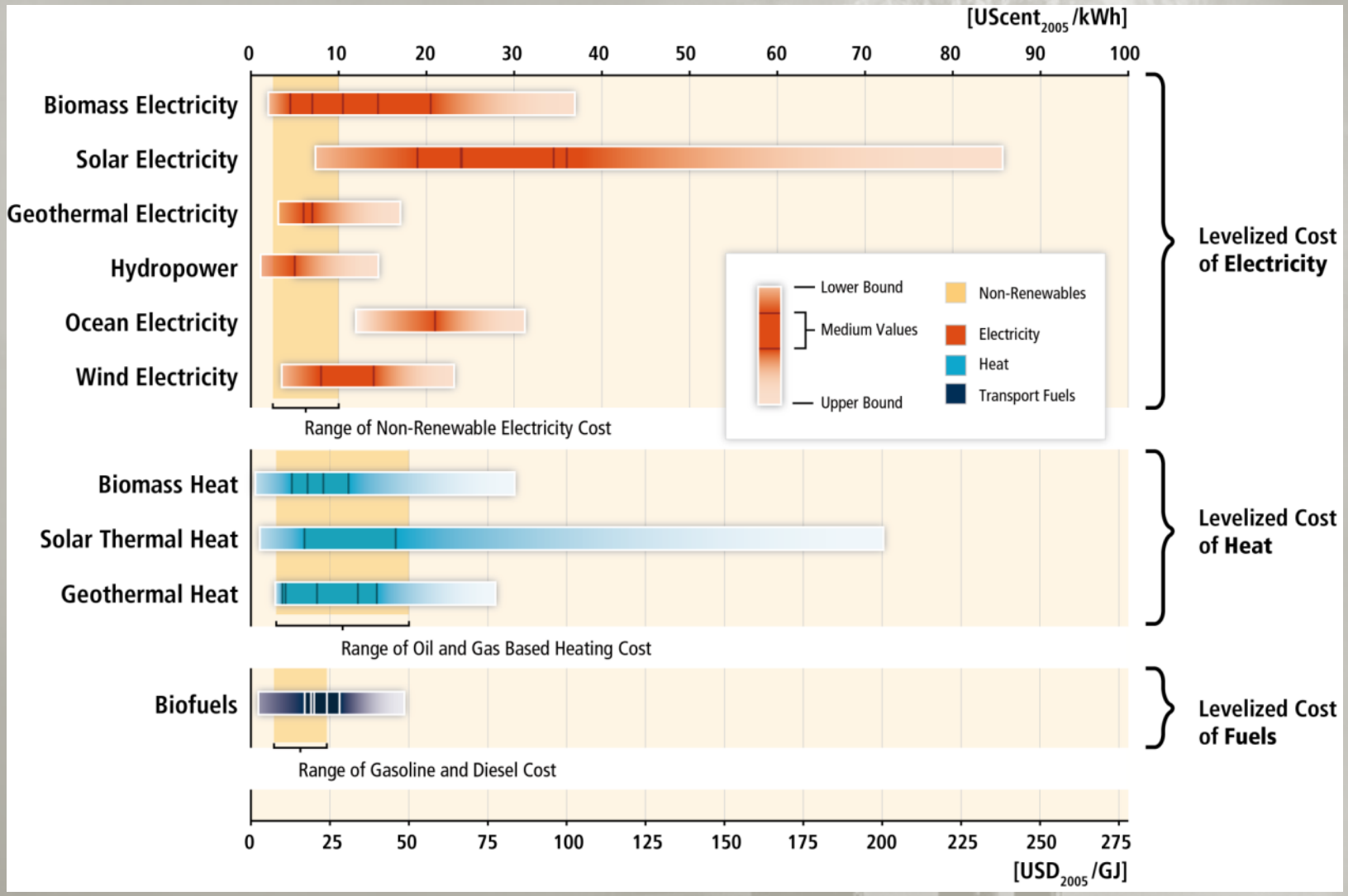
The SRREN finds that RE can contribute to sustainable development

- RE can accelerate access to energy, particularly for the 1.4 billion people without access to electricity and the additional 1.3 billion people using traditional biomass.
- RE deployment can reduce
- vulnerability to supply disruptions and market volatility.
- Low risk of severe accidents
- Environmental and health benefits

The SRREN is a knowledge base for implementing policy decisions in the energy sector

Source : IPCC SRREN

RE costs are still higher than existing energy prices but in various settings RE is already competitive.



Source : IPCC SRREN

Overcoming barriers

A **significant increase** in the deployment of RE by 2030, 2050 and beyond is indicated **in the majority of the 164 scenarios** reviewed in this SRREN. However:

- A transition to higher shares of RE would imply increasing investments in **technologies and infrastructure**
- **Policies** play a crucial role in accelerating the deployment of RE technologies.
- Policies include regulations, financial incentives, public finance mechanisms and carbon pricing mechanisms.

'Enabling' policies support RE development and deployment

Source : IPCC SRREN

Towards sustainable development

Committing to alternative development paths would require **structural changes** both in developed and developing countries, in a variety of areas:

- Institutional arrangements
- Geographical distribution of activities
- Demography
- Lifestyles and consumption patterns

The dominant path to industrialisation has been characterised by high concurrent GHG emissions and natural resource consumption

Source : IPCC

Green economy in the context of sustainable development and poverty eradication

- ✓ Is a tool to achieve social, economic and environmental sustainable development
- ✓ Is a common undertaking
- ✓ each country can choose an approach in accordance with national plans and priorities
- ✘ Some countries are cautious in accepting this new philosophy of growth and development
- ✘ It is difficult to define what constitutes a green economy
- ✘ Some may feel this approach impinges on national sovereignty to develop in the manner that they consider appropriate for their country

Source : UN

"A technological society has two choices.

First it can wait until catastrophic failures expose systemic deficiencies, distortion and self deceptions…

Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures"

- Mahatma Gandhi