
5th Session
WORKING GROUP III


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of
Intergovernment Panel on climate change (IPCC)
LEAD AUTHORS


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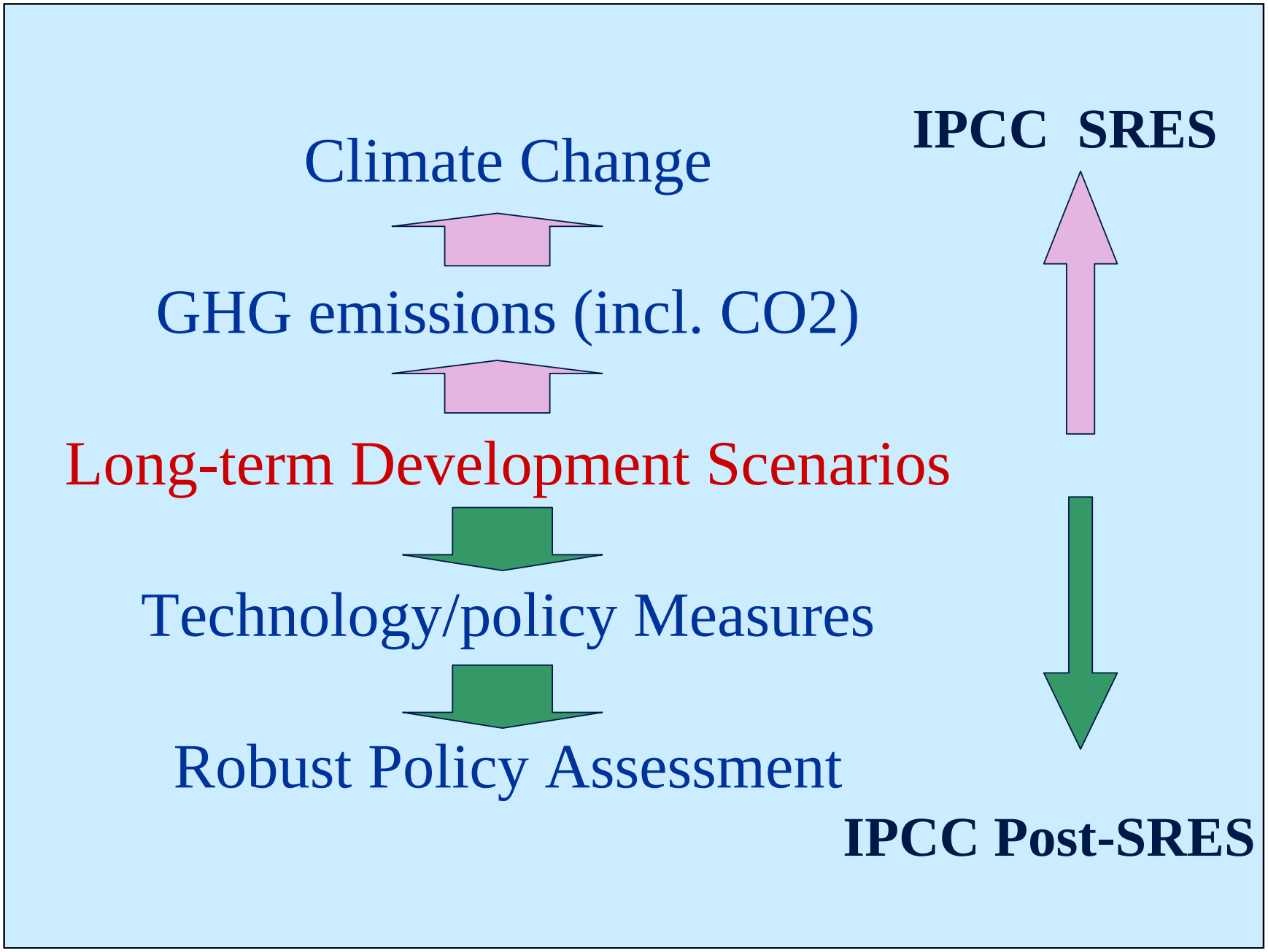

Climate Change
GHG emissions (incl. CO2)
Long-term Development Scenarios
Technology/policy Measures
Robust Policy Assessment
IPCC SRES
IPCC Post-SRES

IPCC SRES Development Scenario I

A1 World (Tiger World)

A future world of very **rapid economic growth**, **low population growth** and **rapid introduction of new and more efficient technology**.

Major underlying themes are convergence among regions, capacity building and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income.

IPCC SRES Development Scenario II

A2 World (Cultural Pluralism)

A very **heterogeneous** world.

The underlying theme is **self-reliance and preservation of local identities**.

Fertility patterns across regions converge very slowly, resulting in **high population growth**.

Economic development is primarily regionally-oriented, and per capita economic growth and technological change are more fragmented and slow compared to other storylines.

IPCC SRES Development Scenario III

B1 World (New Sustainability Paradigm)

A convergent world with rapid change in economic structures toward a **service and information economy, reduction in material intensity** and the introduction of clean and resource-efficient technologies.

The emphasis is on **global solutions to economic, social and environmental sustainability**, including through improved equity, but without additional climate initiatives.

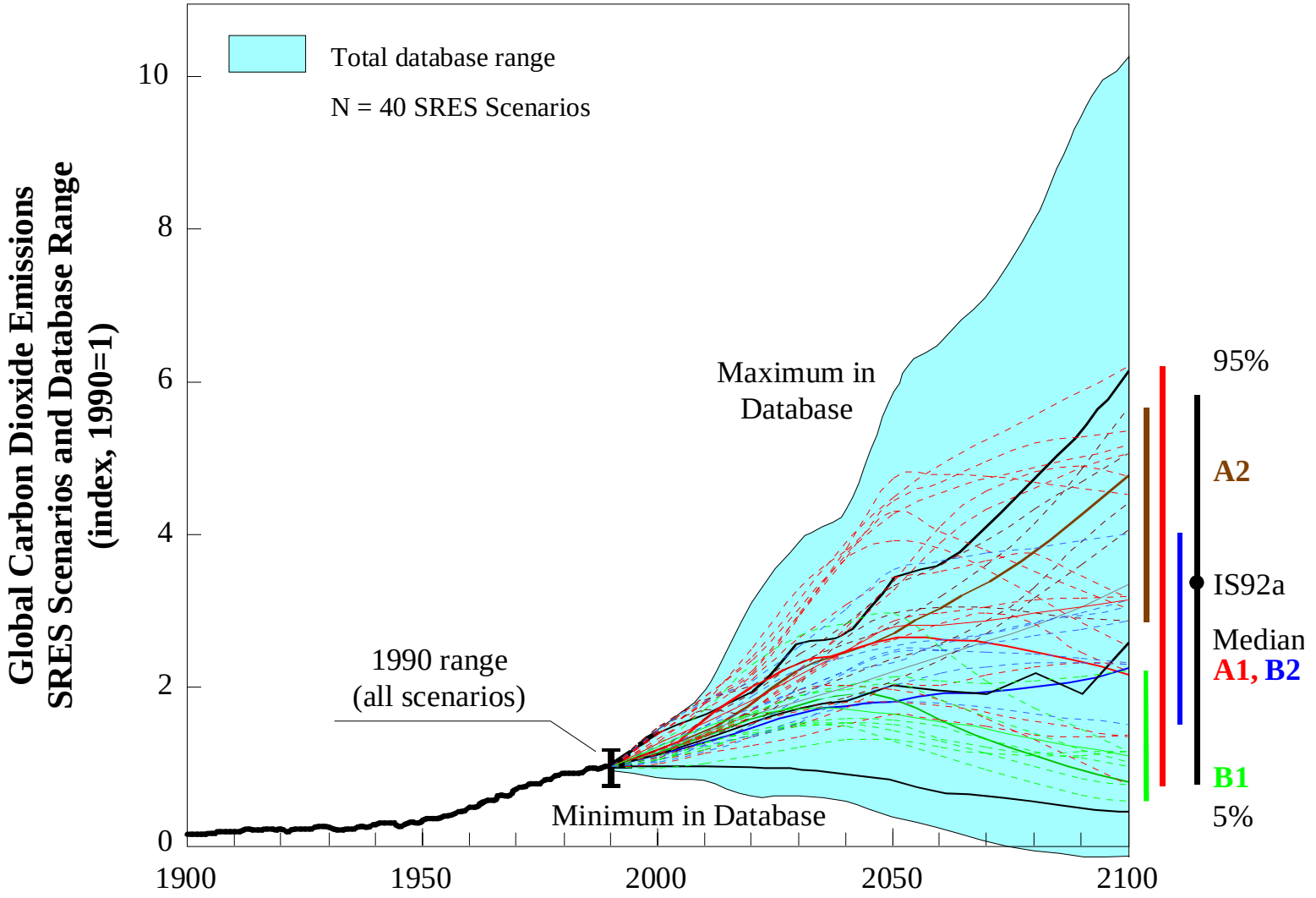
IPCC SRES Development Scenario IV

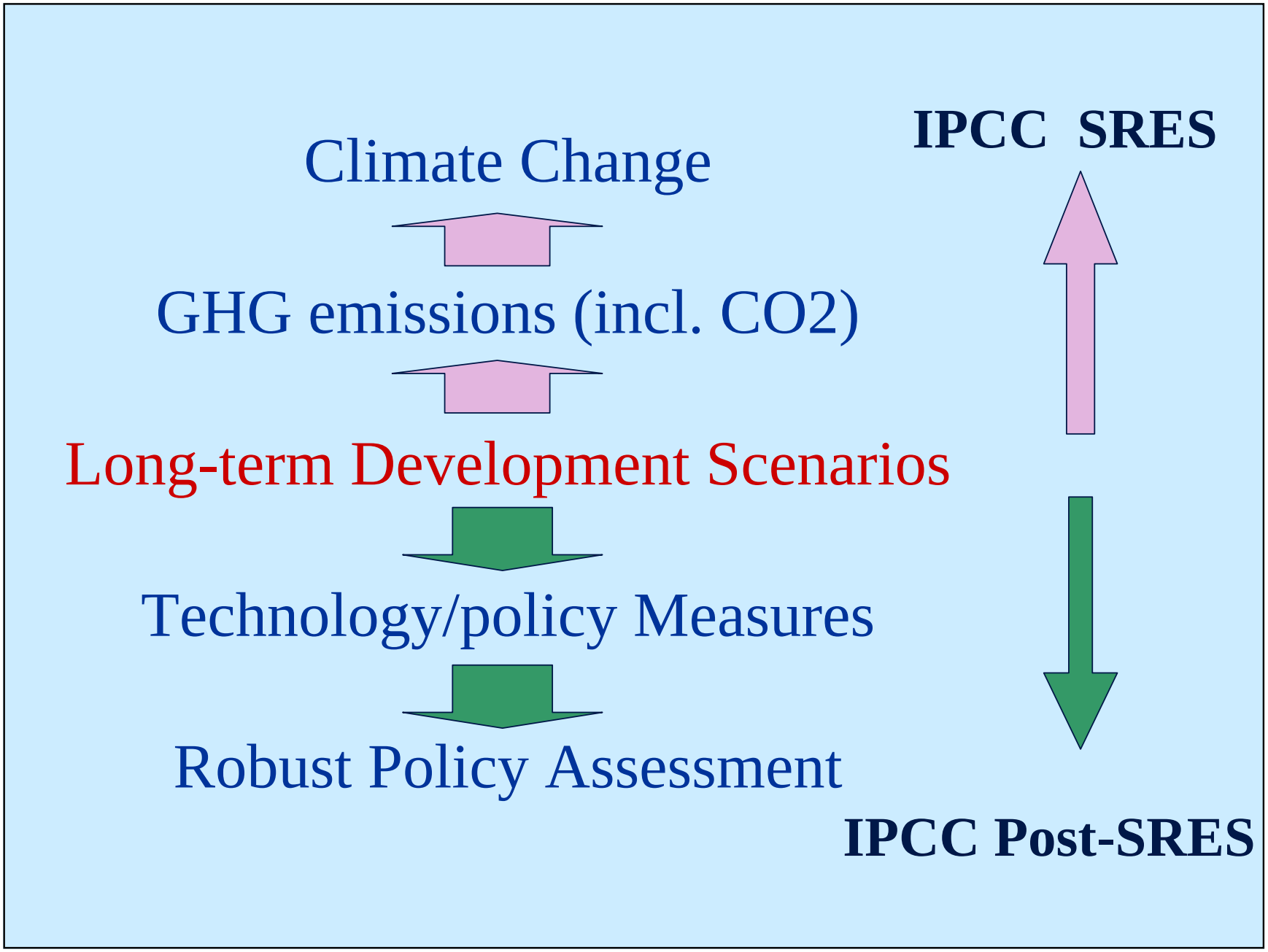
B2 World (Mixed Green Bag)

A world in which the emphasis is on **local solutions to economic, social, and environmental sustainability**.

It is a world with less rapid, and more diverse technological change, but with a strong emphasis on community initiative and social innovation to find local and regional solutions.

While policies are also oriented towards **environmental protection and social equity**, they are focused on local and regional levels.


Global Carbon Dioxide Emissions
SRES Scenarios and Database Range
(index, 1990=1)
Total database range
N = 40 SRES Scenarios
Maximum in Database
1990 range (all scenarios)
Minimum in Database
95%
A2
IS92a
Median
A1, B2
B1
5%
0
2
4
6
8
10
1900
1950
2000
2050
2100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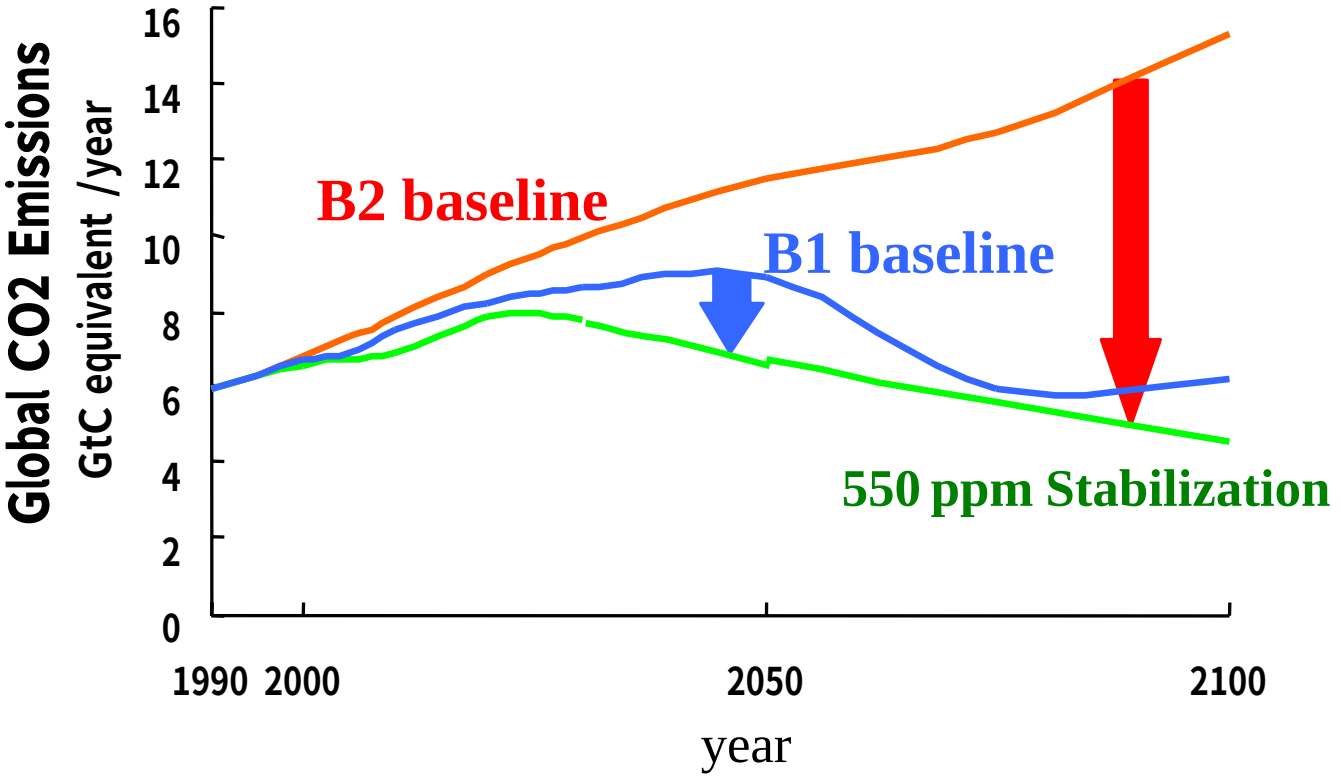
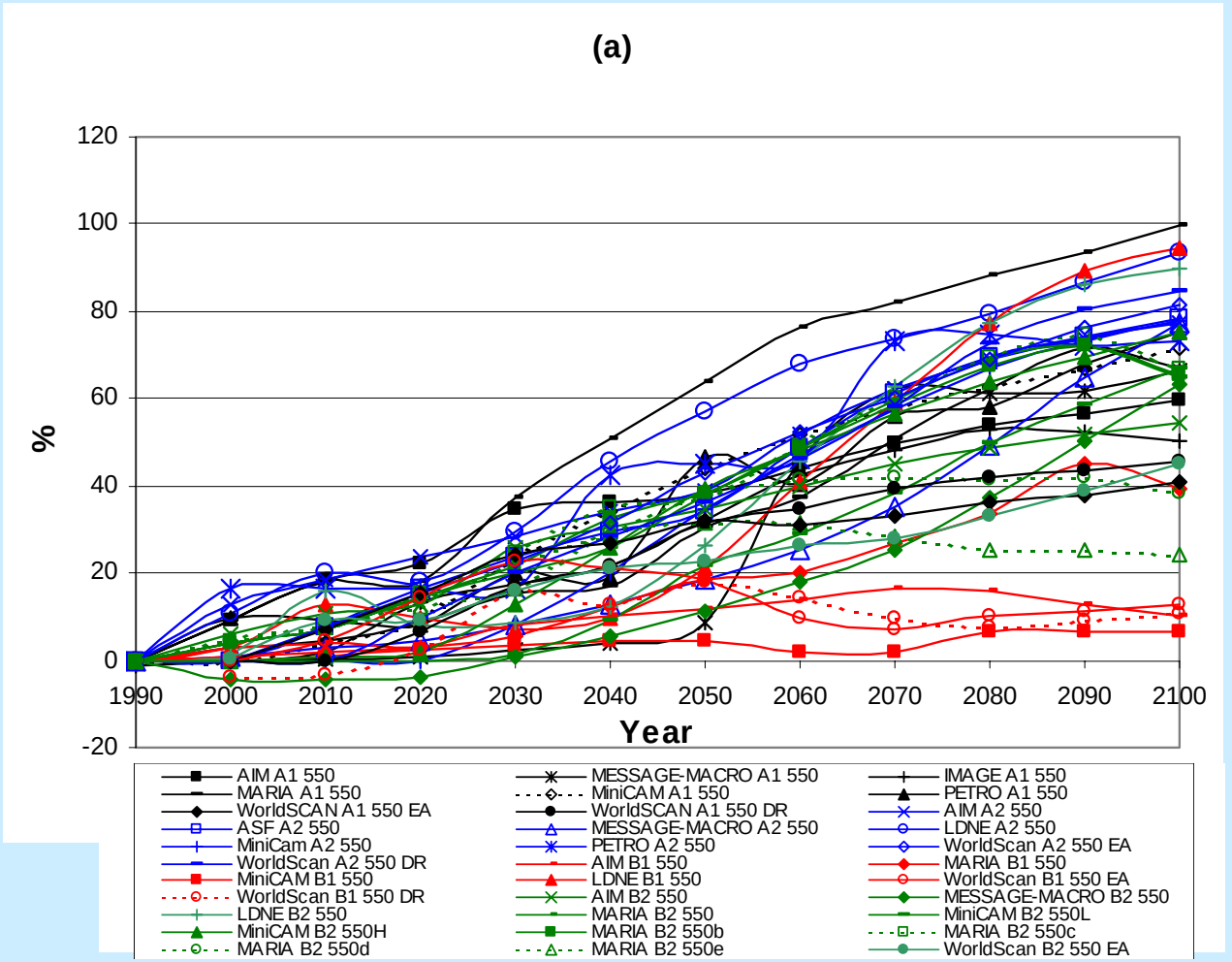


CO2 Reductions and Baseline Scenarios



CO2 Emission reductions for all 550 ppm Stabilization: (a) Global

Several Findings from SRES and Post-SRES Project I (preliminary)

(1) SRES and Post-SRES analyses showed the wide range of future development path, which require different technology/policy measures and differentiate the cost of mitigation to stabilize global climate.

(2) In order to respond to the uncertainties, it is necessary to introduce more sophisticated assessment for climatic policy design.

Several Findings from SRES and Post-SRES Project II (preliminary)

(3) Reviewed scenario analyses showed that energy efficiency improvements and afforestation are robust enough to result in output for the different world views. The introduction of low-carbon energy is also robust, especially biomass energy introduction over the next one hundred years as well as natural gas introduction in the first half of the 21st century.

(4) If the high-emission future worlds were selected, either nuclear or carbon sequestration would increase their role in climatic stabilization. Solar energy and carbon sequestration could be recognized as an insurance in the latter half of the century for climatic stabilization.

Several Findings from SRES and Post-SRES Project III (preliminary)

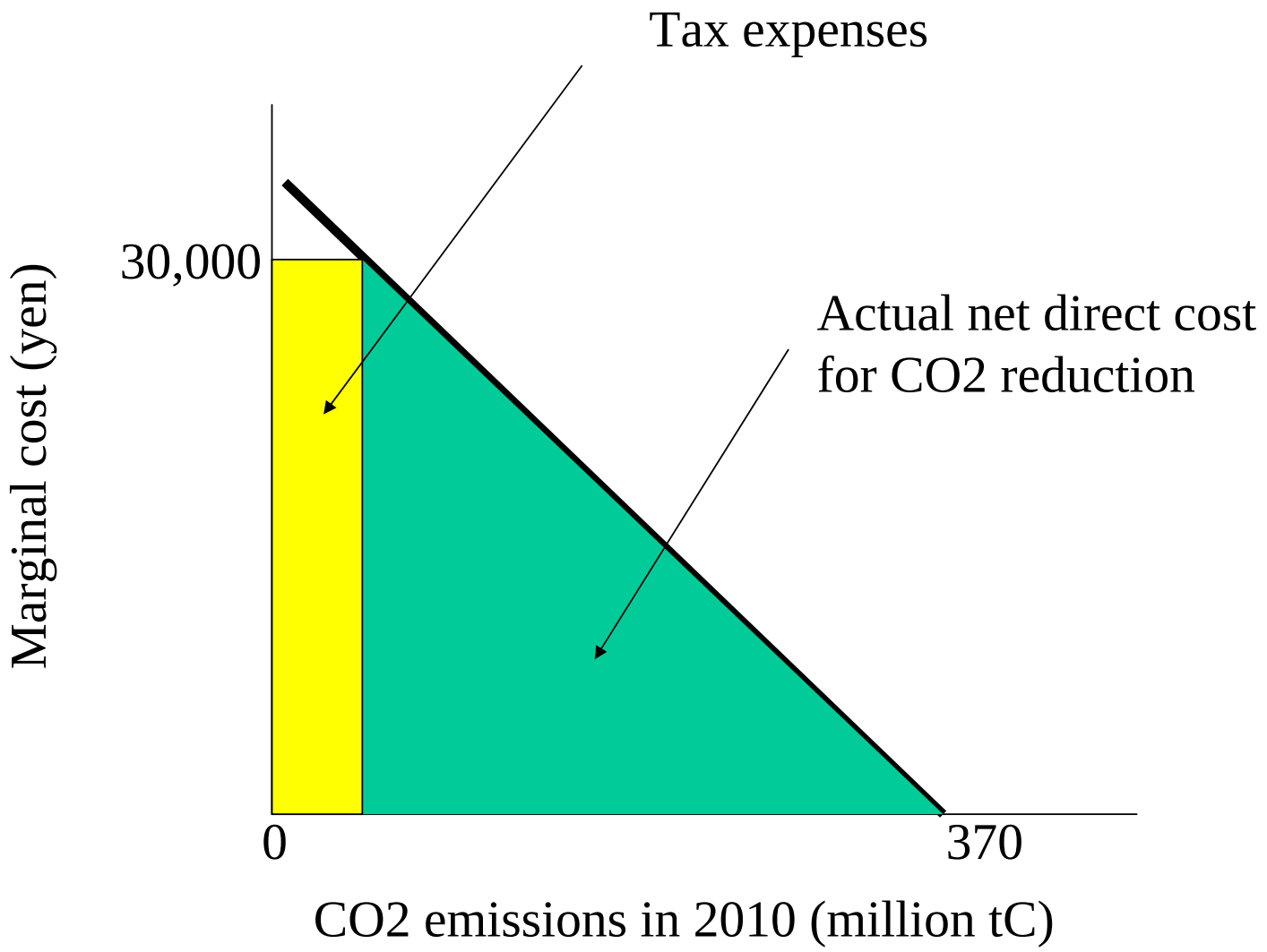
(5) The scenario reviews strongly suggested the necessity of considering equity issues between North and South. Most of the mitigation scenarios clarified that, without GHG reduction in developing countries, it would be impossible in any future world to stabilize concentration at less than 550 ppmv.

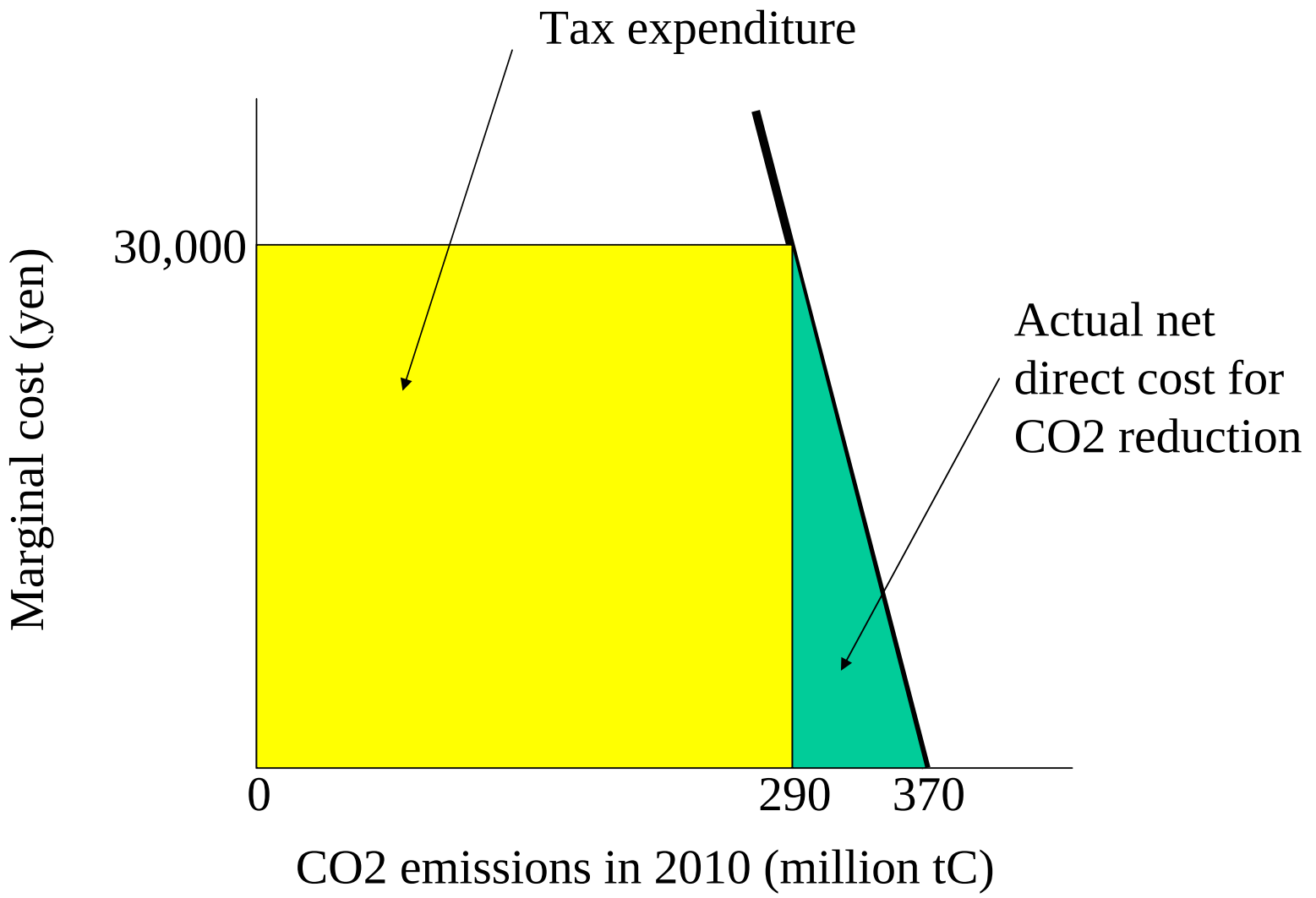
(6) Some scenarios also warned the strong pressures on next generations to reduce GHG emissions. In the case of selecting the high-emission future world, much more severe measures have to be introduced during the years 2000 to 2020 in order to avoid a drastic increase in the burden on the next generation.

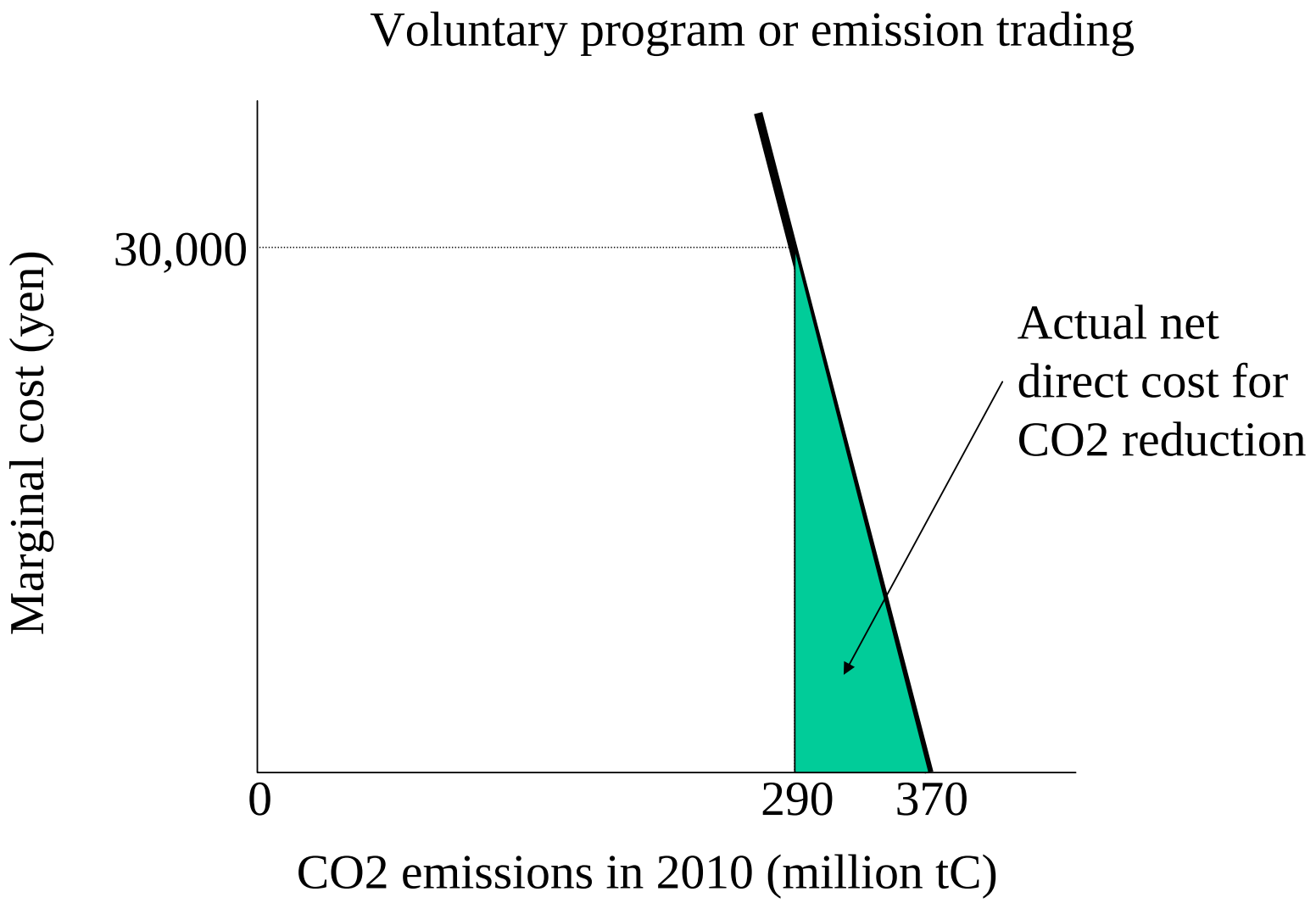
Several Findings from SRES and Post-SRES Project IV (preliminary)

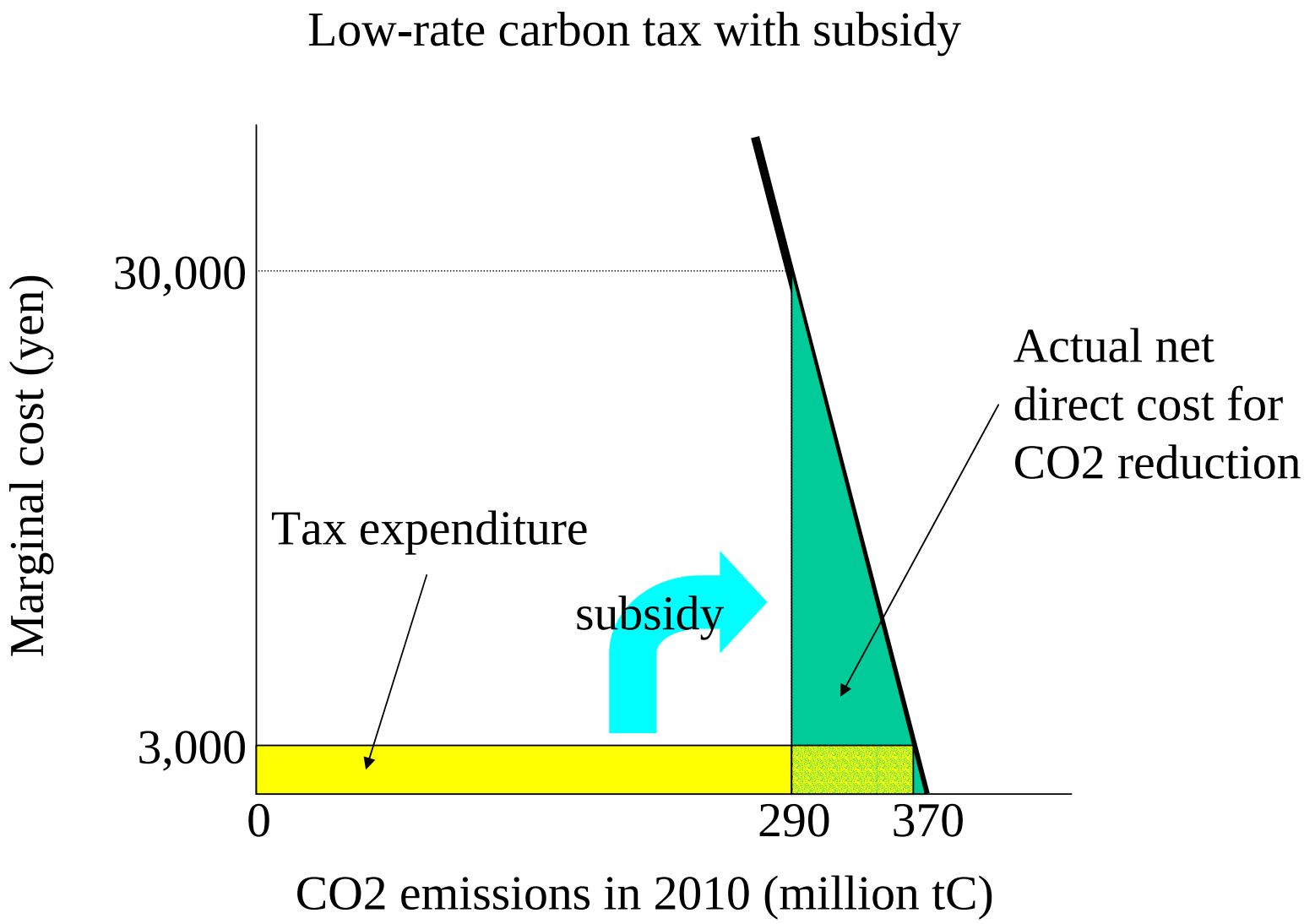
(7) Very important conclusion emerging from recent scenario analyses is that it could be most effective to very significantly reduce GHG emissions through integration of climatic policies with general socio-economic policies, which are not customarily as climate policies at all.

This in turn suggests that more attention needs to be paid to the linkage between climate policy and sustainable development policy.


Tax expenses
30,000
Actual net direct cost
for CO2 reduction
Marginal cost (yen)
0
370
CO2 emissions in 2010 (million tC)


Tax expenditure
30,000
Actual net
direct cost for
CO2 reduction
Marginal cost (yen)
0
290
370
CO2 emissions in 2010 (million tC)


Voluntary program or emission trading
Marginal cost (yen)
30,000
Actual net
direct cost for
CO2 reduction
0
290
370
CO2 emissions in 2010 (million tC)


Low-rate carbon tax with subsidy
Marginal cost (yen)
30,000
3,000
0
290
370
CO2 emissions in 2010 (million tC)
Actual net direct cost for CO2 reduction
Tax expenditure
subsidy


5th Session
WORKING GRO
Intergovernment Panel on climate change
Kathmandu, 8-15 March 2000
TSU WG I