

Panel Discussion  
- ***Low Carbon Economies and the Labour Market:  
Renewables and Energy Efficiency –  
Converting  
Climate Challenges  
to  
Opportunities***

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# Climate change challenge

- Climate change is already occurring, and climate impacts are unavoidable.
- Both mitigation and adaptation are global challenges and require global actions.
- Global climate agreements due in 2009, though difficulties foreseen in negotiations.
- Climate questions and 3R are likely agenda items in 2008 G8 meetings.

# Bali Road Map

UNFCCC COP;

1. *Decides* to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session, by addressing, inter alia:
  - (b) (i) Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances;
  - (ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner
  - (iii) Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries;
  - (iv) Cooperative sectoral approaches and sector-specific actions,
- (c) (adaptation)
- (d) (Tech trans)
- .....

# Bali Road Map (2)

*3<sup>rd</sup> preamble:*

*Recognizing* that deep cuts in global emissions will be required to achieve the ultimate objective of the Convention and emphasizing the urgency<sup>1</sup> to address climate change as indicated in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,

- Footnote #1: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Technical Summary, pages 39 and 90, and Chapter 13, page 776.

**Box 13.7 The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group<sup>a</sup>**

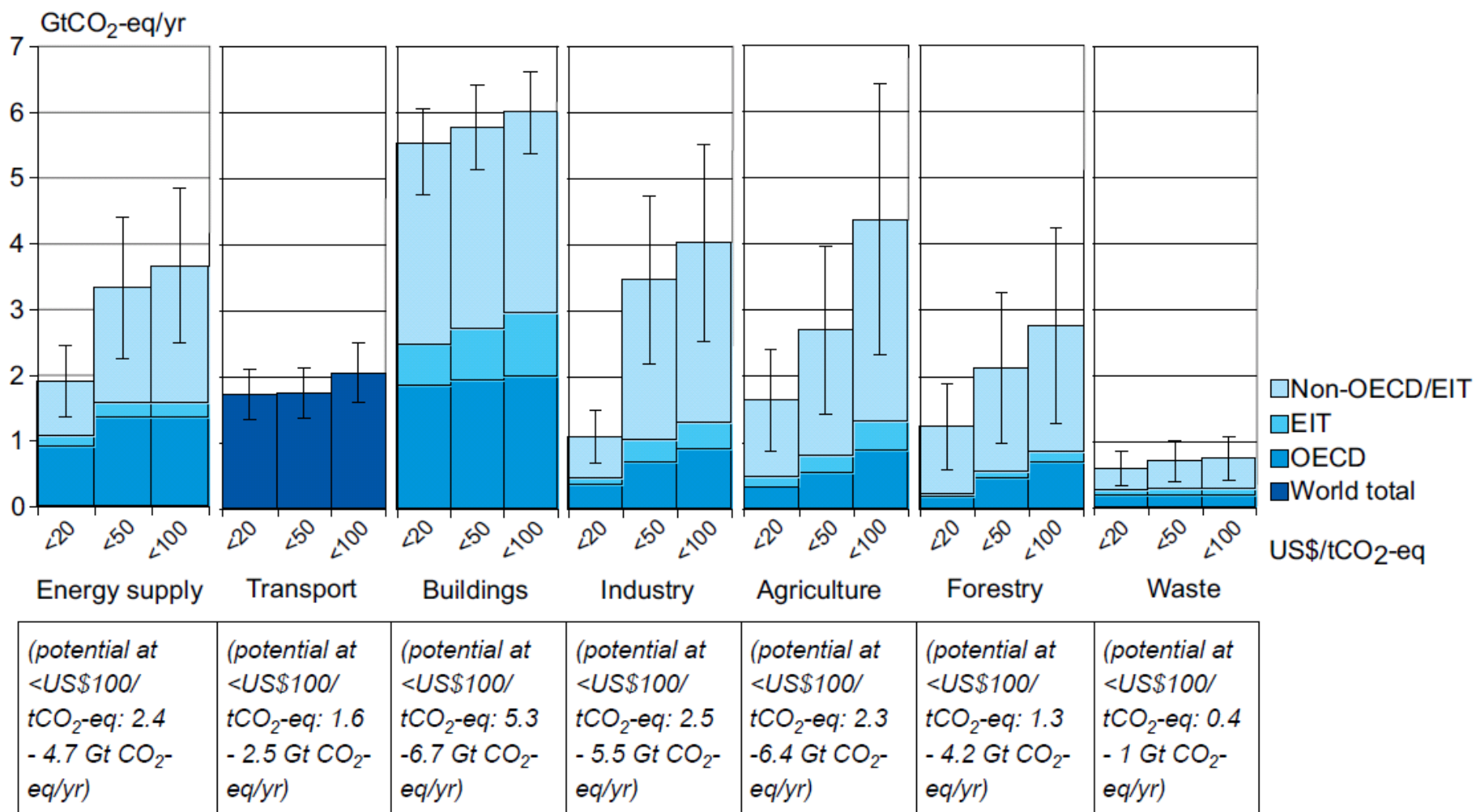
Scenario category	Region	2020	2050
<i>A-450 ppm CO<sub>2</sub>-eq<sup>b</sup></i>	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
<i>B-550 ppm CO<sub>2</sub>-eq</i>	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
<i>C-650 ppm CO<sub>2</sub>-eq</i>	Annex I	0% to -25%	-30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and Middle East, East Asia

- Notes:
- <sup>a</sup> The aggregate range is based on multiple approaches to apportion emissions between regions (contraction and convergence, multistage, Triptych and intensity targets, among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables. Additional extreme cases – in which Annex I undertakes all reductions, or non-Annex I undertakes all reductions – are not included. The ranges presented here do not imply political feasibility, nor do the results reflect cost variances.
  - <sup>b</sup> Only the studies aiming at stabilization at 450 ppm CO<sub>2</sub>-eq assume a (temporary) overshoot of about 50 ppm (See Den Elzen and Meinshausen, 2006).

Source: See references listed in first paragraph of Section 13.3.3.3

**Table SPM.3:** Key mitigation technologies and practices by sector. Sectors and technologies are listed in no particular order. Non-technological practices, such as lifestyle changes, which are cross-cutting, are not included in this table (but are addressed in paragraph 7 in this SPM).

Sector	Key mitigation technologies and practices currently commercially available	Key mitigation technologies and practices projected to be commercialized before 2030
Energy supply [4.3, 4.4]	Improved supply and distribution efficiency; fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; early applications of Carbon Capture and Storage (CCS, e.g. storage of removed CO <sub>2</sub> from natural gas).	CCS for gas, biomass and coal-fired electricity generating facilities; advanced nuclear power; advanced renewable energy, including tidal and waves energy, concentrating solar, and solar PV.
Transport [5.4]	More fuel efficient vehicles; hybrid vehicles; cleaner diesel vehicles; biofuels; modal shifts from road transport to rail and public transport systems; non-motorised transport (cycling, walking); land-use and transport planning.	Second generation biofuels; higher efficiency aircraft; advanced electric and hybrid vehicles with more powerful and reliable batteries.
Buildings [6.5]	Efficient lighting and daylighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves, improved insulation ; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycle of fluorinated gases.	Integrated design of commercial buildings including technologies, such as intelligent meters that provide feedback and control; solar PV integrated in buildings.
Industry [7.5]	More efficient end-use electrical equipment; heat and power recovery; material recycling and substitution; control of non-CO <sub>2</sub> gas emissions; and a wide array of process-specific technologies.	Advanced energy efficiency; CCS for cement, ammonia, and iron manufacture; inert electrodes for aluminium manufacture.
Agriculture [8.4]	Improved crop and grazing land management to increase soil carbon storage; restoration of cultivated peaty soils and degraded lands; improved rice cultivation techniques and livestock and manure management to reduce CH <sub>4</sub> emissions; improved nitrogen fertilizer application techniques to reduce N <sub>2</sub> O emissions; dedicated energy crops to replace fossil fuel use; improved energy efficiency.	Improvements of crops yields.
Forestry/forests [9.4]	Afforestation; reforestation; forest management; reduced deforestation; harvested wood product management; use of forestry products for bioenergy to replace fossil fuel use.	Tree species improvement to increase biomass productivity and carbon sequestration. Improved remote sensing technologies for analysis of vegetation/ soil carbon sequestration potential and mapping land use change.
Waste management [10.4]	Landfill methane recovery; waste incineration with energy recovery; composting of organic waste; controlled waste water treatment; recycling and waste minimization.	Biocovers and biofilters to optimize CH <sub>4</sub> oxidation.



**Figure SPM.6:** Estimated sectoral economic potential for global mitigation for different regions as a function of carbon price in 2030 from bottom-up studies, compared to the respective baselines assumed in the sector assessments. A full explanation of the derivation of this figure is found in Section 11.3.

# Opportunities will further emerge;

- Climate discussions will become more comprehensive – interlinking climate actions and national developments.
- More technology transfer must and will occur (such as through post-2012 market mechanism, or sectoral approach.).
- New financial resources will become available – e.g., adaptation funds, and funds for mitigation collaboration.
- Thus, climate challenge could trigger dynamic changes;
  - Climate resilient development through “climate adaptation”,
  - Poverty alleviation and other development needs could/should be addressed in co-benefits consideration – benefits of climate actions to development, and benefits of certain development to climate mitigation.
  - Higher efficiency in industry and society through “global mitigation”,
- IPCC decided two weeks ago to prepare a Special Report on “Renewable Energy Sources and Climate Change” – by 2010.

# Conditions

- Integration of climate actions (mitigation and adaptation) into national development – sound national policy formulation is a prerequisite. Integration refers also to management and use of resources, including ODA.
- Improvement of resource and energy efficiency must be taken into account in all range of time frames.
- Occupational health and safety must be ensured – “international resource reuse” should not lead to sub-standard working environment.

# Role of ILO for Asia and the Pacific

For example;

- Sharing information on experiences and failures
- Consultations on roles and responsibilities of employers and workers
  - Employers have major role in investment and technology assessment
  - Workers are important consumers
- International elaborations on health and safety in the changing world.