



Incentive Mechanisms and Climate Friendly Technologies

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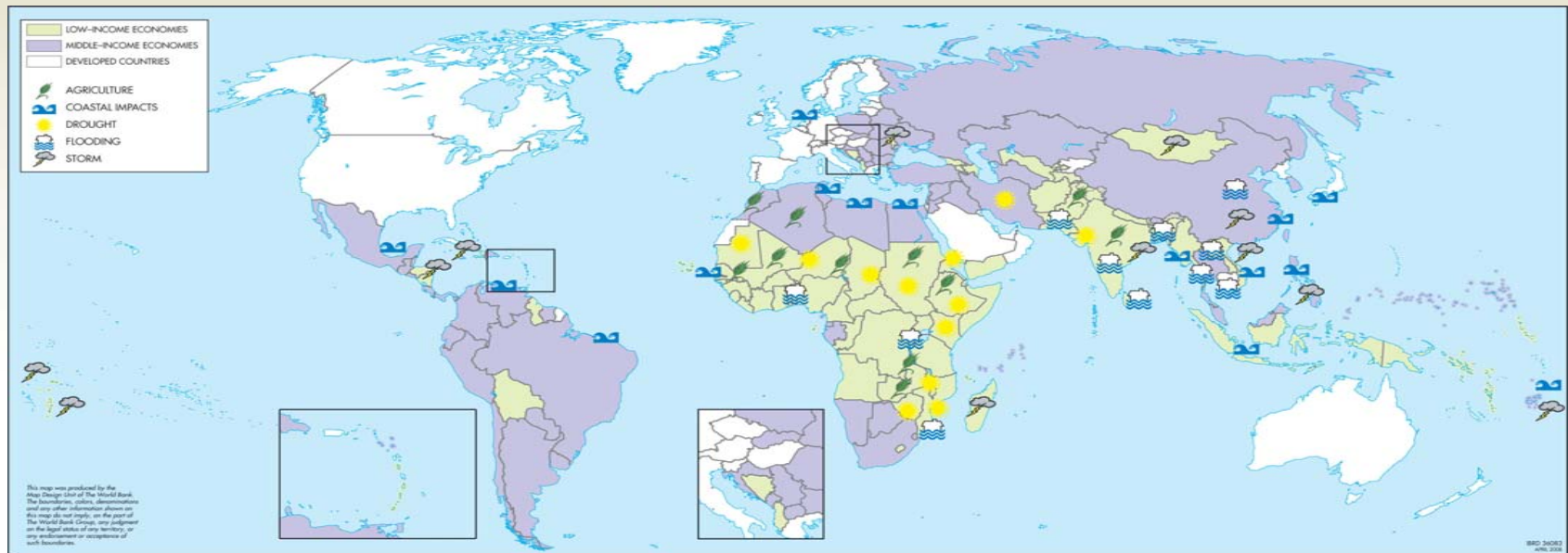
World Bank

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Climate Change as a Development Challenge

- The impacts of climate change present an urgent challenge, especially for the poorest countries
- Inaction could be a seriously impinge on future economic progress and social welfare
- At the same time, actions directed at climate change present an opportunity for social and economic transformation towards a sustainable growth path



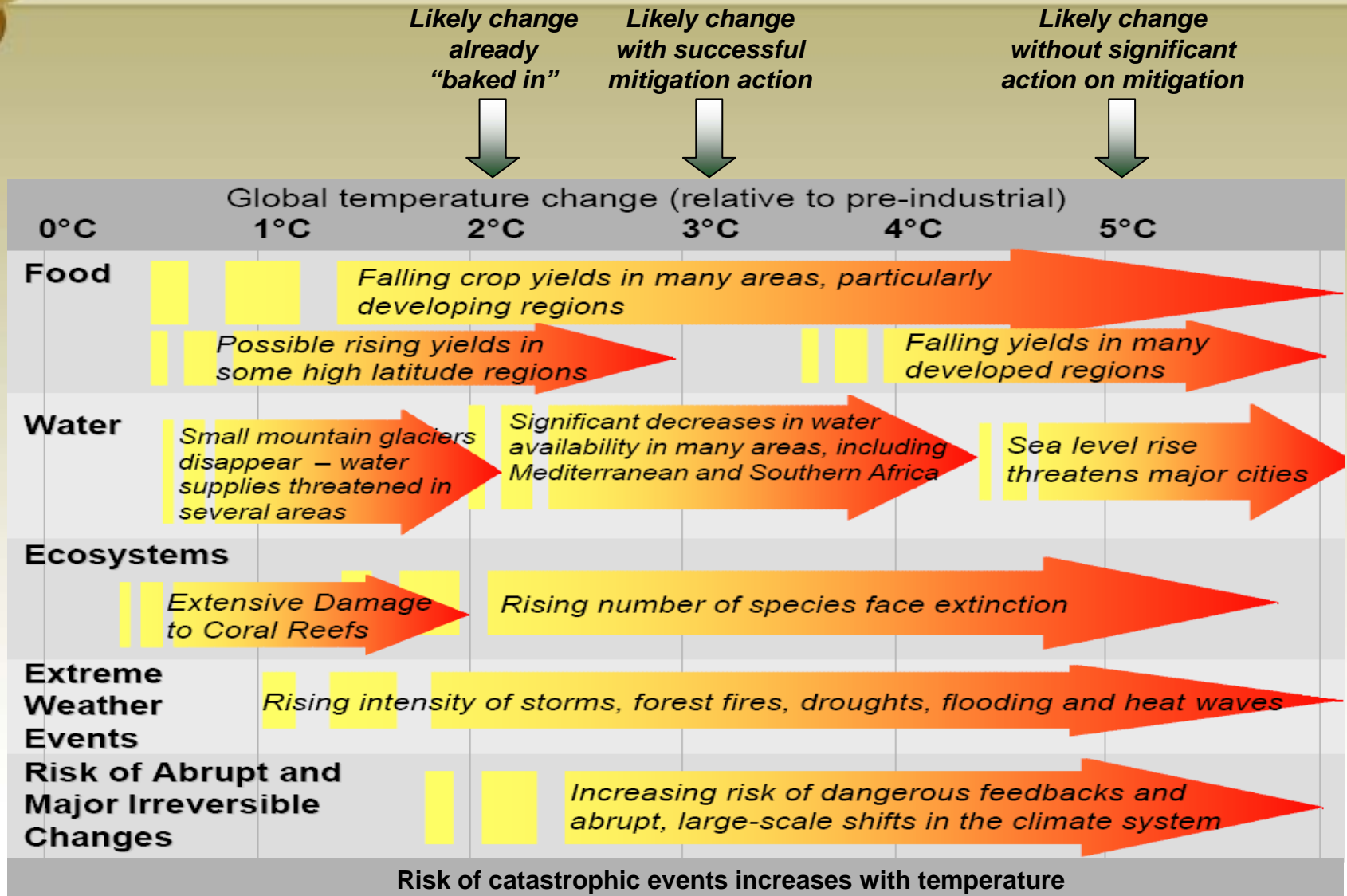


Six Climate Threats

Top 12 Countries Most at Risk from Each

<i>Drought</i>	<i>Flood</i>	<i>Storm</i>	<i>Coastal 1m</i>	<i>Coastal 5m</i>	<i>Agriculture</i>
Malawi	Bangladesh	Philippines	All low-lying Island States	All low-lying Island States	Sudan
Ethiopia	China	Bangladesh	Vietnam	Netherlands	Senegal
Zimbabwe	India	Madagascar	Egypt	Japan	Zimbabwe
India	Cambodia	Vietnam	Tunisia	Bangladesh	Mali
Mozambique	Mozambique	Moldova	Indonesia	Philippines	Zambia
Niger	Laos	Mongolia	Mauritania	Egypt	Morocco
Mauritania	Pakistan	Haiti	China	Brazil	Niger
Eritrea	Sri Lanka	Samoa	Mexico	Venezuela	India
Sudan	Thailand	Tonga	Myanmar	Senegal	Malawi
Chad	Vietnam	China	Bangladesh	Fiji	Algeria
Kenya	Benin	Honduras	Senegal	Vietnam	Ethiopia
Iran	Rwanda	Fiji	Libya	Denmark	Pakistan

Likely Changes — Dependent on Mitigation



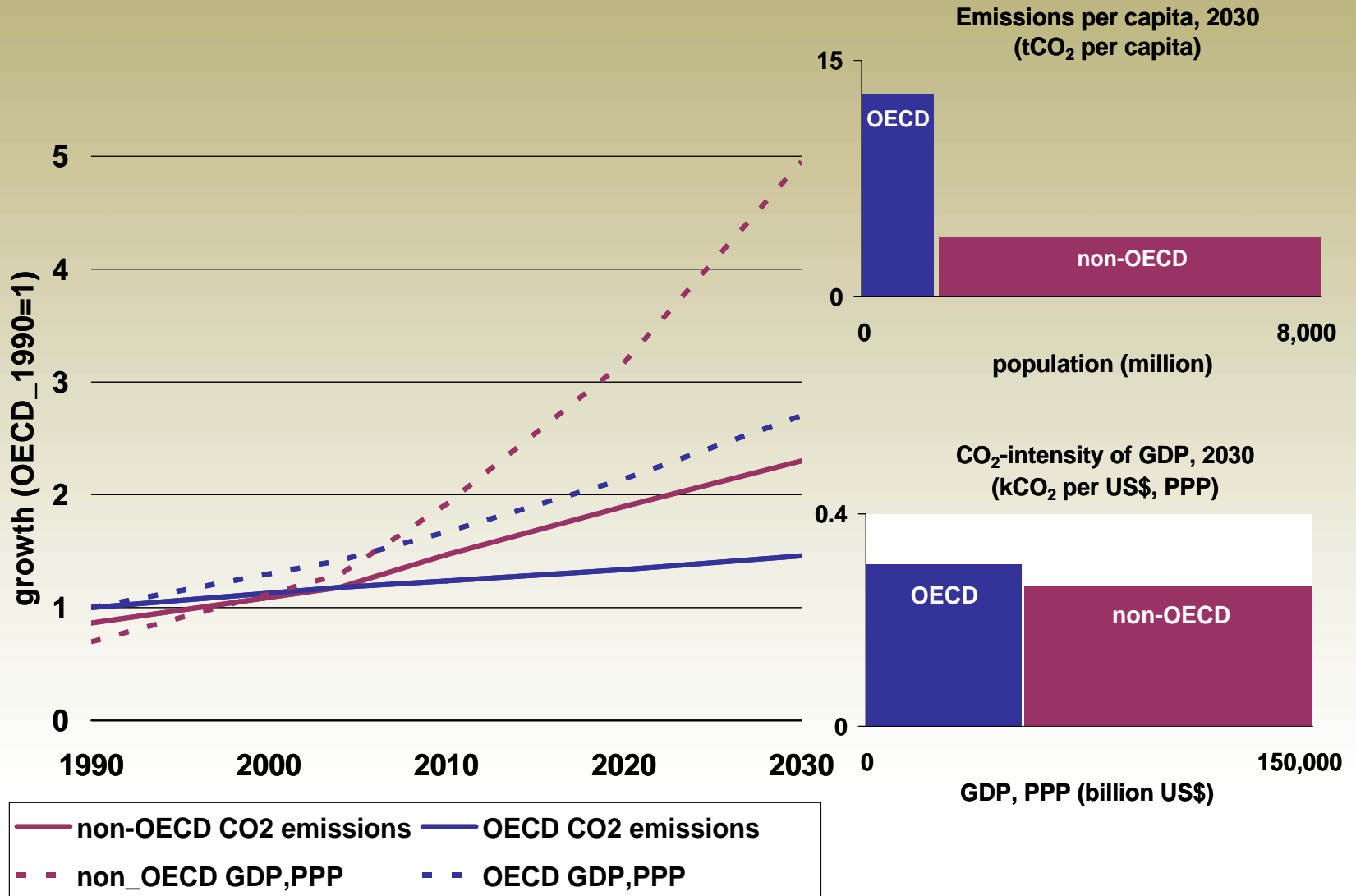
International Mechanisms to deal with CC

- Mitigation requires global analysis and global collective action
- The Kyoto Protocol remains the key international mechanism under which the industrial countries have committed to reduce their emissions of carbon dioxide and other greenhouse gases
- Growing concerns of competitiveness and leakage in countries implementing the Kyoto Protocol
- Increasing pressure on their governments to ease competitive pressures through measures such as a border tax
- On road to Copenhagen?



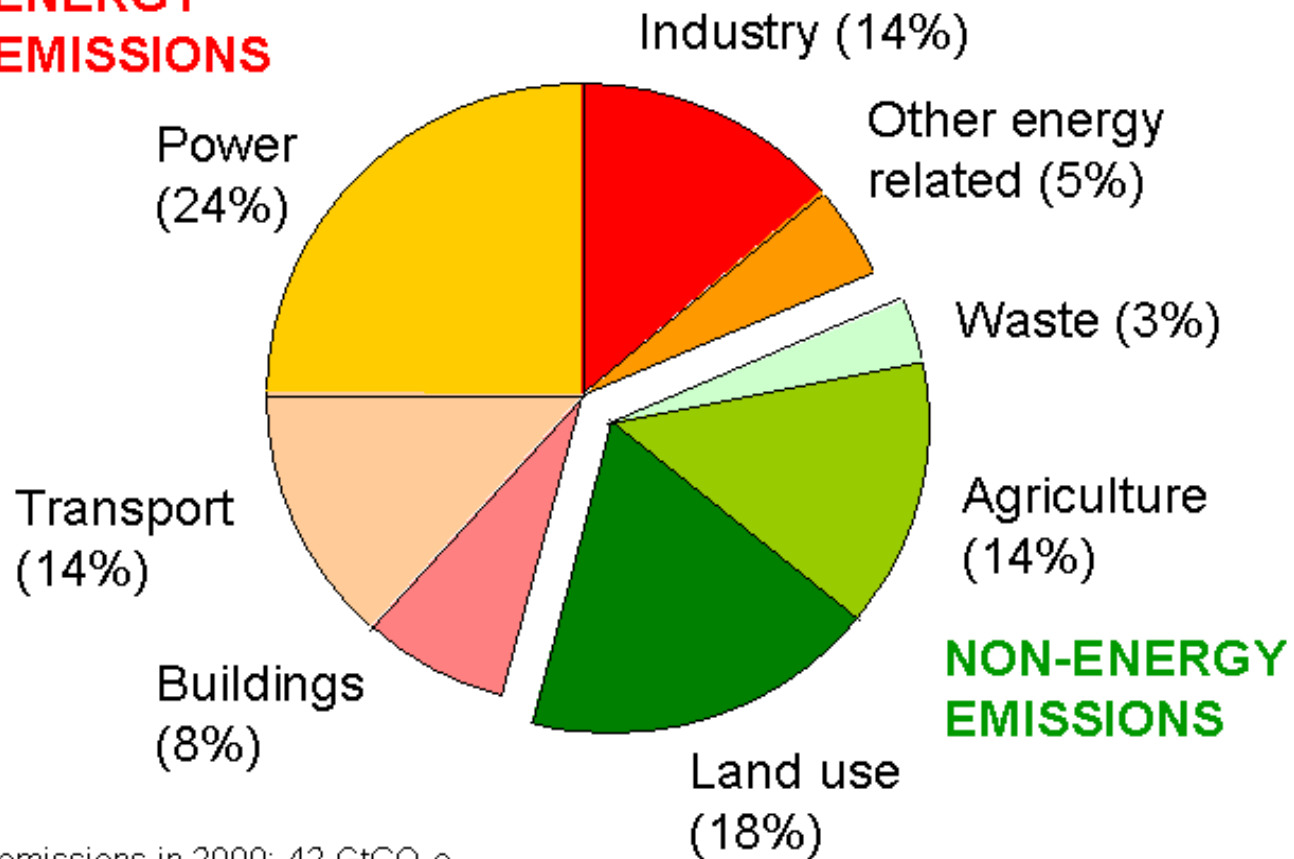


The case for cooperative global action



Reducing emissions requires action across many sectors

ENERGY EMISSIONS



Total emissions in 2000: 42 GtCO₂e.



Technology transfer critical to climate change objectives

- The stabilization of GHG concentrations to as low as 450 pm CO₂-eq can be achieved by deployment of currently available technologies and those which are expected to be commercialized in the coming decades (IPCC 2007)
- Socolow and Pacala have used the concept of “stabilization wedges” to identify technology strategies that are climate friendly.



Instruments for Technology Transfer


- CDM, JI etc.
- UNFCCC (EGTT)
- Trade
- Bilateral/Multilateral Aid (ODA)
- Investment
- Research, Development and Deployment
- Carbon Markets



Trade Barriers to Climate Friendly Technology

Country	Wind technology	Solar technology	Energy efficient lighting
China	8	10	8
India	15	15	15
South Africa	0	12	17
Mexico	15	13	15
Brazil	14	18	18
Indonesia	10	15	5
Thailand	10	10	20
Malaysia	5	18	30
Egypt	6	32	18
Argentina	14	18	18
OECD	3	3	4

Source: World Bank (2007)



Estimated Benefits of Liberalizing Select Clean Energy Technologies

	% increase in trade volumes	
	Removal of tariffs	Removal of tariffs and NTBs
Clean coal	3.6	4.6
Wind	12.6	22.6
Solar	6.4	13.5
Energy efficient lighting	15.4	63.6
Total	7.2	13.5



Liberalizing Trade in Climate Friendly Technologies

..as an approach to furthering trade and climate agendas

An agreement should include:

- special and differential treatment for developing country Members, including longer phase-in periods
- technical and financial assistance to deal with liberalization challenges
- enhance export opportunities for developing countries



Official Development Assistance (ODA)

- Gleneagles agenda—Active MDB role in climate change mitigation and adaptation
 - The European Bank for Reconstruction and Development's (EBRD) commits to more than doubling its investments in energy efficiency and cleaner energy during the 2006–2008 with total costs of over €5 billion.
 - The Asian Development Bank (ADB) is in the process of expanding its clean energy operations to reach US\$1 billion a year.
 - The European Investment Bank (EIB) has adopted ambitious renewable energy targets, and also plans to support up to 12 carbon capture and storage power
 - The African Development Bank (AfDB) has announced a program to provide financial support to 5 to 10 climate “adaptation” projects a year by 2010.
 - The Inter-American Development Bank (IDB) is in the process of establishing targets for expanding its sustainable energy operations to reach up to US\$1.5 Billion per year over the period of 2008-2012.
 - The World Bank Group (WBG) is committed to increasing its energy efficiency and renewable lending by 20 percent a year.



ODA and Climate Change

- Accelerate access to affordable, modern energy for the poorest.
- Reinforce the importance of good economic policies, such as energy and water pricing.
- Support enabling regulatory and investment environment for renewable energy and energy efficiency.
- Help develop mature, efficient, and accessible carbon markets.
- Stimulate investment in the dissemination of climate friendly technologies (Climate Investment Fund).
- “Additionality” issues.



Investment

Domestic barriers

- Lack of policy and regulations
 - Lack of an energy policy (at the national and/or local level) that includes deployment of renewable generation capacity
 - Lack of purchase agreements for independent producers
 - Lack of policies supporting mandatory or voluntary energy efficiency standards for appliances, buildings and vehicles
 - Inadequate environmental regulation and enforcement
 - Lack of incentives (taxes, subsidies etc.) that promote renewable energy and energy efficiency.
 - Lack of financing/credit mechanisms to obtain capital to finance renewable projects
- Technical Barriers
 - Lack of technical standards for appliances
- Intellectual Property Rights Regimes

An index for monitoring incentives for low carbon economy



Investment

International Barriers

- Absence of a multilateral agreement on FDI in manufacturing
- Over 2000 investment treaties (IIAs and BITs)
- Trade Related Investment Measures (TRIMs): restrictions that host government sometimes place on the imports and/or exports of FDI projects
- General Agreement on Trade in Services (GATS): covers host country restrictions on FDI in services

Explore mechanisms to encourage clean energy investments in FTAs and BITs



Research, Development and Deployment

Pooling Resources to Address Global Public Goods

- Establishing pooled, coordinated resources to support R &D of clean energy technologies
- Consultative Group International Agricultural Research (CGIAR) for example), Advanced Market Commitment (AMC) could provide a model of what international institutions can do for carbon saving technologies.
- RD&D structures that promote nontraditional partnerships focused on a clearly defined mission can effectively accelerate technology development (HGP model).
- Technology transfer can be best facilitated through active involvement both of developed and developing countries focusing on a joint ambition.



Research, Development and Deployment

Overcoming IPR issues

- patent buy-outs for important technologies
- reduction of tariff on sale and transfer of technologies
- global venture capital fund to commercialize clean energy technologies
- transfer of technologies to public domain
- enable technology transfer through licensing schemes with reduced duration of intellectual property rights



Carbon Markets

Getting carbon prices right

- Eliminate fossil fuel subsidies
- Taxing carbon emitters
- Using shadow pricing or social cost of carbon in project analysis
- Using hurdle and switching prices: using carbon markets to buy down the cost of reducing carbon missions in projects



Thank you!