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Canvi climàtic i energia a La Pedrera de Caixa Catalunya

Propostes per a després de Kyoto

Energy, Climate Change and A Just Global Compact

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Caixa Catalunya
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Climate Change: Urgent Action Needed

- An accepted reality
- Delay is Expensive for many innocents
- Berlin COP – stabilization level and allocation of global environmental space
- UNFCCC – CC due to Unsustainable Consumption Patterns
- The rich consumed most of the resources
- Historical responsibility
- Joint but differentiated responsibility

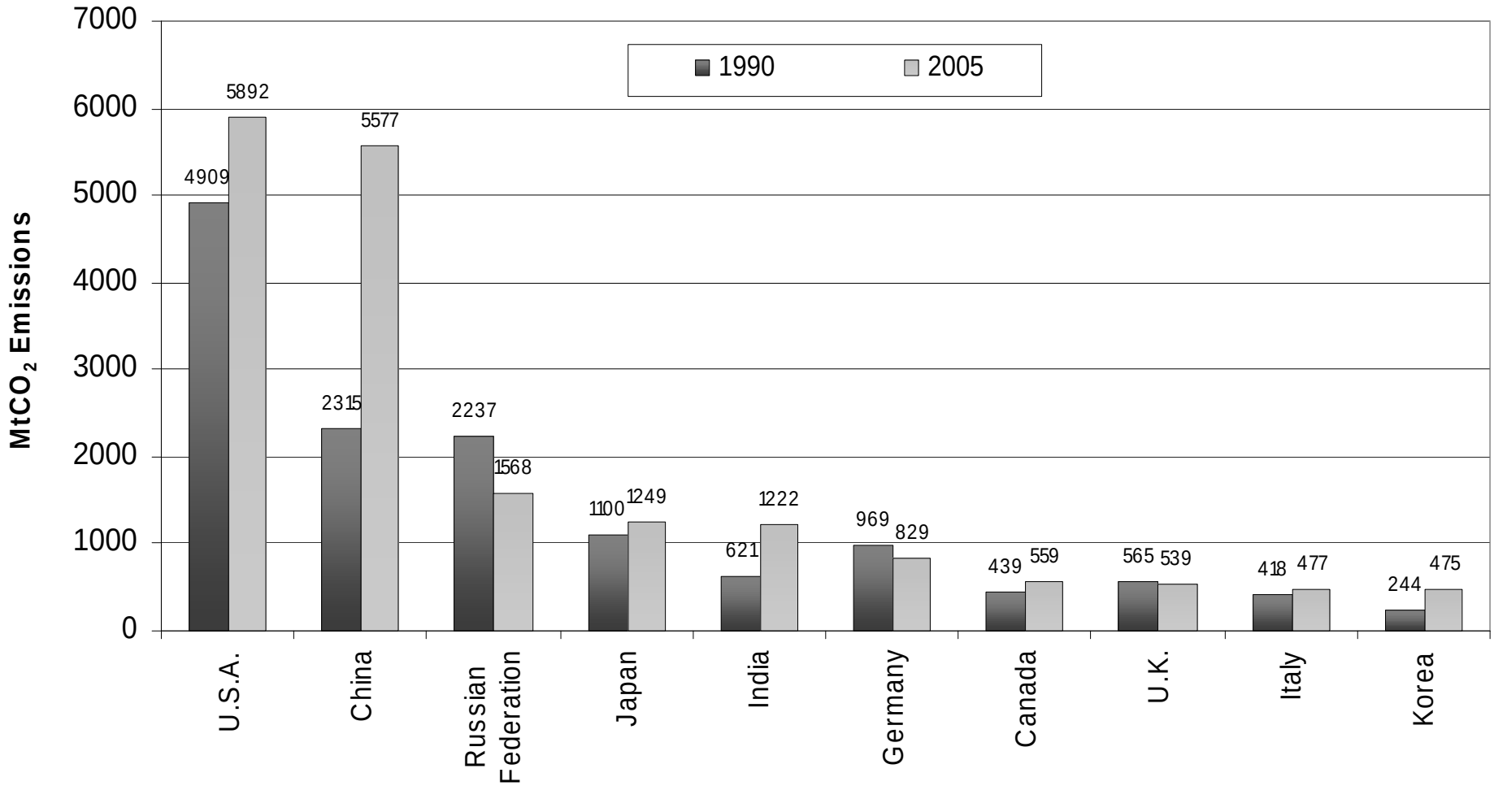
The Rich Use Most Resources 1987

Category	Products	Share of developed countries (%)	Per capita (kg or litre)**		Disparity ratio of per-capita consumption	
			Developed	Developing	Developed / developing	USA/India
Food	Cereals	48	717	247	3	6
	Milk	72	320	39	8	4
	Meat	64	61	11	6	52
Forestry	Round wood	46	888	339	3	6
	Sawn wood	78	213	19	11	18
	Paper, etc.	81	148	11	14	115
Industry	Fertilizers	60	70	15	5	6
	Cement	52	451	130	3	7

Rich Free Riding through Delay

- Annex 1 Countries (A1Cs) have not lived upto their commitments
- Have since 1992 occupied global space that equals 40 years of India's emissions growing at 5% per year
- UNFCCC did not require developing countries to act
- Kyoto tried to involve them through CDM
- Now US insists that India and China must act before it does

Between 1990 and 2005 US has added a whole India



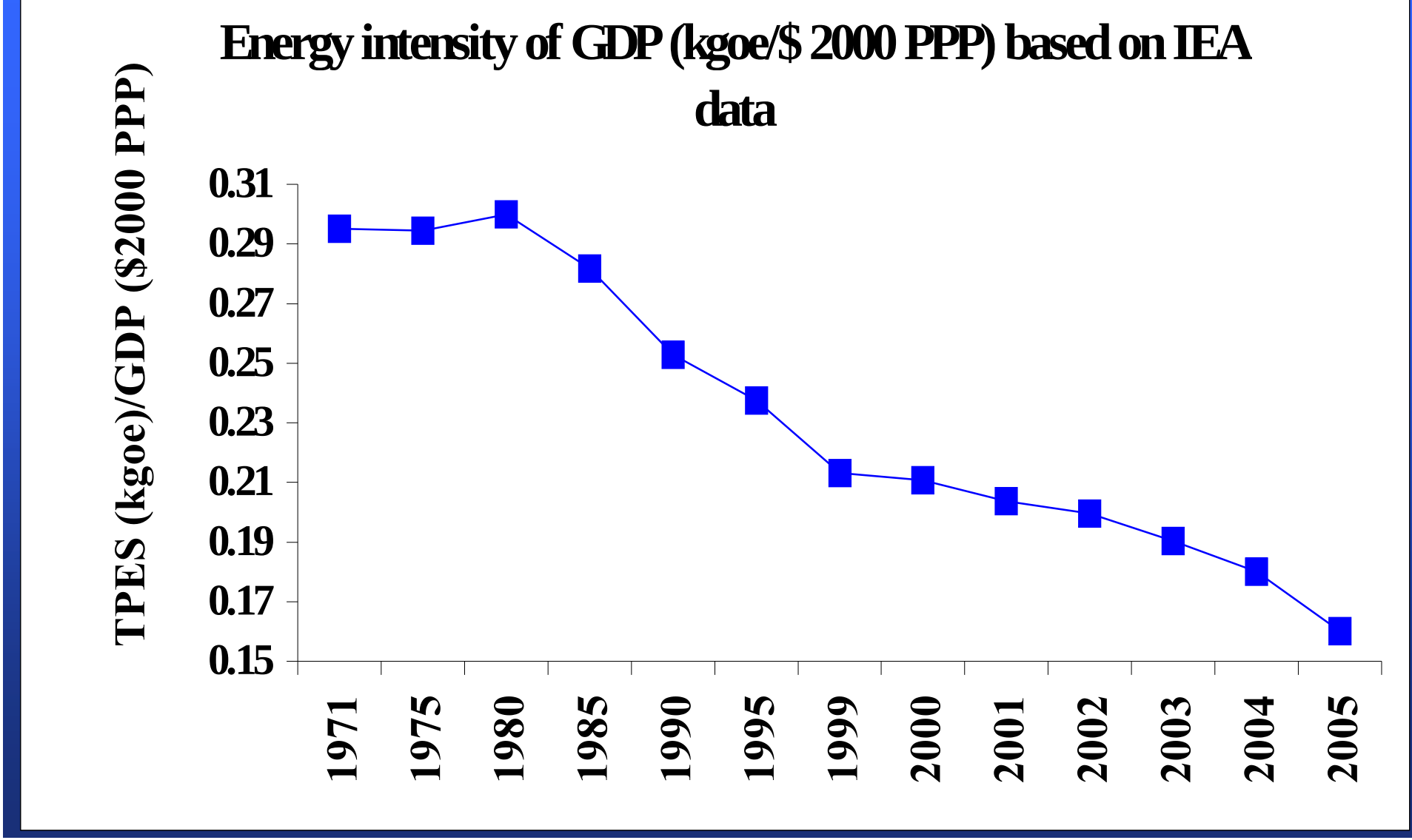
Unreasonable to Ask India to Act

- Low total and per capita emissions
- Emission intensity is one of the lowest and falling
- Energy use must grow to deal with poverty
  - 300 million poor
  - 600 million without electricity
  - 600 million cook with wood and dung

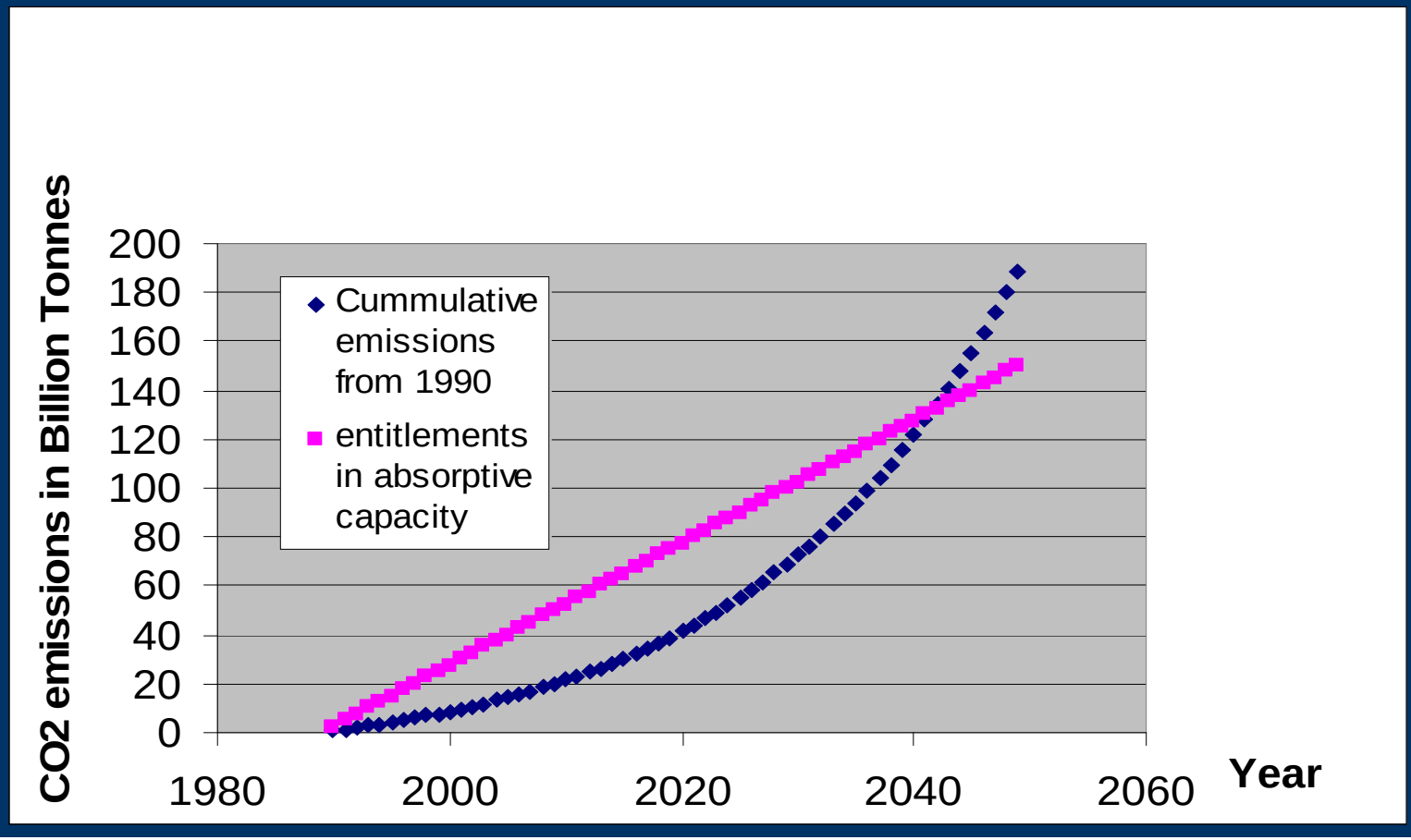
Energy Use Efficiency Per GDP $PPP-2000

Region/Country	Primary Energy kgoe	kWhr
India	**0.16**	**0.20**
China	0.23	0.29
US	0.22	0.37
World	0.21	0.31

India's Energy Intensity Falling



India's Cumulative Emissions Compared with Fair Right in Global Environment's Absorptive Capacity will exceed only after 2040



India's Energy Challenges

- India needs 8% to 10% economic growth to meet its economic and human development goal

- Sustained growth of 8% through 2031 needs
  - to grow Primary Energy supply by 3 to 4 times
  - to Grow Electricity Supply by 5 to 7 times
  - to improve Quality and quantity of supply

- Coal shall remain the main leading energy source till 2031-32 & beyond

Total Primary Commercial Energy Requirements (TPCES) 2031-32 for 1.47 billion persons (Mt of Oil Equivalent)

	@GDP Growth Rate	
	8%	9%
GDP in 2031-32/GDP in 2006-07	6.8	8.6
TPCES (Mtoe) (Falling Elasticities)	1510	1820

Range of Commercial Energy Requirement, Domestic Production and Imports for 8 Percent Growth for Year 2031-32

Fuel	Range of Requirement in Scenarios	Assumed Domestic Production	Range of Imports	Import (Percent)
	(R)	(P)	(I)	(I/R)
Oil (Mt)	350-486	35	315-451	90-93
Natural Gas in Mtoe including CBM (In BCM)	100-197 (111-219)	100 (111)	0-97 (0-108)	0-49
Coal in Mtoe (in Million Tonnes)	632-1022 (1540-2490)	560 (1365)	72-462 (175-1125)	11-45
TCPES	1351-1702	-	387-1010	29-59

CO_2 Emissions under Alternate Scenarios - 2030

- in 2006 -1.1 billion Tonnes of CO_2
- in 2030
  - 5.2 bt with a coal dominant scenario
  - 3.6 bt with renewables, efficiency, DSM
- India has not contributed to GHG build up

- Yet India is vulnerable and doing a lot.

India is Vulnerable and Responsible

- Prime Minister Manmohan Singh said at G8+5 meeting at Heiligendamm
  - "*We are determined that India's per-capita GHG emissions are not going to exceed those of developed countries even while pursuing policies of development and economic growth*"…….
  - "*We must work together to find pragmatic, practical solutions, which are for the benefit of entire humankind*".
- Implications are worth noting
  - For 450 ppm target India must remain below 2.5 t CO_2 per person by 2050

India's Climate Action Plan

- PM set up a Climate Advisory Council, Its Climate Action Plan
- Emphasises energy efficiency, conservation, mass transport; renewable energy, nuclear and hydro-electricity; technology missions for clean coal technologies; and focussed R&D on many climate friendly technologies.
- Eight Technology missions
  - Solar energy;
  - Enhanced energy efficiency;
  - Sustainable habitat;
  - Water conservation and management;
  - Sustaining the Himalayan ecosystem;
  - Greening India;
  - Sustainable agriculture; and
  - Strategic knowledge for climate change

Allocation of Emission Quotas is Implicit in All Alternatives

- Emission Cuts, CDM, Cap and Trade, Carbon Tax, all imply allocation
  - Cuts imply acceptance of declining present emissions
  - CDM imply certain rights and obligations
  - Cap and Trade requires fixing a Cap, which imply a right
  - How Carbon Tax is redistributed imply allocation

Fair and just global compact must address allocation of emission quotas.

Principles for Fairness and Justice

- *UNFCCC: "common but differentiated responsibilities and respective capabilities and their social and economic conditions*"
- Historical emissions
  - From 1990 no claim for just acquisition tenable
  - Annex 1 list implies per capita equity principle
  - Social and Economic conditions imply right to develop
    - Their emissions have to grow
    - To what level?
    - NA1Cs are not static
  - Need a principle for transition of NA1Cs to A1Cs

Principles of allocation

- International comparisons are full of pitfalls
- Utilities cannot be compared across persons, societies and circumstances
- Economists have no answer
- It must me an ethical principle
- All religions, constitutions of democratic countries treat all persons as equal
- Equal per capita emissions is a just allocation.

A Just Global Compact

- Charge Rent For Parking CO2 in the Global Space
- Distribute rent to countries on equal per capita basis as per their 1990 populations
- Rent can be periodically adjusted to track a desired emission trajectory

Advantages

- Rational - stock of GHGs that causes climate change
- All countries pay without distinction between annex 1 and non-annex 1
- Incentives to all countries to be carbon efficient
- Rewards countries for negative emissions, which play a very important role in many long term global scenarios.

Advantages (contd)

- Simple mechanism to transfer resources across countries with very little transaction cost and minimal bureaucracy.
- By increasing the rental rate with a cess, compensation for adaptation can also be factored in.
- The cess collection can be distributed to countries as per their population and in inverse proportion to their per capita emissions with a minimum amount given to all countries with small populations.

Cumulative Emissions **1990-2000**

CO2 (energy)

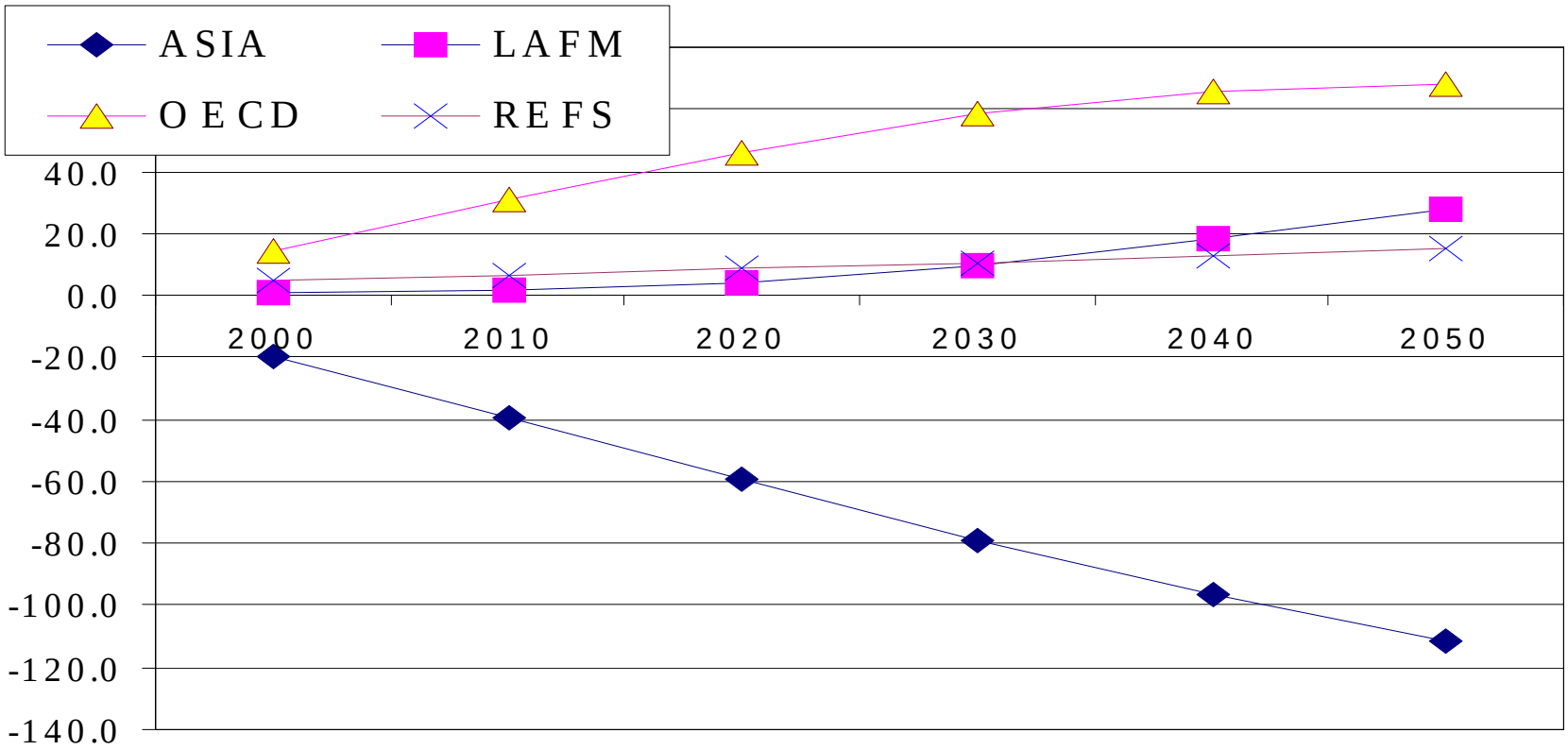
Region	Bt CO2	Bt C	% of Global	2000 Population Millions
GLOBE	242.6	66.2	100.0	6055.1
ASIA	56.9	15.5	23.5	3251.3
LAFM	29.6	8.1	12.2	1471.9
OECD	117.9	32.1	48.6	919.2
REFS	38.2	10.4	15.7	456.0

Net cumulative emissions since 1990

Billion Tonnes of CO2

	2000	2010	2020	2030	2040	2050
GLOBE	77.6	233.9	412.9	607.4	777.5	883.8
ASIA	-31.7	-31.5	-17.5	8.1	28.6	33.9
LAFM	-10.5	21.6	63.1	119.2	182.2	230.4
OECD	92.8	194.4	295.8	385.7	449.0	482.0
REFS	26.9	49.4	71.4	94.3	117.7	137.5

Net Rent Payable for Stock of CO2 - Billion $ Per Year at $0.2 Per Tonne



Carbon Tax

- **NET Payments with Carbon tax at US$20 per Tonne of CO2 equivalent**
- **Distributed equally on per capita basis with 2010 population**
- **Involves much greater transfers from OECD countries from 185 billion US $ in 2010 decreasing to 33 billion in 2050**

Implementation Strategy

- Agree on a PPMV stabilization target and trajectory of global emissions
- Set an annual rent for cumulated GHG
- Adjust the rent every three years to ensure the trajectory is followed
- Alternatively, distribute quotas equally on a per capita basis and let countries trade

Adaptation: The Forgotten Responsibilities

- India is very vulnerable
- Agriculture yields and outputs will fall significantly
- 1 metre sea level rise will lead to loss of 0.6 million hectares of land, submerge 0.75 million houses, 4000 km. of road length and other coastal infrastructure, and displace more than 7 million persons in India.
- Also one third of Bangladesh will be submerged displacing 30 to 40 million persons many of whom are likely to spill over into India.
- Hydrology of Himalayan rivers will change leading to large water stress

Adaptation Burden

- Cess to compensate the victims
- Consistent with polluter pays principle
- Distribute on a per capita basis
- A certain minimum to all countries to compensate small countries
- Keep some amount for an international disaster relief fund

Conclusions

- Rent for cumulated GHG emissions
- All countries pay the rent
- Distributed equally on per capita basis Or Allocate quotas to trade
- Set up finance mechanism
- Set up a disaster relief fund and a liability framework
- The Rich must accept their responsibility and not pass the buck
- Together we can do it.

Thank You

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