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Proposals for contributions of emerging economies to the climate regime under the UNFCCC post 2012

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Overview: Contributions of emerging economies post 2012

What do we already know?	Ecofys
What are comparable reference emissions and mitigation potential?	Ecofys
Which climate policies exist? How could they be complemented?	Wuppertal Institut
What could be a contribution to the international regime?	Wuppertal Institut

Umwelt Bundes Amt – Für Mensch und Umwelt

For the German Federal Environmental Agency

Brazil, China, India, Mexico, South Africa and South Korea

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Country experts

- Dr. Vivek Kumar (India) – The Energy and Resources Institute, Teri
- Prof. Emilio Lèbre La Rovere (Brazil) – Universidade Federal Do Rio de Janeiro
- Prof. Jiahua Pan (China) – Chinese Academy of Social Science
- Stanford Mwakasonda (South Africa) – Energy Research Centre, University of Cape Town
- Odón de Buen (Mexico)
- Prof. Dr. Sung-Jin Leem (South Korea) – Director of Environmental and Energy Institute, Jeonju University

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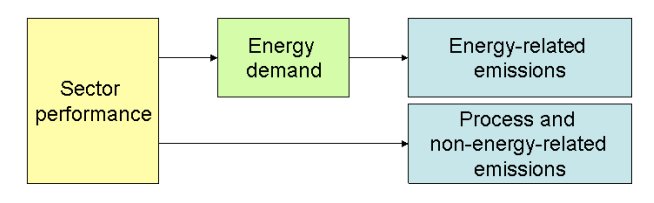
Reference scenarios and reduction options

- Starting point: no comparable reference scenarios for all sectors available

- Emission trends since 1990 (all Kyoto gases) per sector
- Scenarios:
  - **BAU:** Emission prognoses up to 2020, based on existing country studies and trend extrapolation
  - **No-regret:** Reduction options at negative or low costs
  - **Co-benefit:** Reduction options reasonable due to political aims other than climate change (higher costs)
  - **Ambitious:** Reduction options that need international support
- Simple and transparent tool



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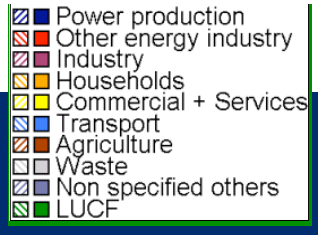
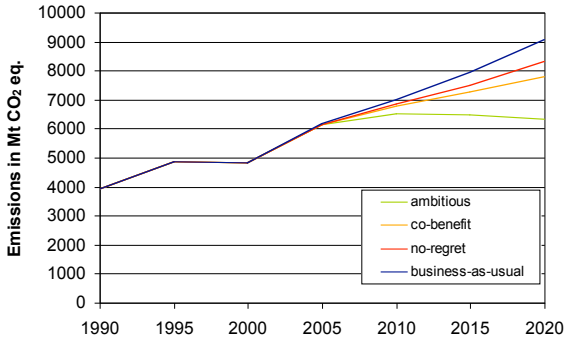
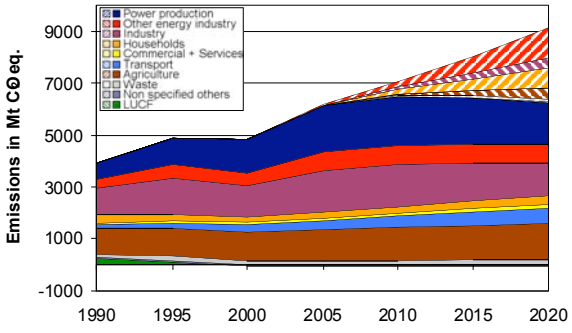
Example: China







- **BAU:** 3.3% pa 2000 to 2020
- **Power sector:** move from coal to renewable energy sources and CCS (1% in 2020)
- **Industry:** move to renewable energy sources, efficiency improvements and process changes (cement)
- **Transport:** reduction options increasing efficiency, use of gas
- **Change to BAU:** -8% (no-regret), -15% (co-benefit), -32% (ambitious)

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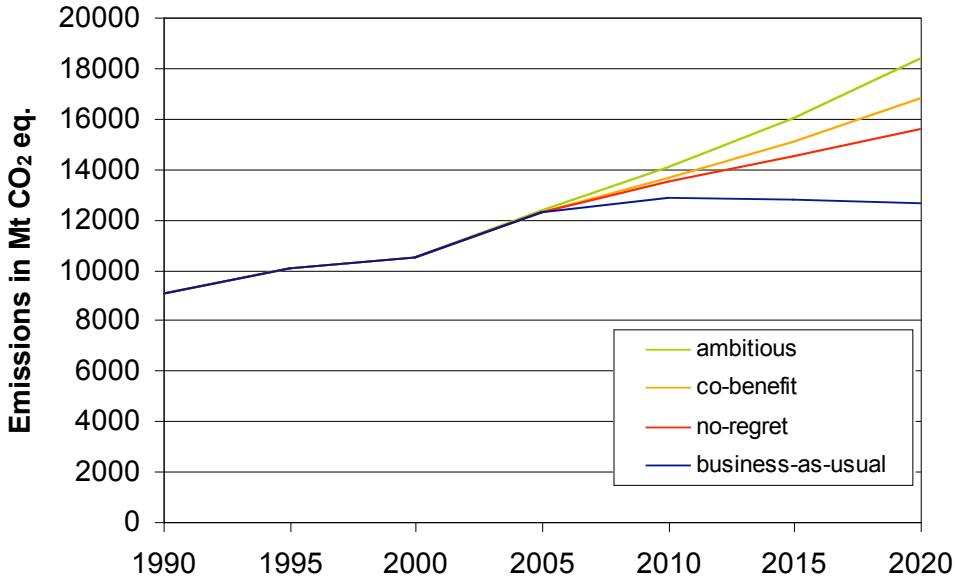
Reductions in the six countries



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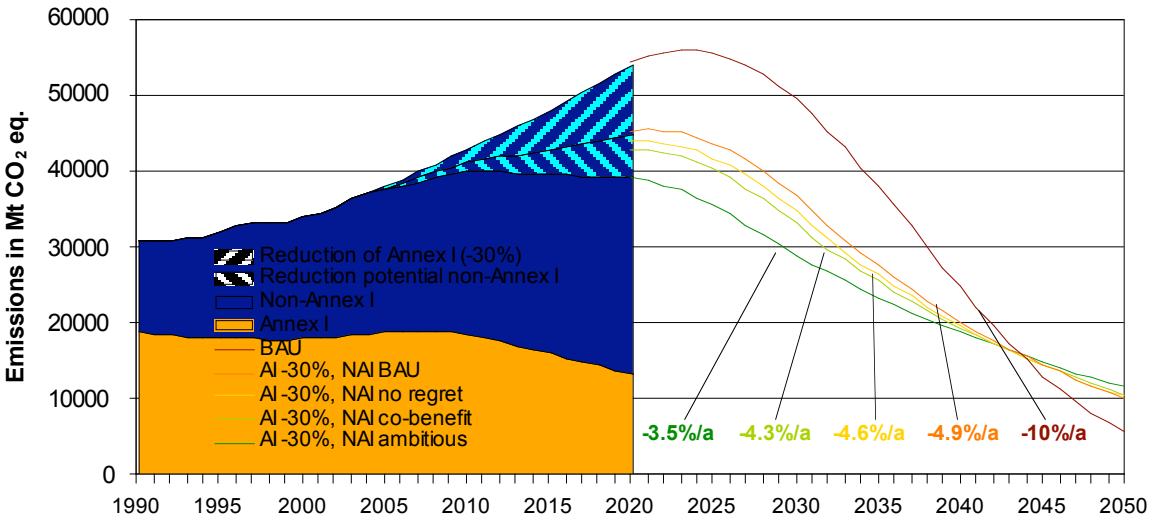
Consistency with 2°C limit



- Global emission growth from 2010 to 2020 can be halted
- Substantial further global reductions necessary after 2020

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WP 3 - Overview of existing climate policies / measures and suggestions for strengthening the existing policy mix

- **Objective:** Overview of existing climate policies and measures. Recommendations for strengthening the existing climate policy mix in order to further exploit the mitigation potential.
- **Methodology:**
  - Development of a source book of good practice climate policy packages for selected sectors
  - Review and analysis of existing climate policies and measures
    - Desktop research
    - Review by country experts
  - Suggestions for complementary climate policies and measures in sectors with the highest GHG reduction potential
- **Shortcoming:** Weak data basis as regards current policy mix

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Suggestions for strengthening the policy mix

- Gradual phase out of energy subsidies backed by technical and financial support for RES and energy efficiency
- Taxation of fossil fuels
- Compensate poor households through supporting energy efficiency

1. **Power and heat:**
   - Feed-in tariffs for electricity from RES
   - Investment support for RES technologies for cold and heat
   - Targets for reducing energy consumption through DSM by utilities
2. **Industry:**
   - Financial support for energy efficiency improvements
   - Energy audits
   - Strengthening of minimum energy efficiency standards for equipment and facilities
3. **Transport:**
   - Financial support for public transport (investments, reduced fees)
   - Integrated transport planning
   - Average specific GHG emission targets for new vehicles
   - Vehicle labelling
   - CO2-differentiated vehicle tax

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Cooperation: suggestions per country

- **Brazil:** joint RD&D activities to foster the switch from gas to bioethanol in the transport sector; RES technologies.
- **China:** Joint schemes for cooperation in RD&D regarding wind power and for the analysis of CCS technologies.
- **India:** Joint RD&D in RES technologies (wind, solar and biomass), analysis of CCS technologies, improvement of the outdated energy infrastructure.
- **Mexico:** Joint research in advanced energy efficiency standards; RD&D cooperation on efficient oil and gas fuelled power plants.
- **South Africa:** Joint RD&D in coal technology (support for improvements in the conversion efficiency of fossil fuel power plants), RES technologies for electricity, heat and cold; CCS.
- **South Korea:** Joint RD&D schemes for accelerated development, technical improvement and market introduction of RES and CHP technologies for electricity, heat and cold; efficient fossil technology.

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Special instrument: feed-in tariffs

- Feed-in tariffs have proven to be the most successful instrument to promote renewable energy
- System: provide legal obligation for grid-operators to pay a fixed fee for the feed-in of renewable energy - higher than the market price
  - Difference between market price per kw/h and feed-in tariff is passed on to consumer by the grid-owner
- Problem: in non-Annex I countries a rise of energy prices can be a hardship for the poor, therefore limits to price mechanisms
- Possible solution: difference between market price and stipulated feed-in tariff is covered by Annex I
- Advantages: most efficient technology push instrument and at the same time utmost control over resource allocation, because only those kw/h that are fed in will be compensated

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Policy Implications of Necessary Reductions

Two options:

- Option A: 30% Annex I reduction target plus ambitious contributions by non-Annex I countries made possible by direct financial and non-financial support from Annex I countries to cover additional effort needed compared to BAU
- Option B: Less ambitious contributions by non-Annex I countries at level of co-benefit potential (with non-financial and some financial support) plus stricter Annex I reduction target of 45%, additional 15% either domestic or used to mobilise ambitious potential in non-Annex I countries through carbon market

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Criteria to Determine a Potential Contribution

- **Responsibility** as a reflection of a Party's contribution to the climate problem through historic and ongoing GHG emissions

  Proxies: Cumulative CO_2-emissions per person since 1990

- **Capability** as a reflection of a Party's financial and socio-economic strength to help overcome the climate problem

  Proxies: GDP per person on a power-purchasing parity basis and Human Development Index rating

- **Potential** as a reflection of the mitigative opportunities within a Party's economy to reduce or limit GHG emissions

  Results from this project

- **Technical capacity** to quantify emissions and reductions

  as evidenced e.g. in national communications, inventories, in-country studies

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Types of Potential Contributions

Of the many proposals made, following considered to be most promising

- **Absolute emission targets** for most economically advanced non-Annex I countries, "newly industrialised countries"
- **(Sectoral) no-lose targets** might be suitable for more economically advanced non-Annex I countries, "rapidly industrialising countries" (very similar to sectoral CDM)
- **Registry of Sustainable Development Policies and Measures** (no crediting) might be suitable for non-Annex I countries less economically advanced than "rapidly industrialising countries" but more advanced than LDCs, "other developing countries"

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Summary

Country	Type	Scope	Option A (Annex I -30%)		Option B (Annex I -45%)	
			Emission level	Financing	Emission level	Financing
South Korea	Absolute and binding national emission limitation target	All sectors	Well below BAU (20-40%)	No additional financing	Well below BAU (20-40%)	No additional financing
Mexico	Absolute no-lose emission target	All sectors	Well below BAU (e.g. 40%)	Conditional on financial support	Below BAU (co-benefit potential, e.g. 15%)	Technical assistance to reach co-benefit potential
Brazil	Absolute no-lose emission target	All sectors	Well below BAU (e.g. 15%)	Conditional on financial support	Below BAU (co-benefit potential, e.g. 5%)	Technical assistance to reach co-benefit potential

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Summary

Country	Type	Scope	Option A (Annex I -30%)		Option B (Annex I -45%)	
			Emission level	Financing	Emission level	Financing
South Africa	Sectoral no-lose targets	Power production and industry sector	Well below BAU (e.g. 35%)	Conditional on financial support	Below BAU (co-benefit potential, e.g. 18%)	Technical assistance to reach co benefit potential
	Sustainable development policies and measures	Remaining sectors	Not quantified		Not quantified	
China	Sectoral no-lose targets	Power production, iron/steel and cement sectors	Well below BAU (e.g. 30%)	Conditional on financial support	Below BAU (co-benefit potential, e.g. 15%)	Technical assistance to reach co benefit potential
	Sustainable development policies and measures	Remaining sectors	Not quantified		Not quantified	
India	Sustainable development policies and measures	All sectors	Well below BAU	Conditional on financial support	Well below BAU	Conditional on financial support

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Financial Support

- **The amount of funding**
  Scarce Resources from the current FMs to fulfil the demand to provide 200-210 billion USD in 2030 for mitigation. Mobilizing resources from the private sector is necessary. The CDM has potential to do so.

- **To realise co-benefit potential**
  FMs are better equipped to mobilise resources for realizing co-benefit potential.

- **To realise no-regret potential**
  CDM and FMs by definition should not provide resources to projects that realize no-regret potential (additionality and incremental costs) .

- **To provide financial resources for technical support:**
  FMs are utilised for this but need to be scaled up.

<Conclusion>

- Restructure FM and mobilize bilateral and regional funds to provide substantially more public funds for no-regret potential and for technical support.

- Find a way to mobilize more private funds to realize no-regret and co-benefit potential.

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Non-financial support

- **Technology cooperation: Mainly employed outside of the climate regime: M2M, CSLF, IPHE etc.**
- **In the framework of the UNFCCC: Have negotiated on technology transfer for long time but not created an arena for cooperation**
- **A new form of technology cooperation**
  - From "technology transfer" to "technology development and deployment"
  - Elements: cooperation in RD&D of low- and no-carbon technologies, the elaboration of common standards and a substantial commitment for financing the switch to low- and no-carbon technologies by Annex II countries
  - Establishment of Fund for financing joint research projects, development and deployment of low- and no-carbon technologies
  - Establishment or Restructuring of Advisory Body
    - More experts with knowledge about technologies
    - Equal participation from Annex I and Non-Annex I to ensure that neither donors nor recipients dominate the operation of the body

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Conclusions

- **Urgent action necessary:** by developed countries to reduce their emissions and to support developing countries in slowing emissions growth
- **New tool:** allows comparing mitigation potential across major developing countries in a comparable manner for individual sectors
- **No-regret and co-benefit** reduction potential is substantial
- **Additional reduction potential is available** consistent with 2°C, but most countries need financial assistance
- **New national policies:** Existing policy packages need to be individually supplemented largely depending country
- **Developing country contributions in a future international agreement** ranging from Annex-I-like quantitative targets over (sector) no lose targets to qualitative contributions (SD-PAMs)
- **Stringency:** High level of ambition contingent on Annex I funding or lower level of ambition combined with significantly more stringent Annex I targets
- **Financial and non-financial support mechanisms -** in addition to the carbon market - need to be implemented supported by technology alliance