Development, Energy and Climate Change

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Exploring the Linkages Between Integrated Policy Options

Bagasse based power generation

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IIMA
India

ERC
South Africa

ENDA-TM
Senegal

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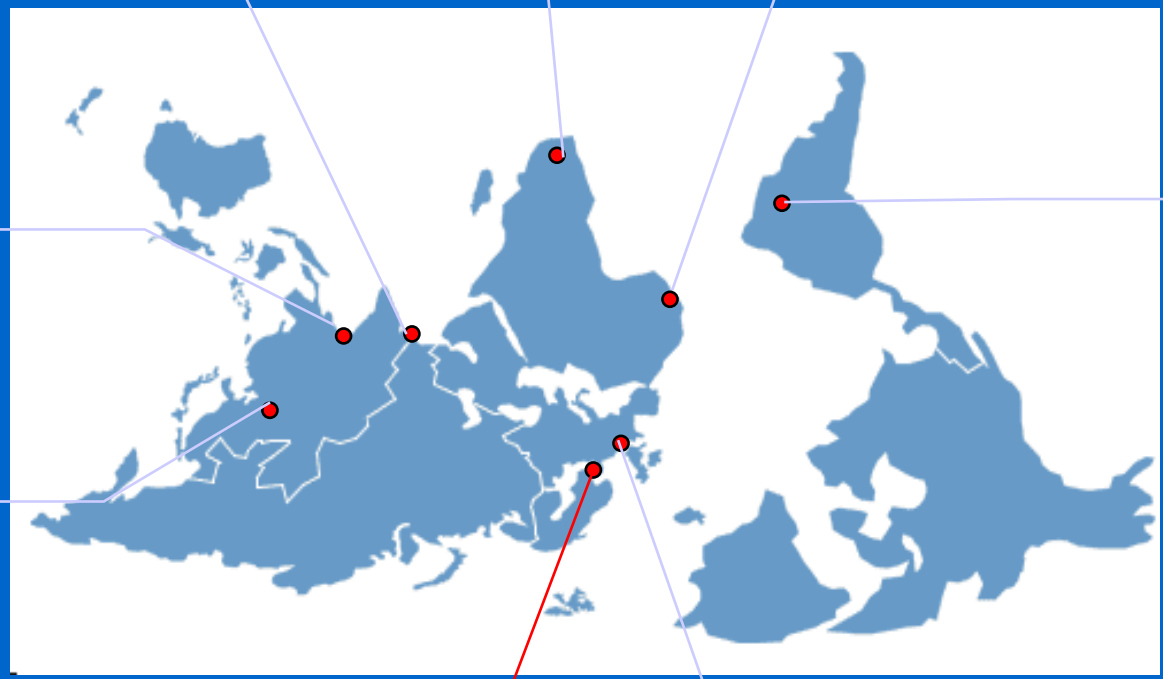

BCAS
Bangladesh

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Brazil

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China

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Denmark

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Project Sponsors: DANIDA (Main) and KEI (for V&A component)

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Development and Climate Change Project
Phase I - Development First

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- Climate concerns are mostly overshadowed by more immediate development priorities esp. in DCs
- However – many development initiatives are climate friendly, and…..
- A more integrated approach to D, E & CC would lead to much more cost-effective mitigation and adaptation
- Examine Alternative development paradigms.
- Keeping in view Welfare, basic human needs, and equity.
- Phase I project developed methodologies and case studies

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D, E and CC – Phase II

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- Upscale Phase-I and also new **six-country case studies** to assess D and CC impacts of national energy policies.
- **Three thematic papers** on Development pathways, Energy policy instruments, Adaptation and mitigation.
- **Methodological framework** for assessing D, E and CC policies that are tested and applied in country case studies.
- **Sustainable Development Indicators** to capture D, E and CC linkages for 2000-2030 using elaborate country modelling
- **Comparative assessment** of country case study results and discussion of conclusions for international policies.
- **Outreach materials** including a popular brochure that summarises country study results, SD indicators and cross cutting conclusions.

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Linking MDG, Energy and CC

MDGs	Energy Sectoral Themes	Examples of SD Indicators
1. To halve between 1990 and 2015, the proportion of people whose income is below 1$ a day	- Energy for increased production and consumption - Energy for local enterprises - Lighting to facilitate income generation - Energy for machinery - Employment related to energy provision	- Quantity of energy supplied to enterprises, lighting, machinery etc. - Energy costs and the share of this in household income, production costs etc. - No of people employed

National Case Examples

	Development Impacts	*Climate Change Mitigation/Adaptation Potential and Related Costs*
India South Asia Energy-Electricity Market Integration: Gas Electricity, water. Local air pollution control: CNG taxis and buses Climate change causing flooding and erosion on Konkan railway	Energy supply savings of 60 EJ from 2010 to 2030. Cost savings $180 bill. SO_2 emission reductions of 50 mill. t Reduced local air pollution Railway opened in 1998, today 20% of repair and maintenance costs due to climate conditions (rainfall and landslides). Future climate variability will increase costs.	1.4 Bill. TC saved over 30 years. CO_2 mitigation Adaptation option could have been integration of climate change impacts in the railway planning (location, tunnels etc.)
China Energy efficiency in industry and power production Increased gas, nuclear power, and solar energy	Local air pollution control. Energy cost savings in efficiency cases	Total SD scenario offers CO_2 reductions of 1.5 bill t C in 2030

National Case Examples

	Development Impacts	*Climate Change Mitigation/Adaptation Potential and Related Costs*
South Africa DSM programme on tariff induced load shifting Clean energy generation mix: Gas, hydro, nuclear, renewables, Industrial energy efficiency in three major companies.	Cost savings from reduced capacity needs. Energy security benefits, local environmental improvements Energy cost savings, local environmental improvements	DSM Eskom programme on tariff-induced load shifting. Annual CO_2 savings in 2025: 70 $mtCO_2$ Annual CO_2 savings of about 0.07 mill t CO_2
Brazil Ethanol: 22% blend with gasoline in cars, sugarcane Zero tillage to ensure higher content of organics matters in soil Procel energy savings programme	Employment, foreign exchange savings, local air pollution Increased use of herbicides, energy cost savings Procel investments R$ mill. 33.5 1986-94Avoided investments 1986-94: R$mill. 600 and fuel saving benefits	9.45 mill T C saved from 1990-91 (17% of energy sector emissions). Profitable at oil price of $30 60-90 mill. t. CO_2 not released in 1999, 70% reduction in diesel consumption. CO_2 reduction 5,4 mill t CO2, or 16 % of baseline in 2000

National Case Examples

	Development Impacts	*Climate Change Adaptation/Mitigation*
Senegal		
Expansion of LPG to substitute woodfuel	Decreased deforestation. Decreased negative social impacts from woodfuel consumption. Improved energy access	Savings of 700,000 m3 wood a year from 1974-2000
Electricity reform including efficiency improvements and supply to rural areas.	Reduced electricity supply costs	Reduced GHG emission intensity of power production
Bangladesh		
Decentralised small NG power, biomass, solar home systems and other renewables, DSM	Supply electricity at minimum 540 kwh/capita/year:	Decreased GHG emission intensity of energy supply
Natural gas, oil and gas exploitation, biomass supply, switching from petroleum to NG, energy efficiency in industry.	Supply primary fuel at minimum 4 mill. BTU/cap/year	Offset threats from climate change in terms of droughts, flooding, salinity, decreased crops, and erosion.

Key Lessons Learned

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- Diversity of opportunities, projects and approaches
- Regional energy co-operation provides opportunities for linking D&C.
- Quantifying development and climate change impacts of energy policies enhances policy relevance of the research considerably.
- ‘Development’ aligns and delivers mitigation and adaptation.
- The ‘non-climate’ route for international climate change policy making is feasible and cost-effective.
- Main challenge is implementation.

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Conclusions

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- The project offers an analytical framework for integrated development, energy and climate change studies.
- National case studies demonstrate that many dedicated development policies and activities make (”unintended”) positive climate contributions
- These examples could be replicable, though keeping specific national circumstances is vital.
- Integration of climate and broader SD concerns early in energy policy process (path change) is cost-effective both from development and climate change perspectives.

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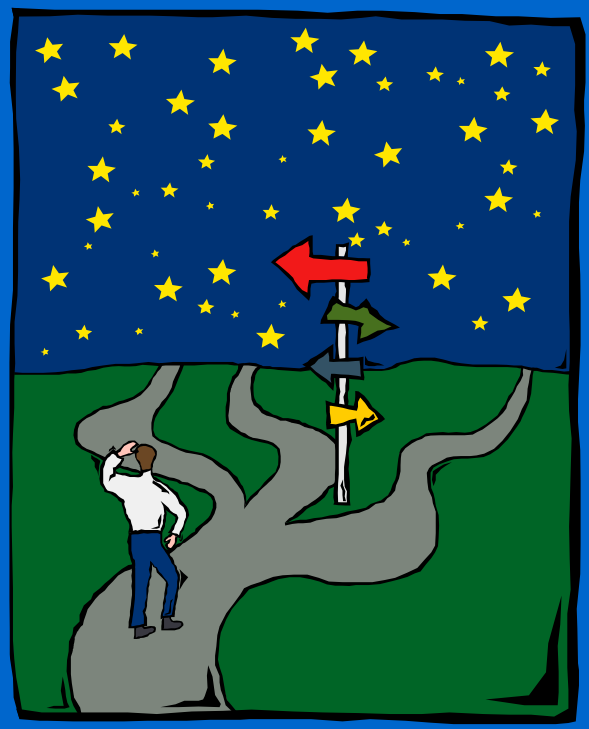
Time to Choose Path



More information at: *www.developmentfirst.org*

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