Green Growth in Development

Session 1: Low Carbon Growth and Development

Rob Davies

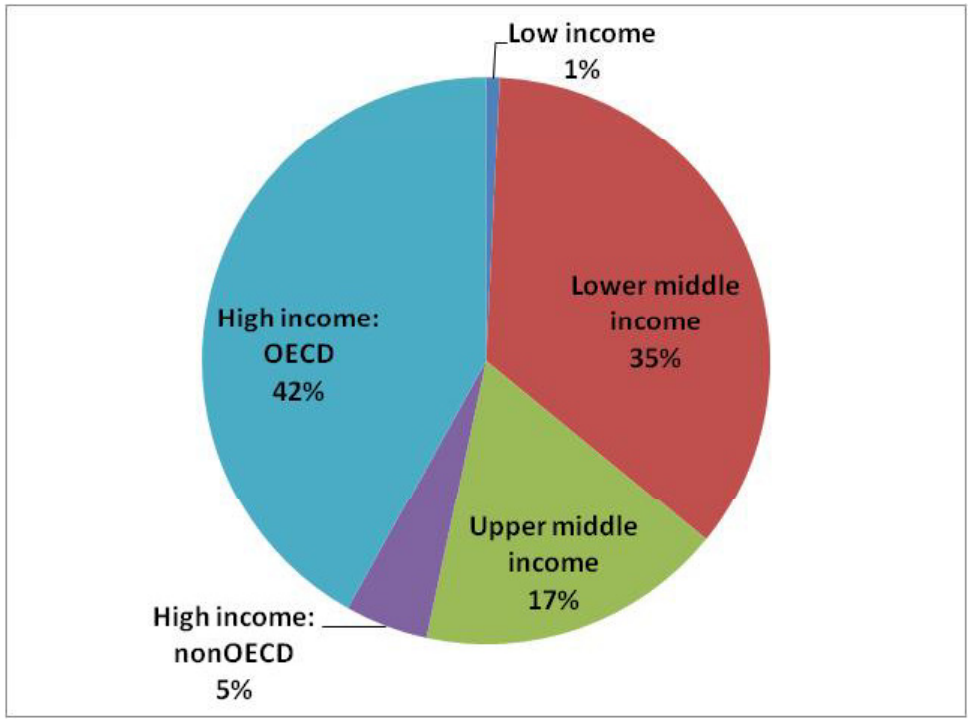
Workshop jointly hosted by the Finnish Ministry of Foreign Affairs and UNU-WIDER
Marina Congress Centre, Helsinki – 15 December 2010

Introduction

- Concerned with carbon because…
  - Non-renewable resources
    - Switch is inevitable or we will run out - but when?
  - Carbon emissions
    - Switch is urgent to avoid global warming - but how?
- I will focus on emissions

Emissions (CO2 equivalent)

- Most emissions currently come from OECD



- But most emission growth will come from developing countries

Emissions

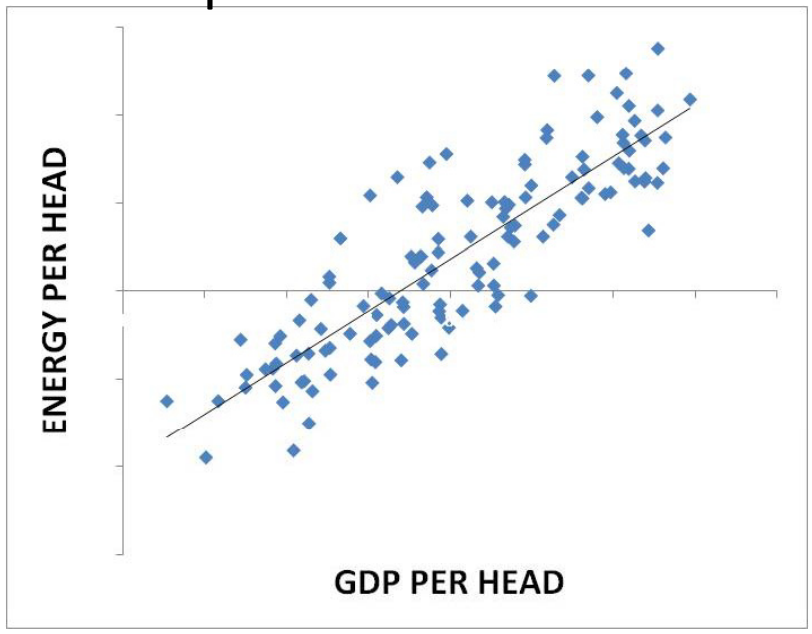
Emissions per head =

Energy per head X Emissions per energy unit

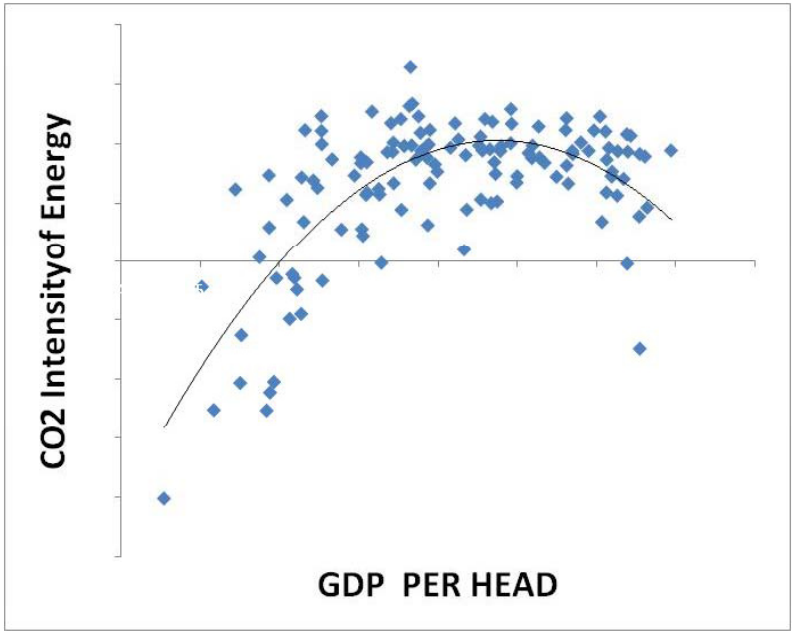
- So do countries have high emissions per head because they…
  - Use a lot of energy? (i.e., electricity and petroleum)
  - Use ‘dirty’ energy? (i.e., coal, crude oil and gas)

Energy Use versus Energy Emissions

- **Energy use** rises with income
- Reducing energy use in LDCs means stopping development

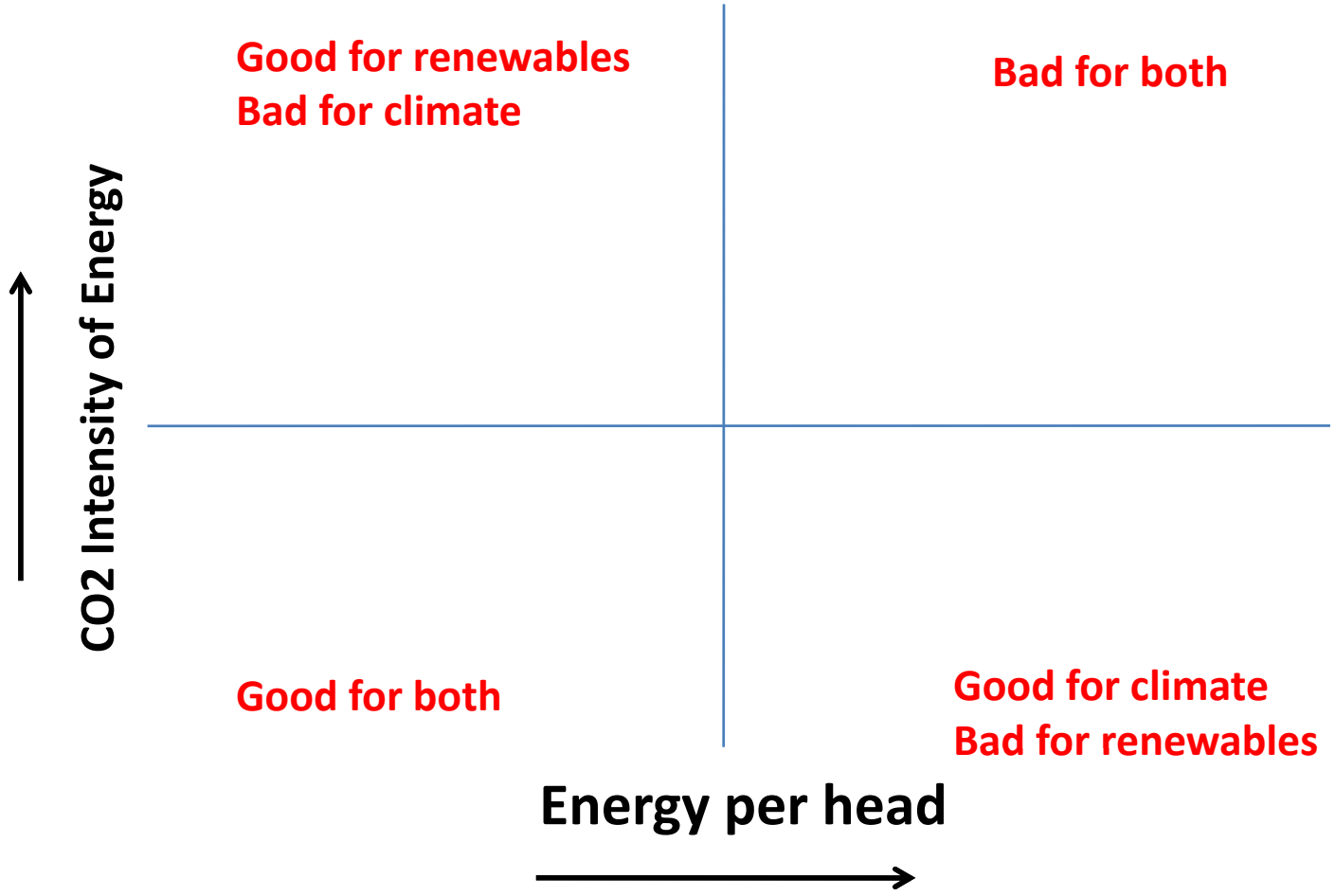


- **Energy emissions** first rise and then fall with income
- Industrialising countries use cheap dirty energy
- Rich can afford clean technology

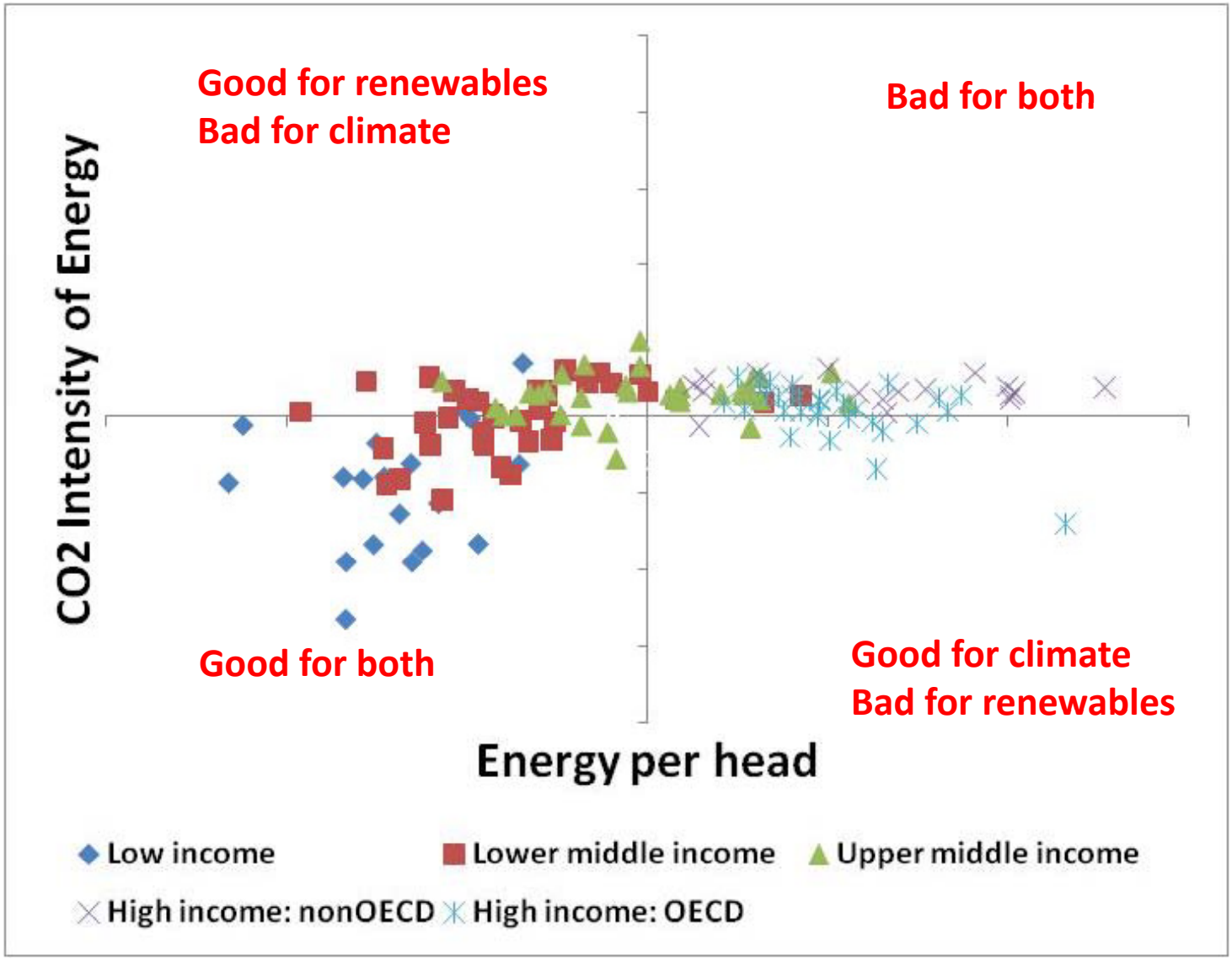


- Global Energy use will rise, so Energy Emissions have to fall

Emissions and Energy



Emissions and Energy



Concluding Questions

- We need to ask developing countries...
  - to use cleaner energy at the START of industrialisation
    - BUT this has expensive start-up and opportunity costs
      - South Africa must borrow abroad to build nuclear power stations (even wind is costly)
      - South Africa still requires massive investment in public transport
  - to rely on imported technology
    - BUT this raises cost of operations and maintenance
  - not to use their natural resources
    - BUT this involves politically difficult carbon taxes (e.g., South Africa)
  - not to focus on achieving energy self-sufficiency, but rather to adopt a regional/international approach to energy security

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Session 2: Food Security and Global Food System Governance

Danielle Resnick

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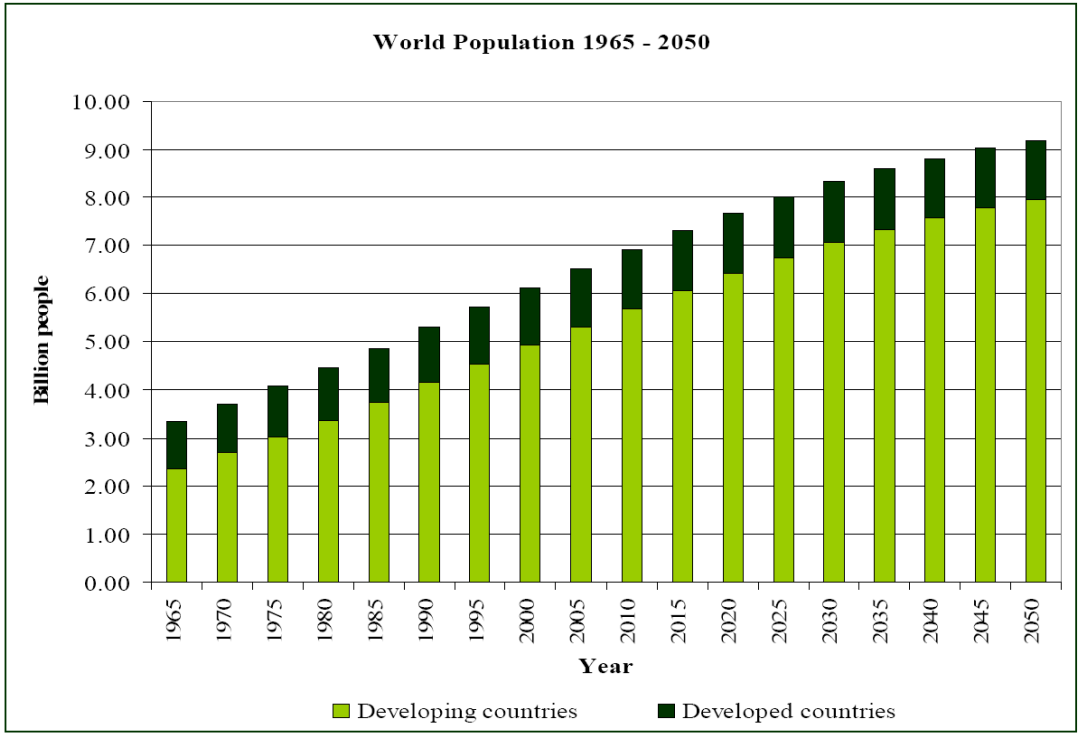
Context

- Food security is a major goal for developing country governments
- Population growth and rapid urbanization are increasing the demand for food
- Agricultural production needs to **double** by 2050 to feed the world's population



Source: UN-DESA (2007)

However…

- Agricultural production, livestock, and deforestation already contribute almost **one-third** of all greenhouse gas emissions (GHG)

How do we enhance food security without compromising green growth?

Trade-Offs: Expansion strategies

- Most agricultural production growth (especially in Africa) is due to the expansion of cultivated land

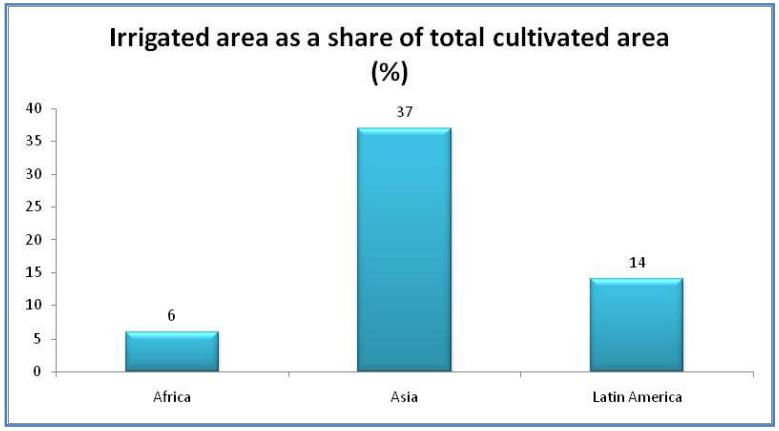
- Overseas land investment
  - Enhances food security in land-scarce countries
  - BUT implications for deforestation (i.e., 6 million hectares of new land will cleared annually between now and 2030)

- What is needed is **sustainable agricultural intensification**
  - Producing more food using the same overall resources
  - Reducing negative environmental impacts
  - Contributing more to natural capital and the flow of environmental services

Trade-Offs: Intensification Strategies

Fertilizer Input Schemes in Africa

- Fertilizers
  - Enhances soil fertility
  - **BUT** accounts for one-third of the GHGs from agriculture
- Irrigation
  - Doubles rain-fed crop yields
  - **BUT** can worsen water scarcity and reduce groundwater levels

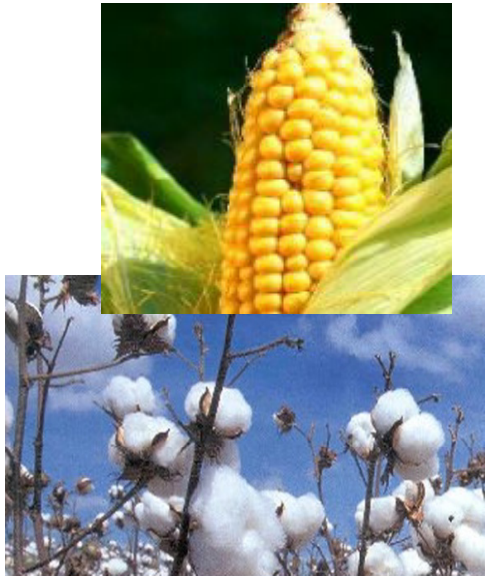


Source: FAOSTAT 2009

- High-value export crops
  - Raise smallholder incomes
  - **BUT** dependent on irrigation, refrigeration, and overseas markets

Innovations to Address Trade-Offs

- Biotechnology
  - GM crops reduce pesticide and water use
  - **BUT** pose questions about sovereignty over seed stocks, and capacity to meet bio-safety standards



- Incentive-based mechanisms
  - Example is the Reduced Emissions from Deforestation and Degradation (REDD) initiative
  - **BUT** REDD costs an estimated $10 billion annually
  - Controversies between national governments and indigenous populations

Some Remaining Questions

- How do we reconcile poor countries' need to respond to short-term food crises with their need to foster long-term, green agricultural development?
- Should we encourage poor countries to invest in biotechnology or in education about alternative farming approaches? (e.g., conservation farming)
- What does the Green Growth agenda imply for both donor harmonization and inter-ministerial cooperation within developing countries?
- How do we ensure that the (scarce) resources available to invest in agricultural production are augmented, rather than supplanted, by the Green Growth agenda?

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Session 3: Green technologies and alternative energy sources

James Thurlow

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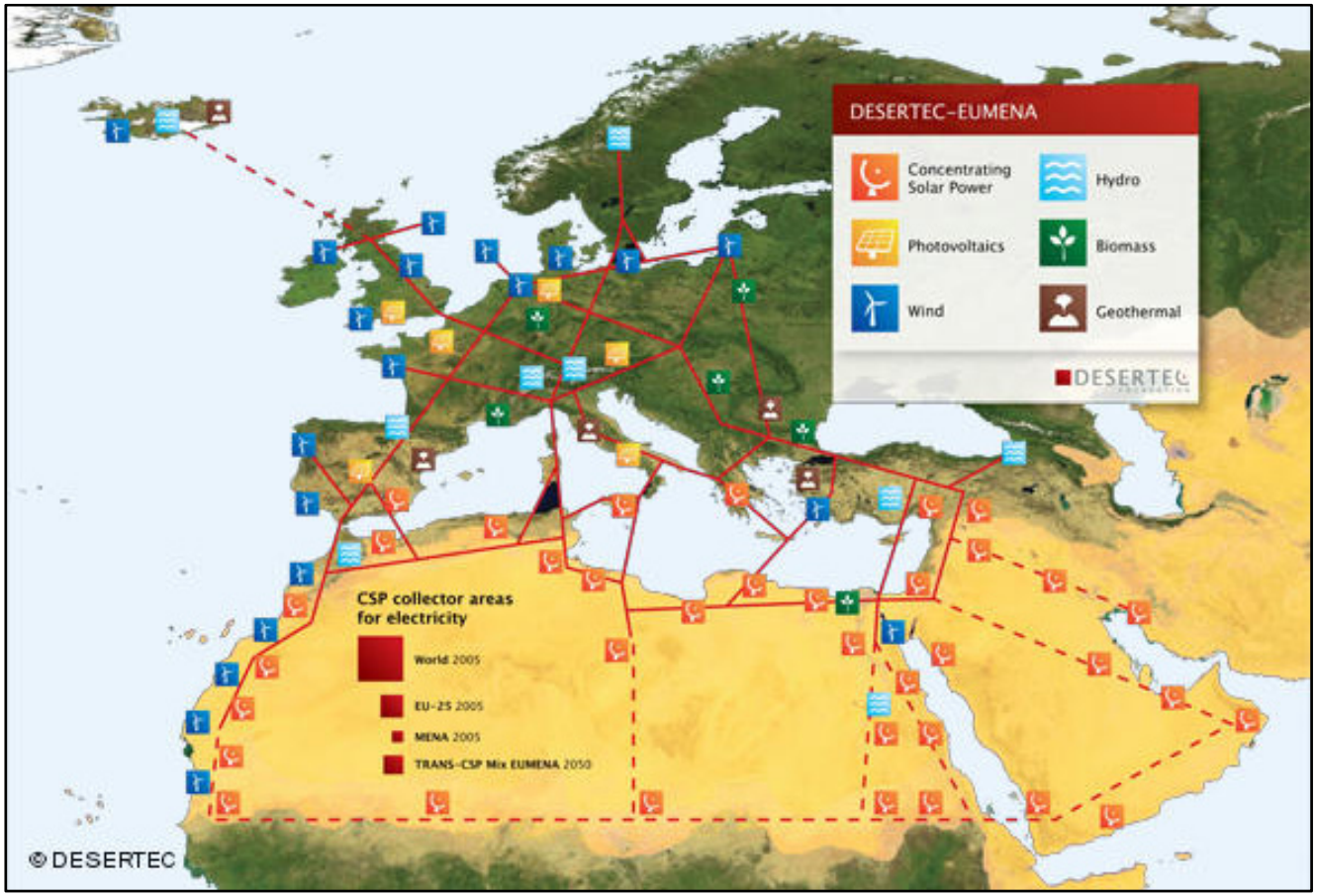
Green Technology and Development

- Achieving Green Growth involves…
  - Market mechanisms (e.g., carbon taxes)
  - Encouraging green technologies (e.g. eco-innovation)
- What are “green technologies”?
  - Energy conservation (energy efficiency, renewable energy)
  - Recycling, waste disposal, water purification, insulation, etc.
- Will poor countries actually benefit from this new sector?

Example 1: Africa powering Europe?



Desertec's EU-MENA "Super-Grid"

Example 1: Likely benefits for Africa?

+ Supply energy to local markets in the MENA region

– Foreign investment means repatriated profits

Solar panels in Spain

± Local content of building materials and operations

± Taxing profits or supplying subsidies

± Growth multipliers and employment effects

Example 2: Biofuels production in Africa

- – Large-scale foreign investment and processing technology
- \+ Employment intensive and uses locally produced feedstock
- \+ Studies show that biofuels can reduce rural poverty
- ± Net employment effect is small
- ± Concerns over “land grabbing”, working conditions, and food security

Jatropha growing in Swaziland

Processing jatropha oil in Tanzania

Example 3: Local employment opportunities

+ Small-scale, micro-level interventions are already promoting development and creating jobs

± Many green technologies are still in the incubator stage

– Still a risky (costly) niche market, import-dependent, and require financing mechanisms and skills development

Installing panels in urban Tanzania

Rural electricity in Malawi

How to make GreenTech pro-development?

- How can we build small-scale **indigenous innovation**?
  - We need to reduce import-content and create more jobs
  - Refocus new technologies (i.e., rural instead of urban)
  - Should LDCs develop local markets through protection policies?
- How can we ensure that transfer of large-scale technology includes both **hardware and software**?
  - We need to promote engineering and maintenance skills
  - Foreign aid can be tailored, but what about private investment?
- Can we find private/public sector **financing mechanisms**?
  - We need to overcome high start-up costs and risk