Climate Change and Sustainable Development: Meeting the MDGs

Prof Ogunlade R Davidson
Co-Chair, IPCC Working Group III
Dean, Post-Graduate Studies, University of Sierra Leone

Achieving the MDGs and Coping with Climate Change

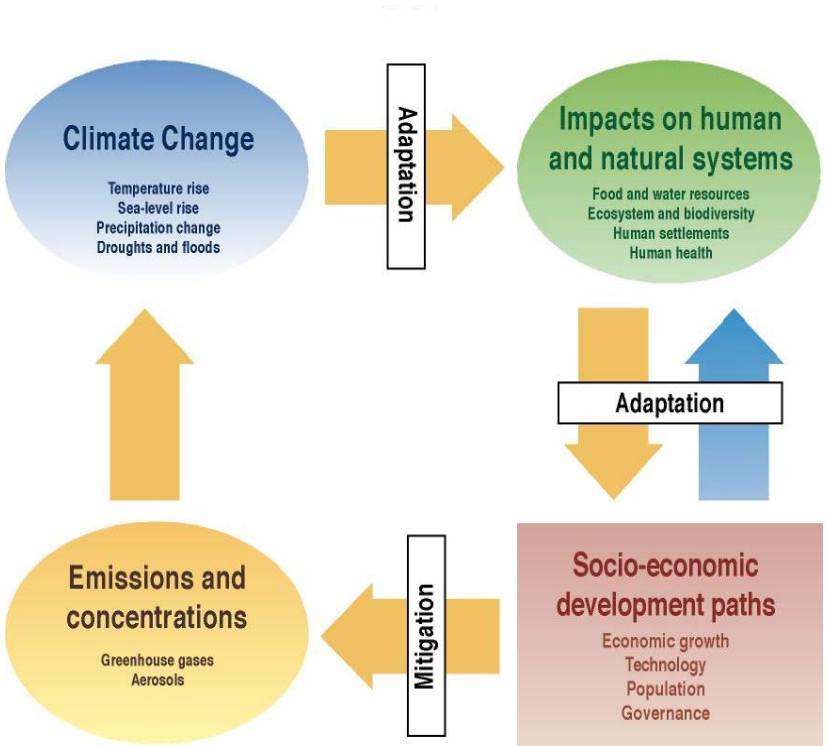
UNECOSOC Special Event

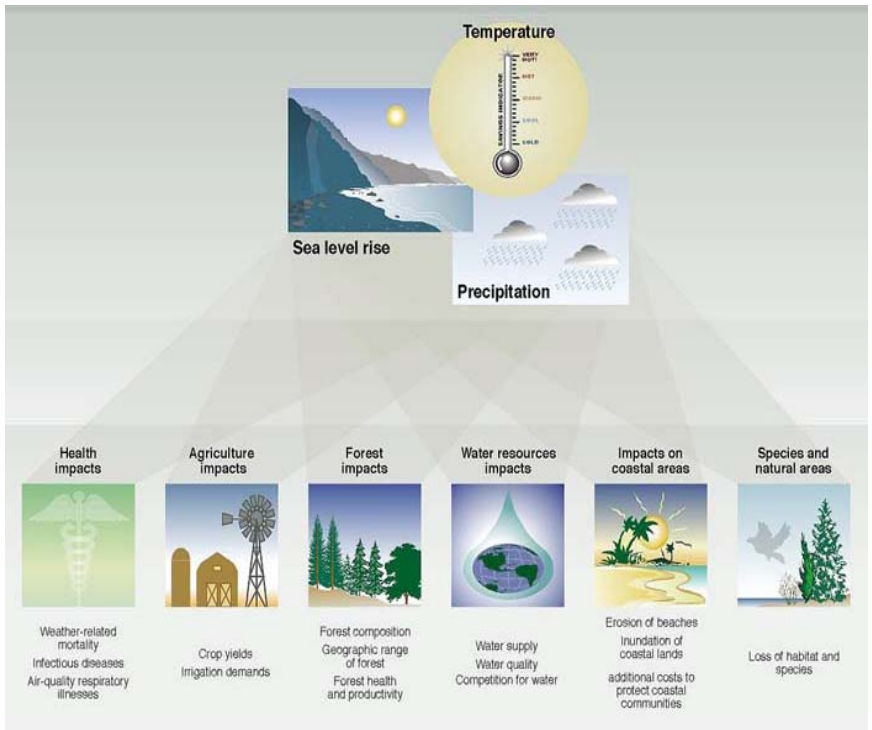
United Nations Economic and Social Council
New York, USA
2 May, 2008

Contents of Lecture

- Climate Change Problem
- AR4 Findings
- Need for New Growth Paradigm
- Sustainable Development Concepts
- Opportunities for reaching MDGs
- Conclusions

The Climate Change is more a developmental than environmental Problem

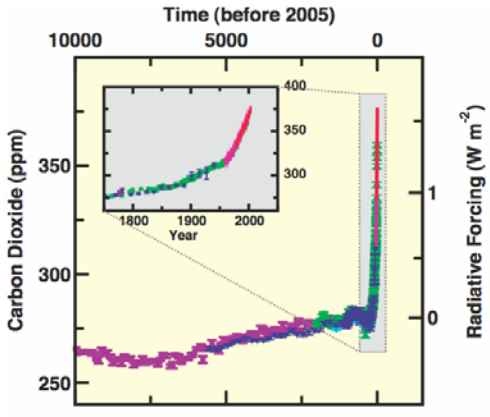




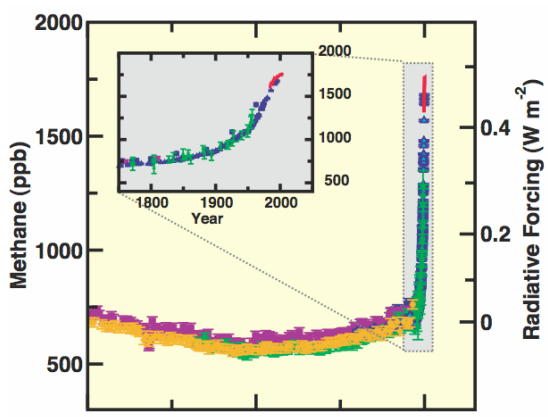
- UNFCC Overall Objective
  - Stabilise atmospheric GHG concentration to prevent dangerous levels
  - Enable economic development to progress in a sustainable manner and ensuring that food production is not threatened

Observation: All GHG concentrations has increased making future warming unequivocal

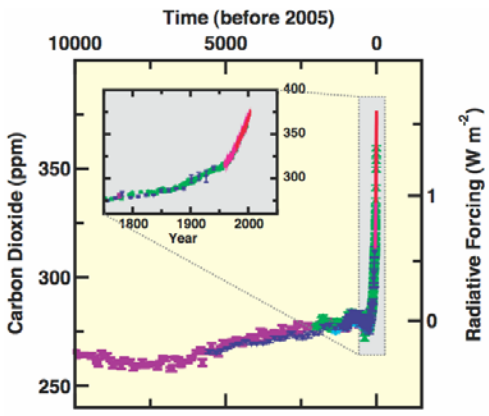
CO2 grew from 280 ppm in 1750 to 379 ppm in 2005



Methane grew from 715 ppb in 1750 to 1774 ppb 2005



N20 grew from 270 ppb in 1750 to 319 ppb in 2005

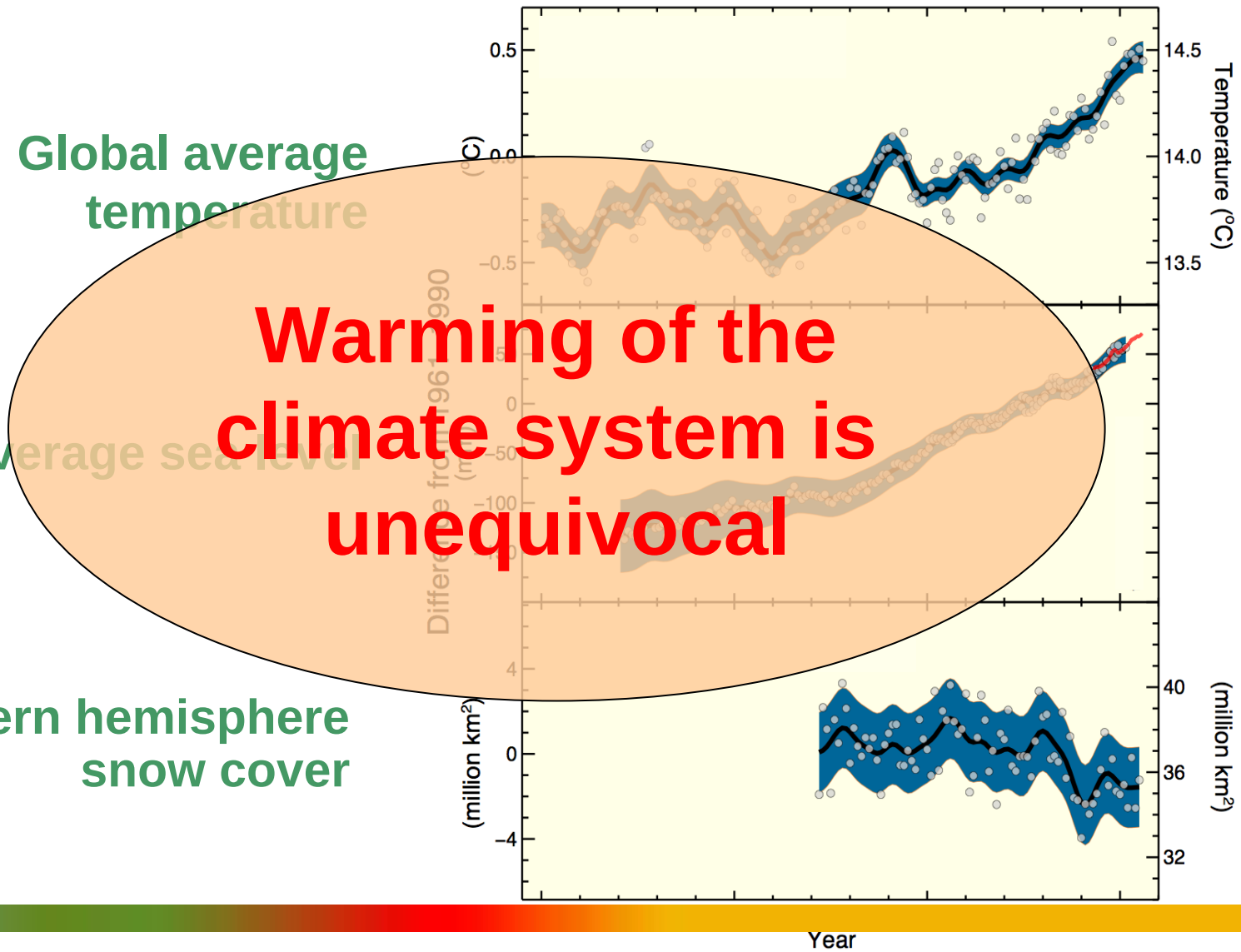


Scientific Observation

Global average temperature

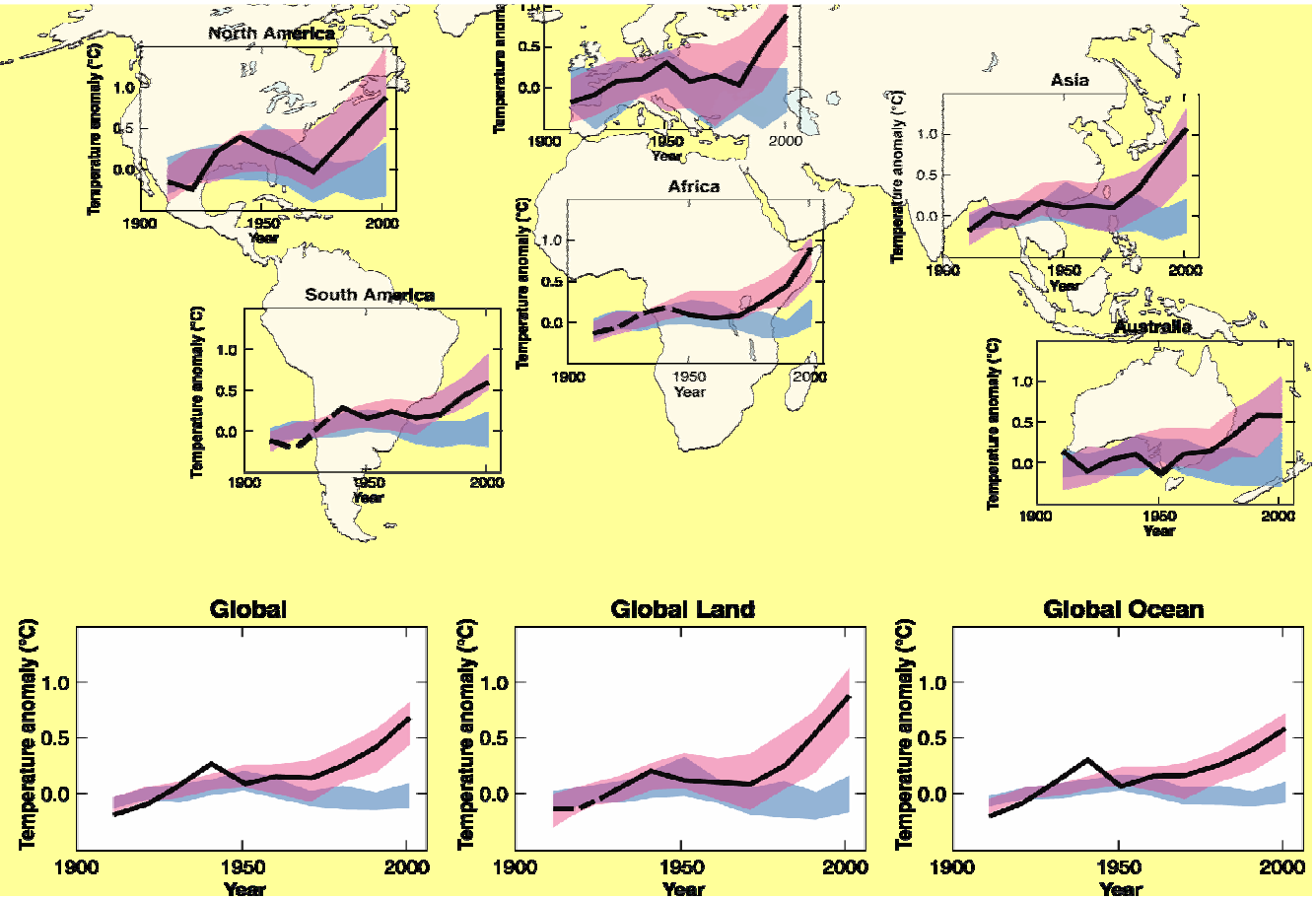
Global average sea level

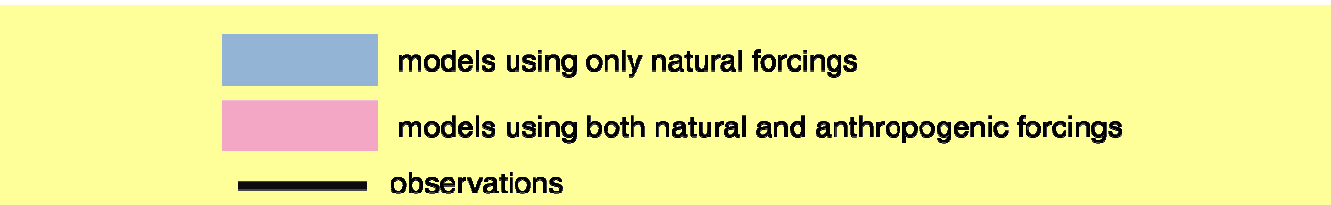
Northern hemisphere snow cover



Warming of the climate system is unequivocal

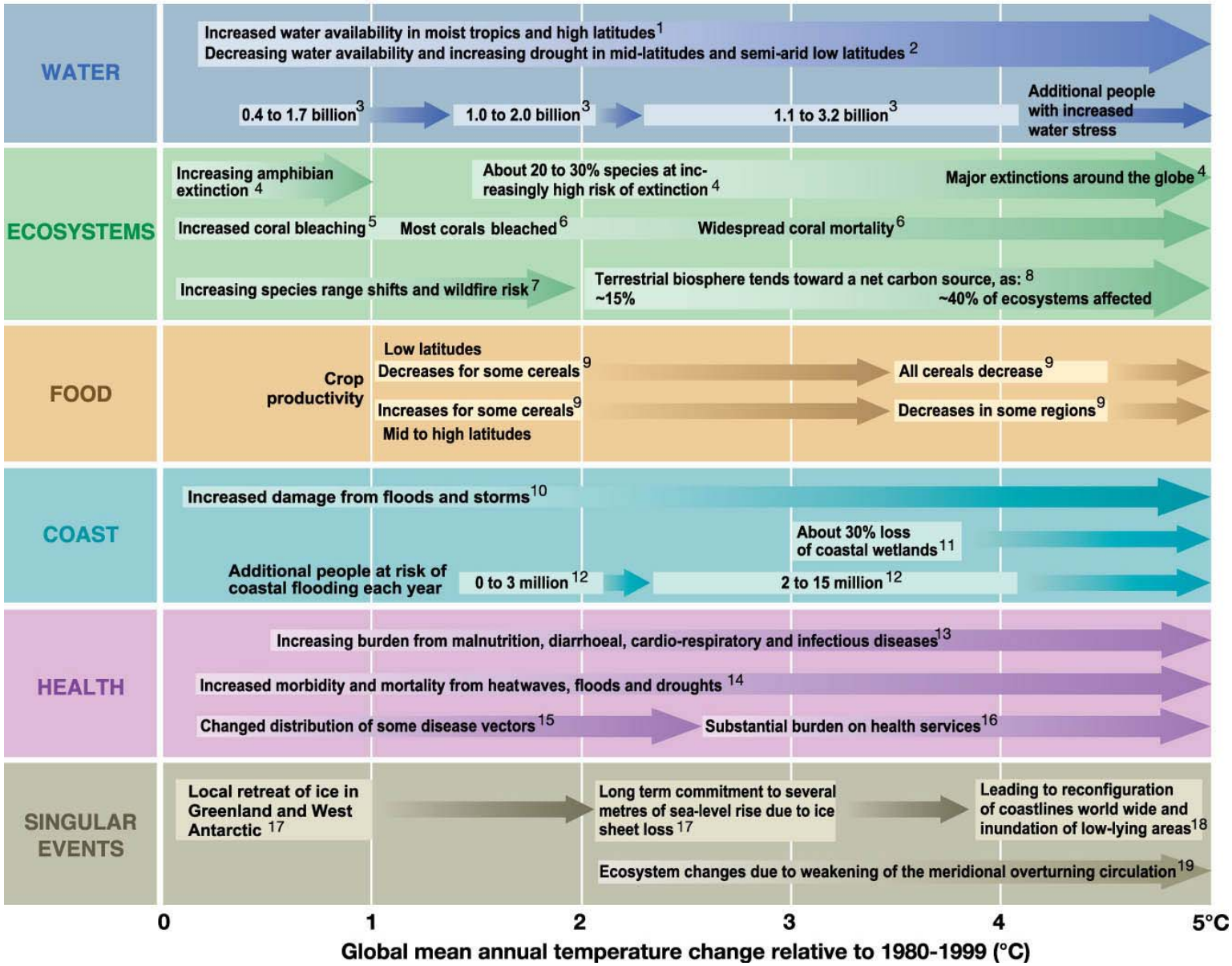
Climate change is human induced



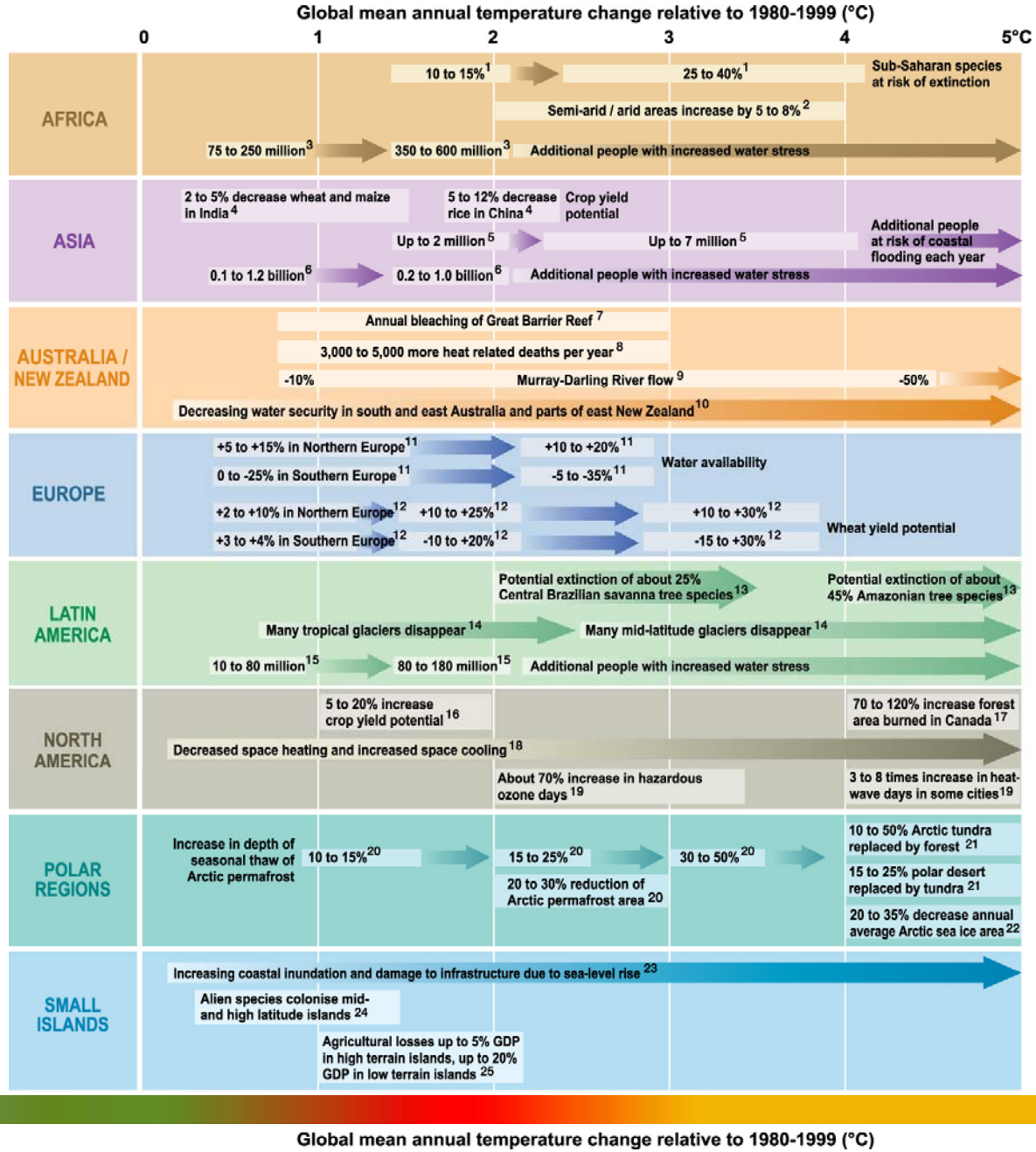


Consistent pattern of warming over land, oceans and over each continent (except Antarctica)

Impacts by sector



Impacts by region



Climate Extremes projected to worsen

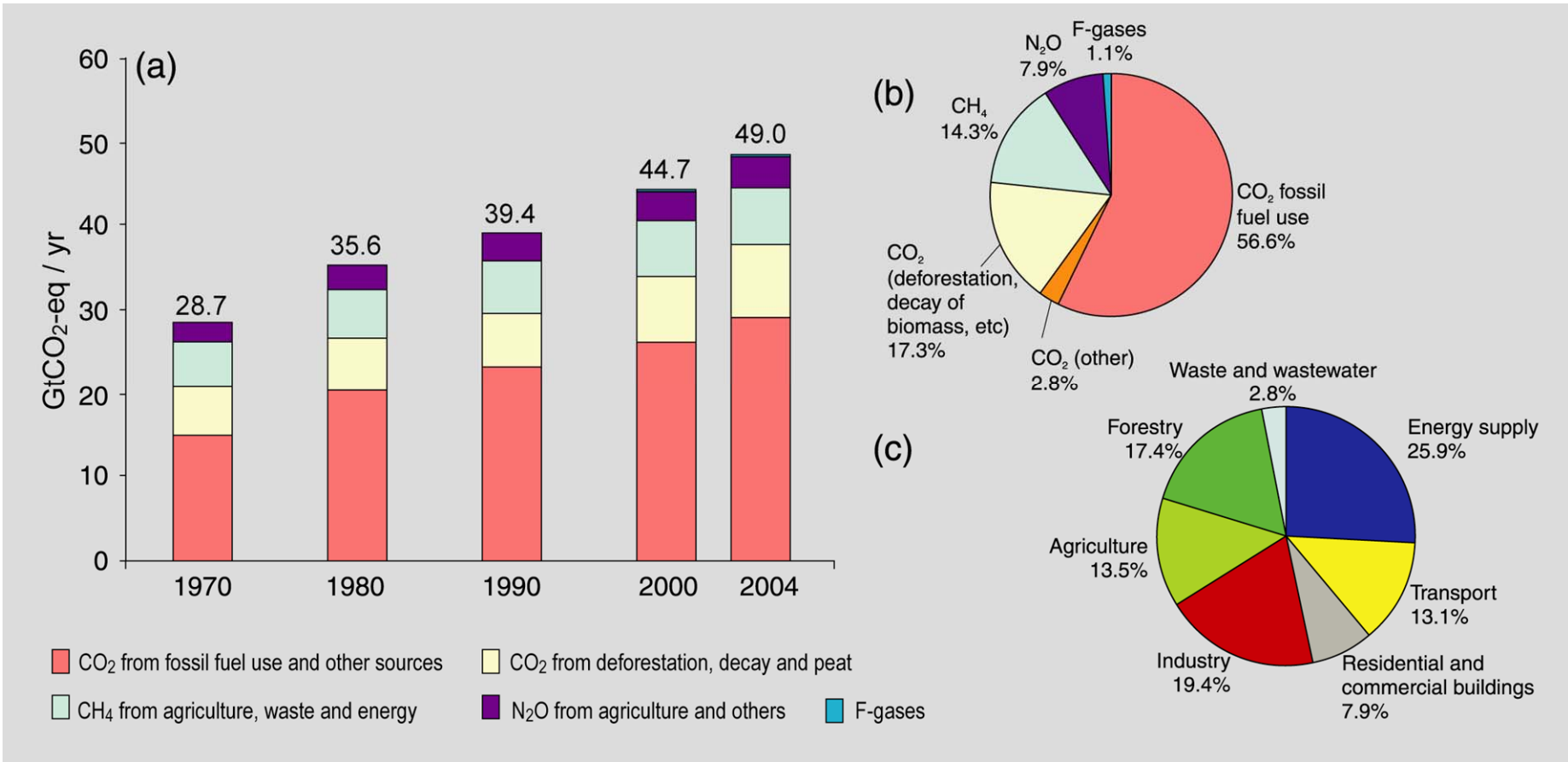
Drought in East Africa

Floods in Mozambique

Climate Change Refugees will increase

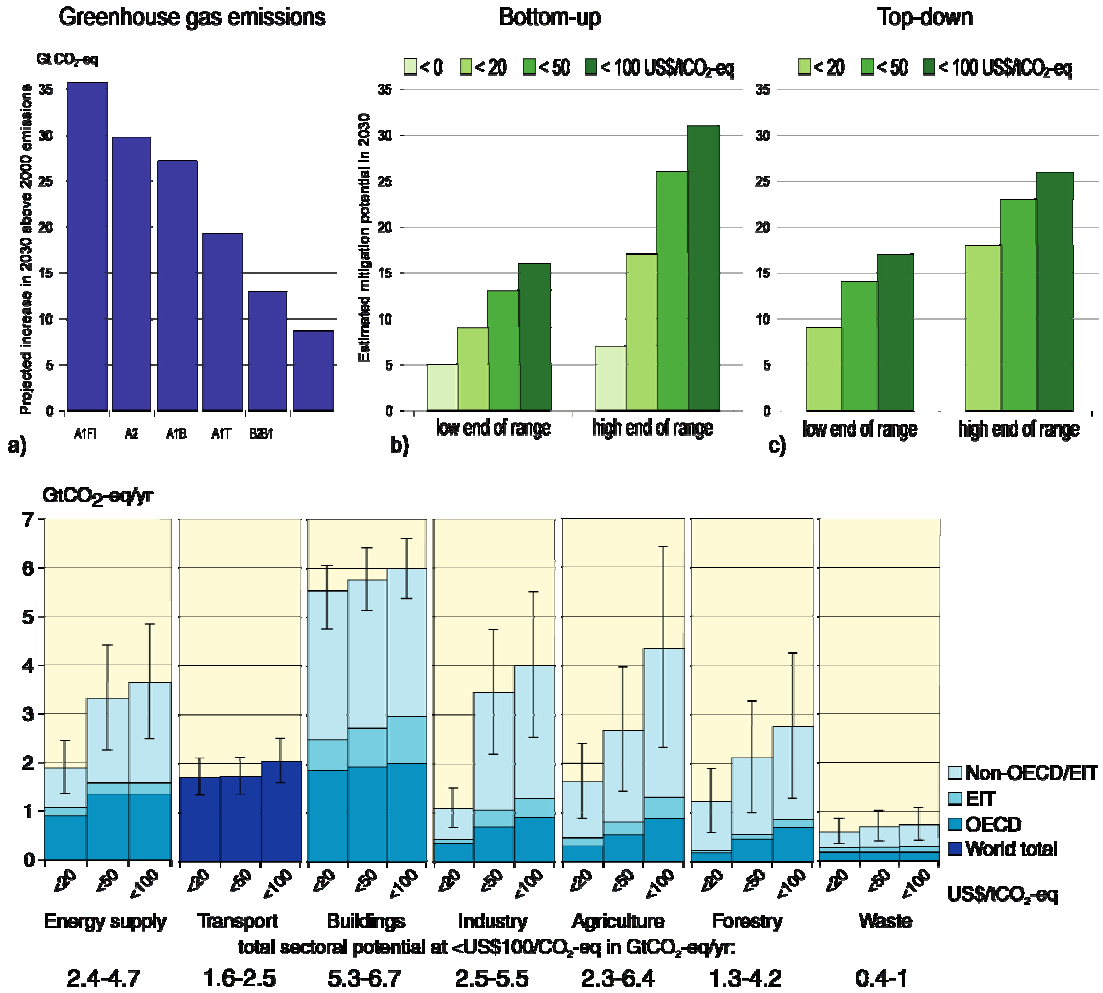
- Projected sea level rise would increase flooding, particularly on the coasts of eastern Africa;
- Sea level rise will likely increase the high socioeconomic and physical vulnerability of coastal cities.
- The cost of adaptation to sea level rise could amount to at least 5-10% of GDP.
- Climate change and climate variability will only add stress to existing stresses in the continent

Between 1970 and 2004 global greenhouse gas emissions have increased by 70 %



Projected GHG and Mitigation Potential

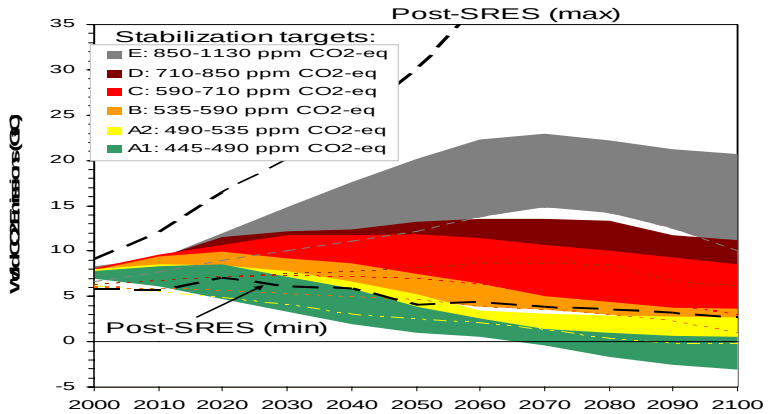
- Current climate change mitigation policies *and related sustainable development practices (SRES)*, could increase between 25-90% between 2000 and 2030
- Mitigation potential based on both bottom-up and top-down studies could offset the expected GHG emissions growth
- All sectors could contribute though their potential differ in quantity and sectors

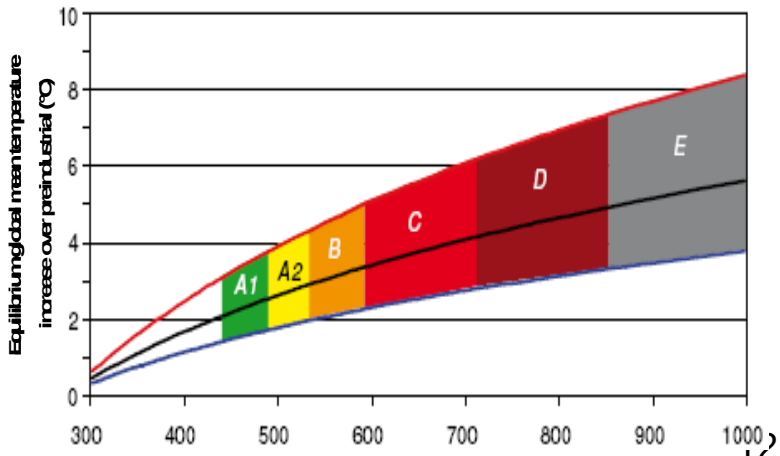


Estimates do not include non-technical options such lifestyle changes

Lower stabilisation level require global emissions to go down early

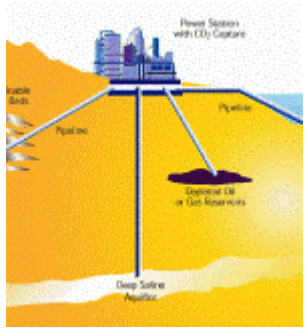
- Lower stabilization levels (550 ppm CO2-eq or lower) require major policies and government support:
  - *RD&D efforts*
  - *Investments* in new technologies
  - Tax credits
  - Standard setting
  - Technology development and transfer
  - Market creation
- An effective carbon-price signal could realize significant mitigation potential

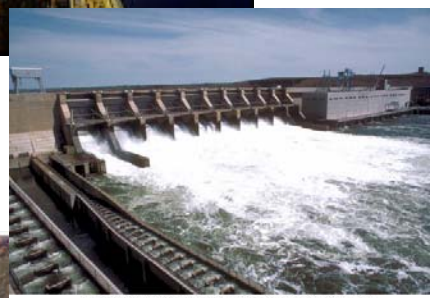




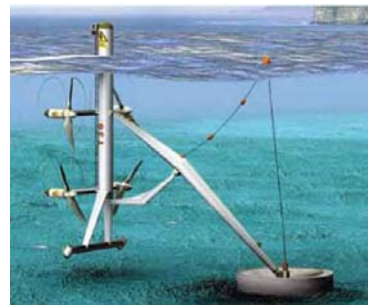
Energy Supply Mitigation Technologies

NOW → 2030





Courtesy of The National Renewable Energy Laboratory (NREL)



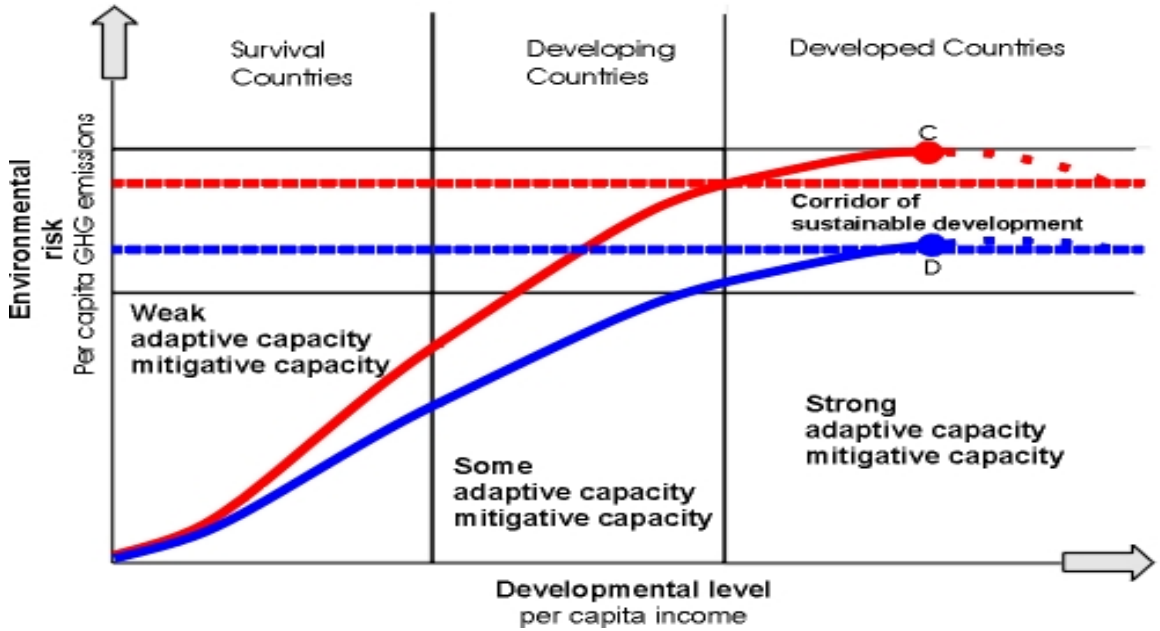
Non-climate policies can influence carbon emissions as much as specific climate policies

Sectors	Non-climate policies -- Candidates for integrating climate concerns	Possible influence (% of global emissions)
Macro-economy	Taxes, subsidies, other fiscal policies	All GHG emissions (100 %)
Forestry	Forest protection, sustainable management	GHGs deforestation (7%)
Electricity	Renewable energy, demand management, decreasing losses transport,/distribution	Electricity sector emissions (20 %)
Oil-imports	Diversification energy sources/decrease intensity -> enhance energy security	GHGs from oil product imports (20 %)
Insurance buildings, infrastructure	Differentiated premiums, liability conditions, improved conditions green products	GHG emissions buildings, transport (20 %)
Bank lending	Strategy/policy, lending projects accounting for options emission limitations	Notably development projects (25%)
Rural energy	Policies promoting LPG, kerosene and electricity for cooking	Extra emissions over biomass (<2 %)

Climate Policy alone will not solve the climate change problem

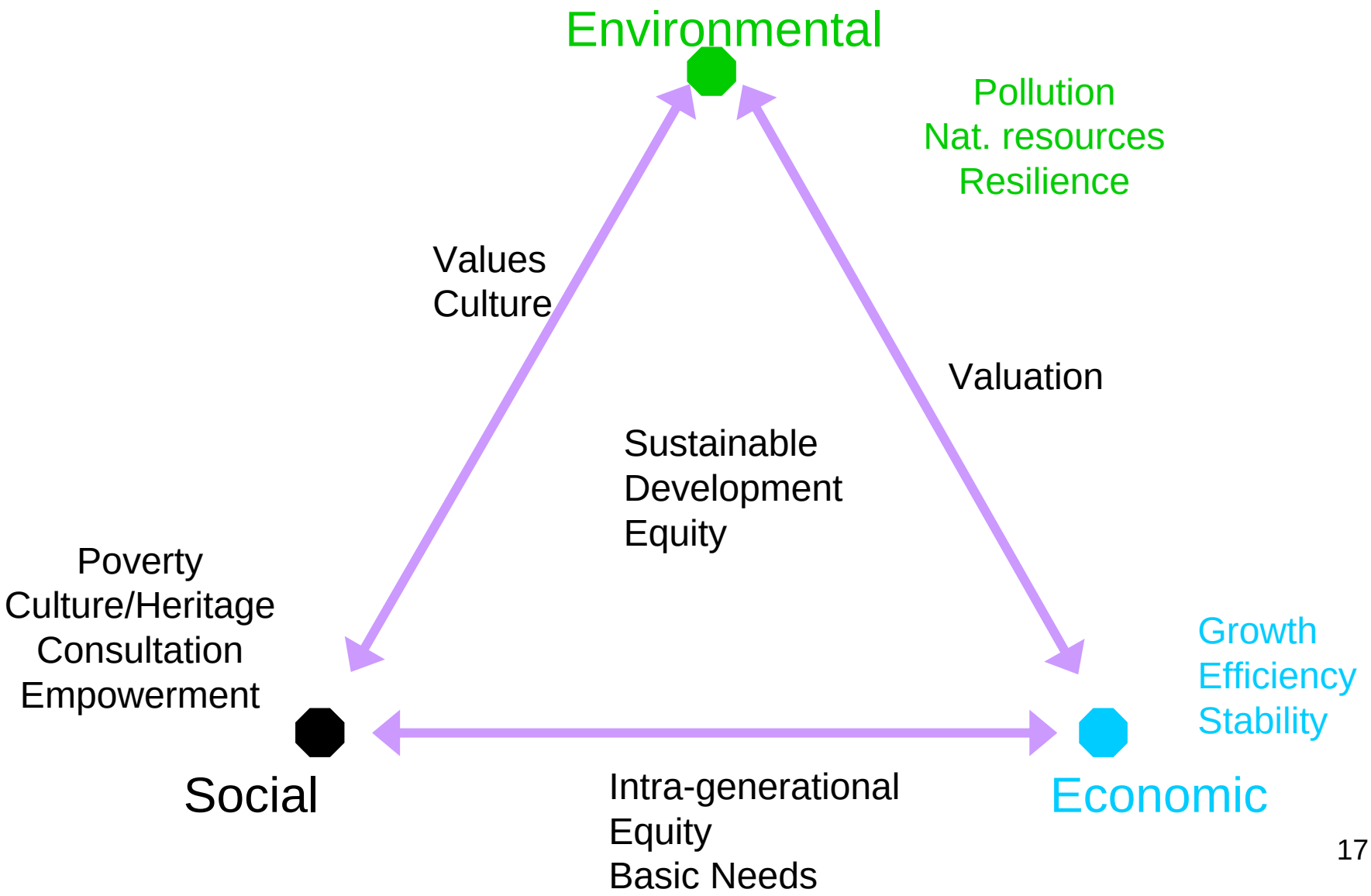
- *Macro-economic policy*: taxes, subsidies, other fiscal policies, structural adjustment
- *Trade policy:* "embodied carbon", removing barriers for low-carbon products, domestic energy sources
- *Energy security policy :* efficient energy use, domestic energy sources (low-high carbon)
- *Access to modern energy:* bio-energy, poverty tariffs
- *Air quality policy:* clean fuel
- *Bank lending policies*: lending for efficiency/ renewable energy, avoid lock-in into old technologies in developing countries
- *Insurance policy:* Differentiated premiums, liability insurance exclusion, improved conditions for green products

Climate Change and Sustainable Development



- The world can be categorized as three distinct societies (developed, developing, survival)
- Societies need different pathways to achieve low carbon society
- There is a strong synergy between achieving low carbon society and attaining sustainable development

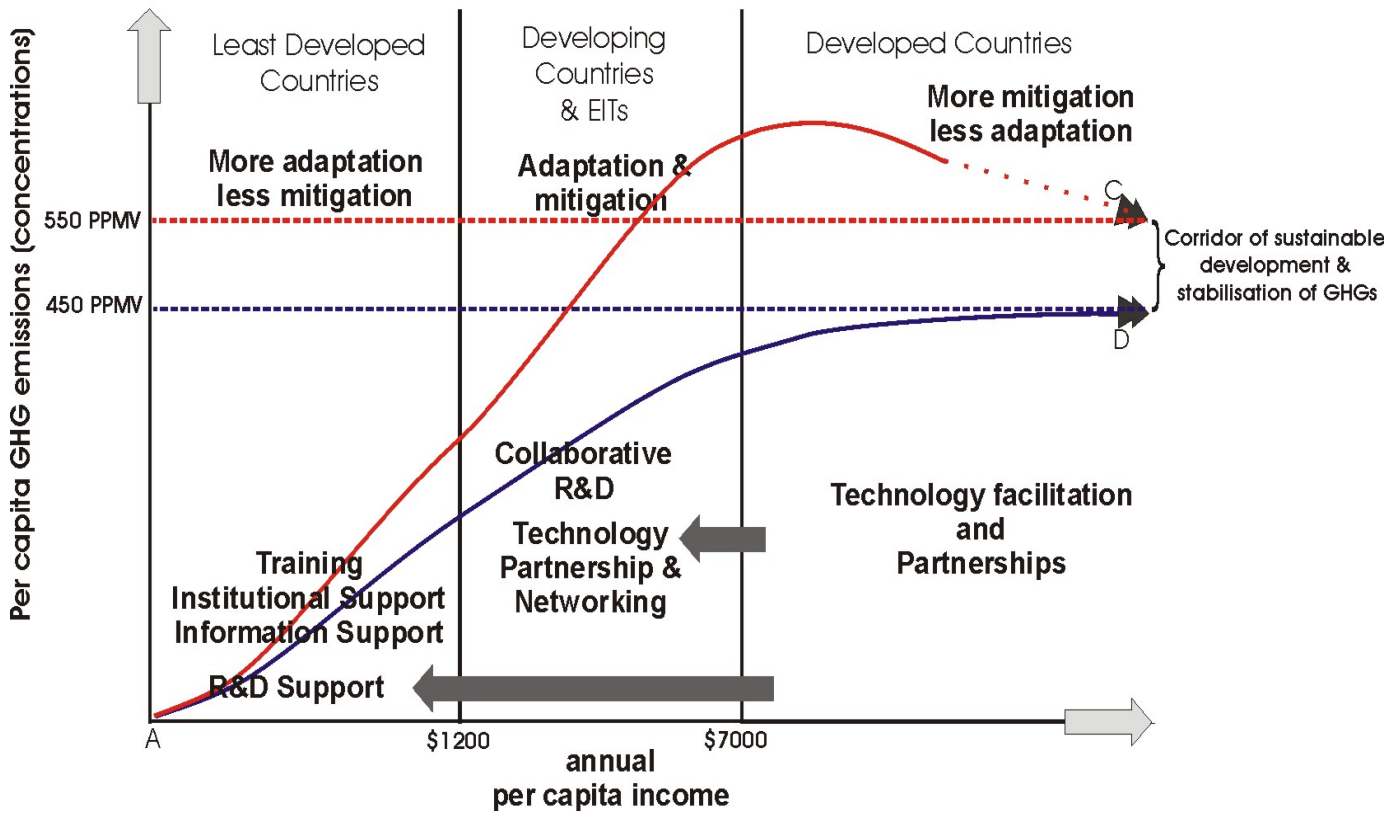
Sustainable Development Triangle



LINKAGE BETWEEN ENERGY AND MDGS

MDGs linked to Energy	Objectives	Energy Needs for meeting and sustaining MDGs
1. Poverty & Hunger	Half the people that live in hunger and those on less that $1/day	-Post-harvest processing for consumption and generate surplus (reduction of on/ off farm losses) - support improved nutrition - improve supporting infrastructure & services to proper utilise surplus - enhance income-generating activities
2. Universal Primary Education	Primary education for all by 2015	- reduction in cost of education - provision of electricity for lighting & heating, -electricity for teaching aids -improved energy efficiency in school buildings
3. Gender Equality & Women Empowerment	Boys & girls to be in primary & secondary schools by 2005 and all levels by 2015	-provision of better cooking fuels to free task of wood collection - reduce indoor air pollution
4. Maternal Health	Reduce rate of maternal mortality by 75% between 1990 to 2015	-improved medical facilities for maternal care using modern systems - provision of fully equipped clinics and hospitals - adequate training and housing -reduction of excessive household work load -effective drug manufacture and distribution
5. HIV/Aids, malaria & other deases	Halt & Reverse the trend	-increased facilities for sterilization, refrigeration, and storage facilities for vaccines - improved re-use facilities - improved blood donation systems -improved distribution systems -improved communication system using IT

Technology development and transfer in Climate Ghange

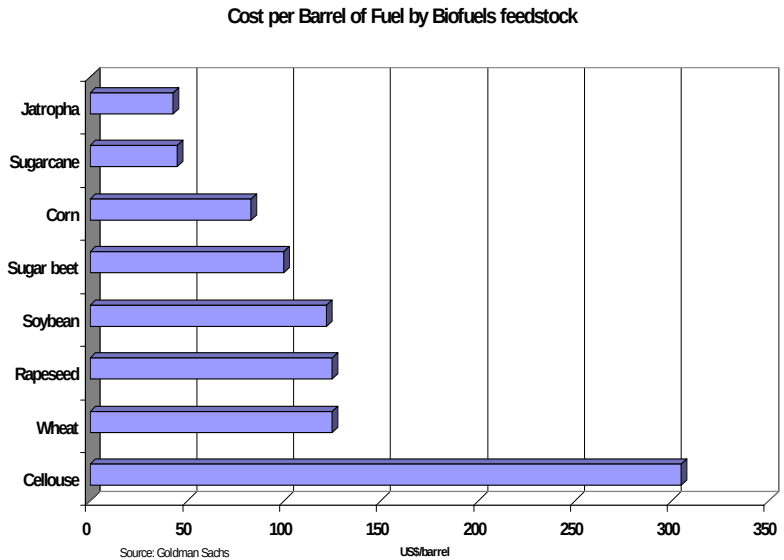


Strategic Energy Options to Achieve MDGs

- Options to ensure macro-economic growth
  - Improving the overall economy by increasing productivity
  - Mobilisation of local investments
  - Cross-learning among institutions
  - Promotion of external investments
  - Introduction of bio-fuels in the transport sector
- Options for providing targeted energy services for the poor in urban and per-urban areas
  - Widespread use of LPG
  - Use of cross –subsidy in tariff system
- Options for energising rural areas
  - Scaling up existing interventions
  - Provision of low cost, high impact options

Bio-Fuel Option

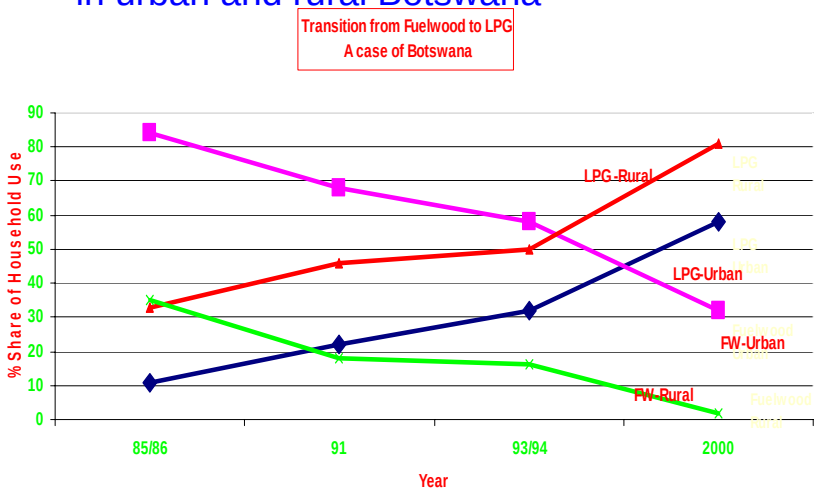
- Ghana as many African countries lie in tropics, but suffer from fragile ecosystems (droughts and floods)
- Bio-fuels a viable transport energy option
- Co-generation for power is more successful
- Viability is doubtful
- Require large inputs (land, water, fertilizer)
- Choice of land an competition with food
- Choice of crop
- Policy regime crucial regarding outside interests



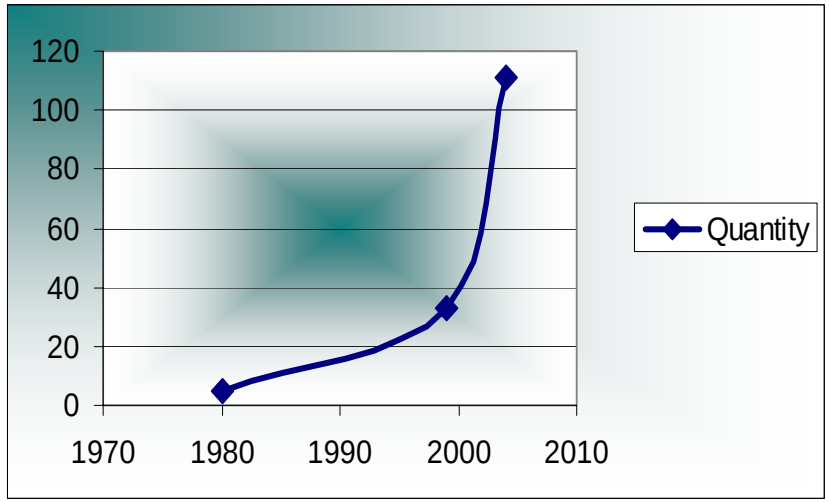
Co-generation, from sugar waste
-40% power in Mauritius

Wider use of LPG in Urban and Rural areas

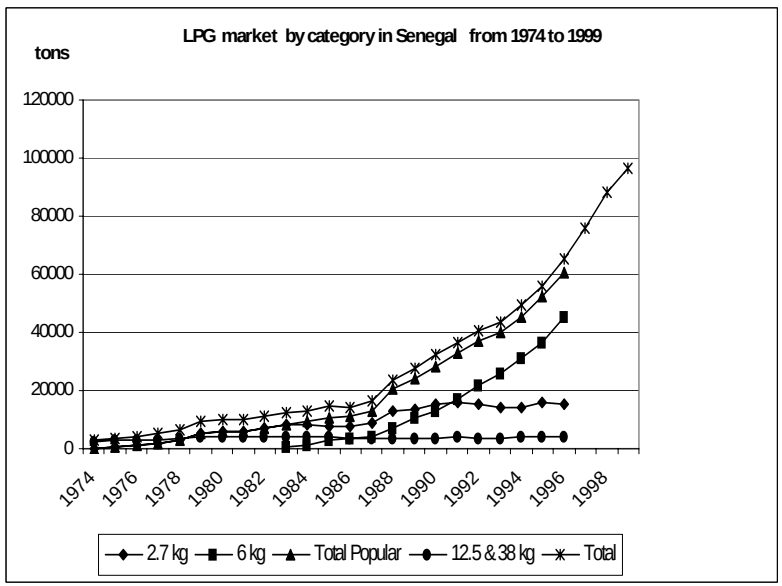
LPG in displaces firewood in urban and rural Botswana



Sudden increase use of LPG in Sudan



Growth of LPG in Senegal



LPG Cylinder manufacture & distribution in Ghana

Policy Regime is needed

Renewable Energy

- Renewable energy systems can be used as stand alone or mini-grid based on
  - Needs assessment
  - Provision of wide technology choice
  - Facilitation of technical back-up
  - Provision of subsidised financial system
  - Support existing cooperatives or promote new ones

Fitting in together in the long term

- Global warming is equivocal and early action by all and governments are needed to reduce serious climate risks
- Large number of technologies are available now and in the near future to offset the GHG emissions
- Linking sustainable development with climate policies provide governments the opportunity to avert the possible climate threats
- An effective climate change strategy will require the integration of development, equity and sustainability
- Conventional economic analysis has to consider both social and environmental aspects for optimal decision-making
- Climate change could worsen the gap in distributional goods and services between and within generations as the poor and dis-advantaged will be the most affected

Concluding comments

- Non-governmental organisations (International and national) are very important
  - Human and institutional capacity building
  - Sensitizing and popularising technological innovations
- Private sector can be involved in development and deployment of technologies
  - Regulations are crucial
  - Competition is necessary
- Addressing equity concerns:
  - Establishment of a equitable and participative framework for decision-making and implementation
  - Reduction of potential social disruption from climate change impacts
  - Protection of cultural diversity and threatened cultures. needed in the future

Thank you for your attention

Further Information
Contact
University of Sierra Leone
Freetown, Sierra Leone.
Tel. No. 232-22-223340
Fax. No 232-22-223270
Email: ogunladedavidson@hotmail.com