



The Clean Energy Investment Framework: An Integrated Approach to Energy Access and Climate Change

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Energy access and climate change: The role of the private sector and the World Bank Group

Outline

- An integrated approach to energy access and climate change
- The Clean Energy Investment Framework
 - Energy Access
 - Mitigation of climate change effects: the low- carbon economy agenda
 - Adaptation to climate change
- Suggested areas for rich world's engagement

An Integrated Approach to Energy Access and Climate Change

Integrating Environmental and Social Concerns

- Making **environmentally responsible** investments **while addressing social dimensions** of energy access and climate change
 - Access: 1.6 billion people lack access to electricity, with acute needs in Sub-Saharan Africa
 - Growth: rapid increase in energy demand still met mostly through conventional technologies
 - Affordability: matters both for energy access and shift to clean energy (e.g. pro-poor reforms of national power sectors, reducing costs of renewables)
 - Balancing climate mitigation with adaptation: need to help communities strengthen their preparedness and adaptation capacity

Integrating Public and Private Sector Actions

- Governments' commitments crucial for a meaningful policy response to climate change
- Nothing big could be achieved without private sector contribution
 - Huge financing gaps
 - Need for technological innovation
- Enabling environment needed to remove numerous barriers faced by private investors

Combining IFC and Bank Strengths

IFC:

- Relationship with and access to private companies
- Market and technology development
- Strong influence on investment finance (The Equator Principle)
- Technical assistance to businesses in the developing world

World Bank:

- Relationship with and access to senior policy makers
- Multisectoral approach to development
- Leader in sustainability among MDBs (first carbon neutral int'l institution)
- Strong track record in combining knowledge and financial services, and in piloting new instruments (JL, carbon finance)

World Bank Clean Energy For Development Investment Framework

3 Pillars:

- Increase Energy Access in Sub-Saharan Africa



- Transition to a Low Carbon Economy



- Adaptation to Climate Change



Energy Access



Scaling-up needs new business model

- 'Business-as-usual' is not delivering results fast enough
- Countries should "step-up their game" by:
 - Making clean energy a clear priority in their policy commitments
 - Ramping up the capacity on planning and implementation
 - Acting regionally to optimize resources and investments
- Development partners can be more effective by:
 - Harmonizing approaches
 - Being flexible on conditionality
 - Delivering assistance within a country low carbon growth strategy (rather than in fragmented, project-by-project manner)

A comprehensive 'Action Plan for Energy Access in Africa'

Needs to be Met

Energy for Growth



Powering the MDGs



Basic Needs

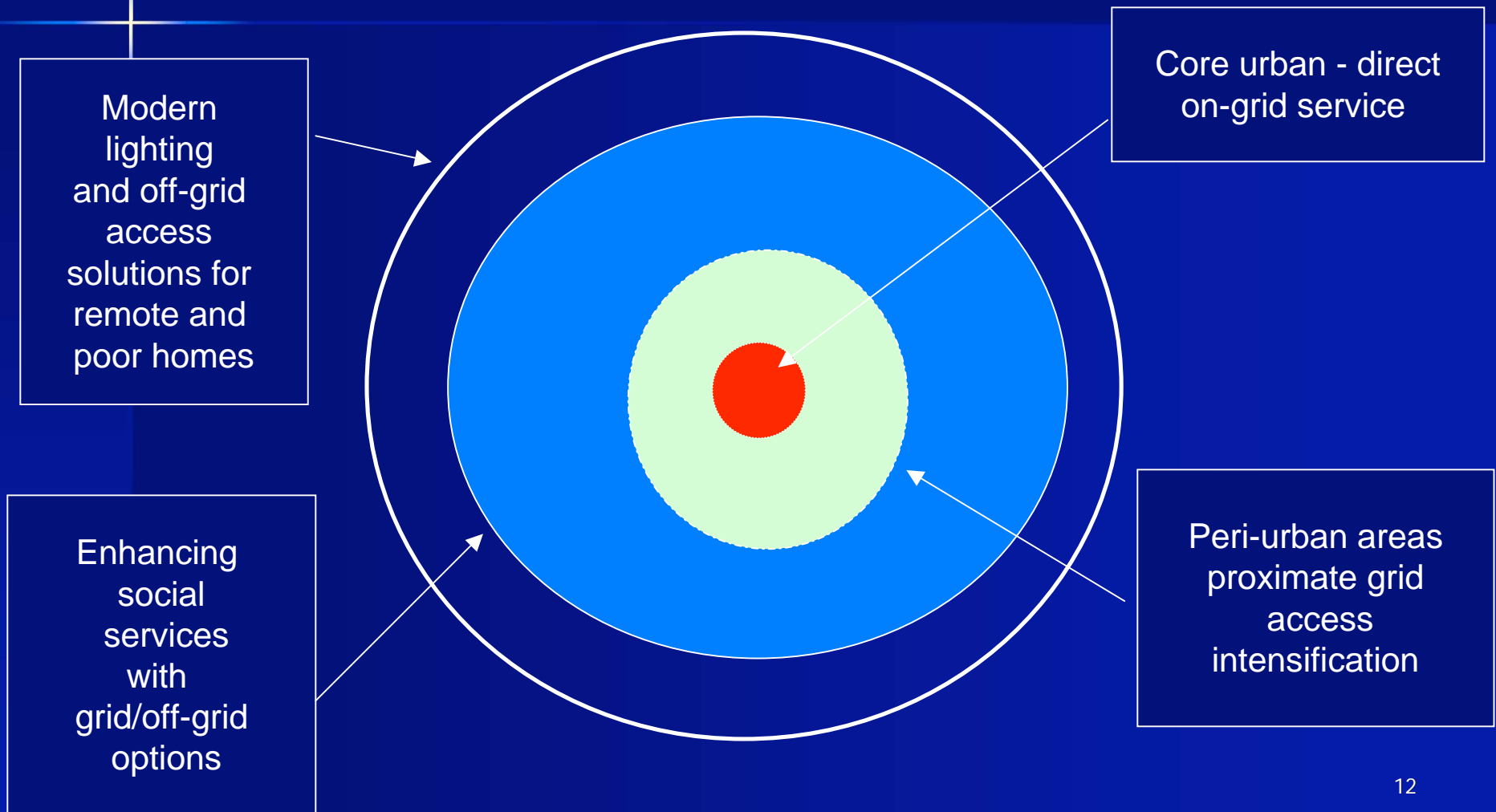


Potential Implementation Tracks

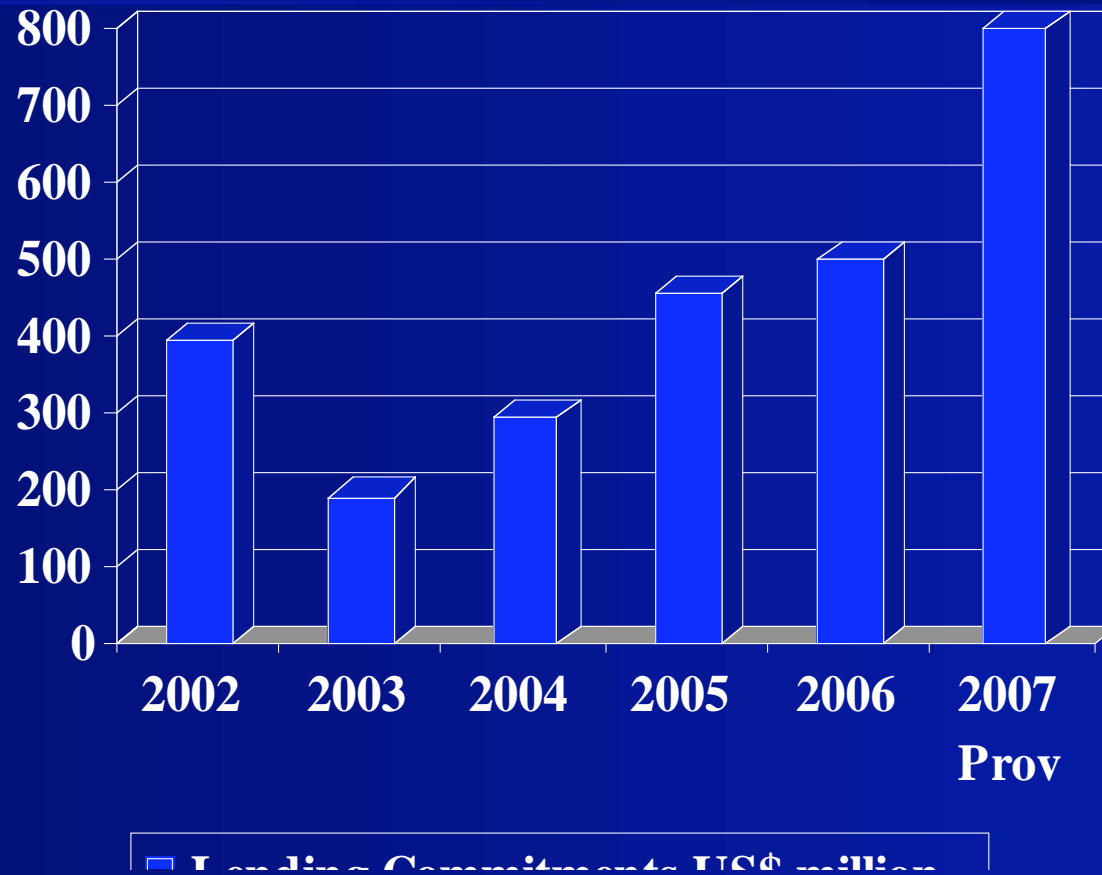
- 1) Increase energy coverage for enterprises, households & agriculture
- 2) Enhance generation capacity for cleaner energy, including via regional projects
- 3) Provision of energy services for key public facilities such as schools and clinics
- 4) Equip unconnected households with affordable, modern lighting
- 5) Push for cleaner, sustainable cooking & heating technologies

What is the World Bank Doing?

Increasing Lending for Energy and Targeting Electricity Options in Projects



Scaling up Lending Commitments in sub-Saharan Africa



Note: 2007 projections are with constrained IDA resources

Lighting Africa – Joint World Bank/IFC Initiative

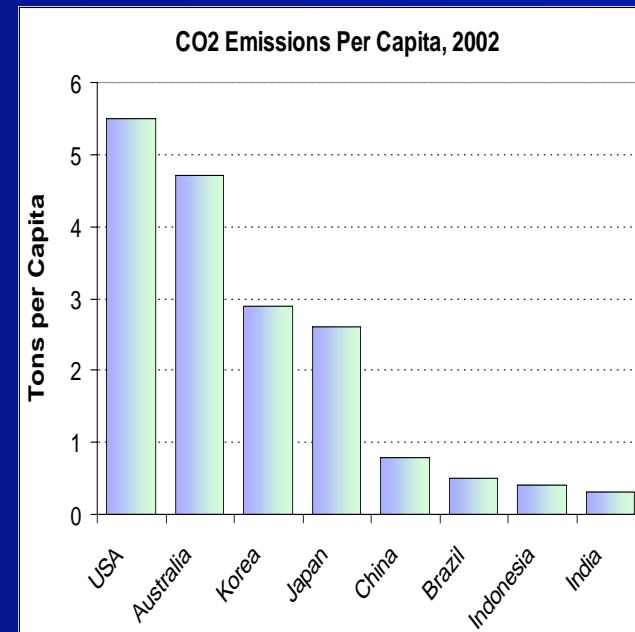
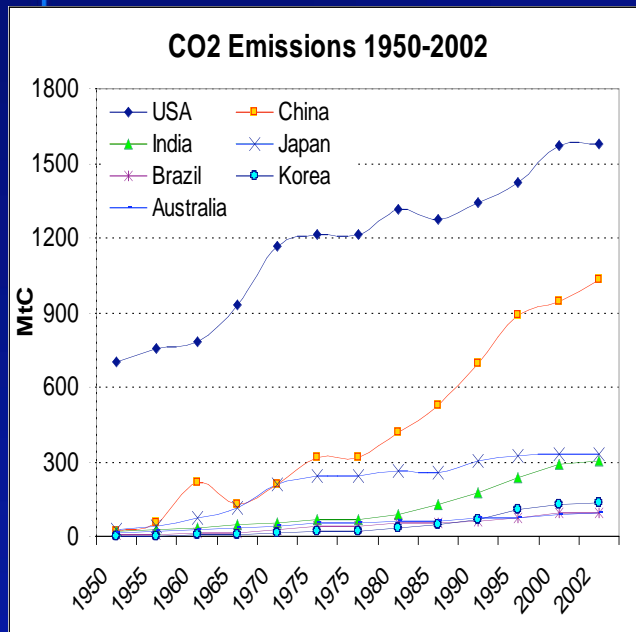
Goal: Rapid scale-up of access to clean, reliable and affordable lighting & basic energy services for 250 million people across Africa by 2030



Accelerating the Transition to Low- Carbon Economy



Current CO2 Emissions and Contributions




Reducing Emissions

- Rehabilitation of old, inefficient power plants using advanced technologies, e.g., supercritical , co-generation to supply heat to district heating system
- Energy efficiency technologies and programs to promote energy efficiency, both on supply and demand sides.
- Coal-fired power plants with IGCC and carbon capture and storage (CCS)
- Renewable energy programs - solar, wind, geothermal, bio-energy or hydro
- Urban and cities development, e.g., municipal waste and wastewater management
- Land-use programs that lead to biological sequestration

Financing Mitigation in Developing Countries: Possible Sources

Options:

 Voluntary actions

 International grants, e.g., Global Environment Facility (GEF)

 Carbon trading

- But, **GEF's role is limited**. Should be increased by factor of 10 or more to play a significant role in transitioning to a low-carbon economy.
- **Carbon trade** potential is huge: between US\$20 and \$120 billion per year to developing countries. But long-term global regulatory framework needed.

Mind the Gap: Less Than Half of Financial Resources Needed Currently Available

- \$ 160 billion/year is needed to meet the electricity needs of the developing world
- Another estimated \$30 billion/year is required to shift electricity production to low carbon path
- \$ 80 billion is presently available
 - \$32 billion – internally generated (e.g., company funds)
 - \$18 billion – private investments
 - \$19 billion – government funds
 - \$11 billion – international donors and IFIs

Constraints Faced by the Private Sector

- **Higher investment costs:** projects are not financially viable; relatively little equity and debt capital for cleaner technologies
- **Long lead times and untested technologies:** private markets get nervous, limits available investment
- **Regulatory uncertainty:** limits mobilization of long-term capital
- **Carbon finance insufficient:** unmitigated risks

Constraints Due to Public Policy

- Policies and regulatory systems in contradiction with mitigation objective
- Weak policy framework for technology transfer
- Investment climate not supportive

What is the World Bank Group Doing?

Financing Low Carbon Projects

The World Bank Group:

- Has a low-carbon portfolio that represents 37% of the overall energy portfolio today
- Has committed to increase its energy efficiency and renewable energy portfolio by at least 20% per year until the end of the decade
- Is developing methodologies to measure the carbon intensity of its portfolio, starting with energy and transport (in cooperation with Norway)
- Is a world leader in carbon finance, with over \$2 billion under management, and two important innovations under preparation (a Low Carbon Growth Fund and an Avoided Deforestation Carbon Fund)
- Promotes PPPs in gas flaring and has mobilized over \$1,7 billion private capital investments
- Collaborates with GEF on energy efficiency and renewable energy

World Bank Group Commitments for Renewable Energy and Energy Efficiency, FY 2006

IN US\$ MILLIONS

SOURCE OF FUNDS	RENEWABLE ENERGY	HYDRO >10 MW	ENERGY EFFICIENCY	TOTAL
World Bank (IBRD/IDA)	135.7	118.6	115.3	369.5
World Bank (GEF and Carbon Finance Unit)	54.7	6	1.2	62
IFC (own funds)	17.4	67	309	393.4
IFC (GF, Carbon Finance and other trust funds)	13	0	20.1	33.1
MIGA	0	0	1.8	1.8
TOTAL	220.8	191.6	447.4	858.8

NOTE: IBRD INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, IDA INTERNATIONAL DEVELOPMENT ASSOCIATION, IFC INTERNATIONAL FINANCE CORPORATION, MIGA MULTILATERAL INVESTMENT GUARANTEE AGENCY

Scaling up Our Knowledge Support

- Development and implementation of *sector strategies* for energy efficiency, renewable energy and transportation
- Formulation of *low-carbon growth strategies* for the G+5 countries
- *New carbon initiatives*
 - Green Investment Schemes
 - Carbon Partnership Facility
 - Forest Carbon Partnership Facility (REDD)

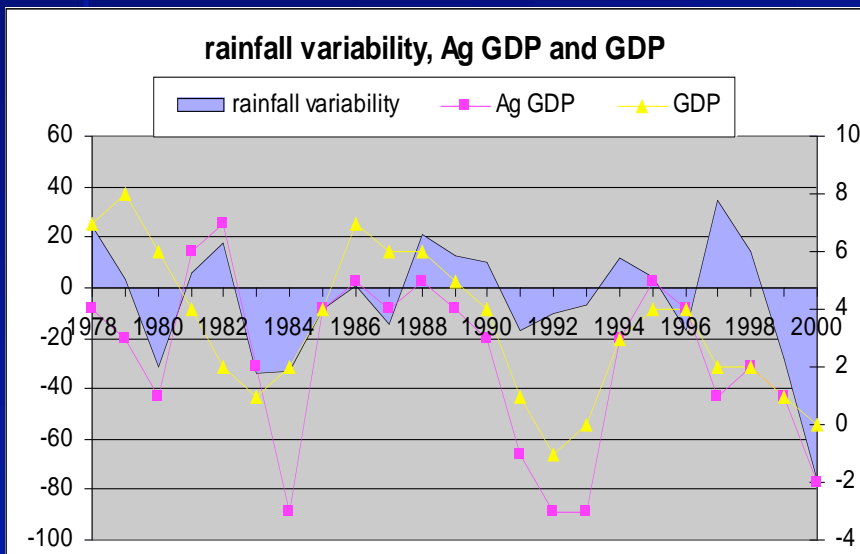


Adaptation to Climate Change

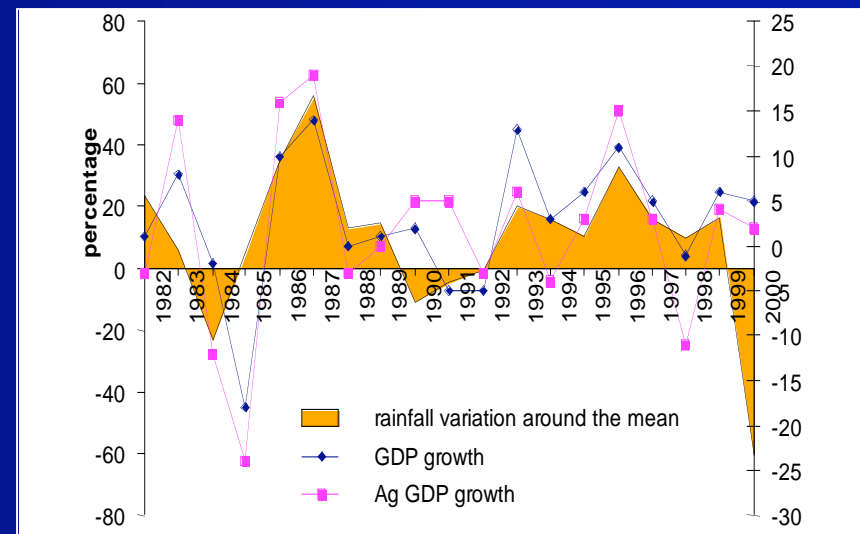


Impacts of Drought and Rainfall Variability on Economic Growth

Kenya

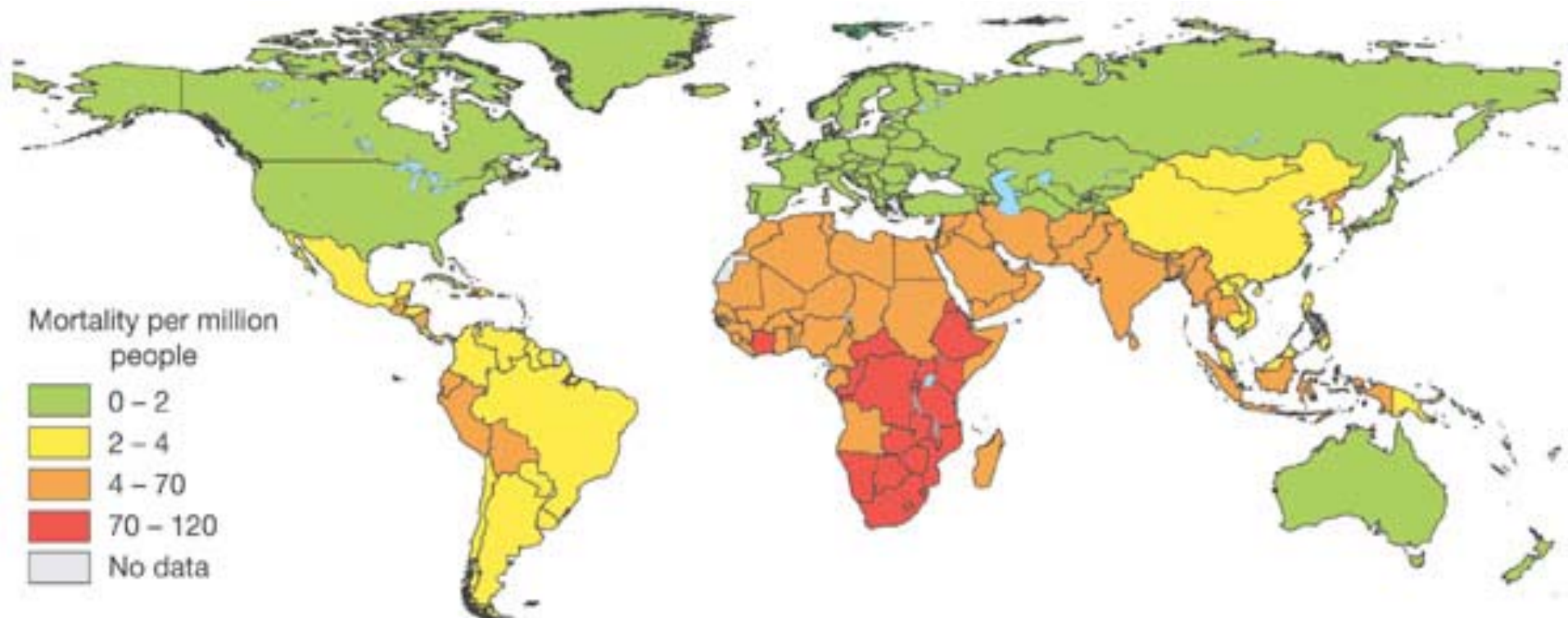


Ethiopia



Impacts of Climate Change on Life Expectancy

WHO estimated mortality attributable to climate change in the year 2000*



*Compared to 1961-1990 baseline. Source Patz et al. Nature 2005

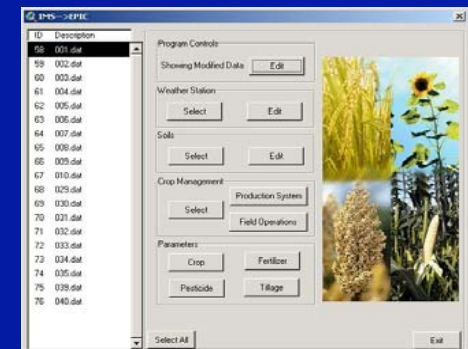
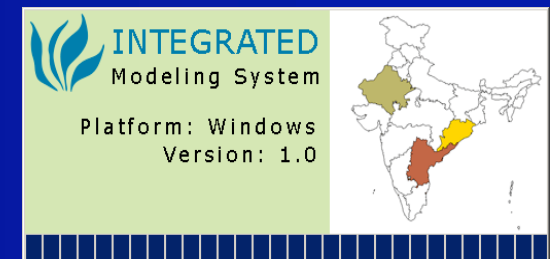
↑Cardiovascular diseases, malaria, diarrhoea, inland and coastal flooding, and malnutrition ²⁸

Major social implications

- **Rural poor**: Scarcity of natural resources – lead to dislocation and potential conflict over scarce resources
- **Urban poor**: urban slums with poor property rights and little opportunity to insure very vulnerable
- Pressure on social as well as biological diversity – **indigenous peoples and ethnic minorities**
- **Increased difficulty for poor people to manage risk with traditional risk instruments** (increased frequency of shocks-droughts, floods)
- On the other hand much indigenous knowledge on managing climate variability – building on this resilience important ways forward

Barriers to Climate Resilient Development

- Immediate needs predominate in national priorities
- Misunderstanding of the urgency
 - We have decades before climate change matters
- Uncertainty of potential impacts
 - Little penetration of existing information
- Information & tools
 - How do we use the information if we have it?
 - Professional & legal standards
- Negotiation position – Who bears the cost?
 - Some are not ready to engage until significant funding guaranteed?
- Engagement of (national) private sector
 - We have a focus on “communities”, but where is the supporting framework for SMEs, individual operators/farmers etc?



Adaptation Action Plan

Core Activities in the CEIF

Understand nature and degree of risks

- Core set of commonly needed current and projected climate data
- Screening tool to identify threats & opportunities arising from climate variability/change

Build capacity to manage risks

- Country assessments
- Sector analyses (agric/water/rural infrastructure; coastal cities; livelihoods)
- Insurance and other modes of risk transfer

Invest in adaptive measures to minimize and mitigate risks

- Pilot "climate-proofing" of development projects in Africa and elsewhere
- Technical analysis for vulnerability reduction in Latin America & Caribbean

