



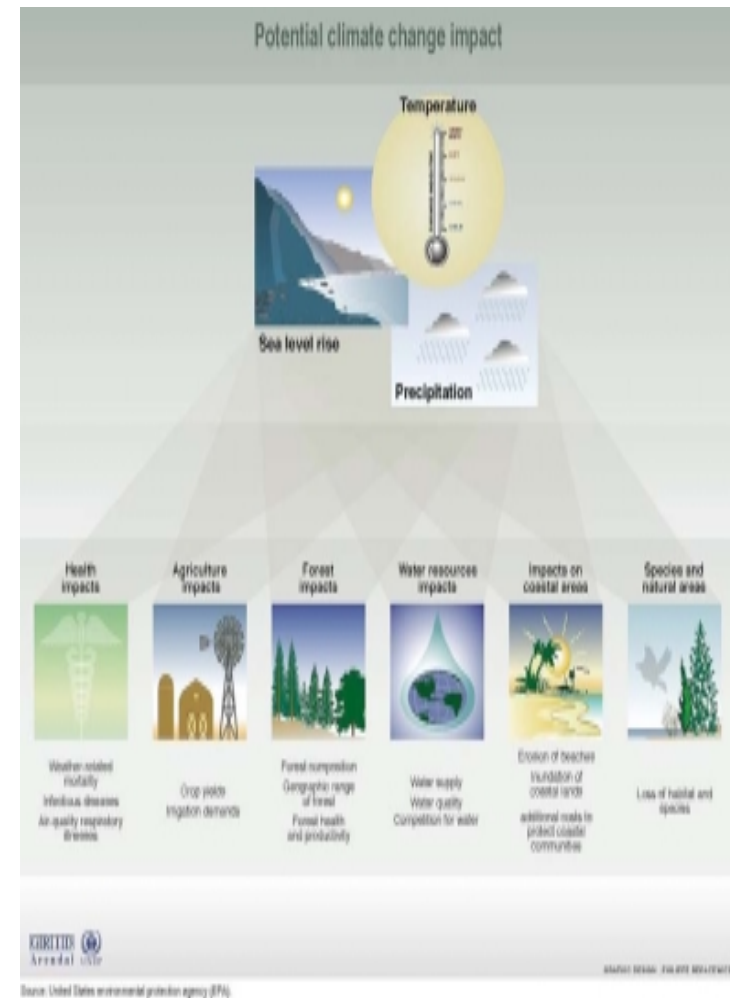
Impacts and Adaptation to Climate Change

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Programme (UNEP)**

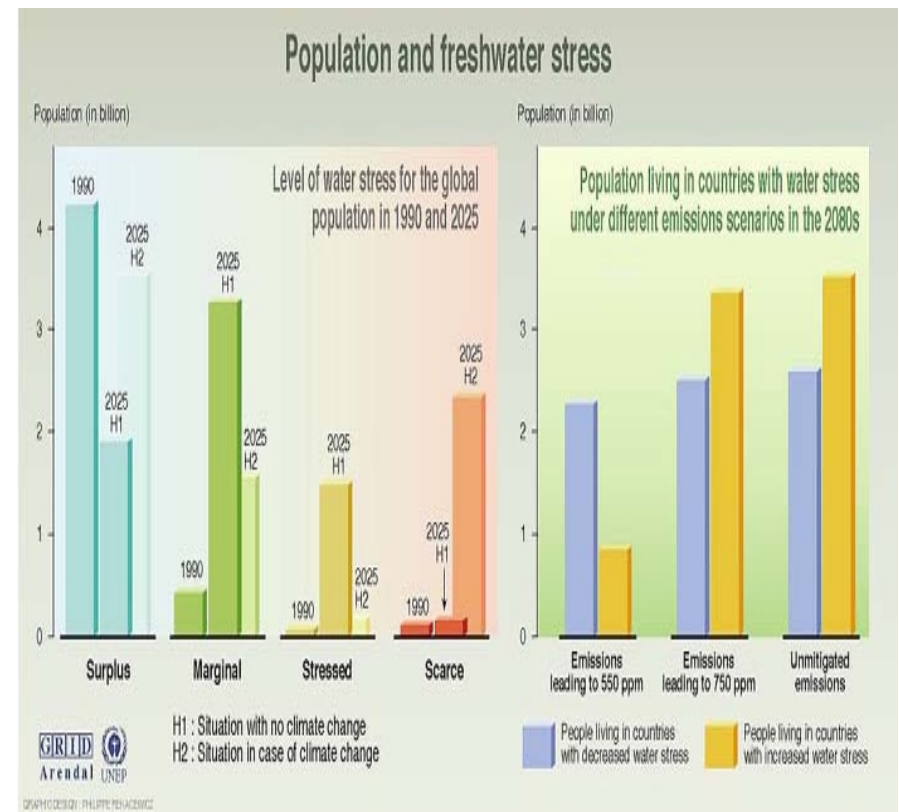
POTENTIAL IMPACTS OF CLIMATE CHANGE IN AFRICA

- **Worsen food security**
- **Seasonal climate forecasting**
- **Better soil and water conservation**
- **More tolerant crop varieties**
- **Livestock management**



POTENTIAL IMPACTS OF CLIMATE CHANGE IN AFRICA











- **Warming of 0.7C during 20th century**
- **Rainfall decrease in Sahel, increase in East and Central**
- **Refinement of early warning system**
- **Shared basin management**
- **Water-use strategies**
- **Alternative to hydro**



Sources: Climate change 1995, impacts, adaptations and mitigation of climate change: scientific-technical analyses, contribution of working group 2 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge press university, 1998; Climate change and its impacts, stabilisation of CO2 in the atmosphere, Hadley centre for climate prediction and research the meteorological office, London, 1999.

POTENTIAL IMPACTS OF CLIMATE CHANGE IN AFRICA

- **Warmer and wetter conditions impact diseases endemic in Africa**
- **Understanding of climate-disease transmission link**
- **Safe drinking water tech.**

Spread of major tropical vector-borne diseases					
Disease	Vector	Population at risk (million) ¹	Number of people currently infected or new cases per year	Present distribution	Likelihood of altered distribution
Malaria	Mosquito	2,400 ²	300-500 million	Tropics and Subtropics	
Schistosomiasis	Water snail	600	200 million	Tropics and Subtropics	
Lymphatic Filariasis	Mosquito	1,094 ³	117 million	Tropics and Subtropics	
African Trypanosomiasis (Sleeping sickness)	Tsetse fly	55 ⁴	250 000 to 300 000 cases per year	Tropical Africa	
Dracunculiasis (Guinea worm)	Crustacean (Copepod)	100 ⁵	100 000 per year	South Asia, Arabian Peninsula, Central-West Africa	
Leishmaniasis	Phlebotomine sand fly	350	12 million infected, 500 000 new cases per year ⁶	Asia, Southern Europe, Africa, Americas	
Onchocerciasis (River blindness)	Black fly	123	17.5 million	Africa, Latin America	
American Trypanosomiasis (Chagas disease)	Triatomine bug	100 ⁷	18 million	Central and South America	
Dengue	Mosquito	1,800	10-30 million per year	All Tropical countries	
Yellow Fever	Mosquito	450	more than 5 000 cases per year	Tropical South America, Africa	

1. Top three entries are population-proxiated projections, based on 1989 estimates.

2. WHO, 1994.

3. Michael and Bundy, 1995.

4. WHO, 1994.

5. Ranque, personal communication.

6. Annual incidence of visceral leishmaniasis; annual incidence of cutaneous leishmaniasis is 1-1.5 million cases/year (PAHO, 1994).

7. WHO, 1995.

 Highly likely

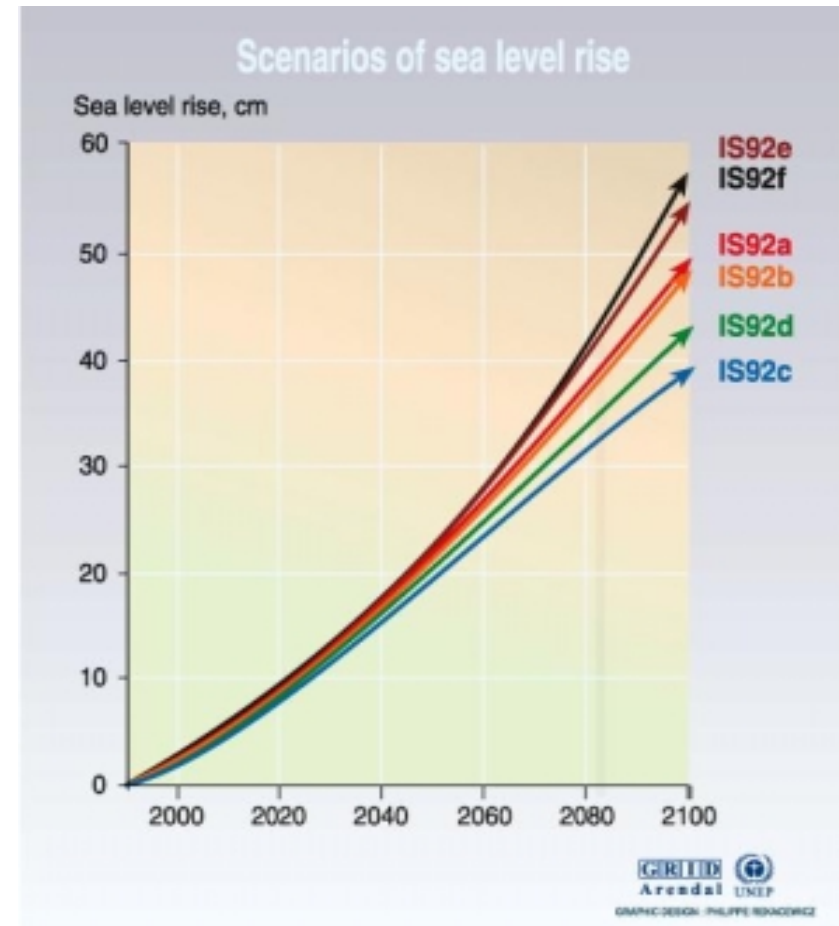
 Very likely

 Likely

 Unknown

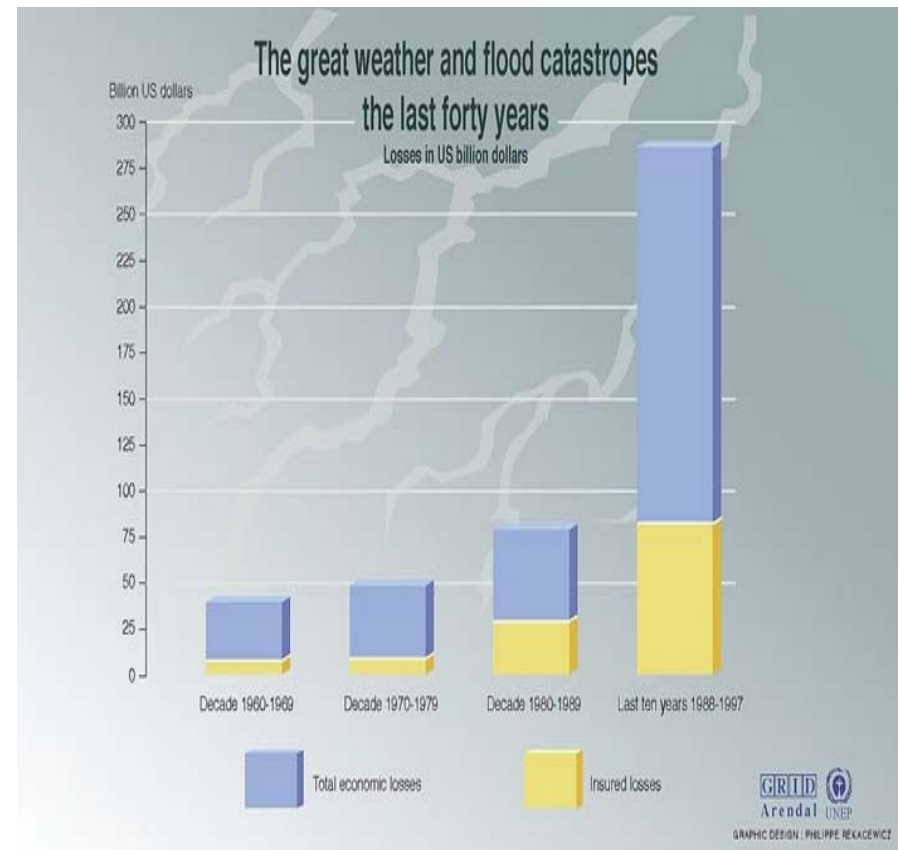
POTENTIAL IMPACTS OF CLIMATE CHANGE IN AFRICA

- **1 to 70 million people at risk from sea level rise**
- **Regional CC scenarios**
- **Regional integration among coastal zone states**
- **Early warning systems**



POTENTIAL IMPACTS OF CLIMATE CHANGE IN AFRICA

- **Main challenges through extreme events**
- **Develop strategic longer term planning, including land use planning**
- **Link mitigation and adaptation**



Source: Munich Re Group, 1999.



Assessment and Adaptation to Climate Change

**Assessment of Impacts and Adaptation
to Climate Change in Multiple Regions
and Sectors (AIACC)**

AIACC Goals

- 1 *Advance scientific understanding*
- 1 *Build and enhance scientific and technical capacity*
- 1 *Generate and communicate information*



AIACC Description

- Fund studies to assess the impact of climate change on a range of socio-economic sectors and ecological systems at the regional and national scale.
- Fund development of a range of adaptation response options.
- Project has started early this year, and we received more than 140 pre-proposals.
- START and TWAS are the two implementing agencies for the project.

AIACC Projects in LDCs

Focus Sector	Countries
Develop tools for CC impact on biodiversity	Mozambique and <u>others</u>
Increasing human coping capacity for climate change	Chad, Ethiopia, Djibouti, Somalia, <u>Sudan</u>
Weather forecasts & adaptation for cereal prodn	Niger and <u>other</u>
Impacts and adaptation for Miombo region	Malawi, Zambia, <u>Mozambique</u>
Costs and benefits of adaptation	<u>Gambia</u> and others

AIACC projects in LDCs

Focus Sector	Countries
Impact and adaptation to natural resources sustaining tourism	Comoros, Maldives
Vulnerability of Mekong basin & adaptation options	Laos, Myanmar, Cambodia and <u>other</u>
Impacts and adaptation to water resources and forest ecosystems	Laos, Cambodia and <u>other</u>
Impact and Adaptation to water and health in Lake Victoria and highlands	Uganda, Tanzania and Other

AIACC Activities

- **Competitive grants for regional studies**
- **Coordination of methods and scenarios**
- **Training workshops**
- **Mentoring**
- **Synthesis**

Advance scientific understanding

of climate change impacts, adaptations and vulnerabilities in developing countries.

- Generate new results from collaborative efforts of AIACC participants**
- Make data, methods available**
- Publish in peer reviewed journals**
- Contribute to future IPCC reports**

Build and enhance scientific and technical capacity

- 1 for climate change assessment in developing countries
 - 1 **Gain experience, skills from executing projects, collaborating with colleagues, and training.**
 - 1 **Strengthen networks for collaborative, interdisciplinary research.**
 - 1 **Develop and share data, scenarios, methods, tools**

Generate and communicate information

useful for adaptation planning and action.

- **National Communications**
- **Stakeholder participation**
- **Dissemination and outreach**

AIACC Workshop

11-15 February 2002, Nairobi

- **Methods for assessment of climate change vulnerability and adaptation**
- **Risk assessment approaches to CC hazards**
- **Development and use of scenarios**
- **Methods for integrating stakeholders with science in the assessment process, as well as communicating progress to policy community**

AIACC Workshop

11-15 February 2002, Nairobi

- **Who is vulnerable to climate change?**
- **Who needs information for adaptation strategies**
- **Nature of their vulnerability**
- **How do you verify what information they need?**
- **Conditions that give rise to vulnerability**



AIACC Workshop

11-15 February 2002, Nairobi

- **How will the climate change?**
- **What will be the first order effects?**
- **How do they impact humans?**
- **How might humans adapt?**
- **First generation assessments**
- **Second generation assessments**