

***Building Research Capacity  
through a Framework of Regional  
Centres, Research Nodes,  
Science Committees and  
Secretariats***

By

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## ***Background***

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- **START** (global SysTem for Analysis, Research, and Training) is an International Organization
- **START** is responding to the challenge of global environmental change by;
  - building human and institutional capacity and
  - generating knowledge to support decisions that enable sustainable development in developing country regions.

## ***Background***

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- START structure comprises START Regional Committees,
- Regional Centers/Secretariats and Regional Research Networks,
- This structure is linked to;
  - Universities,
  - Government institutes,
  - Scientists and
  - Other professionals working on and committed to issues relevant to global change and climate change.

## ***Background***

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- Through a framework of regional research centers, research nodes, science committees and secretariats, START
  - Conducts research on regional aspects of global change;
  - Provides fellowship and education opportunities;
  - Shares knowledge, expertise and data;
  - Bridges between science and society to support decision making; and
  - Mobilizes financial, institutional and human resources.

## ***START Regional Networks***

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- The main objectives of START's regional research networks are;
  - to mobilize scientific capacity and resources to address region specific issues of global change
  - to assist in creating working links between science and policy communities.

## ***START Regional Research Centers, Nodes and Secretariats***

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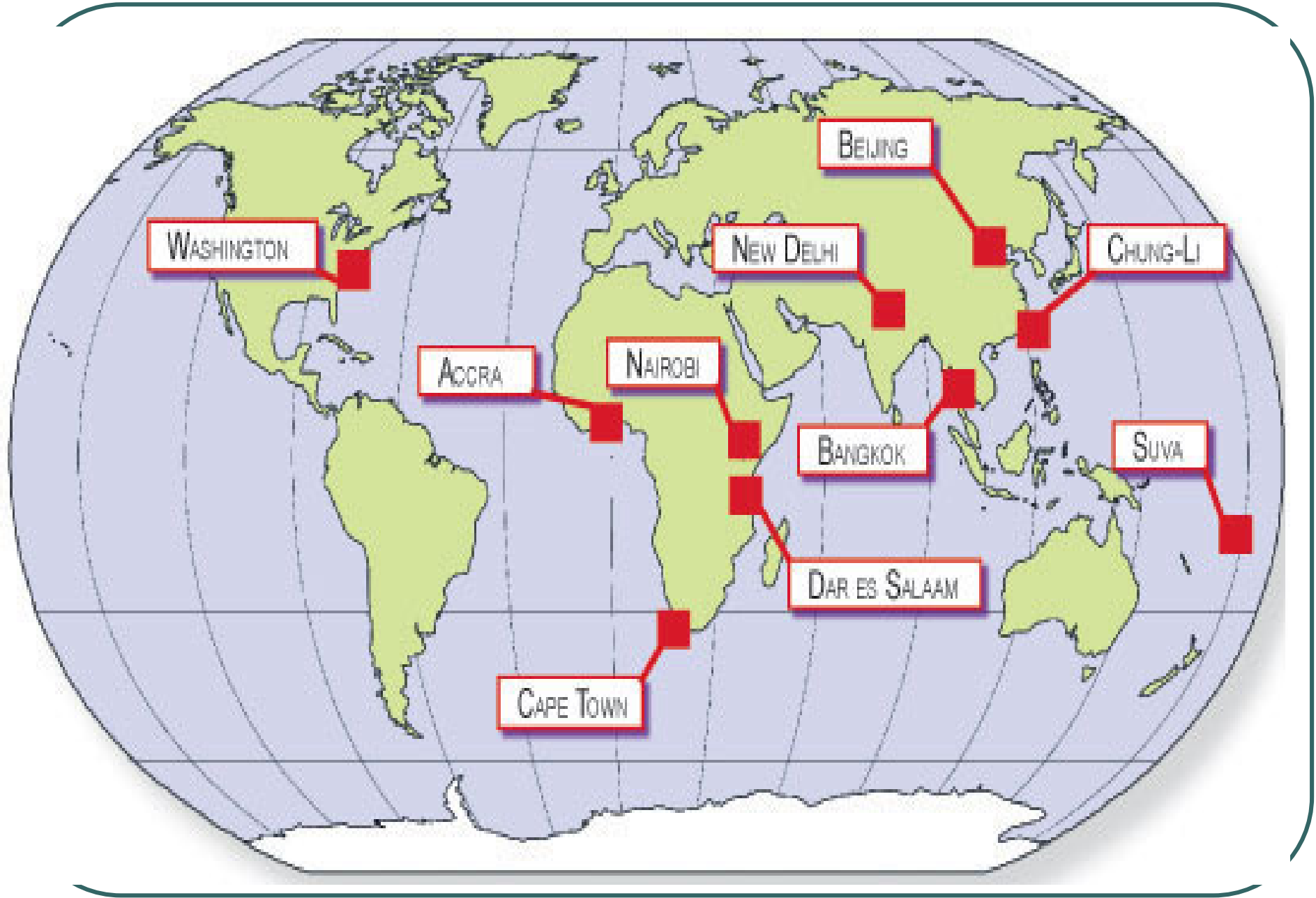
- The International START Secretariat, Washington, USA;

### ***Africa***

- Pan African START Secretariat, Dar es Salaam, Tanzania;
- START Regional Node for Climate Modeling and Downscaling, Cape Town, South Africa.
- START Regional Node for Wetlands and Coastal Zone Management, University of Ghana-Legon, GHANA,
- START Regional Node for Past Global Changes (PAGES), University of Nairobi, KENYA

### ***Asia***

- Temperate East Asia Regional Center, Beijing, China;
- START Southeast Asia Regional Center, Bangkok, Thailand;
- Southeast Asia Regional Committee for START, Chug-Li, Taiwan;
- South Asia Regional Research Center, New Delhi, India;
- START Oceania Secretariat, Suva, Fiji;



WASHINGTON

BEIJING

NEW DELHI

CHUNG-LI

ACCRA

NAIROBI

BANGKOK

SUVA

DAR ES SALAAM

CAPE TOWN

## ***Pan-African START Secretariat***

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- Pan African START Secretariat (PASS);
  - The Secretariat has an overall aim of coordinating START activities within Africa.
  - PASS works under the Pan African START Committee for START (PACOM),
  - The Committee serves as the regional coordination body for START's activities in Africa.
  - PACOM is comprised of scientists and policy makers
  - Who are actively engaged in activities addressing issues related to global change and its relation to sustainable development



## ***Role of START in Africa***

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- START engages the African research community in global environmental change research.
- Priorities for research in the region can be found in various documents including:
  - The science plans of the African Network for Earth System Science (AfricanNESS),
  - The Plans of the International Council for Science Regional Office for Africa (ICSU ROA), and
  - Documents from intergovernmental and multi-lateral organizations.

## ***Role of START in Africa***

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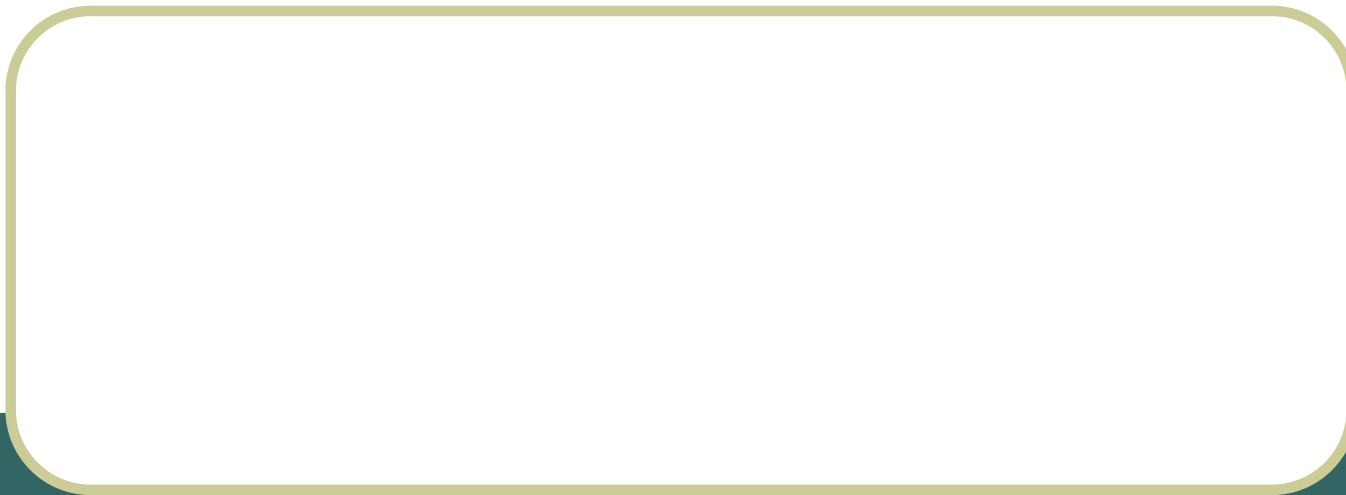
- START promotes collaboration within the African research community for sound scientific assessments of the impacts of global environmental changes to include:
  - climate variability and change,
  - coping strategies relevant to critical socio-economic sectors, and
  - sustainable development.
- START promotes collaboration with international partners outside of Africa.
- START provides programs and mobilizes resources for African researchers to build human and institutional capacity for attending to issues of global environmental change within Africa.

## ***Role of START in Africa***

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- START provides input to the community of policy/decision-makers at various levels.
- START fosters regional research networks to:
  - conduct research on regional aspects of environmental change,
  - assess impacts and vulnerabilities to environmental changes,
  - provide information to policy-makers.
- START's strategy of research-driven capacity building engages the younger generation of scientists in regional research projects and networks.

***Recent START Activities  
in Africa***



# ***Advanced Institutes***

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- START is conducting a series of several intensive institutes to enhance the pool of trained young scientists from developing countries by engaging them in a network of researchers using cross-disciplinary approaches to address key issues of global environmental change and sustainable development.
- An institute is comprised of three components:
  - (1) an intensive training workshop at an international center of excellence;
  - (2) follow-on research grants that provide an opportunity for fellows to apply knowledge and tools learned during the training workshop; and
  - (3) a synthesis workshop to exchange results and experiences.
- All fellows receiving research grants are assigned mentors who serve as a resource, provide oversight to ensure the project stays on track, help expand the researchers' network, and serve as advocates of the researchers in their home institutions.
- Each institute addresses global environmental change issues of particular concern to developing regions that require new, multidisciplinary approaches spanning the natural and social sciences.

## ***African Small Grants***

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- START's African Small Grants are provided to African scientists for one-year projects on global environmental change (GEC) in Africa.
- Funded research must contribute to:
  - Improving knowledge of the Earth's changing climate and environment, including its natural variability, and/or how the research will improve understanding of the causes of observed variability and change.
  - Improving quantification of the driving forces of changes in the Earth's climate and systems.
  - Reducing uncertainty in projections of how the Earth's climate and related systems may change in the future.
  - Understanding the sensitivity and adaptability of different natural and managed ecosystems and human systems to climate and related global changes.
  - Assessing impacts, adaptation and risk management strategies related to climate variability and change.

## ***African Climate Change Fellowship Program (ACCFP)***

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- **Types of Fellowships**
  - Post-Doctoral fellowship,
  - Doctoral fellowship,
  - Policy fellowship,
  - Teaching fellowships;
- The fellowships duration is 2-18 months, award range from USD \$ 5,000- \$ 36,000, depending on Fellowship type.
- 48 fellowships have been awarded with fairly good regional representations

## ***Education Program on Climate Change and Biodiversity***

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- Nearly 300 applications were received
- Only 20 were selected from the Albertine Rift Region (Tanzania, D.R. Congo, Burundi, Rwanda and Uganda)
- The program entailed the following;
  - *Needs assessment in the region (May 2007).*
  - *Course curriculum development (June 2007- May 2008).*
  - *Training course (29th June to 15th August 2008).*
  - *Externship (18 July to October 2008).*



## ***Building Long-term Capacity for Managing and Adapting to Climate Change in Africa***

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- The program's main objectives:
  - To develop research capacity in targeted less developed countries to analyse and assess the risks associated with climate change and variability;
  - To enhance linkages between national resource groups and countries through regional science-technology-policy networks; and
  - To stimulate science-policy dialogue to ensure that research contributes to the formulation and implementation of climate risk management and adaptation strategies, particularly as a part of national programs and policies.

***Understanding the Findings of the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report “Climate Change 2007” – Integrating Climate Change Adaptation and Mitigation in Development Planning***

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- Specific objective:
  - Broaden support for the integration of climate change mitigation and adaptation into national strategies for sustainable development and poverty reduction.
- Project Partners ;
  - Intergovernmental Panel on Climate Change (IPCC);
  - United Nations Environment Program (UNEP);
  - World Meteorological Organization (WMO);
  - Global Change SysTem for Analysis Research and Training (START);
  - Institute of Resource Assessment (IRA) of the University of Dar es Salaam;
  - University of Ghana (UG); and
  - The Bangladesh Center for Advanced Studies (BCAS).
- This project is funded by the European Commission with expected co-financing from UNEP.

## ***Technical Backstopping to Support the Assessment of Investment & Financial Flows to Address Climate Change in Developing Countries***

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- The UNDP Environment and Energy Group (EEG) has launched a capacity development project that will assist developing countries;
- to assess and develop policy options for addressing climate change across different sectors and economic activities, which could serve as inputs to Convention negotiating positions.
- One key national activity under the project will be the assessment of investment and financial flows to address climate change for selected key sectors.
- Pan African START Secretariat is executing this activity in Namibia, Gambia, Niger and Algeria.

# Capacity Building for research on adaptation to climate change in Africa

DFID's Approach  
Virtual Networks and Capacity Building  
for Meeting Research Needs on  
Adaptation to Climate Change

Bonn – 27 November 2008

## DFID's Research Strategy

1. Investing £1bn over the next 5 years in research
2. Recognise that funding research is an excellent investment
3. Strike a balance between creating new knowledge and technology and getting knowledge and technology into use
4. Redouble efforts to strengthen developing countries' capability to do and use research
5. It cover 6 areas:
  - Economic growth, sustainable agriculture, climate change, health, governance in challenging environments, and future challenges and opportunities

## Climate Change Research

1. Climate Science especially in Africa
2. Including climate change in national and international policy
3. Adaptation strategies
4. Reducing the Impact of Climate Change and Promoting Low Carbon Growth
5. Allocation to Climate Change Research £100m
6. More information [www.dfid.gov.uk](http://www.dfid.gov.uk)

## Climate Change Adaptation for Africa

DFID partnering with IDRC – Managed out of Senegal with offices in Nairobi and Cairo

### Objectives:

1. To strengthen the capacity of African scientists, organisations, decision makers and others to contribute to adaptation to climate change
2. To support adaptation by rural and urban people, particularly the most vulnerable through Action Research
3. To generate better shared understanding of the findings of scientists and research institutes on climate variability and change
4. To inform policy processes and good quality science-based knowledge

## ClimDev Africa

- Mandated by African Heads of Government. Oversight to be provided by the African Union Commission, African Development Bank, and the UN Economic Commission for Africa
1. Building science and observational infrastructure:
    - Rescuing historic data,
    - data management of climate and hydrological data,
    - upgrade data collection systems,
    - Early warning
    - Long term climate projections
  2. Enabling strong working partnerships between government institutions, private sector, civil society and vulnerable communities
  3. The creation and strengthening of knowledge frameworks and communities of practice to support and integrate the action required



## ClimDev Africa

- Packaging and disseminating climate information – linking this to sectors most affected by climate change:
  1. Agriculture sector
  2. Water resources management
  3. Health
  4. Natural resources management
  5. Energy

# Research and Advisory Services for Climate and Development



November 2008

## The Nature of the Problem

- Existing knowledge fragmented and difficult for developing countries to access
- Gaps in knowledge
- Confusing/conflicting research findings
- Difficult to assess the quality of research findings, and other climate information
- Not tailored to the needs of developing country governments, NGOs or communities
- Information overload

# Purpose

To generate, and enable developing countries to access, use and apply, high quality information to allow them to respond to the twin challenges of climate change adaptation and low carbon development.

# Objectives

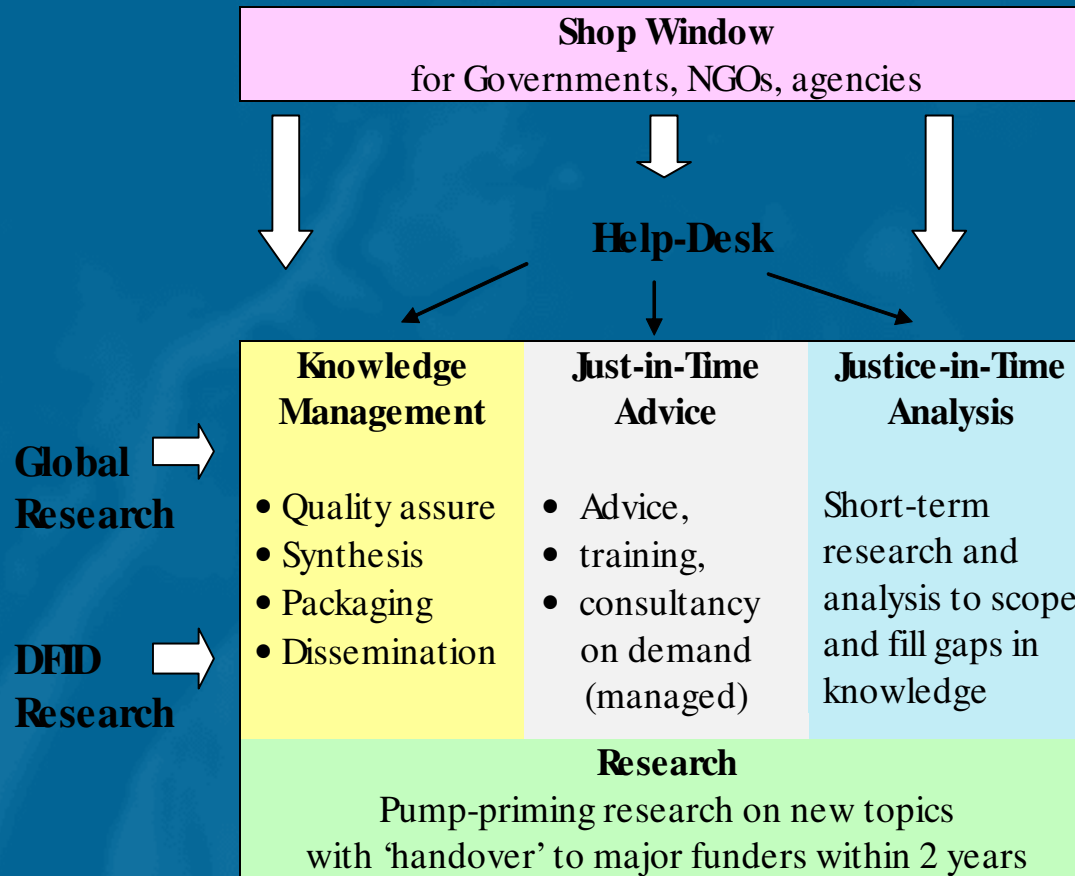
**Research and advisory services on adaptation and low carbon development, provided through a facility that:**

- encourages high quality research;
- manages a global knowledge management and information dissemination system;
- provides timely and relevant information, analysis and advice on climate change to policy makers and practitioners in developing countries.
- Builds capacity in climate research in developing countries

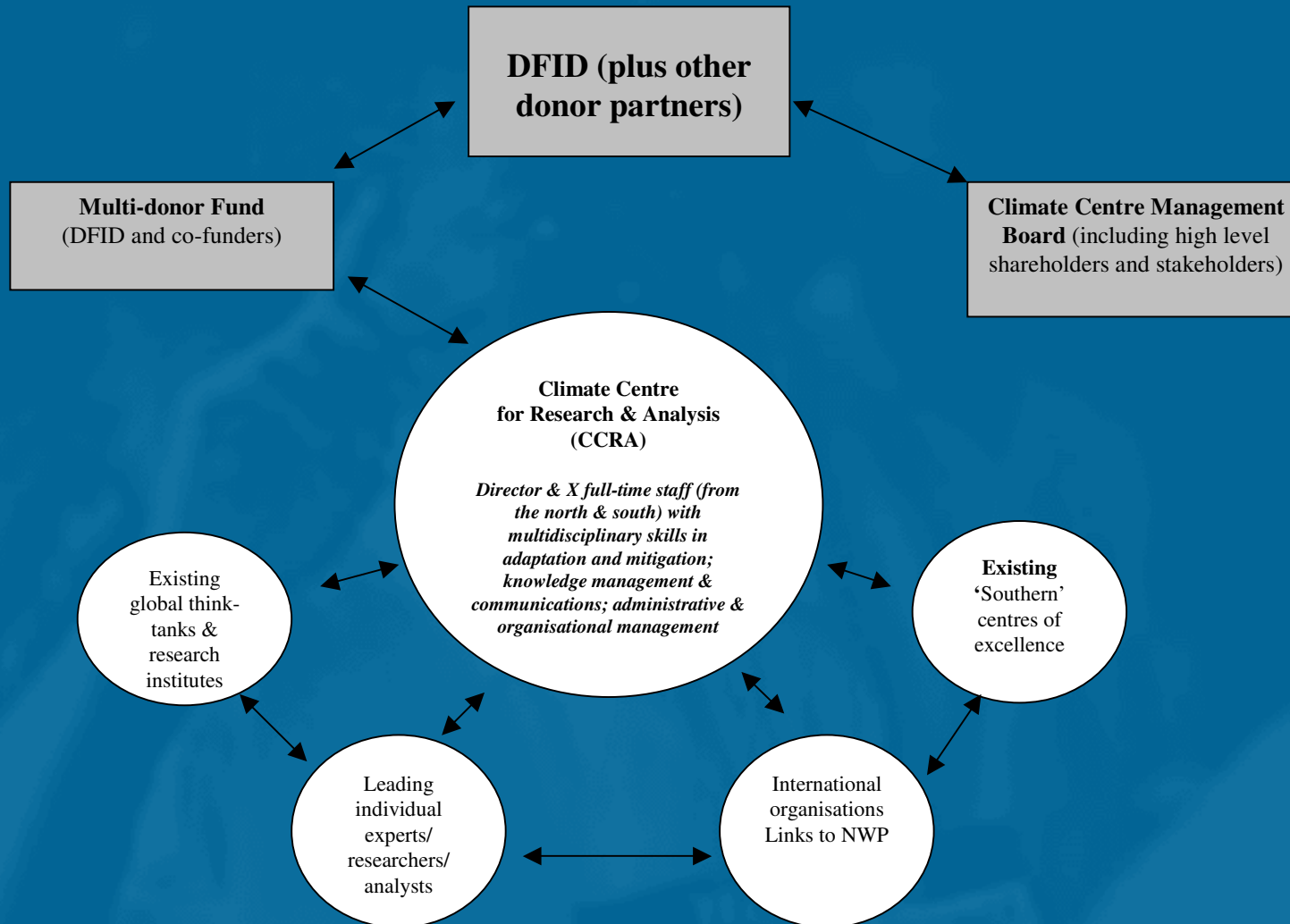
**And:**

- encourages transformational changes in the way developing countries access information on climate change policy and practice for both adaptation and low carbon development.

# The Climate Change Centre Shop Window



# Possible Organisational Structure



## Development of the Centre

- DFID is seeking to work with a wide range of partners and stakeholders to develop and establish the 'Climate Centre'
- We envisage that the centre will be operational in Summer 2009
- We welcome comments and feedback on the proposal – to [S-Rusling@dfid.gov.uk](mailto:S-Rusling@dfid.gov.uk)

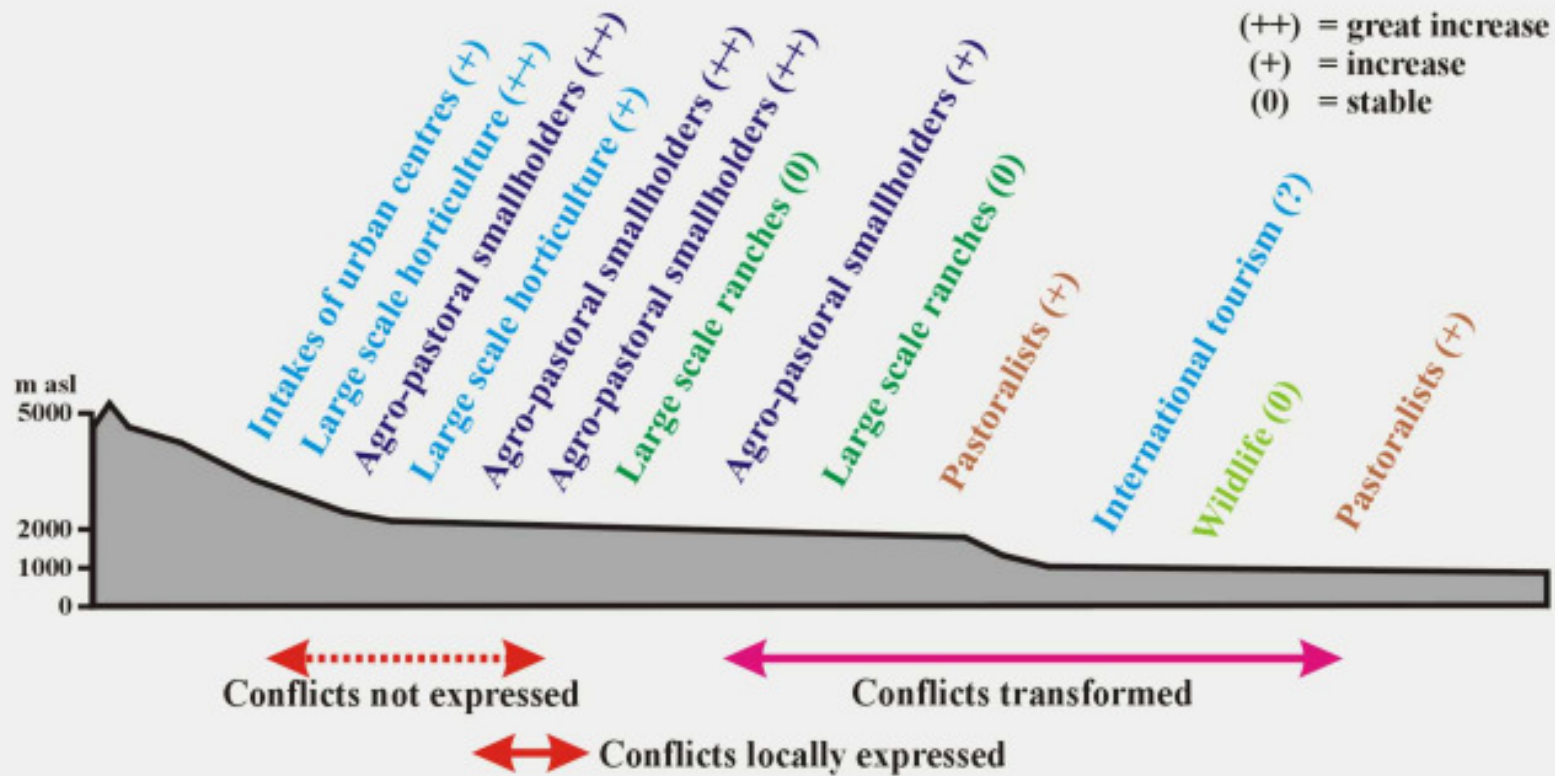


# The NCCR North–South: Promoting Partnerships & Capacities for Global Change Research

Urs Wiesmann (CDE – Uni Bern, CH), DEI, 27 Nov. 2008



## Users of river water and water conflicts



## Multi-level strategy

### Relevant levels:

(International)

National level

Province

Basin

District

Location

Community

Household

### Enhance water supply:

Legal framework

Negotiations & control

Supply planning

Water use efficiency

Water use efficiency

### Reduce water demand:

Land tenure policy

Infrastructure

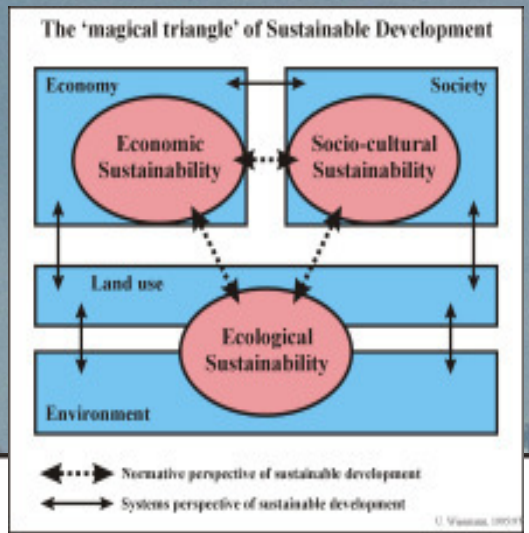
Land use planning

Infrastructure

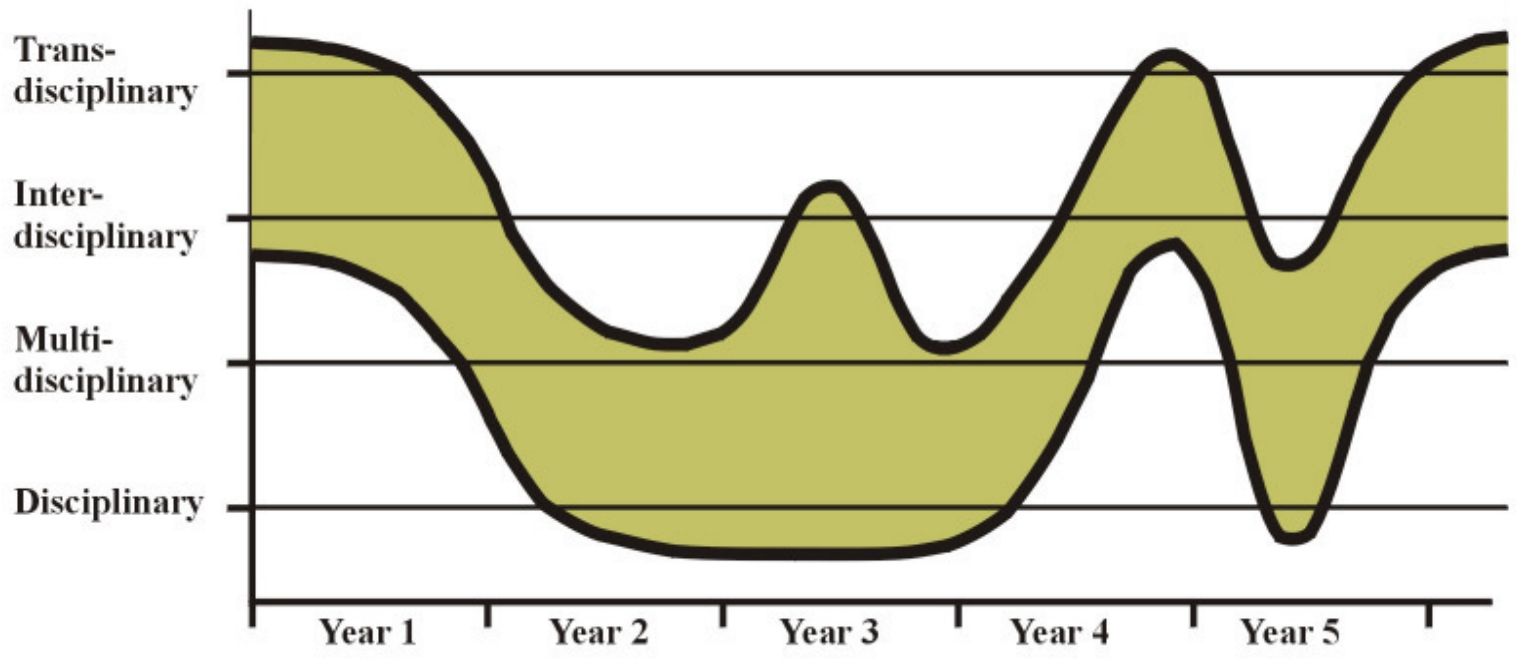
Off-farm jobs

Farming techniques

Awareness creation



## Research Approach



**(9) Share profits  
equitably**

**(10) Increase  
research capacity**

**(8) Apply the  
results**

**(7) Disseminate  
the results**

**(3) Share informa-  
tion; networking**

**(6) Monitor & eva-  
luate collaboration**

**(4) Share  
responsibility**

**(5) Create  
transparency**

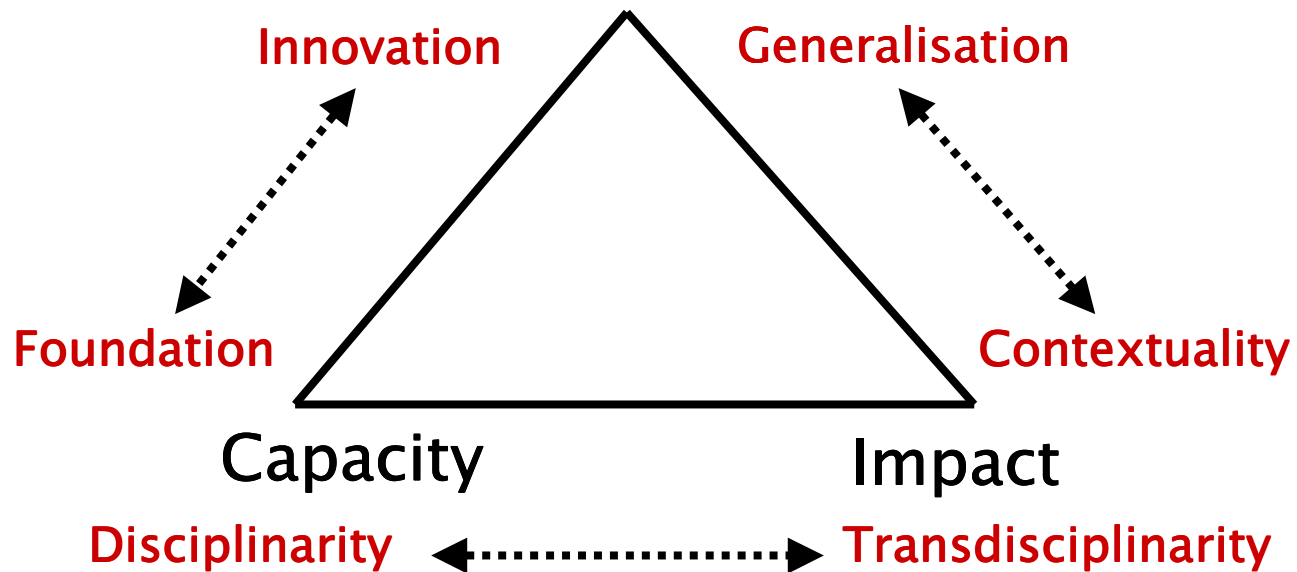
**(1) Decide on the  
objectives together**

**(2) Build on  
mutual trust**

**(11) Build on  
achievements**

System knowledge

Research



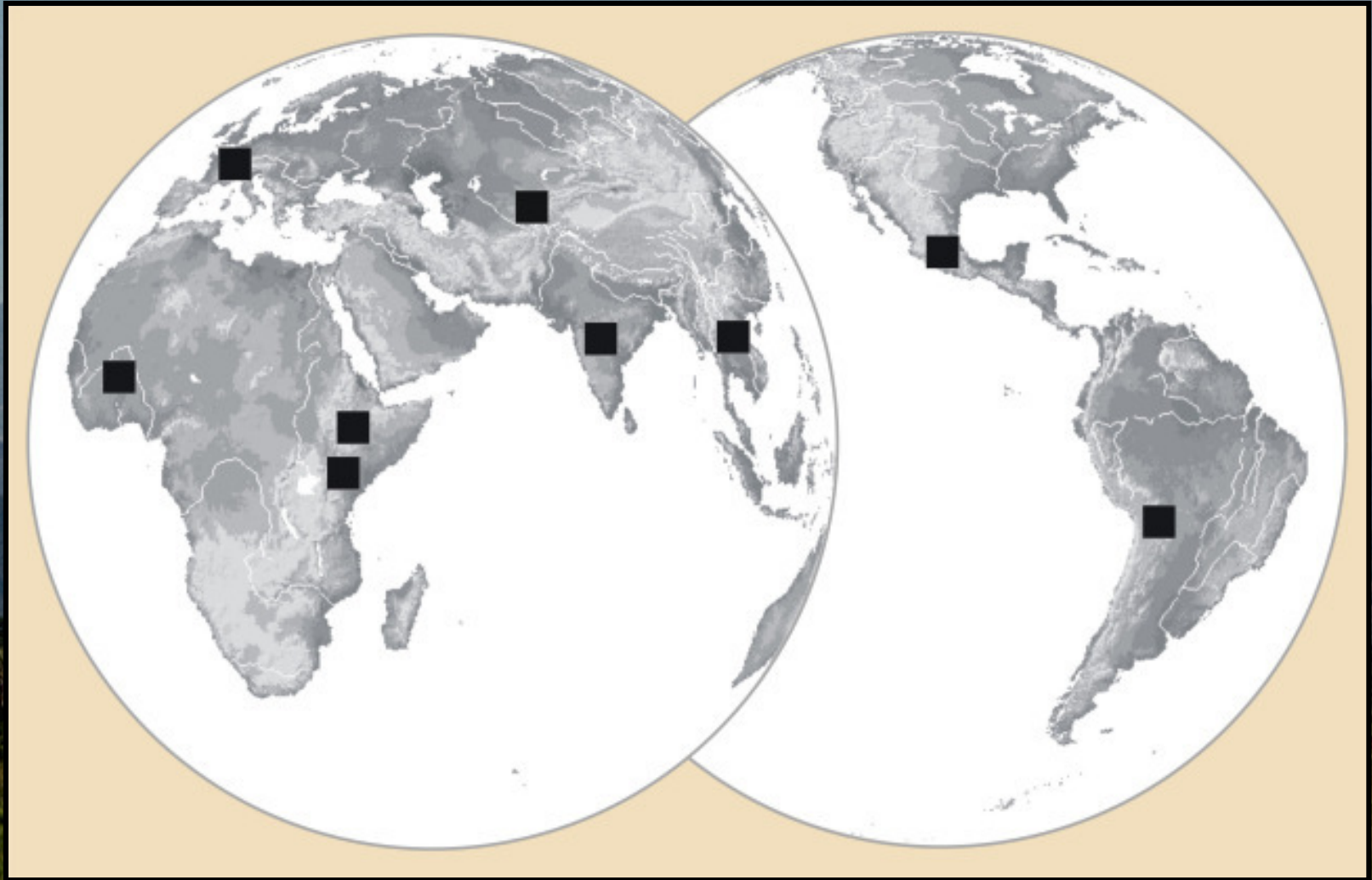
Capacity

Impact

Disciplinarity

Transdisciplinarity

Target & transformation knowledge

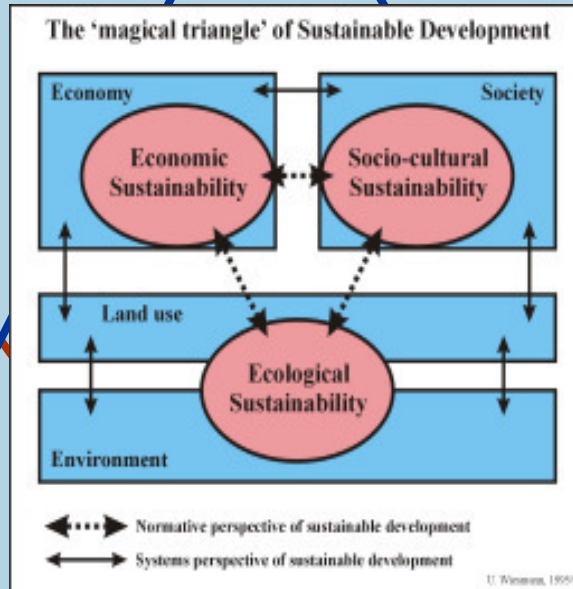




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- 1 Programme:  
**NCCR North-South – Research Partnerships for Mitigating Syndromes of Global Change**
  - 12 Years (2001 to 2013) – 3 Phases
  - 4 Goals (sustainable development)  
*(research, capacity, empowerment, structure)*
  - 7 Institutional core partners in CH
  - 9 Regions (9 core partners & 197 collaborating partners)
  - 4 Thematic core foci  
*(governance, health, livelihoods, natural resources)*
  - 3 Contexts  
*(highland-lowland, semi-arid, urban & peri-urban)*
  - 5 Mio Euro annual budget (SDC + SNF + Self)
  - 200 PhD Projects, 30 PostDoc Projects

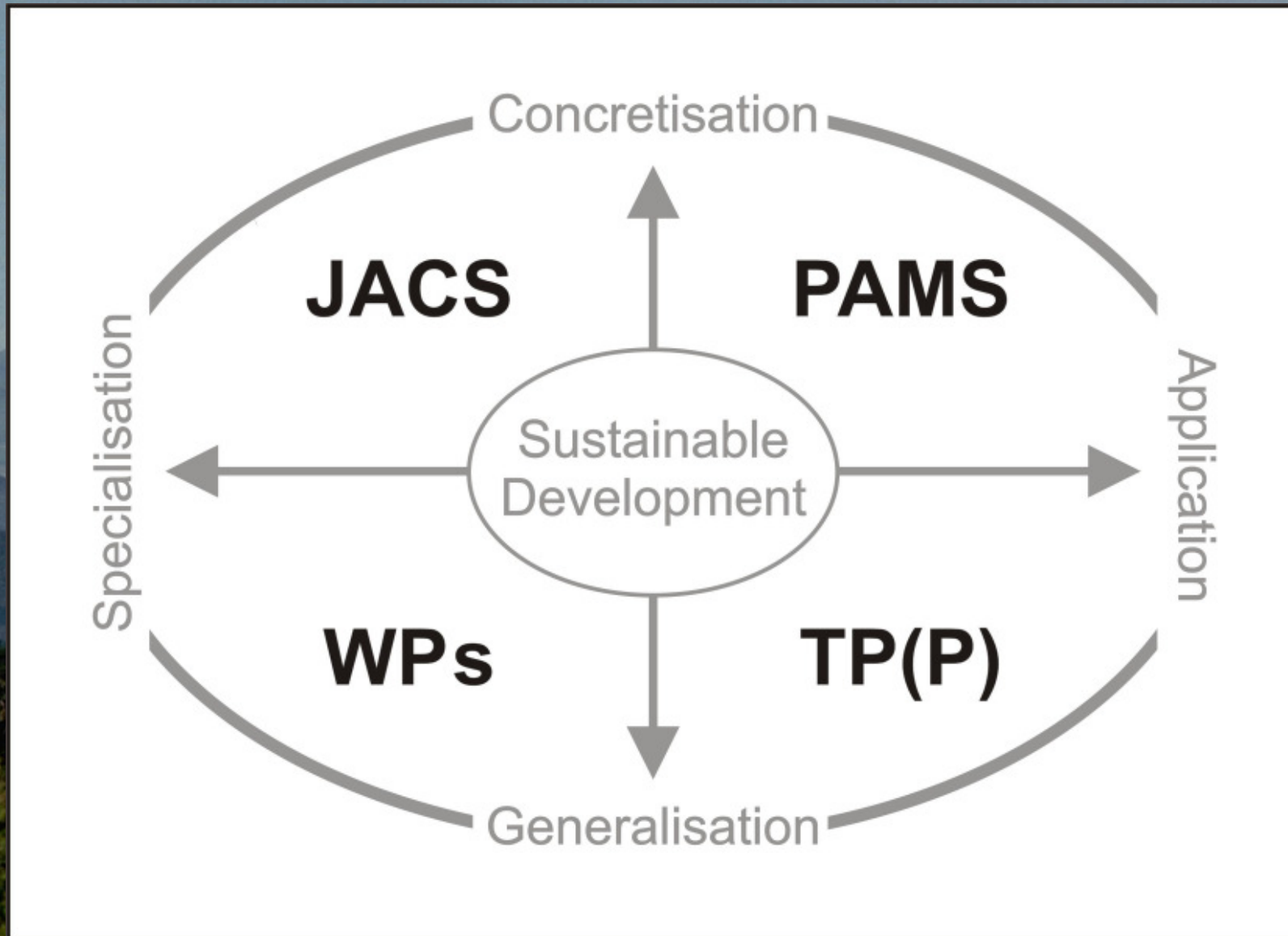
*Complexity in contexts*

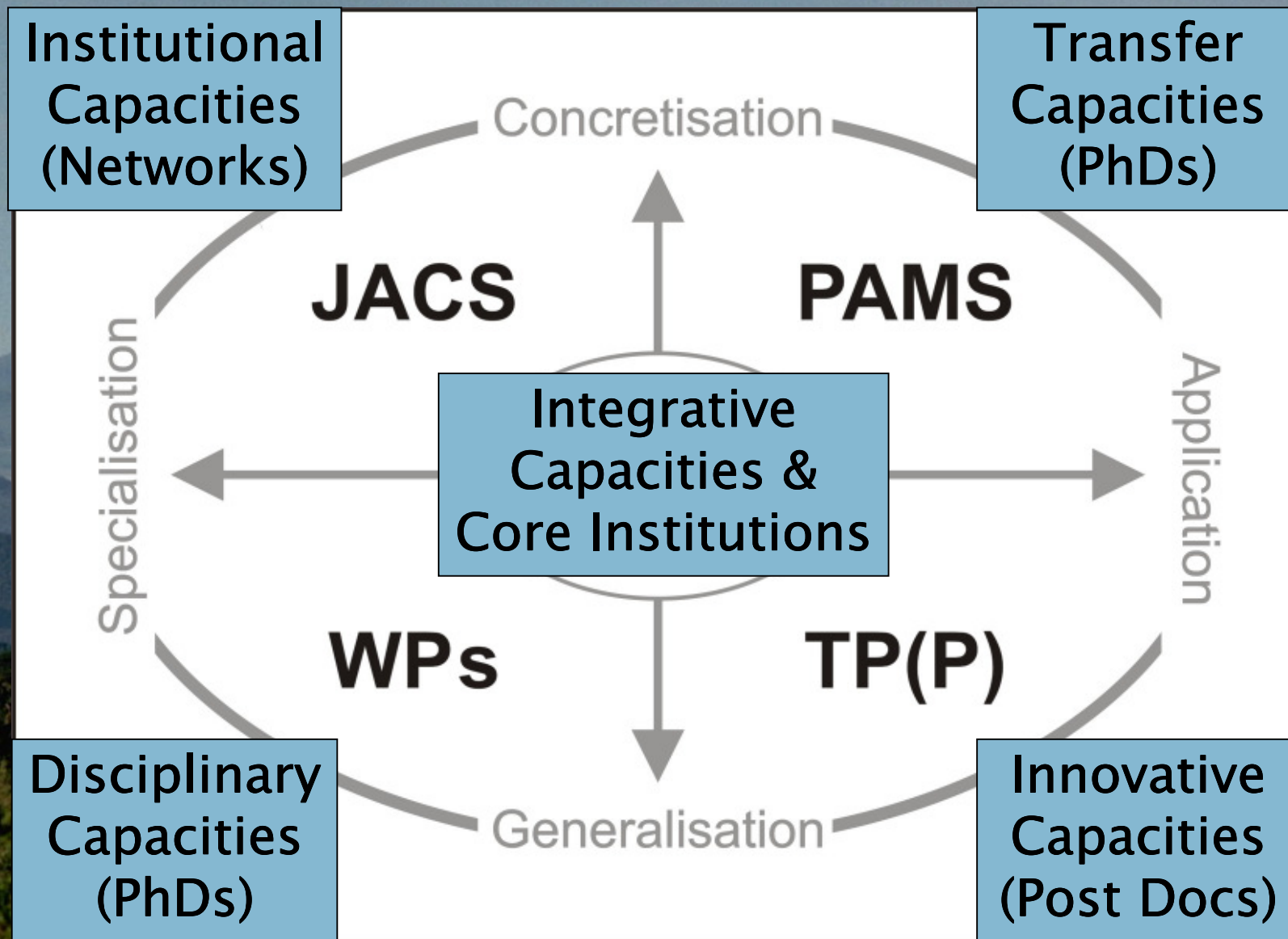
Problems ← Processes → Potentials

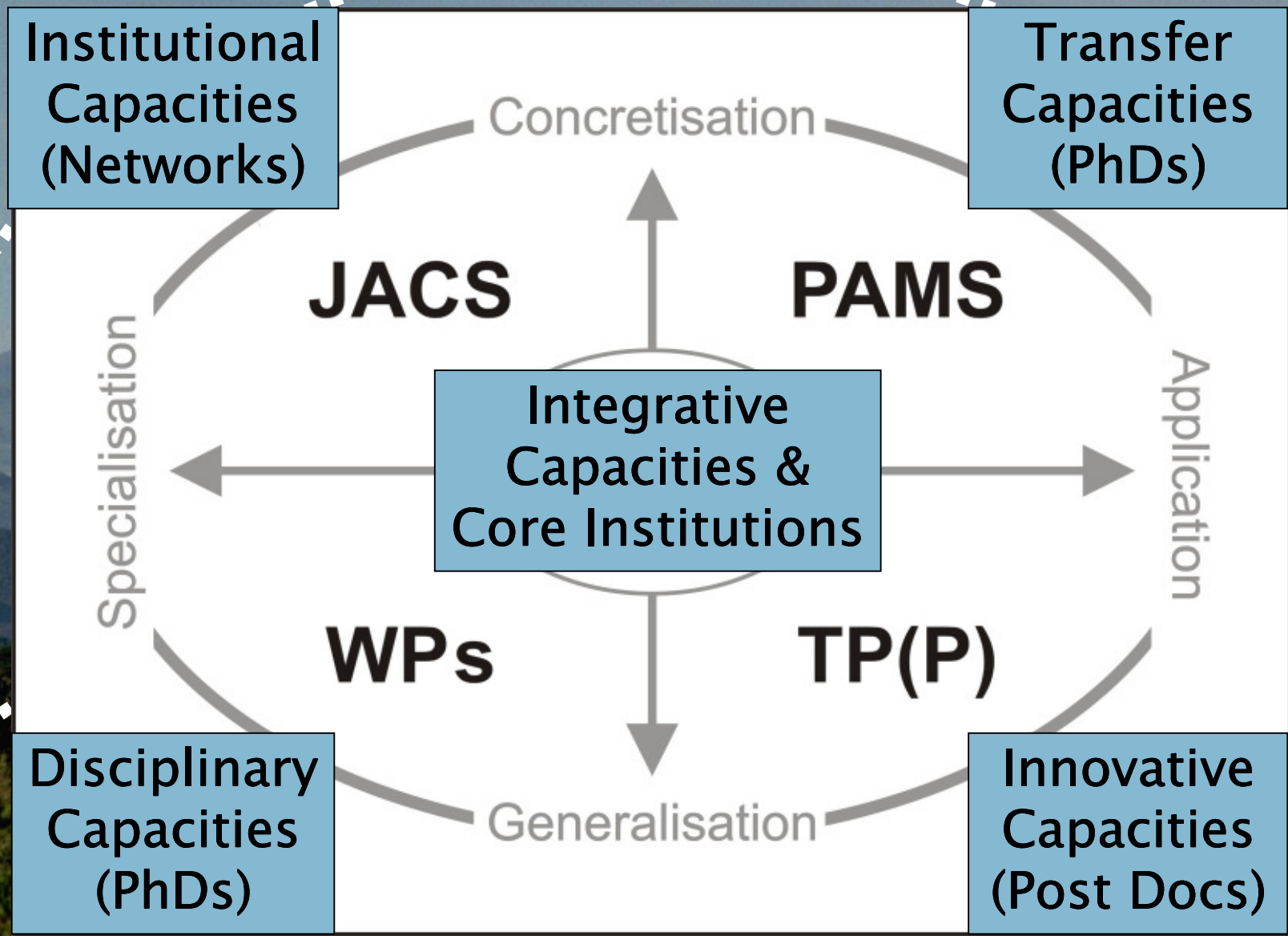


Reach/Validity ← Patterns → (up-)Scaling

*Generalisation beyond contexts*











Thank you

# **Climate Change Adaptation in Africa: UNEP's Role and Engagement**

**Workshop - Adaptation to Climate Change: Strengthening  
capacities in Africa  
26-27 November, 2008  
Bonn, Germany**

**Dr. Musonda Mumba  
Climate Change Adaptation Unit, UNEP**





# Outline

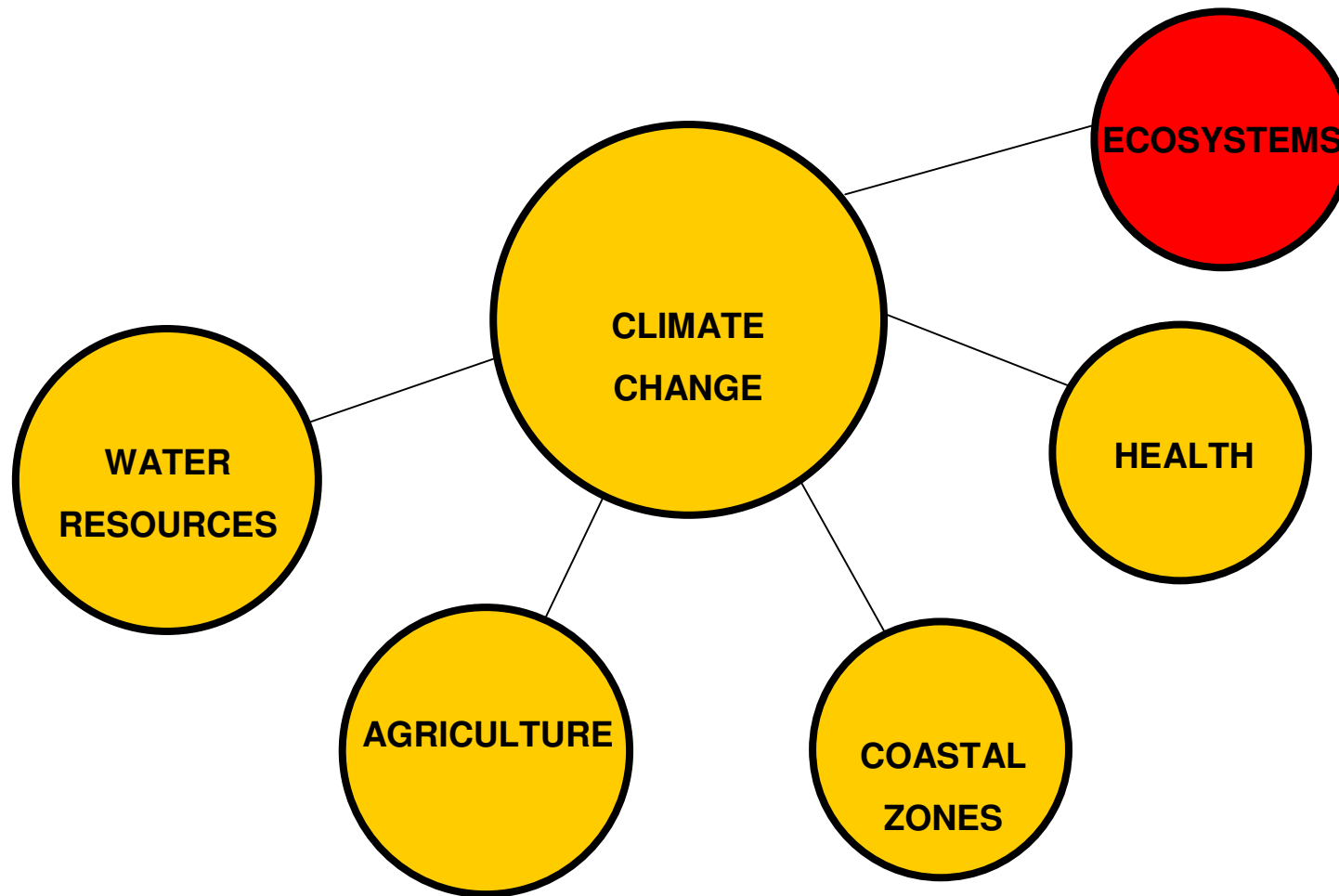
1. Climate Change in Africa:  
Impacts, vulnerabilities and adaptation
2. UNEP's work on climate change adaptation
3. UNEP's role on adaptation in Africa



# 1. Climate Change in Africa: Impacts, vulnerabilities and adaptation

- Africa is one of the **most vulnerable** continents to climate change;
- Africa already under pressure from climate stresses;
- Africa's vulnerability is increased by climate-dependency of major economic sectors and by existing development challenges.

# 1. Climate Change in Africa: Impacts, vulnerabilities and adaptation



# 1. Climate Change in Africa: Impacts, vulnerabilities and adaptation

- **Challenges:**

- 1. Development undermined;
- 2. Increased Poverty;
- 3. Delay/prevent achievement of MDGs.



- Importance of timely and adequate action to help countries and communities to better deal with impacts: **ADAPTATION**

# 1. Climate Change in Africa: Impacts, vulnerabilities and adaptation

Identified key needs and opportunities for adaptation:

- Proactive vs reactive strategies
- Building institutional capacity
- Training for adaptation practitioners
- Education and awareness-raising
- **Research and linking it to policy-making**
- **Involving local communities**
- Local institutional arrangements
- Implementing pilot actions
- Addressing multiple environmental stresses

# Outline

1. Climate Change in Africa:  
Impacts, vulnerabilities and adaptation
2. UNEP's work on climate change adaptation
3. UNEP's role on adaptation in Africa



## 2. UNEP's work on climate change adaptation

Climate change one of the **6 priorities** of UNEP work up to 2013: scaling up of activities:

UNEP Climate Change Strategy: **4 themes**

**Mitigation**

**Adaptation**

**Science**

**Communication**

## 2. UNEP's work on climate change adaptation

- **Adaptation:**

“Meeting the needs of vulnerable countries for environment protection and economic development”

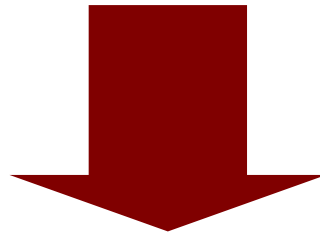
**Key pillars** identified for UNEP's adaptation work:

1. Building key **adaptive capacity** in developing world
2. Increasing **ecosystem resilience** and reducing the **risk** of climate-related disasters and conflicts
3. **Mobilizing** and **managing** knowledge for adaptation policy and planning



## 2. UNEP's work on climate change adaptation

Programme of Work **2010-2011**:



Adaptation planning, financing and cost-effective preventative actions are increasingly incorporate into national development processes that are supported by scientific information, integrated climate impact assessments and local climate data

# Outline

1. Climate Change in Africa:  
Impacts, vulnerabilities and adaptation
2. UNEP's work on climate change adaptation
3. **UNEP's role on adaptation in Africa**



### 3. UNEP's role on adaptation in Africa

Past and ongoing activities (**examples**):

- Supporting development of **NAPAs** in 13 LDC's- (Least Developed Countries) in Africa and NAPA follow-up projects;
- **AIACC – Assessments of Impacts & Adaptation to Climate Change**: 11 regional studies in Africa, 2<sup>nd</sup> phase under development;
- Assessing **economic costs** of adaptation.

### 3. UNEP's role on adaptation in Africa

Past and ongoing activities (cont):

- **CC-DARE (Climate Change & Development – Adapting by Reducing Vulnerability) joint UNDP/UNEP programme:** Integration of adaptation into development planning in Sub-Saharan Africa;
- Support to **policy processes**: e.g. for the establishment of a common African negotiating position for UNFCCC processes;
- Country projects.

### 3. UNEP's role on adaptation in Africa

#### Planned activities:

- Regional Climate change Adaptation **Network**;
- Adapting to climate-induced **water stresses** for **disaster** and **conflict prevention**;
- Adapting to **sea level rise**;
- **Climate proofing** land use planning: food and ecosystem security.



### **3. UNEP's role on adaptation in Africa**

#### **Global Climate Change Adaptation Network**

- For fundamentally enhancing key adaptive capacities in developing countries;
- Meeting increasing needs for data, knowledge, technology and policy support;
- Interlinked ground facilities, regional centers and international technical support group, building on existing facilities;
- **Regional Network in Africa (19-20 Jan, 2009).**

### 3. UNEP's role on adaptation in Africa

#### Adapting to climate-induced water stresses

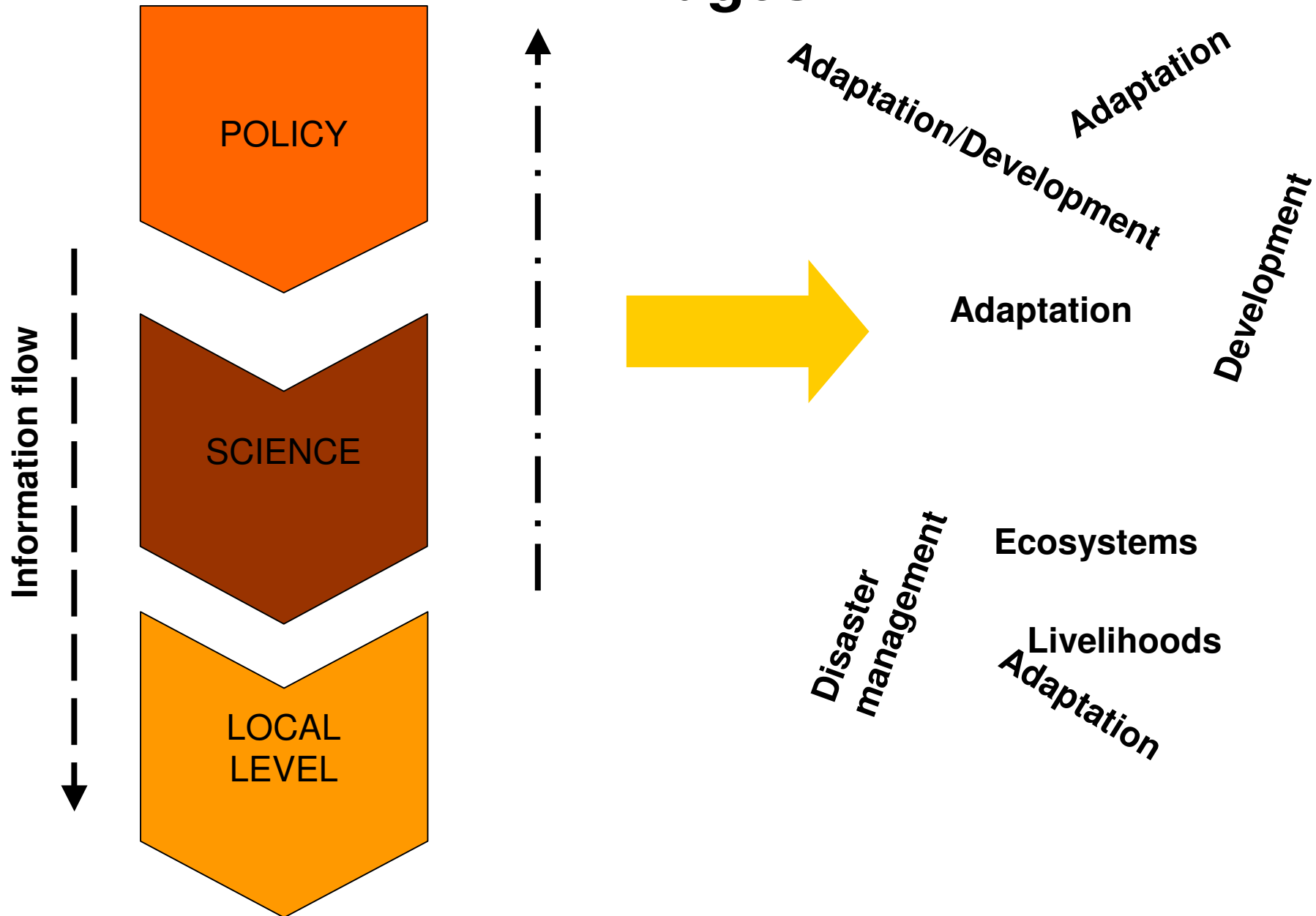
Minimizing the stresses of water scarcity and floods through:

- **Scenario analysis** - Assessment of water-determined carrying capacity in Africa;
- Designing and piloting adaptation actions:
  - **Technological** and **financial** interventions
  - Options for **conflict prevention** and **disaster reduction**

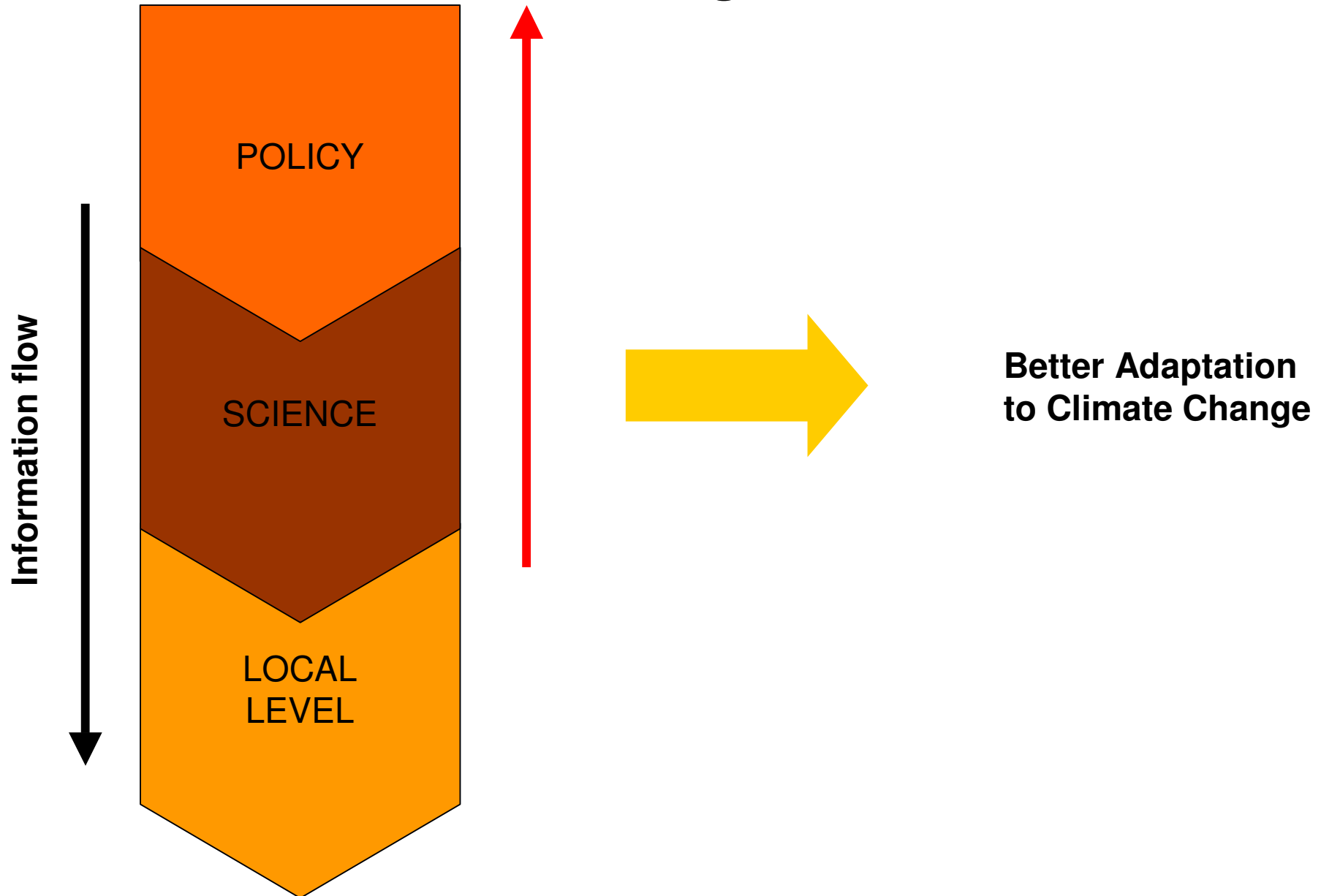
Where do we go from here?



# The current disconnect – Macro & Micro Linkages



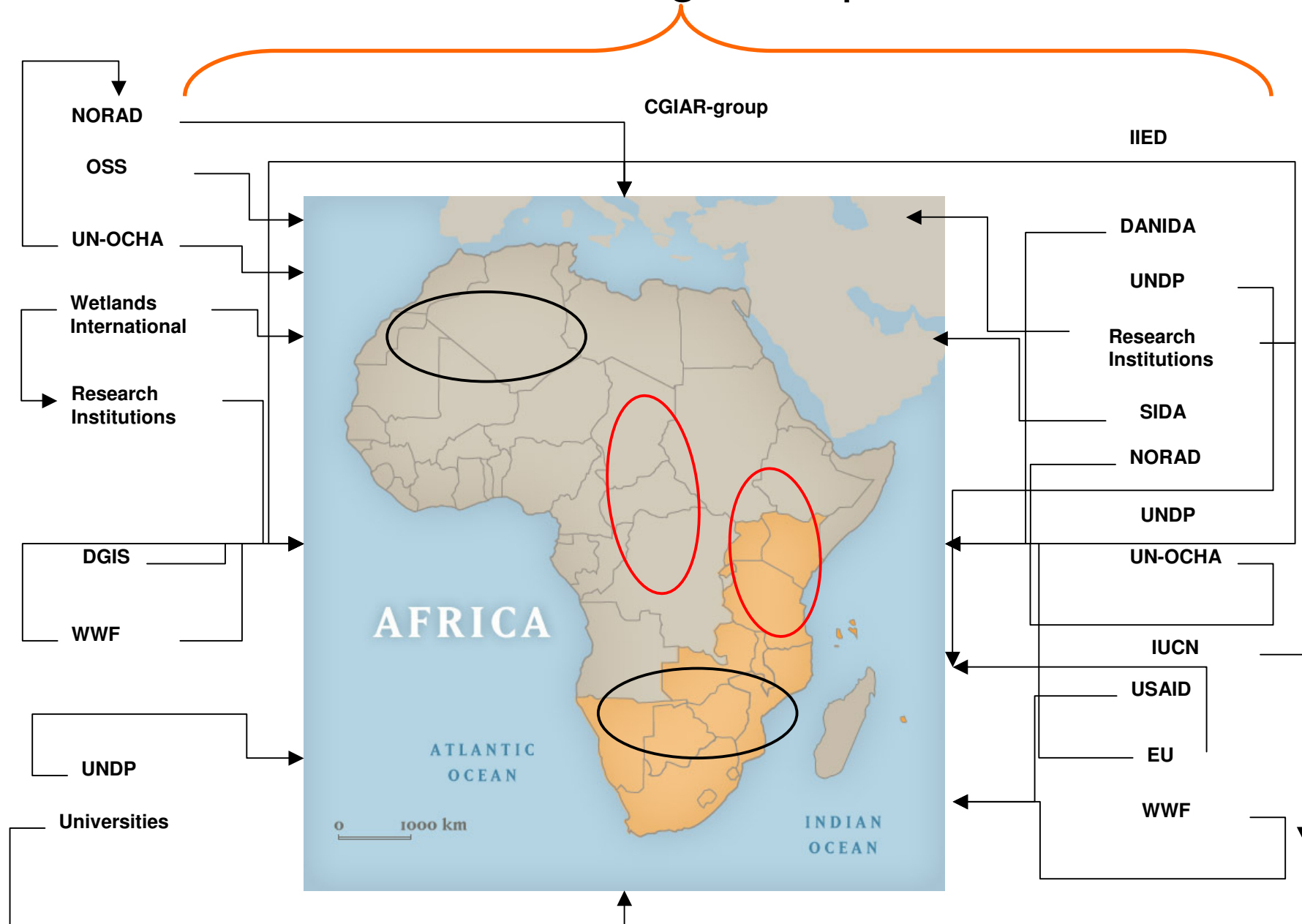
# The ideal connections – Macro & Micro Linkages



# Adaptation initiatives in Africa – “The Noise”



# The Africa Climate Change Adaptation Network



**Hard nuts**

**Communicating  
climate change**

**New problem  
old problem**

**Rethinking  
development**

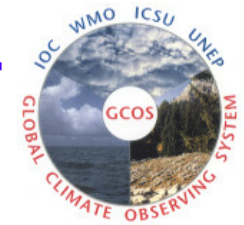
**Adaptation Vs/ &  
Development**

**Mainstreaming OR  
Integration?**

**?**

**Thank You....Danke**





**Adaptation to Climate Change: Strengthening Capacities in Africa**

**German Development Institute / Stockholm Environment Institute**

**Bonn, Germany**

**26-27 November 2008**

**GCOS Activities in Africa**

# **GCOS Capacity Building in Africa for Data Observation and Management**

**Dr. William Westermeyer  
GCOS Secretariat**



WMO



of UNESCO



UNEP



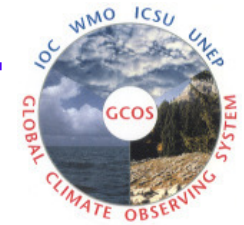
ICSU



## The GCOS Mission

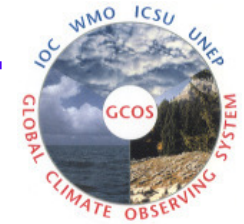
- ⇒ To ensure the availability and quality of the atmospheric, oceanic and terrestrial and related earth observations needed for monitoring, understanding, predicting and protecting the global climate system
- ⇒ ...and for assisting communities and nations to live successfully with natural climate variability and human-induced climate change
- ⇒ *Requires long-term, high-quality, sustainable, reliable, observations at global (and increasingly at regional and national levels)*





## The GCOS Strategy

- **Identify observational requirements for climate applications**
  - SC, Science Panels (AOPC, OOPC, TOPC), partners, sponsors
  - Identify networks/systems needed to meet requirements
- **Build on existing systems to the extent possible**
  - Work with partners to implement systems to GCOS standards: other observing systems, sponsors, EUMETSAT, CGMS, CEOS, GEOSS...
- **Engage intergovernmental, regional and national bodies**
  - UNFCCC/COP on 'systematic observation' requirements
  - National and regional entities to address deficiencies
  - Regional Workshops
  - Capacity building
- **Resource mobilization**
  - Seek multi-governmental funding, national support
  - GCOS Cooperation Mechanism



## GCOS Regional Workshop Programme

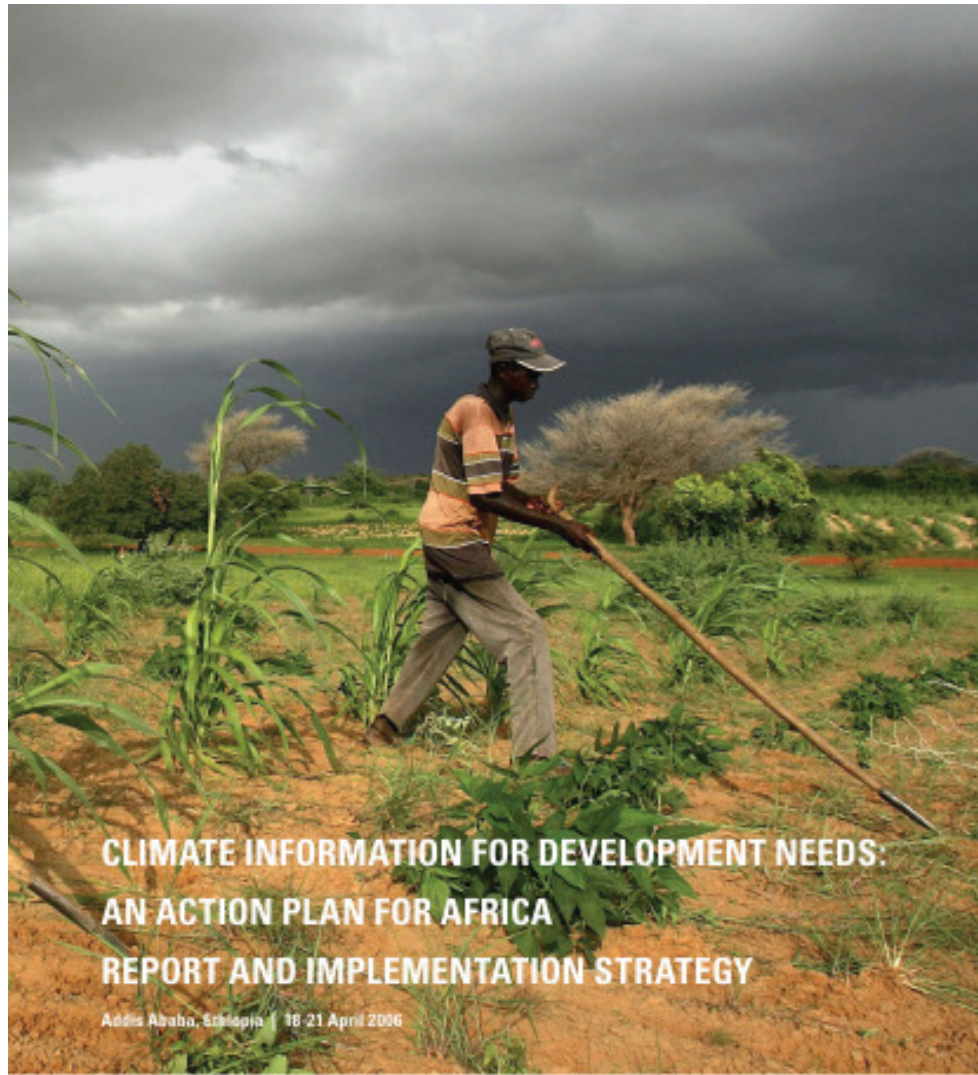
*“....to identify the priority capacity-building needs related to participation in systematic observation....”*

- **Goals of the Regional Workshop Programme**
  - National reporting on systematic observation to UN Framework Convention on Climate Change
  - Identify regional and national needs and priorities for climate data, e.g., GCOS Baseline Networks
  - Develop Regional Action Plans for improving observing systems
  - Address resource mobilization issues
- **Africa Regional Workshops**
  - Eastern and Southern Africa: Nairobi 2002
  - Western and Central Africa: Niamey 2003
  - Mediterranean Basin: Marrakech 2005
  - Regional Action Plans



## GCOS Africa Regional Action Plans Actions Addressed

- **Observation Improvements**
  - Surface Temperature/Rainfall, Upper Air, Ocean Measurements, Sea Level Rise
  - Greenhouse Gases, Carbon Sources/Sinks, River/Lake/Glacier Monitoring
- **Information Availability**
  - Data Rescue
  - Telecommunications
- **Climate Applications**
  - Health Sector
  - Agriculture
  - Water Resources Management
  - Disaster Prevention & Mitigation



**CLIMATE INFORMATION FOR DEVELOPMENT NEEDS:  
AN ACTION PLAN FOR AFRICA  
REPORT AND IMPLEMENTATION STRATEGY**

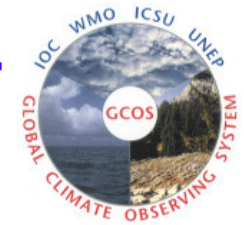
Addis Ababa, Ethiopia | 16-21 April 2006

A joint initiative of the:  
**Global Climate Observing System | UN Economic Commission for Africa | African Union Commission**



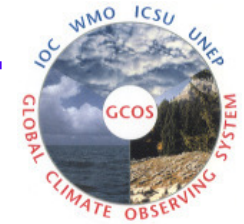
With the support and contributions of:  
**UK Department for International Development | UN Development Programme | Global Environment Facility | International Research Institute for Climate and Society**





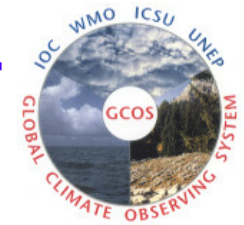
## Climate for Development in Africa Programme (ClimDev Africa)

- **Overarching goal: Sustainable reduction of poverty and other MDGs in Africa**
- **Goal: Policies and decisions in Africa take full account of climate change risks and opportunities at all levels—regional, subregional, national, local, community, and individual**
- **Programme purpose: To strengthen the institutional capacities of national and subregional bodies to make effective climate-sensitive policy**



## Some History of ClimDev Africa

- **UNFCCC Decision 5/CP.5 (Nov 1999): GCOS invited to organize a Regional Workshop Programme to address observing system needs related to climate**
- **Regional Workshops in Africa: Eastern & Southern Africa, Western & Central Africa, Mediterranean Basin**
- **Regional Action Plans developed**
- **Donor interest develops as important link between climate and development is recognized**
- **Need for observations in support of development goals leads to call for an integrated programme to manage climate risks**



## Important Considerations in Developing ClimDev Africa

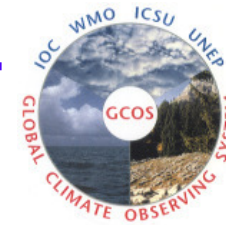
- Good observations and climate services fundamental for climate risk mgmt and thus to adaptation and to achieving the MDGs
- But climate observing networks weak and/or deteriorating in Africa
- Also, climate and environmental data are not well used locally in Africa
- Improved communication of climate info needed at all levels, from govt ministers to farmers in the field
- Programme should be user-driven and owned and implemented by Africa



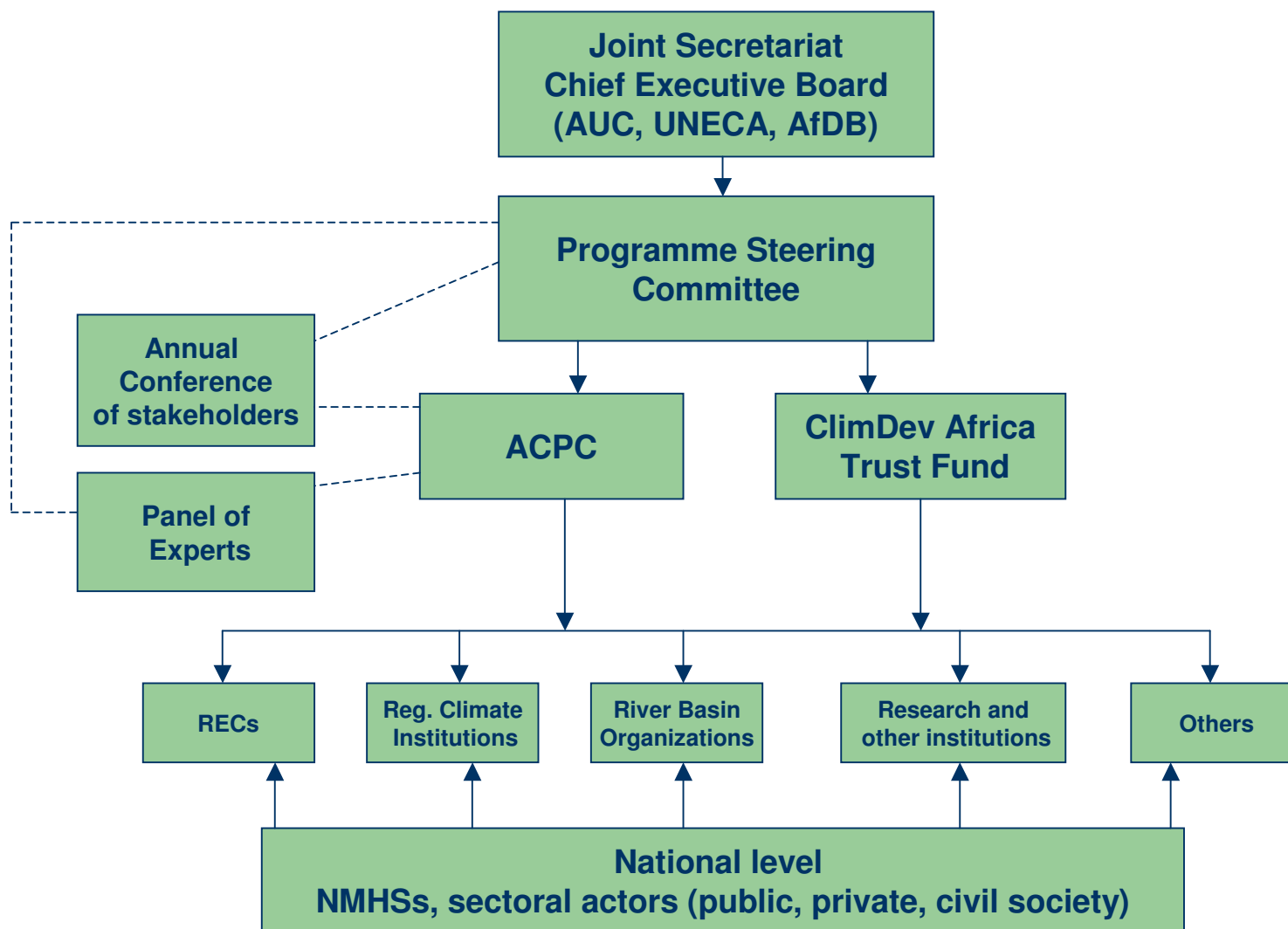
## Three Broad “Result Areas”

- **Widely available climate information, packaging, and dissemination**
  - e.g., improved observing networks
  - rescue of historical data
  - Seasonal forecasting, long-term climate projections
- **Quality analysis for decision support**
  - e.g., capacity building
  - Climate risk management
  - risk, vulnerability, and impact analyses
- **Informed decision-making, awareness & advocacy**
  - e.g, knowledge support to policy makers
  - effective communication and outreach





## ClimDev Africa and ACPC Governance Structure





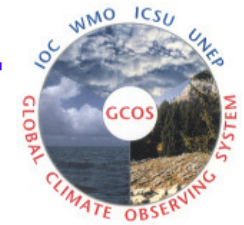
## Partners

- **Joint Secretariat**
  - African Union
  - UN Economic Commission for Africa
  - African Development Bank
- **International**
  - Global Climate Observing System
  - World Meteorological Organization
  - One other UN Agency (to be determined)
- **Donors**
  - One (initially DFID) acting in the interests of
- **Stakeholder representatives**
  - Two to be appointed annually by the Principal partners



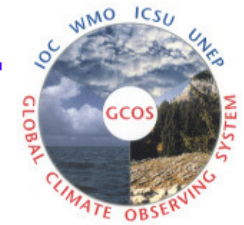
## Some Inception Phase Issues and Activities

- Final approval of Framework Programme Document by Principal Partners and Funding Partners
- Set up Trust Fund and mobilize additional resources
- Establish Secretariat of ACPC
- Hire director, staff for ClimDev
- Hold initial Steering Committee meeting
- Identify criteria for proposals and develop process for submitting and considering proposals
- Select initial projects for implementation
  
- Start-up: early 2009



## Observations in Support of the Design of Effective Adaptation Strategies

- **Reliable and detailed (temporally & spatially) regional climate information, including current and future assessments of climate variability and change, is essential in the design of effective strategies and depends on:**
  - **availability of good quality climate observations with sufficient spatial coverage over long periods**
  - **adequacy of models to depict current and future regional climate**
  - **thorough understanding and appreciation of the uncertainties and constraints associated with the use of both data and regional and global models**
- **GCOS, WCRP, CLPA/WMO proposal addresses these issues**



## A Pilot Project: Climate Observations and Regional Modeling in Support of Climate Risk Management and Sustainable Development

- **Who:** GCOS, WCRP, CLPA/WMO, ICPAC
- **Where:** Greater Horn of Africa
- **With funding from:** World Bank
- **Other Partners:** Hadley Centre, NCDC
- **Objectives of 3-workshop programme:**
  - Ensure attention given by countries in Eastern Africa to observation and data needs
  - Demonstrate the use and value of regional models
  - Provide advice on model limitations
  - Improve regional capabilities for using data records and model projections for adaptation planning
- **An initial planning workshop would convene experts to plan detailed implementation of the programme**



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للتربية والعلم والثقافة

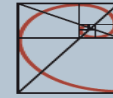
联合国教育、  
科学及文化组织

d.i.e

Deutsches Institut für  
Entwicklungspolitik



German Development  
Institute



SEI

STOCKHOLM  
ENVIRONMENT  
INSTITUTE

## Workshop

# Adaptation to Climate Change: Strengthening Capacities in Africa

Bonn  
26 – 27  
November  
2008

Building  
on existing  
research structures  
for research on adaptation  
to climate change in Africa

Peter Dogné  
Manager

UNESCO Intersectoral Platform on Climate Change  
Division of Ecological and Earth Sciences  
UNESCO



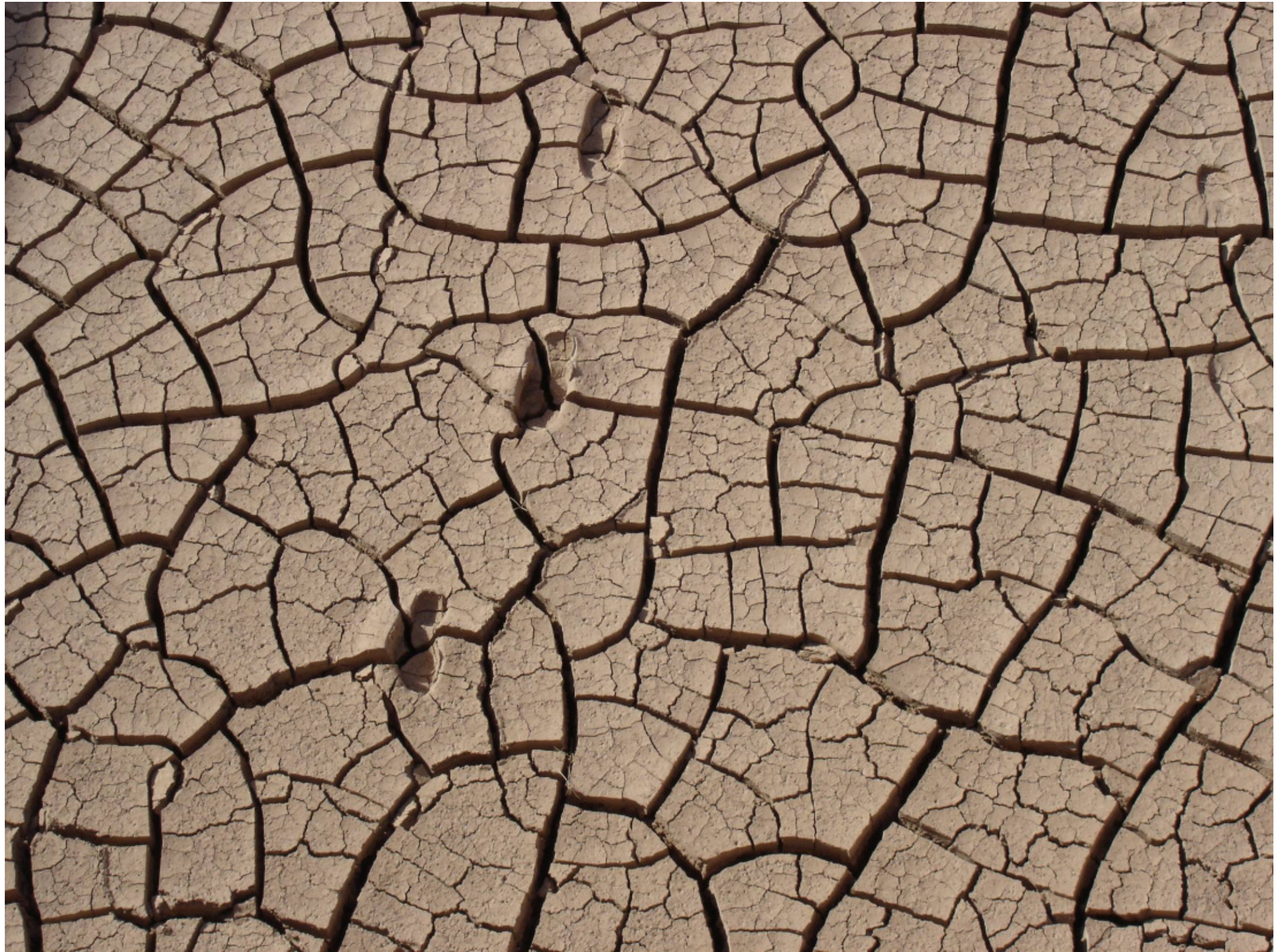
- The science is clear: the warming of the earth's climate is unequivocal and attributable to human activities.
- Impacts of climate change are already being felt
- Economic assessments indicate that the cost of inaction will exceed the cost of taking early action

*Source: UN Secretary-General's Policy Committee Meeting on Climate Change*

# Climate Change & Africa

- 
- 
- Current climate models and knowledge predict that climate change will adversely affect Africa disproportionately
- 
-







- 
- 
- **UNESCO supports the concept of Centres in Africa dedicated to Climate Change Adaptation as important tools to help the continent meet these challenges**

# Generic comments on the concept of African research centres on climate change adaptation

- **Centres need to:**
- Promote multidisciplinary
- Provide accurate information
- Engage nationally/regionally respected scientists as advocates
- Seek to understand and use the indigenous knowledge base

# Generic comments on the concept of African research centres on climate change adaptation

- **Centres need to:**
- Draw as appropriate on existing national structures (management, operational, research, academic) with good visibility & infrastructure to serve as starts
- Be empowered from highest level, to access national data, information and traditional knowledge on long-term climate, historical environmental, population & migration patterns
- If of a regional nature, muster broad regional political support



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# SCIENCE in Africa

UNESCO'S CONTRIBUTION TO AFRICA'S PLAN FOR SCIENCE AND TECHNOLOGY TO 2010



- 
- The Consolidated Plan of Action (CPA) consists of three inter linked pillars:
  - capacity building
  - knowledge production
  - technological innovation
-



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Scientific and Cultural Organization

NATURAL SCIENCES

# African Science Technology and Innovation Policy Initiative ASTIPI

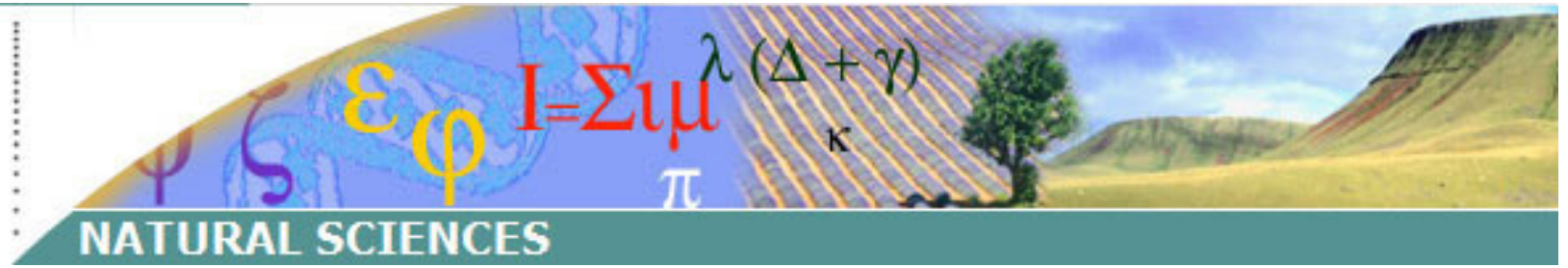
## Objectives:

- Review / formulate national STI policies for those African countries lacking STI policies
- STI Policy Specialists trained
- ASTIPI post graduate course designed and implemented



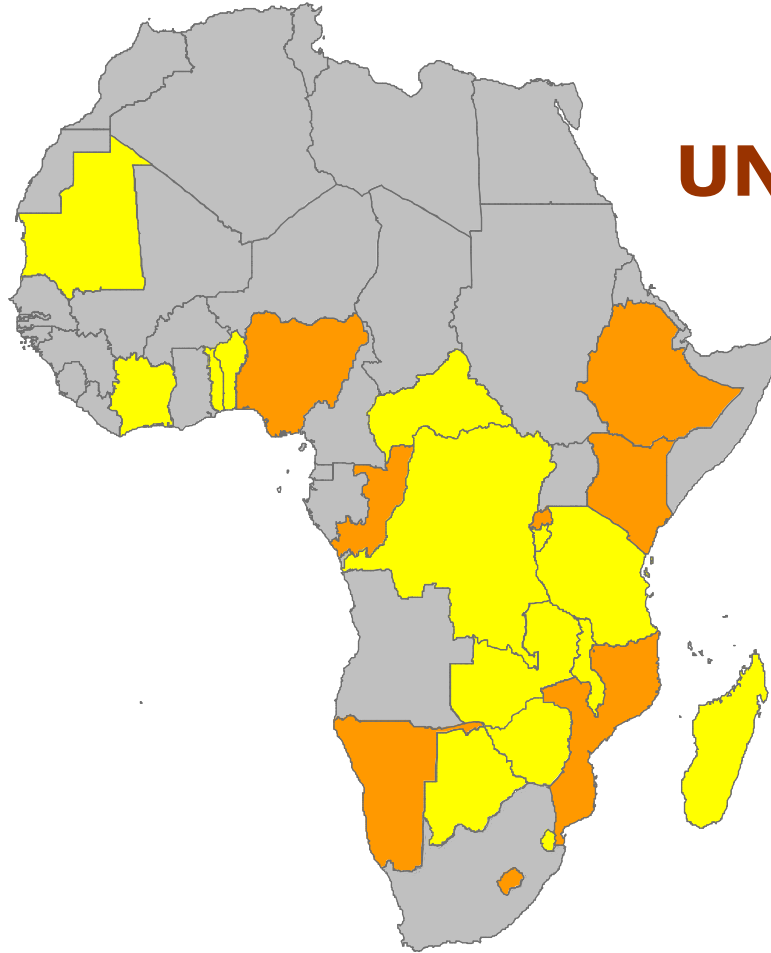


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NATURAL SCIENCES

## Current status of UNESCO STI policy review in Africa



- STI Policies formulated
- STI Policy Reviews 2008-2009

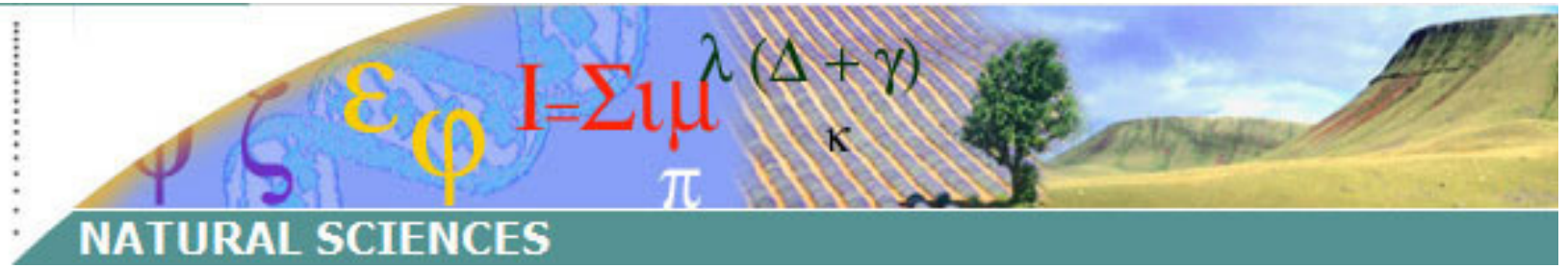
# UNESCO International Review of S&T Statistics and Indicators UIS + AU/NEPAD

## Objectives:

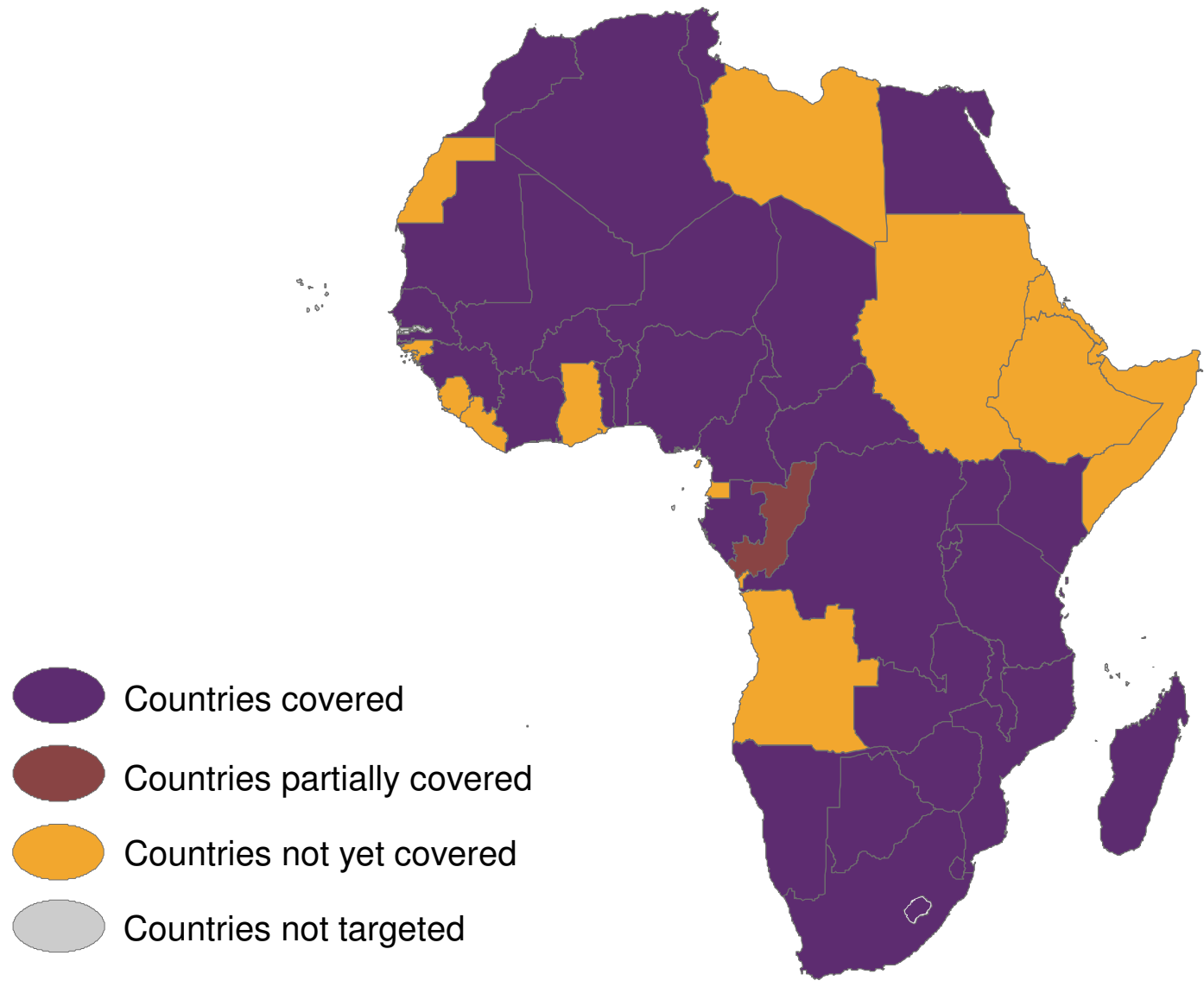
- review priority science policy information needs
- examine existing S&T statistical and indicator systems, build institutional capacities
- promote adaptation and adoption of internationally compatible policy relevant STI indicators and methodologies
- develop an African network for STI indicators.



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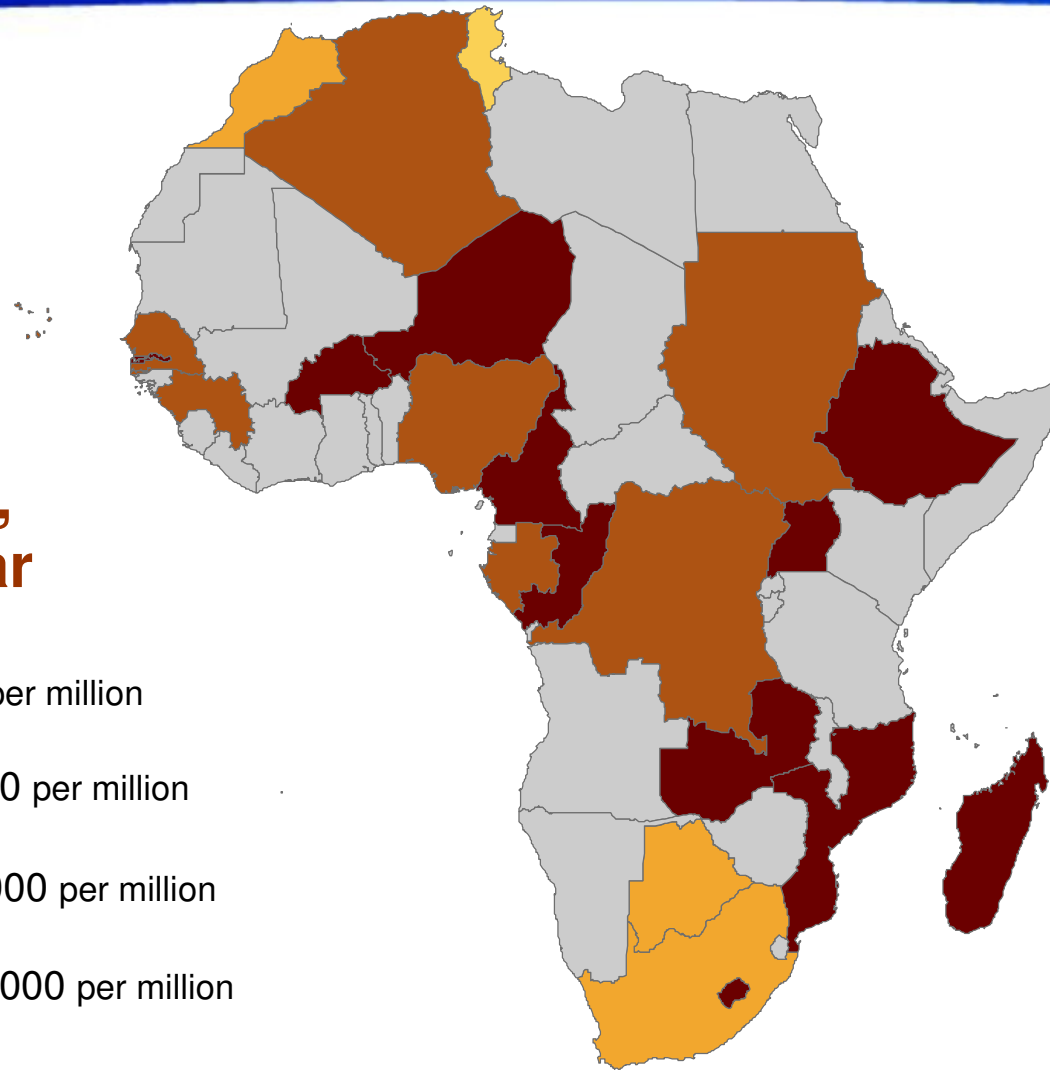
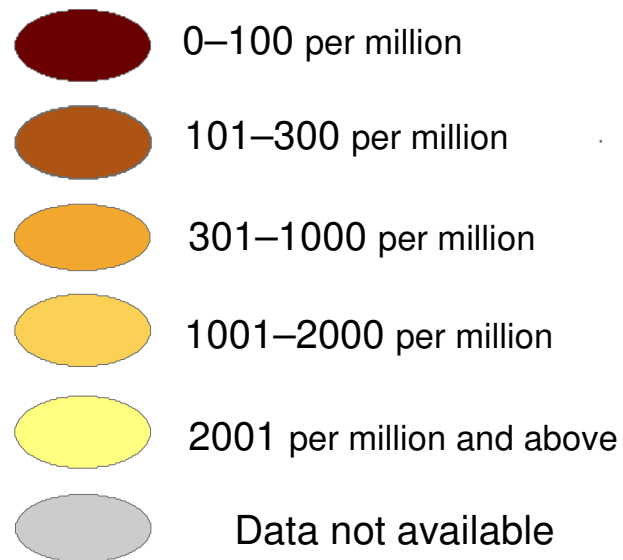
# NATURAL SCIENCES



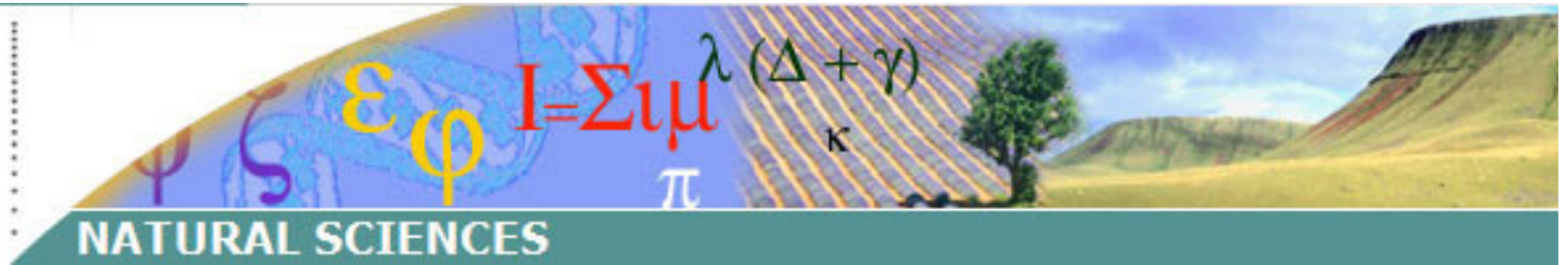
Countries  
that have  
participated  
in S&T  
Statistics  
workshops  
2005-2007

# How many researchers are there?

## Researchers per million inhabitants, latest available year



Source: UNESCO Institute of Statistics (UIS),  
September 2007



# African STI Observatory

## UNESCO-UIS-AUC/NEPAD

- Performance of institutions and R&D activities
- Map Africa wide STI capacity
  - Produce basic indicators
  - Human resources
  - Funding
  - Patents
  - Publications
  - Research institutions

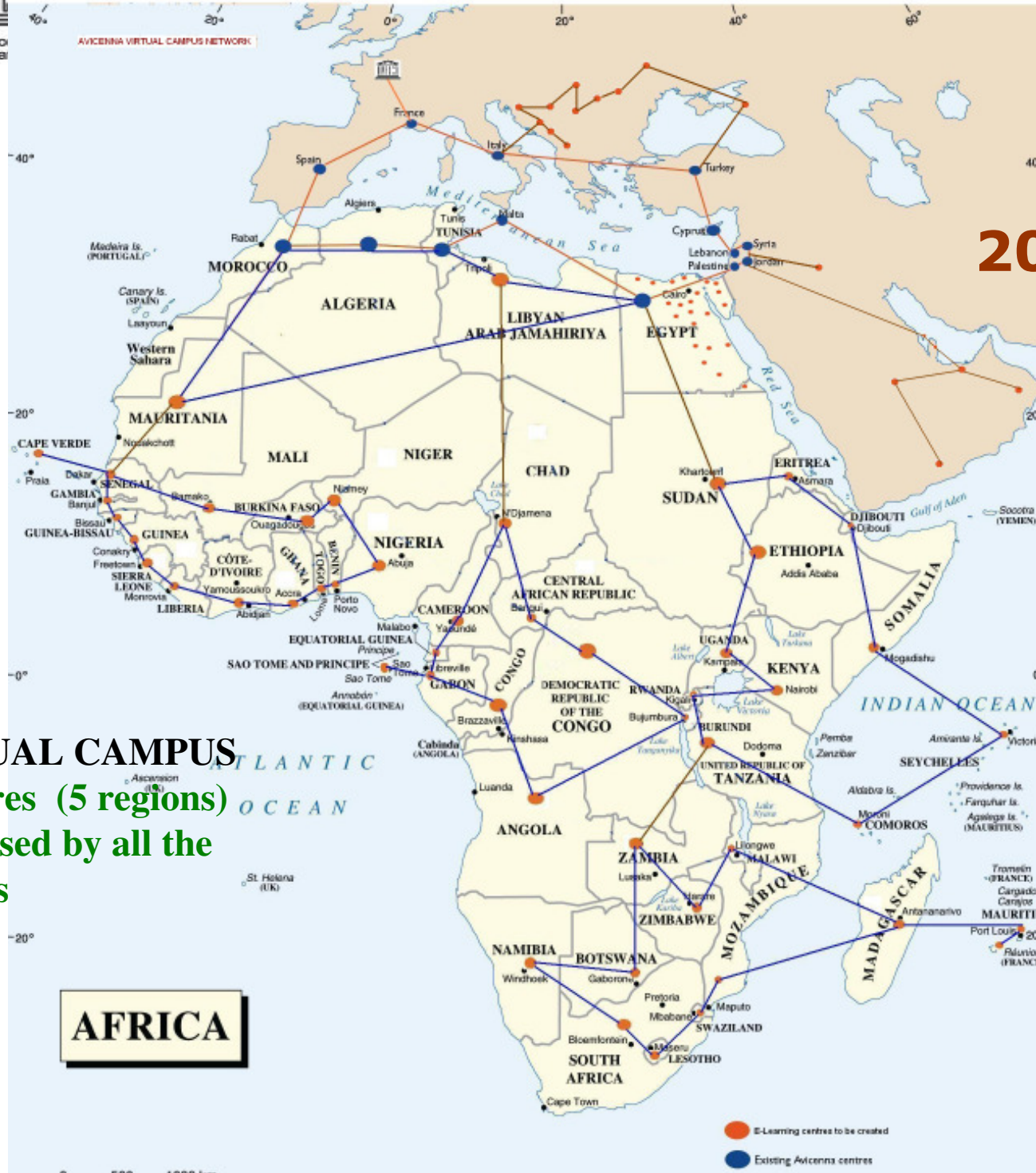
# The African Virtual Campus

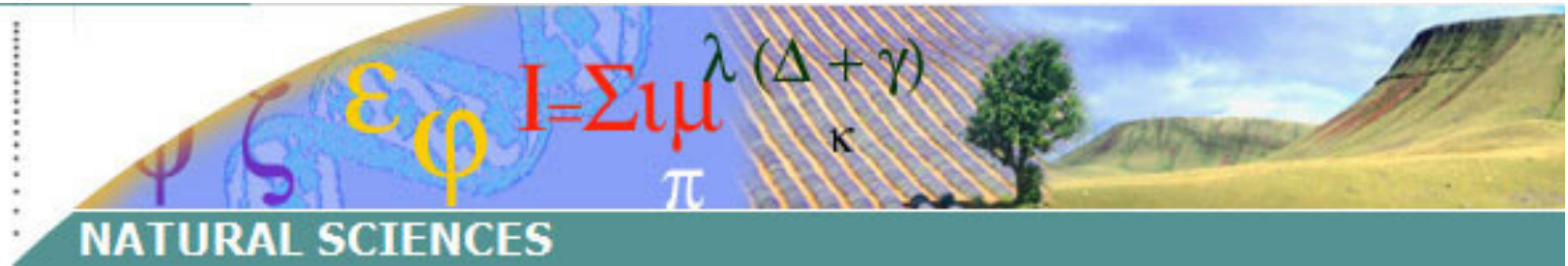
- Contribute to building the capacities of the African States in ICT, science and technology
- Teachers trained in science, engineering and technology through e-learning
- Promoting technical and Vocational Education & Training
- Training of the human resources (middle / senior management)
- Teacher training in the secondary and primary levels
- Access to ICT infrastructure
- Adult learning, distance learning



2008-2013

**AFRICAN VIRTUAL CAMPUS**  
 - 54 Avicenna centres (5 regions)  
 - Network will be used by all the African universities





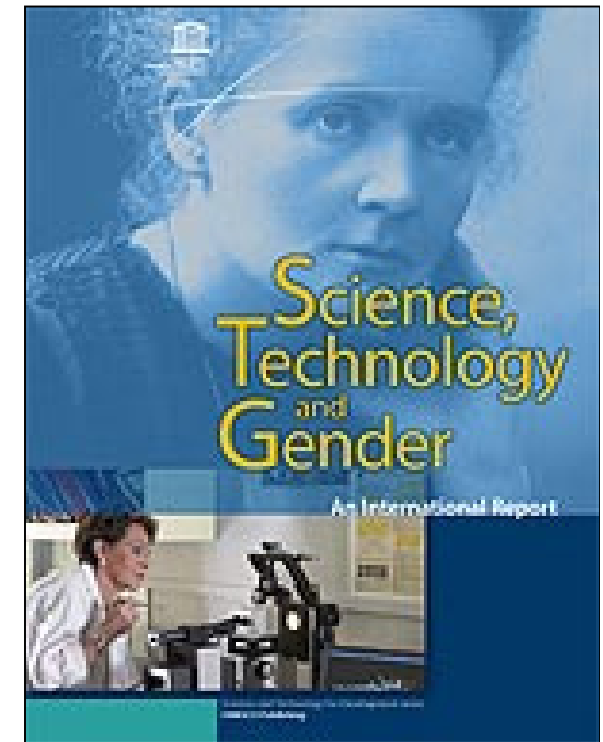
# Women in Science

UNESCO will cooperate with AUC in the development of the Pan-African Association of African Women in Science and Technology (AAWOST)

UNESCO Chair "Eau, Femmes et pouvoir de décisions", Centre Ivoirien de Recherche Economique et Sociale (CIRES), Abidjan

UNESCO Chair "Water, Women and Decision-making", University Al Akhawayn, Ifrane, Morocco

**International  
Report on S.T.  
and Gender 2007**





*“As the principal agency in the UN system with a mandate for the promotion of science and technology, as well as the designated lead agency in the UN for the NEPAD Science and Technology Cluster, it is incumbent upon UNESCO to be proactive in catalyzing the engagement of other agencies in the implementation of NEPAD’s Science and Technology Consolidated Plan of Action. Our efforts are intended to ensure coherent approaches by all agencies and to maximize synergies between the UN as a whole and NEPAD in implementing the CPA”.*

Extract of address delivered by Mr Walter Erdelen, Assistant Director-General for Natural Sciences, (UNESCO) at the Third African Ministerial Conference on Science and Technology for Development (AMCOST III), Mombasa, 15 November 2007.

# UNESCO Field Offices in Africa



Abuja  
Accra  
Addis Ababa  
Bamako  
Brazzaville  
Bujumbura  
Dakar  
Dar es-Salaam  
Harare  
Kinshasa  
Libreville  
Maputo  
Nairobi  
Windhoek  
Yaoundé

- 
- Climate is not a separate programme of UNESCO, but climate is addressed through many activities of UNESCO's key programme areas
-

## Research/Assessments

World Climate Research Programme WCRP

World Water Assessment Programme WWAP

GRAPHIC Groundwater Resources Assessment

Quo Vadis Aquifers?

Ecohydrology

Worldwide Hydrogeological Mapping and Assessments

Hydrology for Environment, Life and Policy

Flow regimes / experimental and network data

Global Coral Reef / Research and Capacity-building

Global Ocean Ecosystem Dynamics

The Ocean in a High-CO<sub>2</sub> World

Climate Change and evidence in the Geological Record

Earth System Physics Climate Research (ICTP)

## Adaptation

Decade of Education for Sustainable Development

Groundwater/Emergency situations

Water Programme for Environmental Sustainability

Integrated Urban Water Modelling and Management

Water and Development Information for Arid Lands

Sustainable Management of Marginal Drylands

Global Change in Mountain Regions

Adaptation to Climate and Coastal Change/West Africa

Climate Impacts on Coastal Biodiversity and Ecosystems

World Heritage and Climate Change

World Network of Biosphere Reserves

International Year of Planet Earth

Natural Disaster Reduction Programme

Village-level Documentation and Transmission of Local Environmental Knowledge

Indigenous People in Protected Areas

Sandwatch: Science in Action

University Consortium of Small Island States / climate curriculum

Quranic Botanic Gardens Project

The Camel Farm Project

Reporting Climate Change

## Mitigation

Renewable Energy Programme

Bio-Carbon Sequestration and Biodiversity Conservation to Combat Climate Change

Ocean Carbon Sequestration Watching Brief

Technology and Climate Change: Challenges and Opportunities for Mitigation and Adaptation

## Monitoring

Global Ocean Observing System

Global Sea Level Observing System

Global Climate Observing System

Global Terrestrial Observing System

GCOS-GOOS-WCRP Ocean Observations Panel for Climate

Global Coral Reef Monitoring Network

International Ocean Carbon Coordination Project

## 45 Programmes / 55 Staff Members

Research and Assessments

Global Monitoring / Disaster Reduction

Adaptation Science and Technology

Mitigation, Economics, Renewable Energy

Social Sciences / Indigenous Knowledge

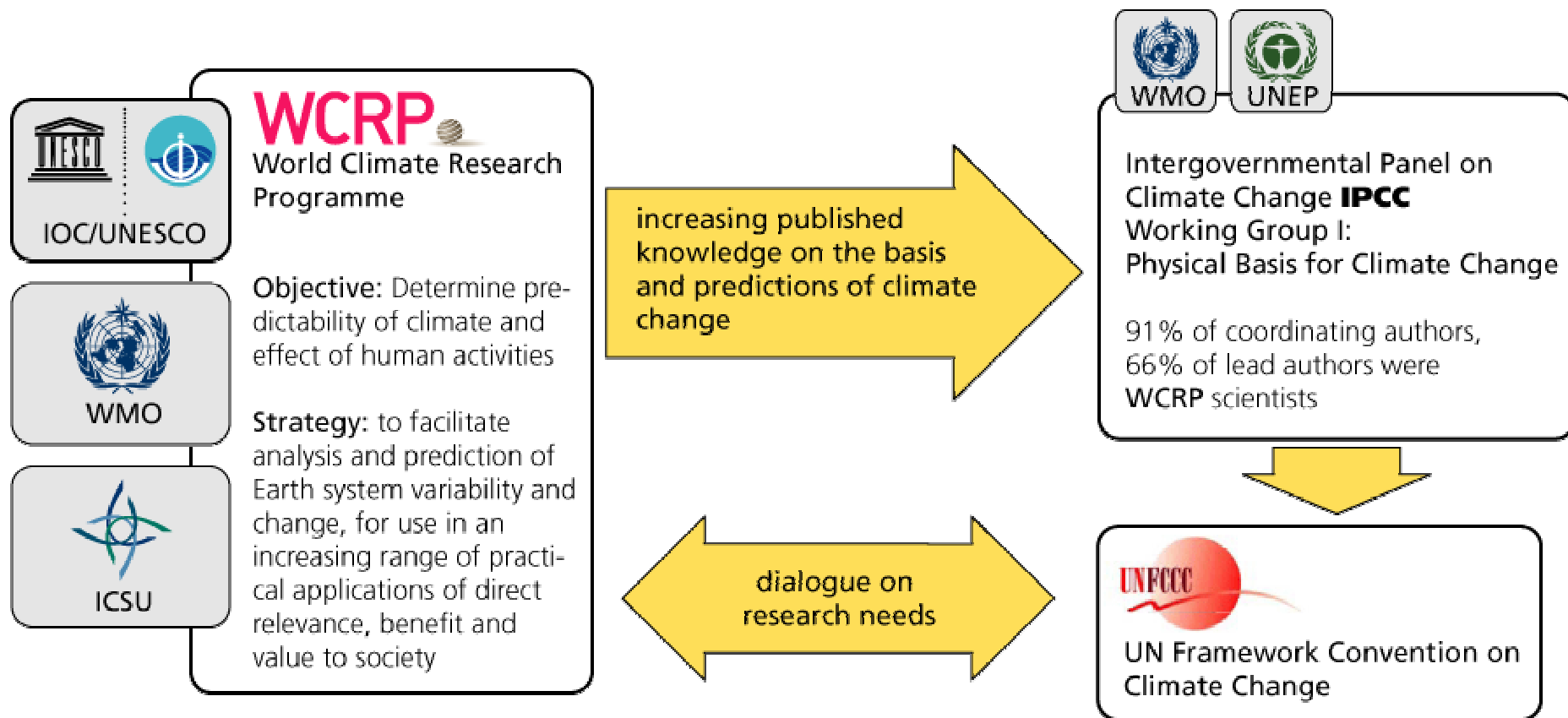
Natural and Cultural World Heritage

Education, Information, Outreach

<http://www.unesco.org/en/climatechange>

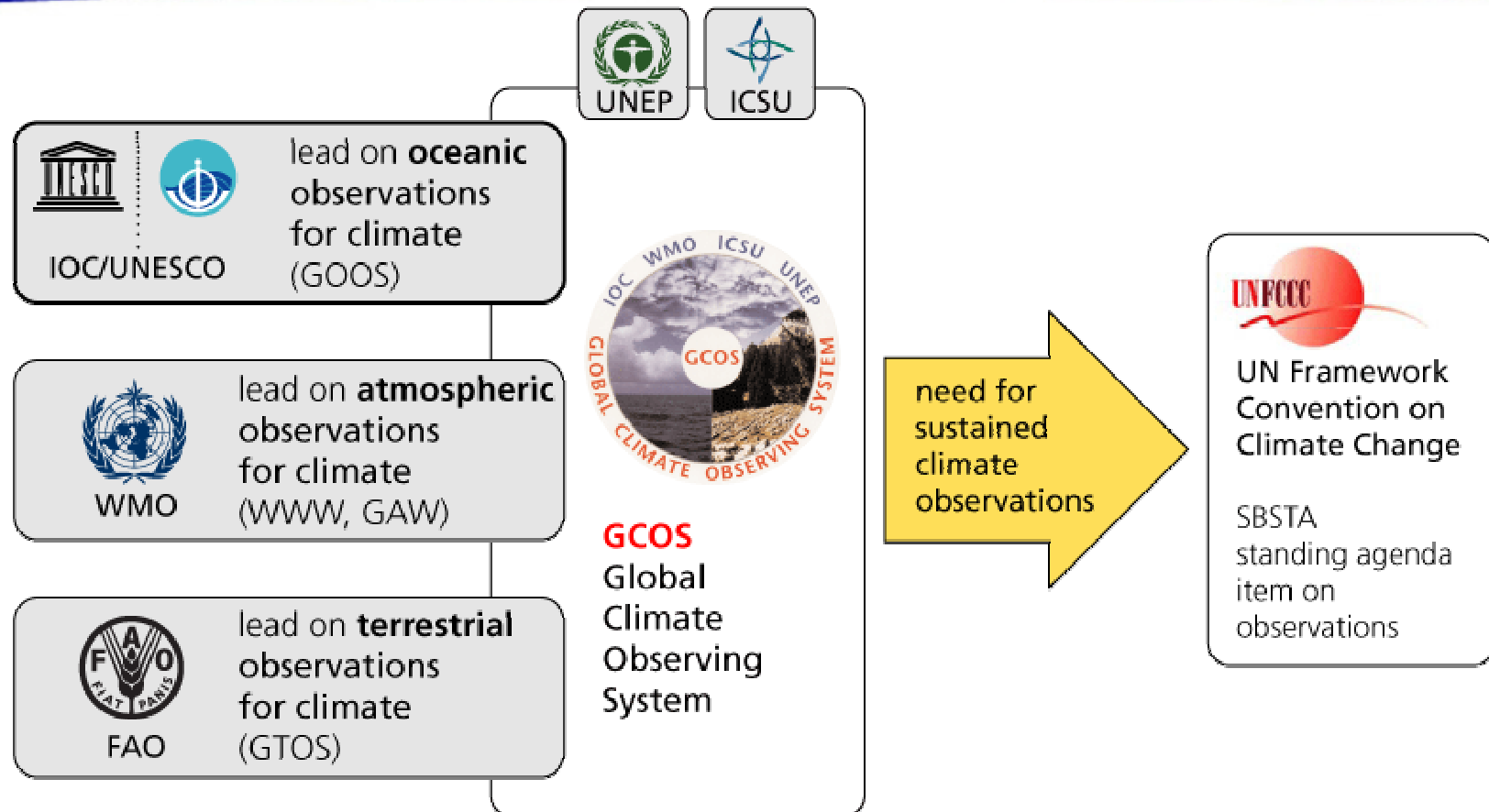
# Creating the Knowledge Base

## *UNESCO contribution in the context of UN system*



# Creating the Knowledge Base

*UNESCO contribution in the context of UN system*



- IOC/UNESCO leads on ocean climate observing networks for physical variables and carbon
- IOC/UNESCO sponsors the Global Coral Reef Monitoring Network

# Creating the Knowledge Base

*UNESCO contribution in the context of UN system*

- 
- WMO and UNESCO conveners for UN cooperation on the climate “knowledgebase” (science, assessment, monitoring and early warning)





# ■ The Regional Centre for Shared Aquifer Resources Management (RCSARM)

*Tripoli, Libya*

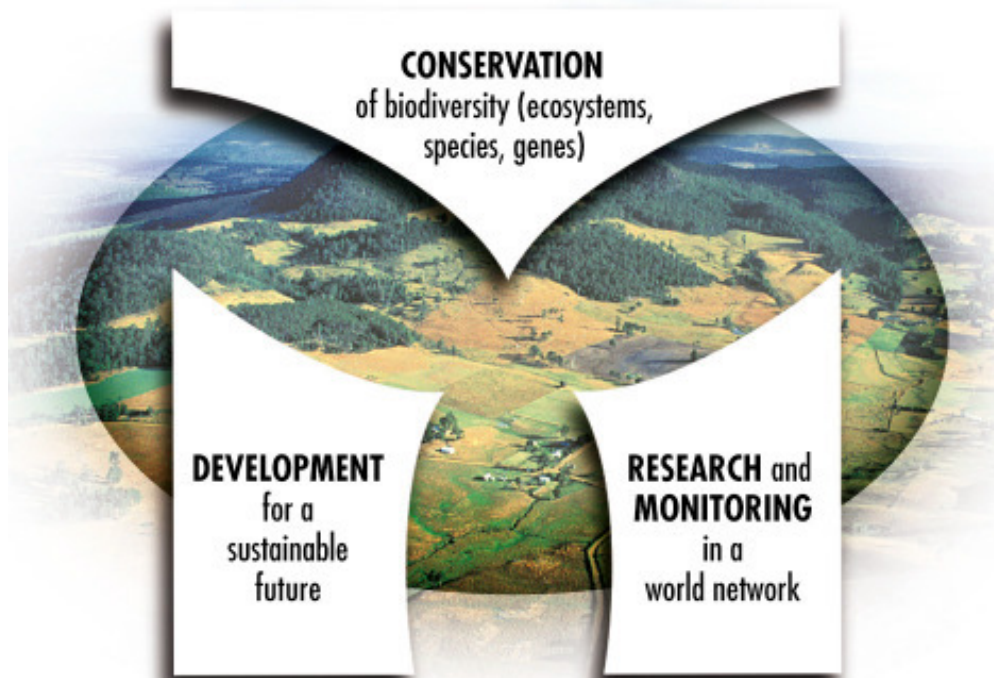
## ■ *Objectives of the Centre*

- generate and publish scientific and technical information and support exchange of information on regional shared groundwater management issues, with the emphasis on Africa and the Arab States
- promote cooperation on multidisciplinary research and compilation of case studies on shared groundwater management in the region involving international institutions and networks, especially those under UNESCO-IHP and WMO auspices

- UNESCO promotes capacity for decentralized rural electrification using solar equipment and assisting in identifying priorities for national renewable energy policies.
- 
- UNESCO Chair in Renewable Energy and Environment, University of Zambia
- UNESCO Chair in Renewable Energy, University of Zimbabwe



# Man and the Biosphere (MAB) Programme



**With the World Network of  
Biosphere Reserves**



Division of Ec  
Man an



# Biosphere reserves

Special places *for*  
people  
*and* nature



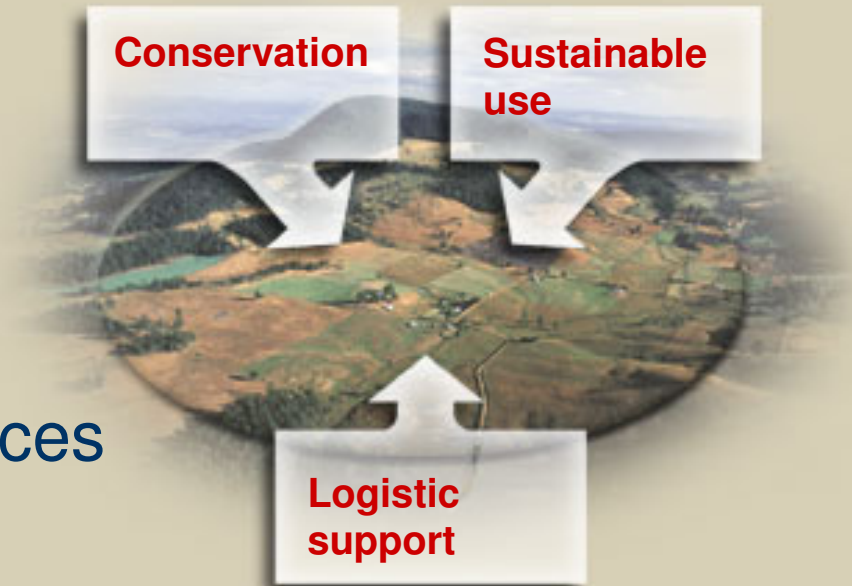
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erves



# Biosphere Reserves

Biosphere reserves perform three main roles:

- ▶ Conservation of biodiversity ecosystems and water resources
- ▶ Sustainable development
- ▶ Logistic support for research, monitoring, education, training and information exchange

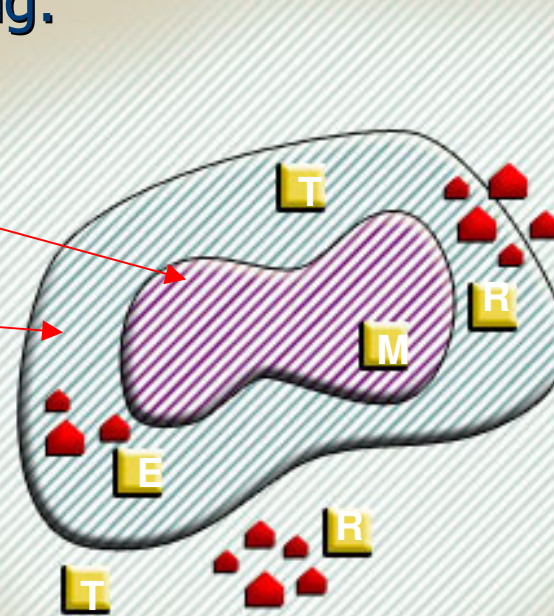




# Biosphere Reserves - How are they organized?

These functions are associated through a zonation system including:

- ▶ Core area(s)
- ▶ Buffer zone(s)
- ▶ Transition area(s)



-  **R** Research station or experimental research site
-  **M** Monitoring
-  **E** Education/training
-  **T** Tourism

This schema can be adapted to various ecological, socio-cultural and legal contexts



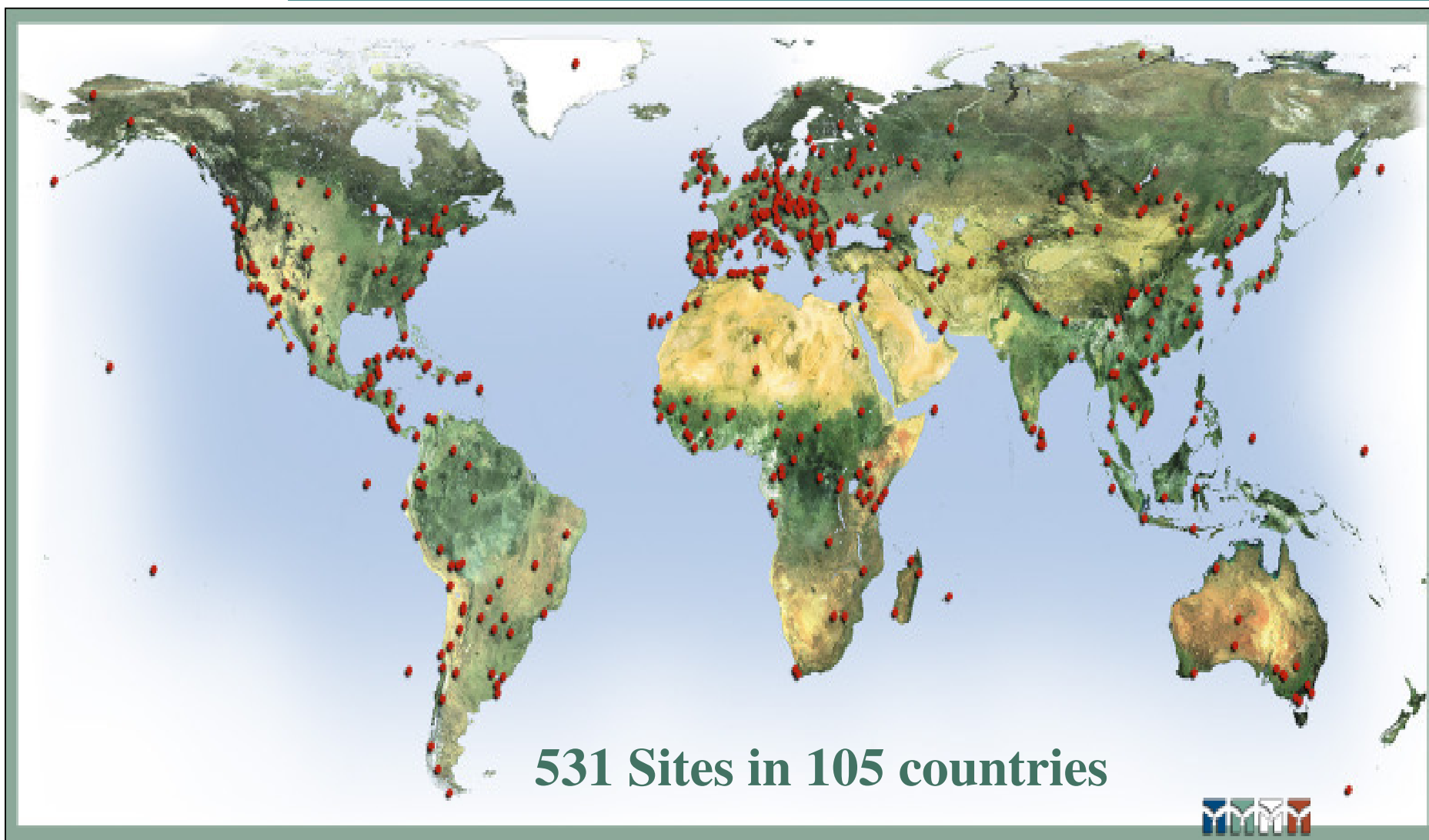


Division of Ecological and Earth Sciences  
Man and the Biosphere Programme



# Biosphere Reserves

## World Network of Biosphere Reserves



## Biosphere Reserves in AFRICA



**69 Sites in 30 countries**

**including**

**3 Transboundary Biosphere Reserves (TBR)**





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Organización  
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la Ciencia y la Cultura

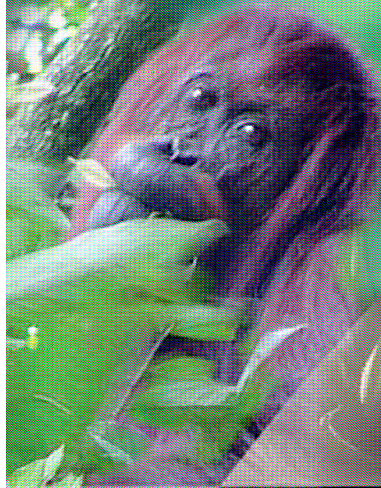
Организация  
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科学及文化组织



# Madrid Action Plan for Biosphere Reserves (2008–2013)





# Réserves de biosphère



Projet régional UNESCO-MAB/PNUE-FEM

## **Renforcement des capacités scientifiques et techniques**

pour une **gestion effective**  
et une **utilisation durable**  
de la diversité biologique  
dans les réserves de biosphère  
des **zones arides** et **semi**  
**arides d'Afrique de l'ouest**



# Réserves de biosphère



**Bénin**



**Burkina Faso**



**Côte d'Ivoire**



**Mali**



**Niger**



**Sénégal**





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des Nations Unies  
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la science et la culture



MAN and the BIOSPHERE PROGRAMME

# ÉRAIFT

**Regional Post-Graduate Training School on Integrated  
Management of Tropical Forests**

**University of Kinshasa  
(DRC)**





4 international promotions successfully receive diplomas recognised by CAMES (83 diplômés)

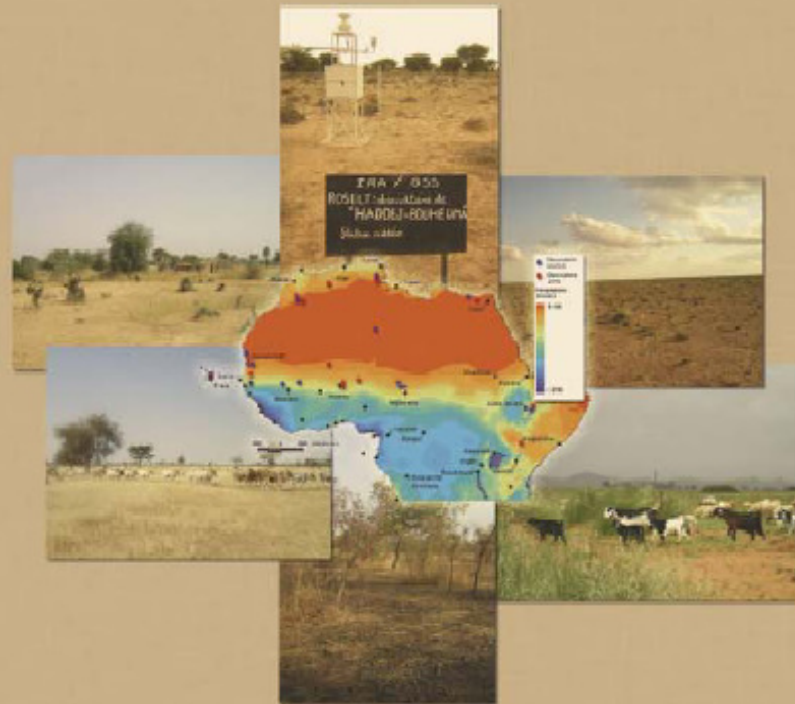


12 African nationalities (*Angola, Benin, Burundi, Cameroon, Congo, Guinea, Madagascar, Niger, RCA, Togo, Tchad et DRC*)

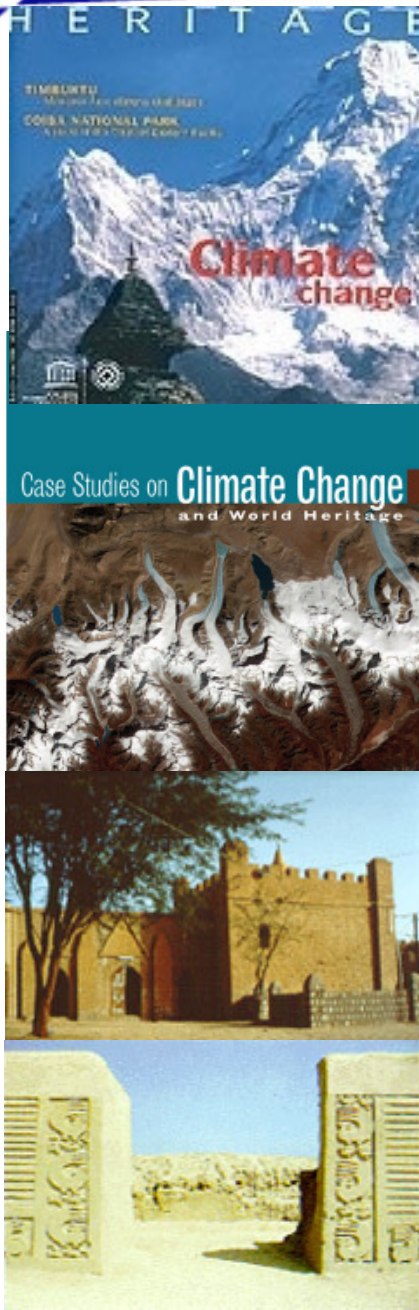




# LONG-TERM ENVIRONMENTAL MONITORING IN A CIRCUM-SAHARAN NETWORK: THE ROSELT/OSS EXPERIENCE



Sahara and Sahel Observatory (OSS)



- Climate change impacts on natural and cultural World Heritage
  - raising awareness, sharing of knowledge and experience
  - pilot projects
- Strategy to Assist States Parties to Implement Appropriate Management Responses (2006)
- Case studies (2007)

# The application of educational tools

## *Decade of Education for Sustainable Development*

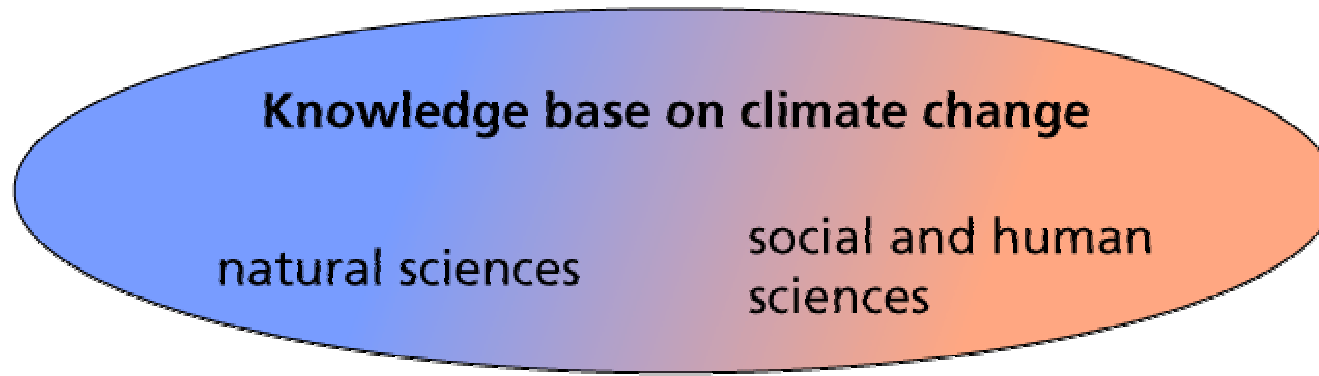
- Providing information on climate issues to educators, teachers, students
  - called for by Article 6 of the UNFCCC
  - potential contribution to 5-year UNFCCC Nairobi Work Plan on impacts, vulnerability, and adaptation to climate change
  - curriculum testing and development through ASPnet
- Climate change is a key theme in the Decade of Education for Sustainable Development, where UNESCO is the lead agency





- Informed action by individuals fundamental to addressing climate change
- Ensuring access to sound and unbiased information through the media
  - training journalists to cover climate change
  - working with national and community broadcasters

# Supporting Member States in policy planning and national development



upstream



scientific research  
and monitoring  
building the  
knowledge  
base

downstream



translation and application  
at local level  
to climate adaptation  
and mitigation

UNESCO has a role in both streams

## Climate and:

- Migration
- Environmental ethics
- Human rights



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## Executive Board

Hundred and eightieth session

**180 EX/16**

PARIS, 18 August 2008  
Original: English

Item 16 of the provisional agenda

### **REPORT BY THE DIRECTOR-GENERAL ON A REFINED UNESCO STRATEGY FOR ACTION ON CLIMATE CHANGE**

#### **SUMMARY**

Pursuant to 179 EX/Decision 15, the Director-General hereby submits for consideration by the Executive Board the revised UNESCO strategy for action on climate change, as contained in the Annex to this document.

There are no additional policy implications of a financial or administrative nature.

Action expected of the Executive Board: decision proposed in paragraph 4.



Thank you!

[www.unesco.org/en/climatechange](http://www.unesco.org/en/climatechange)