UNESCO's contribution to the implementation of the AU/CPA for science and technology

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UNESCO – African Union

Strategic Partnership for STI

- **UNESCO leads UN S&T Cluster for the Support of AU/NEPAD Plan of Action**

- **UNESCO represents UN within the African Cluster for S&T**

- **UNESCO is a member of AMCOST Steering Committee (May 2008)**

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Consolidated Plan of Action
# AU Summit, Jan 2007

The Plan is built on three interrelated conceptual pillars:

- capacity building

- knowledge production, and

- technological innovation

Addis Declaration on S&T and Scientific Research for Development, called upon UNESCO to assist in implementation of the CPA

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UNESCO's Plan of Action
GC 2007, UNESCO's 194 MS
Africa Group = 54MS

- **Capacity building in Science, Technology and Innovation Policy**

- **Enhancing Science & Technology Education**

- **The African Virtual Campus**
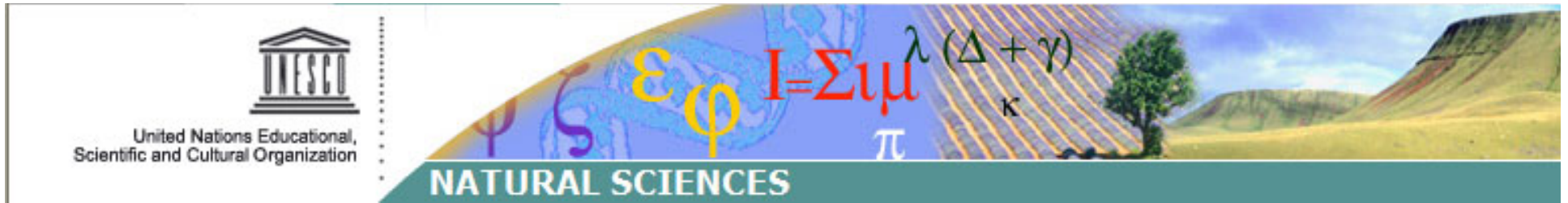
CPA Science Policy Programmes
requests

- Creating institutional & policy arrangements to mobilize and share their resources to conduct science and generate technological innovations

- Building a critical mass of science policy advisors to African governments and the policy sector

- Build and disseminate information and experiences on science, technology and innovation policies

STI policy, evidence\data needed: the down-to-earth look

Do I need to invest in R&D or in Higher Education?

- Better know how much you are investing already
- What is a convenient and relevant measure?
- % of GDP? Number of graduates?

In which areas should I invest predominantly?

- In which areas am I already investing?
- Which are important economic sectors, in mining, agriculture, industry, services, etc?
- Which are crucial public sectors, and what are national or regional peculiarities? (health, environment, utilities, defense,…)

Do I need to improve quality of higher education or research?

- Better know how you compare to other countries
- Are there sufficient links of universities and institutes to industry?

African Science Technology and Innovation Policy Initiative ASTIPI

Activities

- To date 18 African countries have made requests to UNESCO for assistance with the review / reformulation of their STI policy via governments and Heads of State

- Review existing policies- jointly with governments

- Re formulate national STI policies for those countries lacking STI policies

- Provide assistance with the monitoring and evaluation of existing and newly formulated STI policies (mid term reviews)

- Assist in the implementation of newly formulated and reviewed STI policies (scientific committees, science parks etc)

- Train STI policy specialists and analysts

Science policy review/re formulation exercise

18-24 months

State of the art: international + national experts-3 mths
Inventory: analysis NRS

1st national consultation (report to government)
presentation of results, identify priorities, preparation of business plan, task force for every priority identified

Elaboration of a study for each priority

2nd consultation (report to the government)

National development plans
Economic development
Projects eg science parks...

Science policy review/re formulation exercise

National Research System analysis

Contextualisation

Brief history of sciences

Governance of science and analysis of the science policies

Principal institutions (public and private, international or foreign)

Other entities/structures/supports for S&T

In put indicators on available human resources

Input indicators on financing activities in S&T

Output indicators, products of research (degrees, publications, IPRs …),

Innovation and university industry partnerships and strategies,

International scientific cooperation agreements and or others

STATUS REPORT

Participatory approach

- Response to the request from the government of the Republic of Malawi
- The role of UNESCO: facilitate the process, tools for analysis
- Role of the national consultants
- Role of an international consultant

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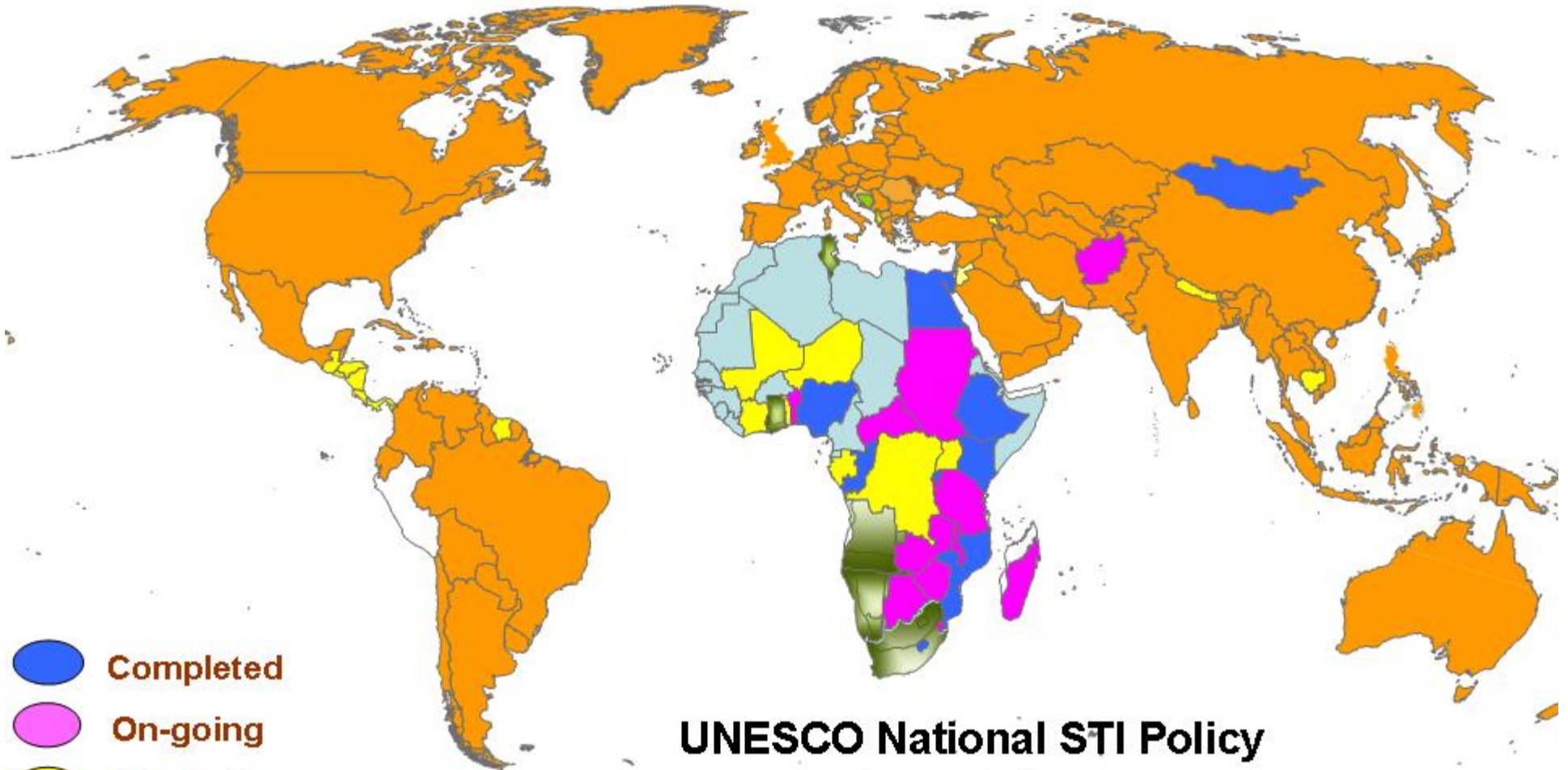
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Completed

On-going

Planned

Independent of UNESCO

UNESCO National STI Policy formulation

A systemic approach to STI policy

Four cornerstones for a knowledge-based society

- **Human capital**: A system to develop, retain and attract human capital

- **Knowledge and innovation**: A system to develop, acquire and adapt knowledge and transfer this into innovations

- **Institutions and incentives**: Public and private (e.g. banks) institutions, regulations and mechanisms that allow and stimulate companies, universities, research institutes etc to function in support of the country, the people and the world

- **Information infrastructure**: Investments in communications infrastructure, ICT tools and information sources both nationally and within companies and organisations to support cooperation, and enhance productivity and capabilities

UNESCO 's
University-Industry-Science Partnership
UNISPAR (1993)

- Capacity building in governance of S&T parks
- World Technopolis Association (WTA)
- International Association of Science Parks (IASP)
- S&T Parks
  - economic and technological development complexes
  - promote STI and commercialization of research
  - Egypt, Kenya, Nigeria

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Governance of Science: role of Parliament

- The need for closer co-operation among policy-makers, parliamentarians, scientists, educationists, journalists, industry (public and private) and civil society

- Parliamentary Science Forums
    Cairo 2004,
    Abuja 2007,
    Brazzaville 2008
    Mombasa, 3 April 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.

# STI policy, STI statistics and indicators training workshop

(UNESCO, UIS, AU/NEPAD)

-SADC, Botswana,
    22-26 Sept 2008
- East and North Africa, Kenya,
    30March- 4 April 2009
- West Africa, Gabon,
    15-20 June 2009

SADC Regional Science, Technology and Innovation Policy Reviews Workshop

(Gaborone, Botswana, 22-26 September 2008)

UNESCO Division for Science Policy and Institute for Statistics
African Union and
Ministry of Communications, Science and Technology, Botswana
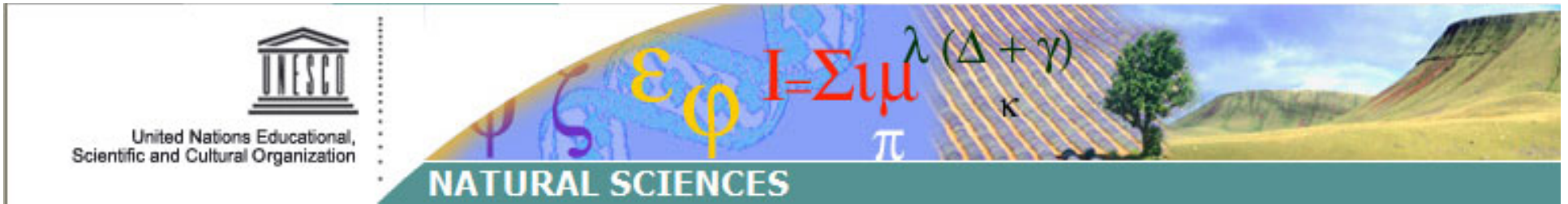
African STI Observatory

UNESCO-UIS-AUC/NEPAD, others

- Performance of institutions and R&D activities

- **Map Africa wide STI capacity**
    - Produce basic indicators
    - Human resources
    - Funding
    - Patents
    - Publications
    - Research institutions

Why the need for mapping African STI capacity

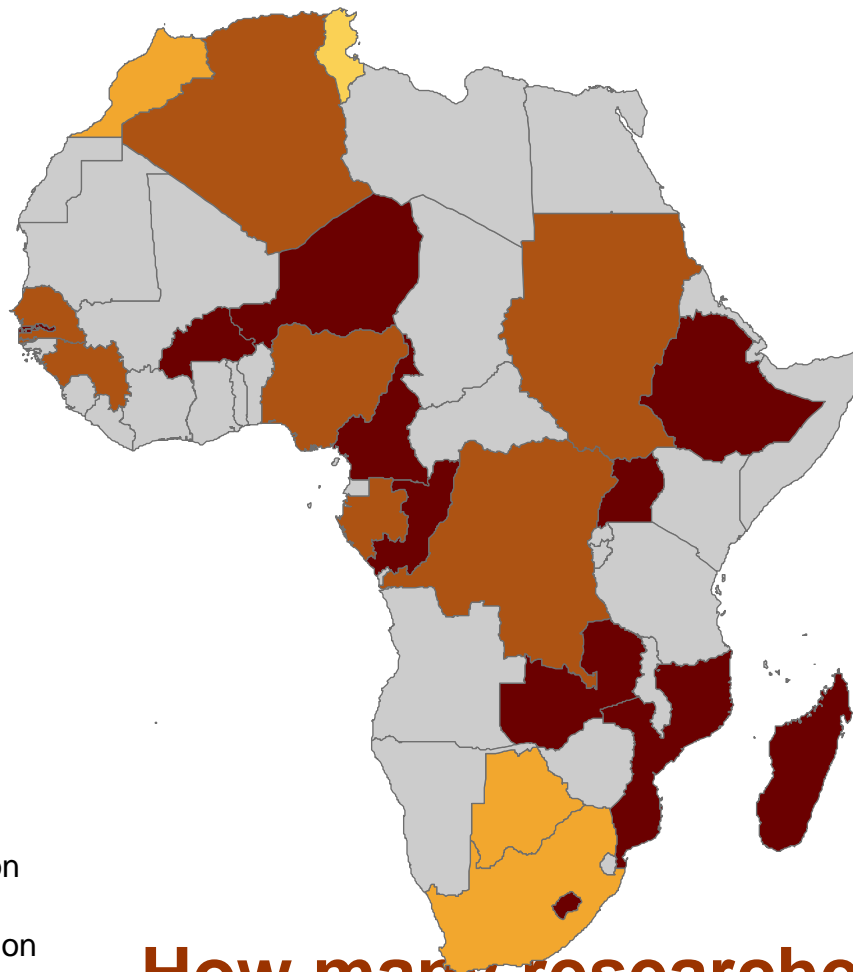*Science policy measures and interventions should be evidence based*

STI = driver of national economic development

A common African framework on existing STI capacity producing regular reliable statistics as well as reproducible indicators

United Nations Educational, Scientific and Cultural Organization

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$I = \Sigma \iota \mu^{\lambda}$ $(\Delta + \gamma)$

- 0–100 per million
- 101–300 per million
- 301–1000 per million
- 1001–2000 per million
- 2001 per million and above
- Data not available

How many researchers are there? Researchers per million inhabitants, latest available year
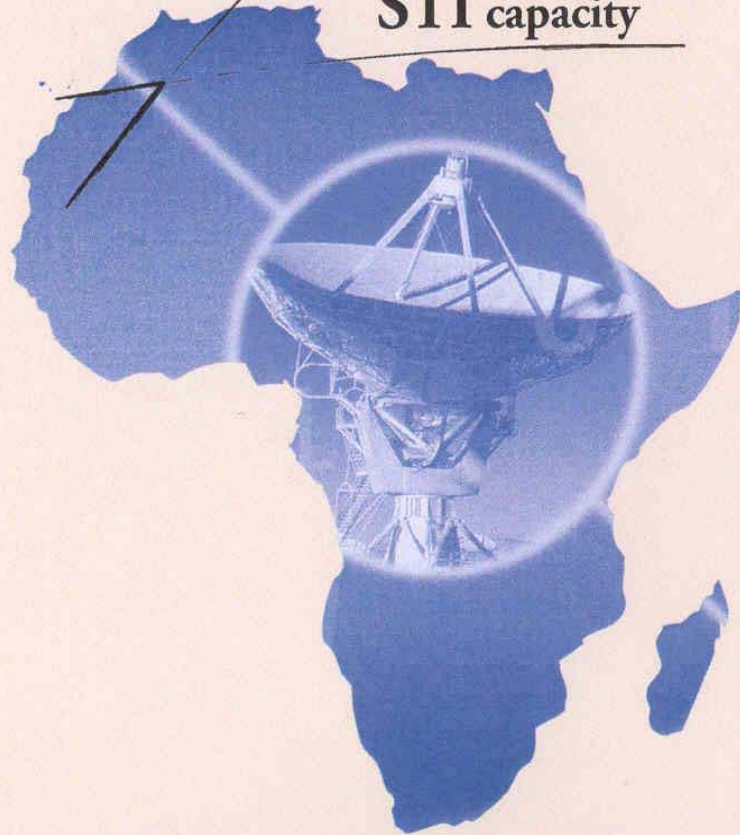
Source: UIS, September 2007

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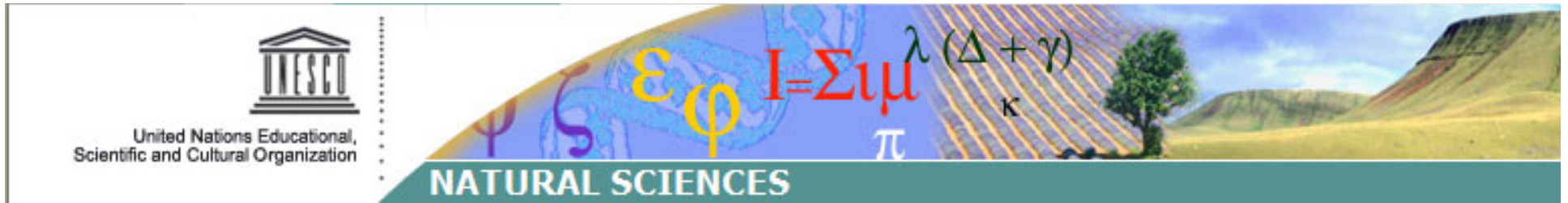$I = \Sigma \iota \mu^{\lambda (\Delta + \gamma)}$
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Africa
wide mapping of
STI capacity

**African Ministerial Council for
Science and Technology (AMCOST 2003)**

« urgency to build the continent's capacity to

harness, apply and develop science and

technology in order to eradicate poverty,

fight diseases, stem environmental

degradation and improve economic

competitiveness »

Why the need for mapping African STI capacity

Project for 54 countries
Objectives

- Identify STI needs, existing capacities (institutional and human)

- build on the initiatives already developed:
  AU/NEPAD, UNECA, UIS, World Bank
  Regional Economic Communities, Third World Academy of Sciences
  other Institutes and International Organizations

- Map existing potential with respect to societal added value

-Analyze the **STI capacity and policy interactions** and their impact on societal needs

- Create an STI Outlook (knowledge management in STI, provide governments
 with necessary tools)

Mapping African STI capacity

Expected results

-contribute to S&T development of the continent through accurate analysis and subsequent actions in a "needs based" approach

- develop a compendium of information relating to the STI capacity for each of the 54 African Member States

-examine the impact of *existing infrastructures* on young African scientists

- identify the *STI environments* conducive to scientific research and learning through best practices

- develop tools and a common methodology for STI data collection and validation for the African continent and provide the input to the African Observatory

Funding

- **Financial support for STI Policy programme from Japan, Libya and Spain gratefully acknowledged**
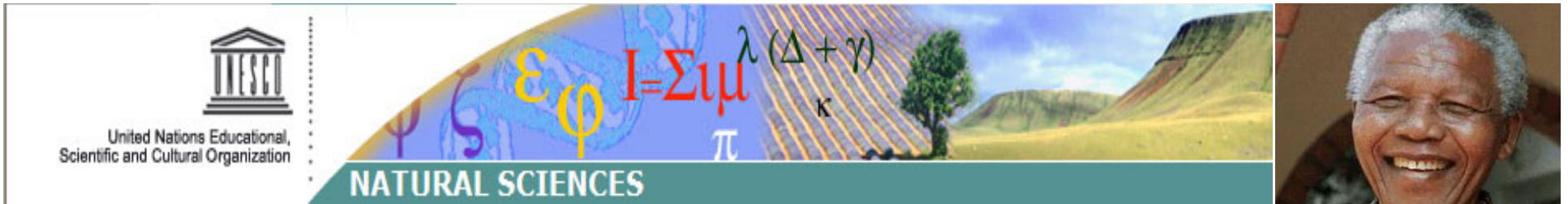
"On your shoulders rest the challenge of giving science a face that inspires our youth to seek our science, engineering and technology is part of that task.

But it requires more. It also means orienting science in a practical and visible way towards helping meet basic needs. It means recognising the intellectual challenge of applying knowledge to meeting such needs, rewarding achievements in that direction and celebrating them with the highest honours."

President Nelson Mandela, Academy of Science
March 1996