

# INTERNATIONAL ASTRONOMICAL UNION (IAU)

## STRATEGIC PLAN

### “ASTRONOMY FOR DEVELOPMENT”

### AND ITS RELATION WITH AFRICA

**George Miley**

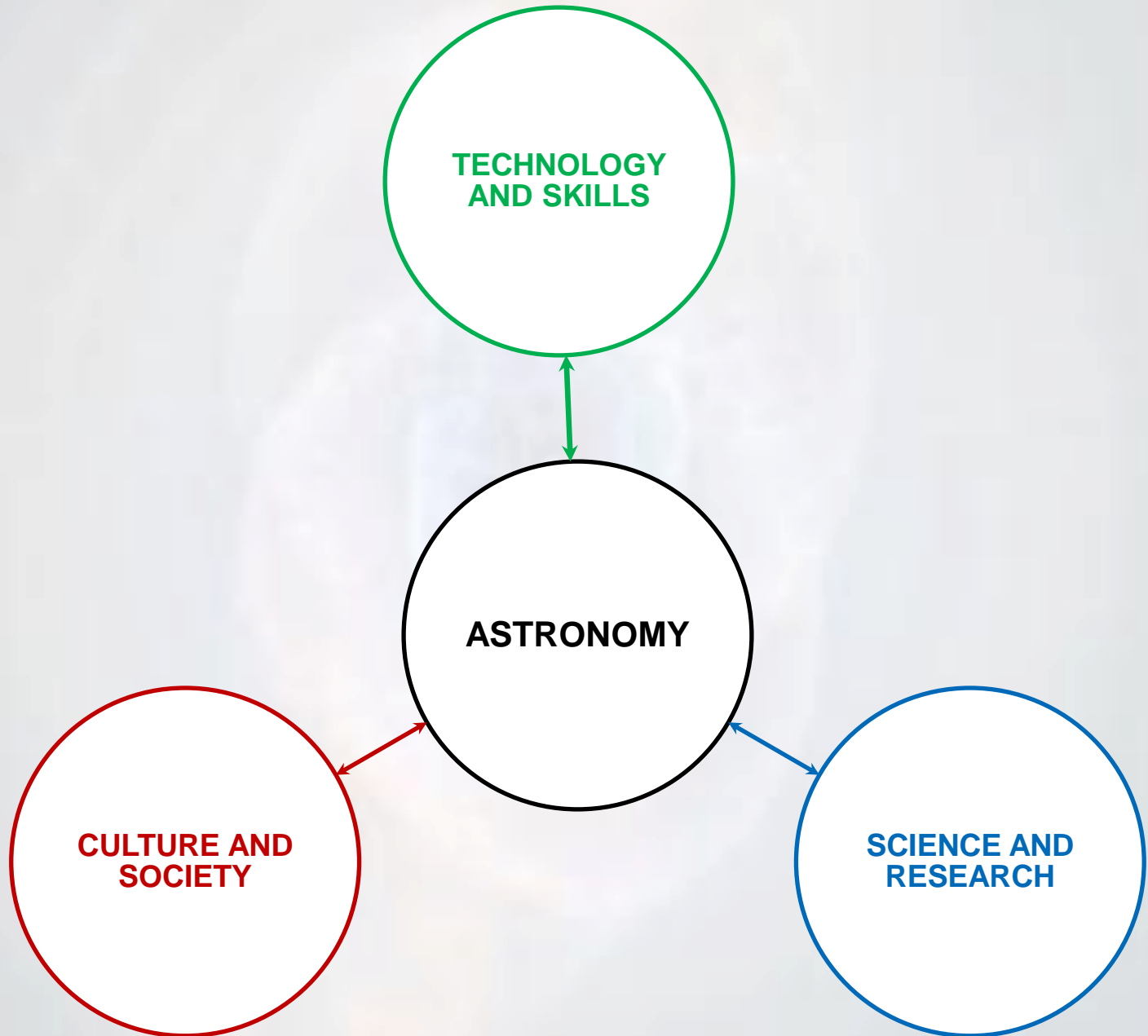
**VPE IAU**

**Leiden University**

**Chair, Steering Comm IAU OAD**



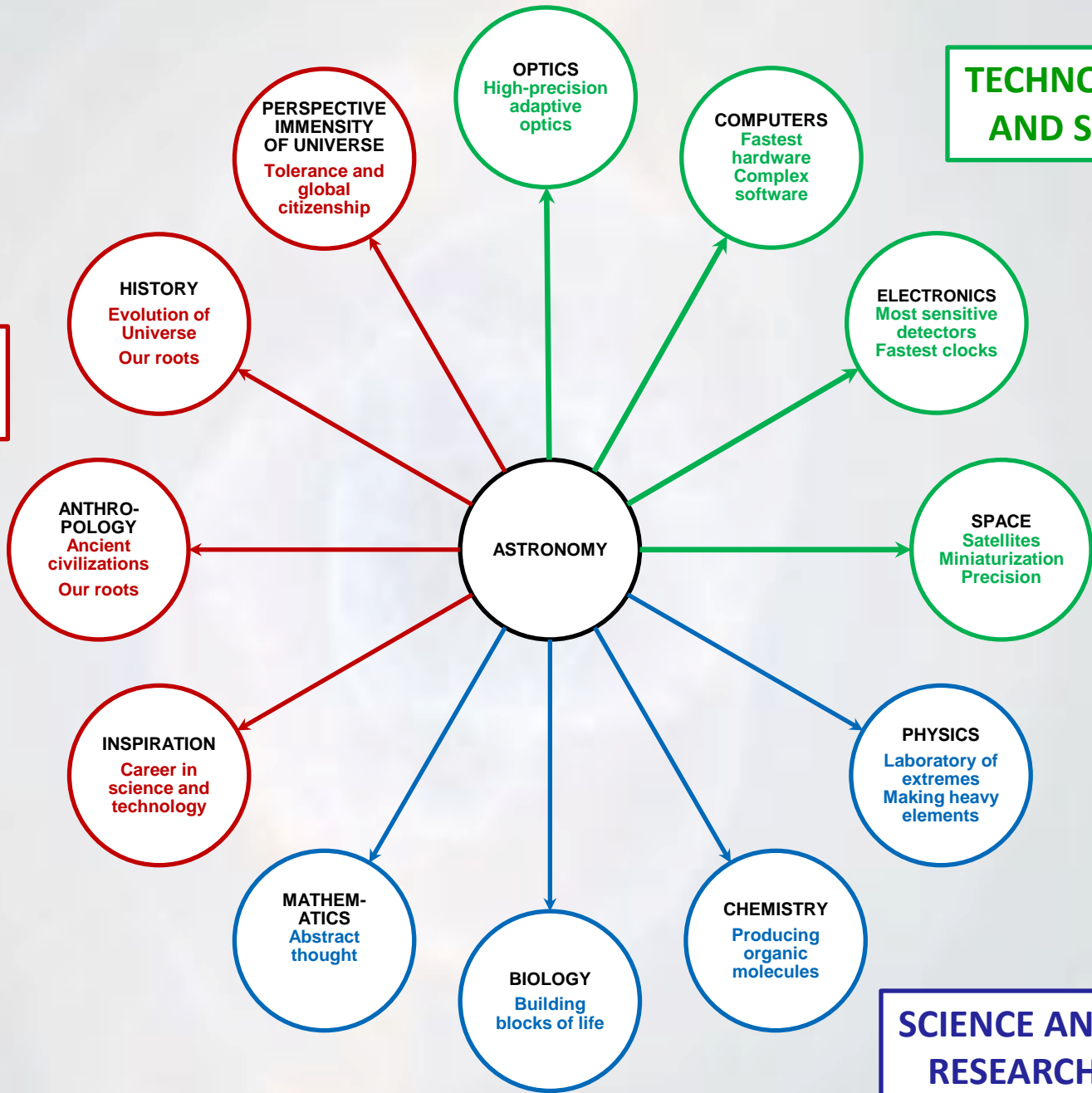
# WHY ASTRONOMY AS TOOL FOR DEVELOPMENT?



**CULTURE AND SOCIETY**

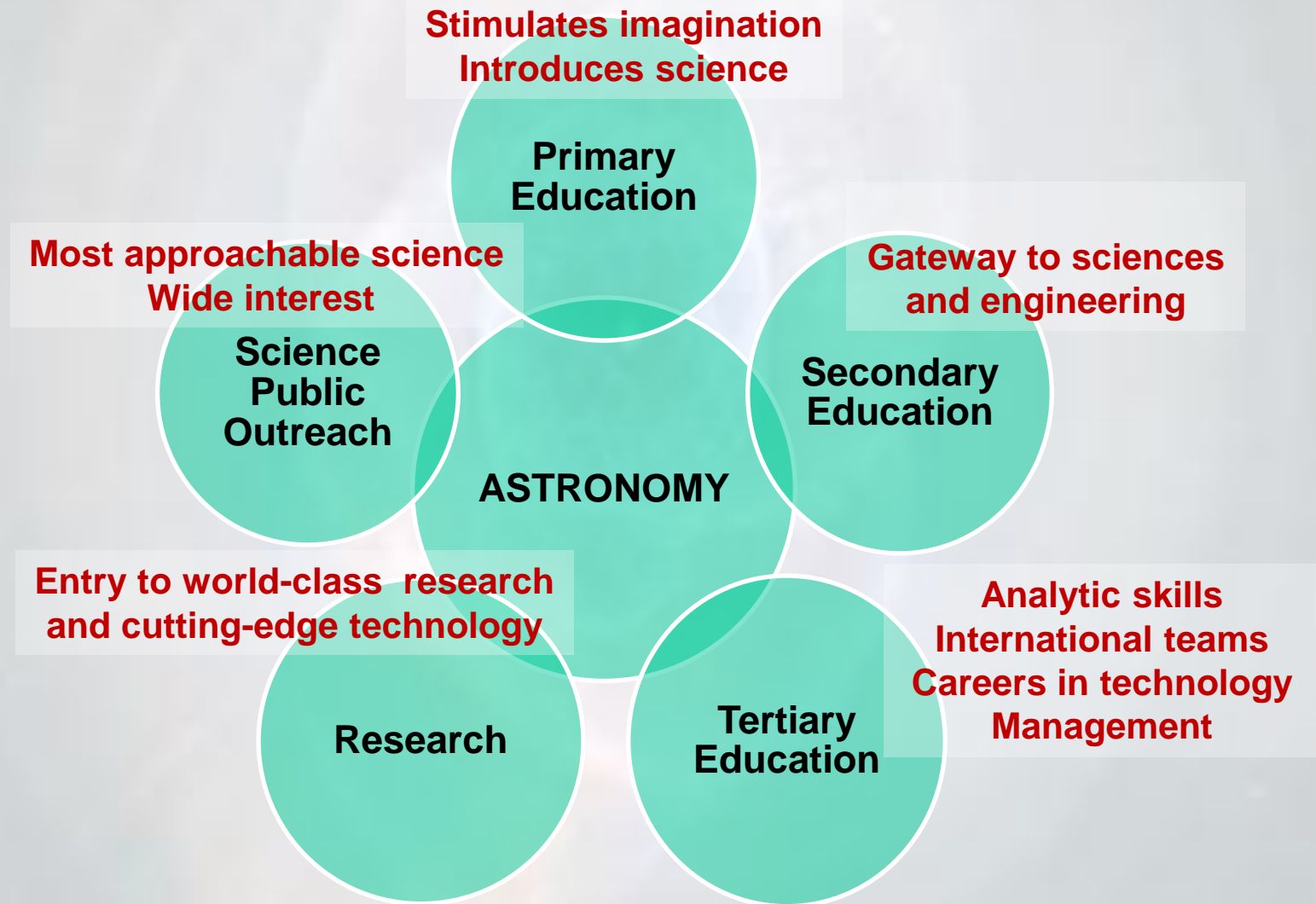
**TECHNOLOGY AND SKILLS**

**SCIENCE AND RESEARCH**



# PILLARS OF ASTRONOMY FOR HUMAN CAPACITY BUILDING

## “from the cradle to the grave”



# STRATEGY OF IAU PLAN

- **1. Integrated STRATEGIC phased approach**
  - **Education (primary, secondary, tertiary ), Research, Public outreach**
- **2. Increase regional involvement**
  - **Gradual initiation of regional nodes**
- **3. Emphasis on Sub-Saharan Africa**
- **4. Enlarge number of active volunteers**
- **5. Initiation of new programs**
- **6. Use IYA 2009 as springboard**
  - **Continue and stimulate cornerstone projects**
- **7. Exploit new possibilities**
  - **Distance-learning, Robotic telescopes, Astronomical archives, Astro-buses**
- **8. Creation of small office for strategic coordination – OAD (e.g. IYA, UNAWWE)**
  - **Essential to**
    - **facilitate expansion of volunteer activities**
    - **provide strategic guidance**
    - **demonstrate professional management to fund givers**
  - **Highest priority**

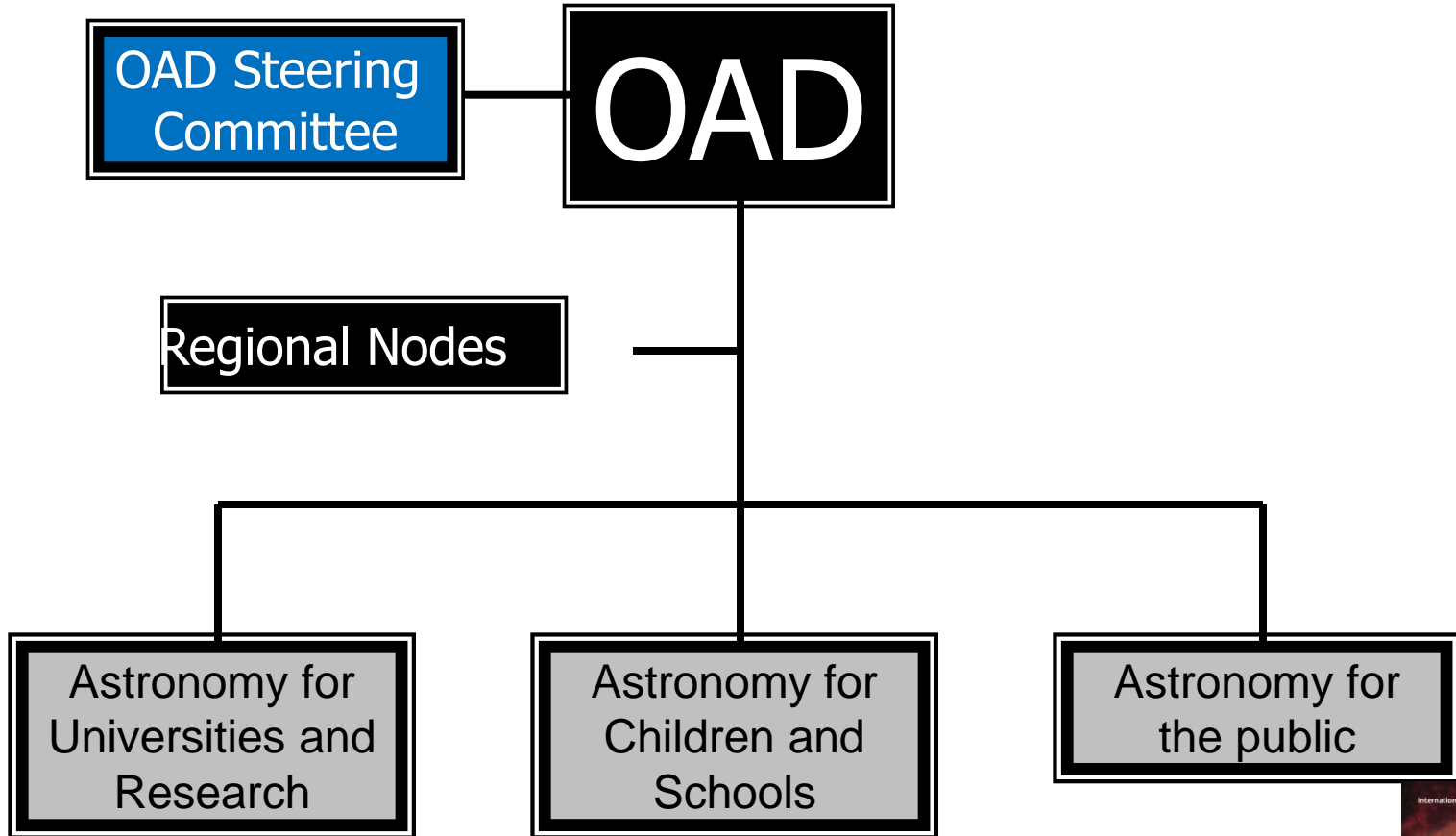
# IAU OFFICE OF ASTRONOMY FOR DEVELOPMENT

- South Africa selected from 20 proposals from 4 continents
  - Pioneer in Astronomy for Development
- Partners IAU- South Africa (NRF)
  - Strong support from DST
- Started 1 March 2011
  - Host: South African Astronomical Observatory, Cape Town
  - Inauguration by South African Minister of Science & Technology 16 April 2011
- Outstanding Director Kevin Govender
  - Pioneered Astronomy for Development in South Africa
    - SALT
- Support agreements with several European countries
  - UK (RAS), ICTP (Trieste), NL (NWO), Sweden





# The IAU Office of Astronomy for Development



***“Astronomy for a better world!”***



# Task Force Calls - Examples

## TF1: Universities and Research

- Visiting astronomer programmes or exchange programmes
- National or regional astronomy schools and workshops
- Astronomy education research equipment and laboratory small grant
- Sabbatical leave visit programme
- Undergraduate astronomy courses
- Technology internships e.g. instrument specialists
- University twinning programmes
- Building computer infrastructure
- Innovative university astronomy programs not listed above

**TECHNOLOGY TRANSFER  
EXTREMELY IMPORTANT**





# Task Force Calls - Examples

## TF2: Children and Schools

- Teacher training and development
- Resource development and vetting
- Produce guidelines for using robotic telescopes for school projects
- Distance learning options applicable to school level education
- Astronomy education research
- Reference group for curriculum evaluation
- Support existing networks for education
- Mobile education projects
- Study on the value of astronomy training



# Task Force Calls - Examples

## TF3: Public Outreach

- Continuation of IYA 2009 projects
- Citizen science projects
- Develop/Identify models for best outreach activities
- Exploitation of traditional/cultural astronomy
- Creation of multimedia resources
- Stargazing events and telescope-making workshops
- Astro-tourism activities
- Outreach awards
- Establish evaluation guidelines



# Volunteers (~400) – country of origin...



# FUNDING CONSIDERATIONS

- **Activities - OAD Global Call for Proposals for 2013**
  - **IAU funds ~ 100k Euro**
  - **Oversubscribed by x20**
- **External funding for AfD**
  - **Agreements signed**
    - **Royal Astronomical Society**
    - **NWO Netherlands**
    - **ICTP Trieste**
      - Up to 55kEuro per year
- **Established basis and credibility for future fund raising campaigns in next triennium**
  - **International (initiatives to be coordinated by OAD)**
    - e.g. development agencies, foundations, multinational companies
    - For general *Astronomy for Development* programme
    - EU?
  - **National**
    - For specific activities or countries

# EU- UNIVERSE AWARENESS (EUNAWE)

Astronomy-based program with educational and social goals



**Exposes DISADVANTAGED young children (4 – 10) to INSPIRATIONAL aspects of astronomy**

- Use **PERSPECTIVE, INSPIRATION** and **FUN** of astronomy to
  - Introduce young children to excitement of science, technology and engineering
  - Broaden children's minds
    - Stimulate internationalism, tolerance
    - Stimulate European and world citizenship
- Implementation in 5 EU member states and South Africa 2011 -2013
  - Germany, Italy, Netherlands, Spain, UK (N. Ireland)
  - South Africa
    - National coordinators+materials+teacher training+exchanges

**SQUARE KILOMETER ARRAY IN AFRICA  
AFRICAN VLBI ARRAY**

**MARVELLOUS OPPORTUNITIES FOR  
TECHNOLOGICAL AND HUMAN  
CAPACITY BUILDING**

**STRENGTHEN LINKS BETWEEN  
ASTRONOMY AND POVERTY  
ALLEVIATION PROGRAMMES**

**EU CAN PLAY IMPORTANT ROLE**



Culture



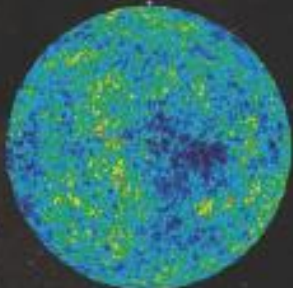
INSPIRATION



Technology



Science



# RATIONALE OF SOUTH AFRICA FOR ASTRONOMY

1996 DACST white paper on role of pure science within the new democracy:

- “It is important to maintain a basic competence in ‘flagship’ sciences such as physics and astronomy for cultural reasons. Not to offer them would be to take a negative view of our future – the view that we are a second-class nation, chained forever to the treadmill of feeding and clothing ourselves”



# AMBASSADORS OF ASTRONOMY FOR CAPACITY BUILDING

- **South African Minister of Science and Technology, Nadeli Pandor, 16 April 2011**
  - *We chose to invest heavily in science and astronomy, because of its role in development, not only within South Africa, but all across Africa*
- **Declaration of European Parliament (signed by 394 MEPs), 15 March 2012**
  - *Recognising that further European involvement in African radio astronomy can become a powerful driver of socioeconomic growth in Africa*
  - *Supports the development of science capacity in Africa through greater investment in research infrastructures, with particular focus on radio astronomy*
- **Vice President Xi of PR China, 21 August 2012**
  - *Astronomy is a crucial field of basic research. We will make larger and larger investments in such a field and provide long-term and stable support to scientists, so that the scientists can discover, invent, create, and advance constantly, and make more and more achievements that will benefit humankind.*
  - *Public outreach should be given equal emphasis as scientific research to educate the public, so as to create a positive atmosphere for the public to respect, love, learn and use science, and to inspire the creativity for science and technological innovation among the public.*

# IAU STRATEGIC PLAN

- Long-term vision
- Goals for 2010 – 2020
  - Closely linked to Africa
- Strategy
- Professional structure in place
- Implementation well underway
  - Closely linked to Africa
- Bright fundraising possibilities
- Important for society AND astronomy



[http://iau.org/static/education/strategicplan\\_2010-2020.pdf](http://iau.org/static/education/strategicplan_2010-2020.pdf)