



# South Africa's S&T partnership with the European Union

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# Overview

- South Africa's strategic context
- Drivers for international S&T cooperation
- Framework for S&T cooperation with Europe
- SA Participation in the EU Framework Programmes
- Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology
- Perspectives on Horizon 2020



# Why International Cooperation?

- Science is an international activity
- Science knows no borders - builds international friendship and partnership, solidarity and understanding.
- Scientific and technological progress is dependent on the sharing of experience, expertise and costs across borders.
- No nation today can claim to have the financial and technical resources required to harness science optimally for growth and development
- Global challenges that requires cooperation



# South Africa's strategic context

## National Development Plan – 2030

- plan for the country to eliminate poverty and reduce inequality by 2030 through uniting South Africans, growing an inclusive economy, building capabilities, enhancing the capability of the state and leaders.
- NDP - emphasizes the necessity to expand South Africa's science, technology and innovation outputs by increasing research and development spending by government and by encouraging industry to follow suit.



# International Cooperation in Ten Year Innovation Plan

- International cooperation required to:
  - Enhance knowledge generation capacity
  - Support technology transfer
- Goal: Make South Africa a preferred destination for international S&T investment
  - To notably support:
    - Human capital development
    - Research infrastructure partnerships
  - By strategically leveraging foreign investment



# Framework for South Africa's S&T cooperation with Europe

- SA – EU S&T Cooperation Agreement
- Bilateral S&T Agreements Member States
- SA – EU Strategic Partnership – strong focus on S&T at annual Summits
  - Trade, Development and Cooperation Agreement
- Support Joint Africa-EU Strategy



# SA-EU S&T Cooperation beyond Framework Programmes

- Development cooperation: Innovation for Poverty Alleviation (sector budget support)
- Joint Africa-EU Strategy
- Other programmes:
  - EUREKA, EDCTP
- Diversity in focus:
  - Policy dialogue, multilateral cooperation
- Multiple partners:
  - Multinational companies, foundations, EIB



# South Africa and the Framework Programmes

- One of the priority instruments for internationalization of South African S&T
- FP4-FP6: close to 250 participations
- FP7: More than 220 projects with SA partners

2007-2013

- Direct EC investment more than €37 million
- Rank only behind USA, Russia, China and India



# Analysis South African FP7 participation

- Most successful areas
  - Health; environment; bio-economy (agriculture)
- Important progress:
  - ICT, aeronautics, transport, space, social sciences / humanities, nuclear, researcher mobility
- Challenge:
  - Energy, manufacturing, nanotechnology
  - Relatively low industry / SME participation



# Benefits from South Africa's Framework Programme participation

- Not only funding – long-term strategic relations
- Meaningful involvement knowledge generation builds capacity
- Enrich and complement bilateral cooperation
- R&D cooperation addressing global challenges
- Mature evaluation and management processes facilitate leveraging national investment
- Creates other cooperation opportunities



# Strategic approach for promoting SA's participation

- Create enabling national environment for researchers to participate
  - Information / training / seed funding, etc.
- Proactive encourage participation target areas:
  - Identify Horizon 2020 topics relevant to SA priorities and strengths
  - Identify SA researchers best placed to respond
  - Support SA links to leading European groups with best chances of success, bearing in mind:
    - Lead in proposal preparation coming for Europe
    - Highly competitive – excellence key criteria

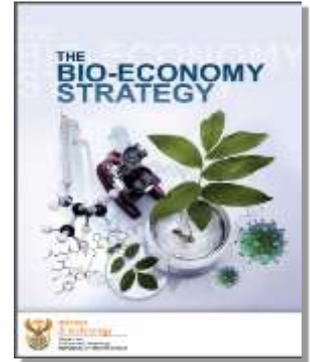


# Institutional support for South African Framework Programme participation

- Network of National Contact Points
- National funding instruments: Strategic Co-investment Funding / Seed Funding
- SA S&T Office in Brussels
- Dedicated platform: European South African Science and Technology Advancement Programme (ESASTAP)



# Bio-innovation



## Develop strategic innovation competencies

- Key skills: Bioinformatics, functional genomics, structural biology, synthetic biology and systems biology
- Technology service platforms
- Pilot-scale infrastructure
- Incubation facilities
- Financing instruments
- Human capital development – multidisciplinary & expertise across the value chain
- Knowledge management – bio-portal



## Bioeconomy Strategy ( 3 pillars)

- **agriculture** - strengthen agricultural biosciences innovation - ensure food security, enhance nutrition and improve health & enable job creation - expansion and intensification of sustainable agricultural production and processing
- **health sector** – improvement - develop the ability to manufacture drugs, vaccines and other biologics locally - help the country achieve its public health goals.
- **Industrial bio-economy** focuses on two areas
  - industry (bio-based chemicals, biomaterials and bio-energy)
  - sustainable environmental management (involves water and waste as a means of providing environmental sustainability for the industrial bio-economy)



# Develop strategic innovation programmes

- Identify and drive RD&I in long-term programmes which address National priorities
- HIV / AIDS, TB, Malaria, Non-communicable diseases, Maternal and Child Health
- Ongoing crop/animal improvement, alternative pest control initiatives, food safety, aquaculture and climate smart agriculture
- Mainstreaming indigenous products and agricultural goods
- Strengthening Industry (revitalisation with alternative, competitive products & processes based on biotechnologies, such as Eucalyptus Forestry; Sugarcane Industry; Waste treatment; Biocatalysis



# Advanced Manufacturing Technology Strategy

- To identify, grow and sustain niche high-potential Science, Technology and Innovation R&D capabilities that improves the competitiveness of existing and emerging economic sectors and that facilitates the development of new targeted industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals and ICTs.



## Advanced Manufacturing; Chemical industry; Metals & Minerals Beneficiation

- Established Advanced Manufacturing Technology Strategy
- Broad focus areas - current focus: aerospace, biocomposites, additive manufacturing, titanium machining
- Additive manufacturing - Aerosud and National Laser Centre (CSIR) is working on building the next generation 3D printing machine
- Advanced Metals Initiative (AMI) incorporating Light, Ferrous, Nuclear, Precious metals
- Rare earth minerals - studies on Zirconium, Neodymium...
- Have a small scale, unique capability in Fluorochemicals (the beneficiation of fluorspar) which are used ultimately as refrigerants, teflon, and as base for a number of pills (e.g. ARVs).



# Nanotechnology

## Nanotechnology Research Plan

- Identifies research questions to be pursued in advancing the realisation of the goals of the NNS

## Nanotechnology Innovation Centres

- Established to build the capacity for nanotechnology innovation
- Progress (in terms of knowledge generation – HCD & publications – and innovation)

## Nanotechnology Flagship Programme

- To demonstrate the benefits of nano within a short space of time
- Contributed to knowledge generation and innovation

## Nano-TB Project

- Encapsulates existing TB drugs in a biodegradable nano-polymer



## SA Perspectives on Horizon 2020

- Share policy view drivers for international cooperation informed by own priorities
- Support greater focus: SA like EU cannot cooperate with all partners in all areas – strategic choices must be made
  - With strategic partners more ambitious relationships, e.g. coordinated calls
- Agree with increased focus on innovation



# Challenges for international cooperation in Horizon 2020

- Reconcile “competition” and “collaboration”
  - How harness pursuit competitiveness to address global challenges?
  - Brain drain or brain circulation?
  - Relocation of corporate R&D?
- Respond to increased diversity of global research and innovation partnerships
  - South-South cooperation
  - Intensified cooperation and integration in other regions , e.g. Africa
  - Coordination between EC and Member State programmes
  - Alignment and synergy with economic and development cooperation instruments?



# Summary of strategy for S&T cooperation with EU

- Understand and integrate own and partners' drivers for international cooperation
- Exploit comparative (geographical or knowledge) advantages
- Market excellence to promote interest in collaboration
- Develop own strategies in function of rules of instruments
- Make own institutional investments
- Researcher support and advisory mechanisms

## Contact details

- South African Department of Science and Technology
  - <http://www.dst.gov.za>
- European South African Science and Technology Advancement Programme
  - <http://www.esastap.org.za>
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# Thank You



# ESASTAP

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FOR SOCIETAL CHALLENGES

