

**German-Egyptian International  
Cooperation in Science and  
Technology**



Ministry of Scientific Research

# CHALLENGES

- Competitiveness.
- Human Resources (Population increase and brain drain).
- Funding to meet challenges and support S&T and education for creating competing human resources (closed circuit).
- Resistance of Culture Reform.
- Governance and evaluation.



# Egypt S&T Plan



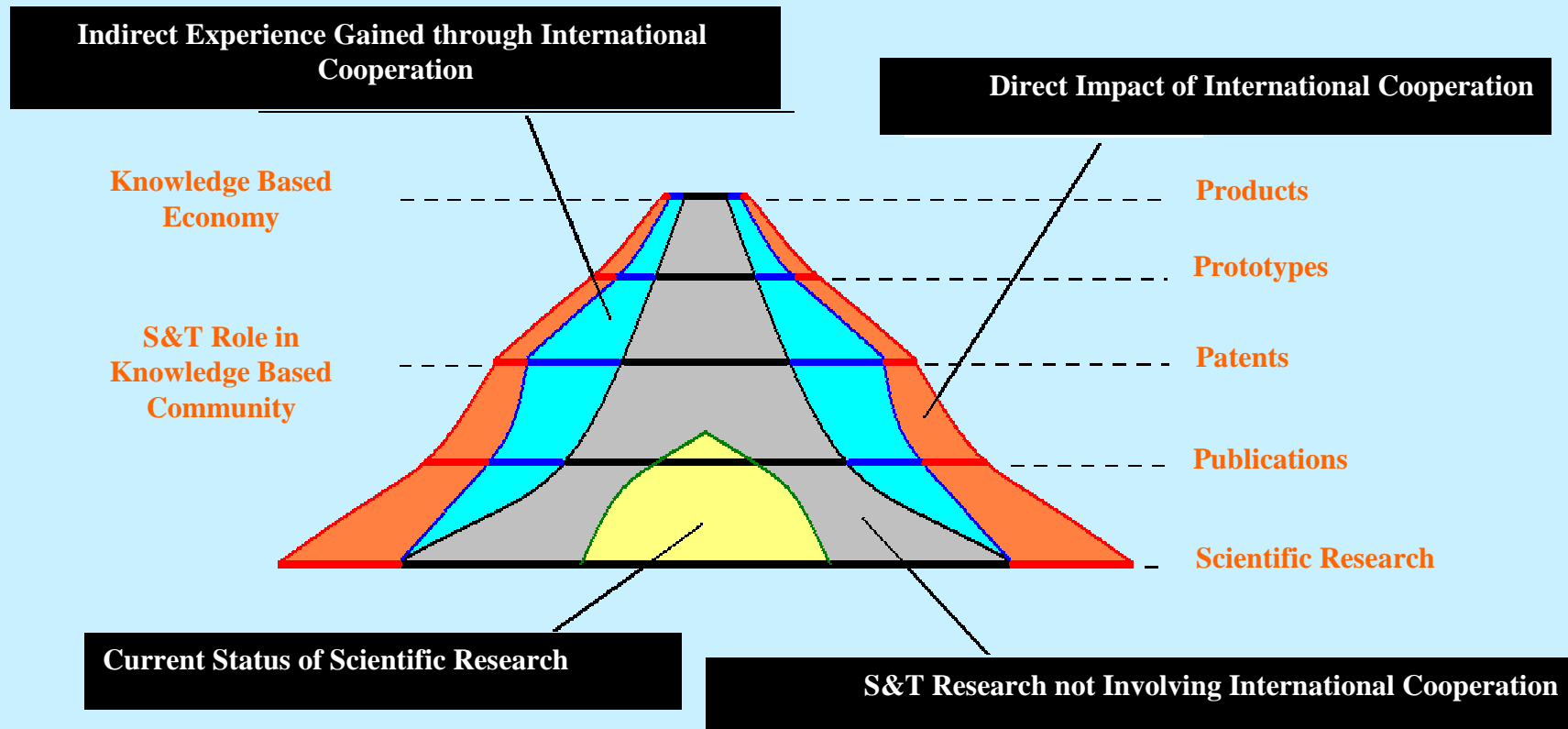
- Egypt is progressing towards the knowledge economy
- Egypt is targeting an annual economic growth of at least 8-9% to sustain its development
- Egypt considers Science & Technology as a vehicle to transform economy
- Need to apply complete cycle of Innovation to impact economy



# “4P’s” Concept



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# PROGRAM STRATEGIC OBJECTIVES

- Strengthening links between Egypt and Germany to promote different disciplines of science and technology.
- Establish collaboration networks and venues to foster new trends in science and technology.
- Promote internationalization of higher education and create long-term strategic partnership between Egyptian and German scientific communities.

# Highlight Events

- Launching and inauguration with Nobel Day Symposium at Cairo University and Exhibition of Culturama in Berlin.
- The hundredth anniversary of the German Archeology Institute (DAI) in Egypt / 40th Anniversary of the German Language Education Department in Cairo University.
- Marine Research Vessel Meteor
- Fair of Sunken Egyptian Treasures in Bonn.
- 55 Years of Cooperation Conference, Social Science as main theme, Germany end 2007.

EVENT	SOCIAL SCIENCE	MEDICAL SCIENCE	BIOTECHNOLOGY	WATER	MATERIAL SCIENCE
<p><b>Cross-Cutting Events:</b></p> <ul style="list-style-type: none"> <li>• 100-Year Nobel Exhibition (Jan 07 – Egypt).</li> <li>• Egyptian Culturama (Mar 07 – Germany).</li> <li>• GETS industry conference (Aug 07- Egypt).</li> <li>• Sunken Treasures of Egypt (May 07 – Germany).</li> <li>• Marine Research Ship (Sep 07 – Egypt).</li> <li>• 55 Years of Cooperation Conference (Nov 07 – Germany).</li> </ul>					
<b>Highlight Event</b>	Goethe Institute Celebration of 40 Years in Egypt	Inauguration of Egypt's first Stem Cell Unit		Inauguration of German Giant water Unit in Egypt	Inauguration of GUC Industrial Park in Egypt
<b>Special Thematic Events</b>	1) Digital Consumer Culture Symposium (Mar 07 - Egypt). 2) Identity and Globalization Conference (Egypt May 07) 3) Language Problems Conference	1) Bilharzia International Symposium. 2) Photo-dynamic Therapy. 3) Hepatitis C Symposium	1) Plants for Life Conference. 2) New Approaches in Dental technology. 3) Infection and Biosafety control.	1) Water resource Management. 2) Science and New Technology in Hydrology.	1) Nano-material symposium. 2) New technology of welding.

# Specialist Topics

- Establishing collaborative networks in six thematic areas.
- Networking through conferences, workshops and video-conferencing.
- Establish funding mechanism to support thematic projects.

# Thematic Areas of Research

1. **Water**
2. **Material Science**
3. **Medical Science.**
4. **Social Science.**
5. **Biotechnology.**
6. **Renewable Energy.**

# (1) WATER

- New Technology for increasing water holding capacity of sand soil.
- Modeling of pollutants in Nile Delta streams.
- Enhancement of desalination of brackish and sea water.
- Modeling of bridge scour.
- Hydrodynamics of Nasser Lake.
- Environmental effects of water re-use policy.
- Water demand management and waste minimization.
- Leak detection in pipe networks.
- Bio-Energy and sustainable Treatment (BEST-project).

## (2) MATERIAL SCIENCE

- Functional Materials.
- Structure of polymeric materials.
- Environmentally friendly tribosystems by suitable coatings.
- Shape Memory Technology.
- Light metal and fiber reinforced composite materials.
- Reactive polymers in heterogeneous systems.
- Nanostructured materials.
- Transformation of antiquity.
- Integrated sheet metals.
- TWIP, TRIP and multiphase steels.
- Hydrogen storage alloys.
- Logic gate materials for optical computing.

# (3) MEDICAL SCIENCES

- Photodynamic therapy in liver cancer.
- Photodynamic treatment of Bilharzia-infested water.
- Renal problems, transplants & bladder cancer.
- Stem cell plasticity (hepatocytes) for treatment of liver cell failure.
- Hepatitis C.
- Detection of minimal residual disease by flowcytometry
- Gene expression profiling in lymphomas.

# (4) SOCIAL SCIENCES

- Globalization and Information Society.
- Problems facing the development of civil culture and social capital.
- Social policies and sustainable development.
- Family, gender and development.
- Formation of Daily life in a Globe World.
- Digital Consumer Culture.

# (5) BIOTECHNOLOGY

- Micro-organism resistance.
- Extreme temperature tolerance.
- Production of biopesticides and biofertilizers.
- Improvement of cellulose degradation.
- Transgenic plants and pharmaceutical industry.
- Environmental cleaning of heavy metals and pollutant spills.
- Production of environmentally friendly biofuels.

## **(6) RENEWABLE ENERGY**

- New technologies in Solar, Hydrology and Wind resources.
- Renewable Energy program.
- Production of Biofeuls from natural oils.