The National Research Centre

www.nrc.sci.eg

Established 1956

Prof. Dr. Ashraf Shaalan

President of the NRC

President@nrc.sci.eg

NRC 2013

- 12 Feddans.
- 10 Research buildings.
- 2 Administration buildings.
- 10 Store rooms.
- Animal houses.
- Green houses.
- 5 Experimental stations.
- Research farm 350 feddans.

Since 1956

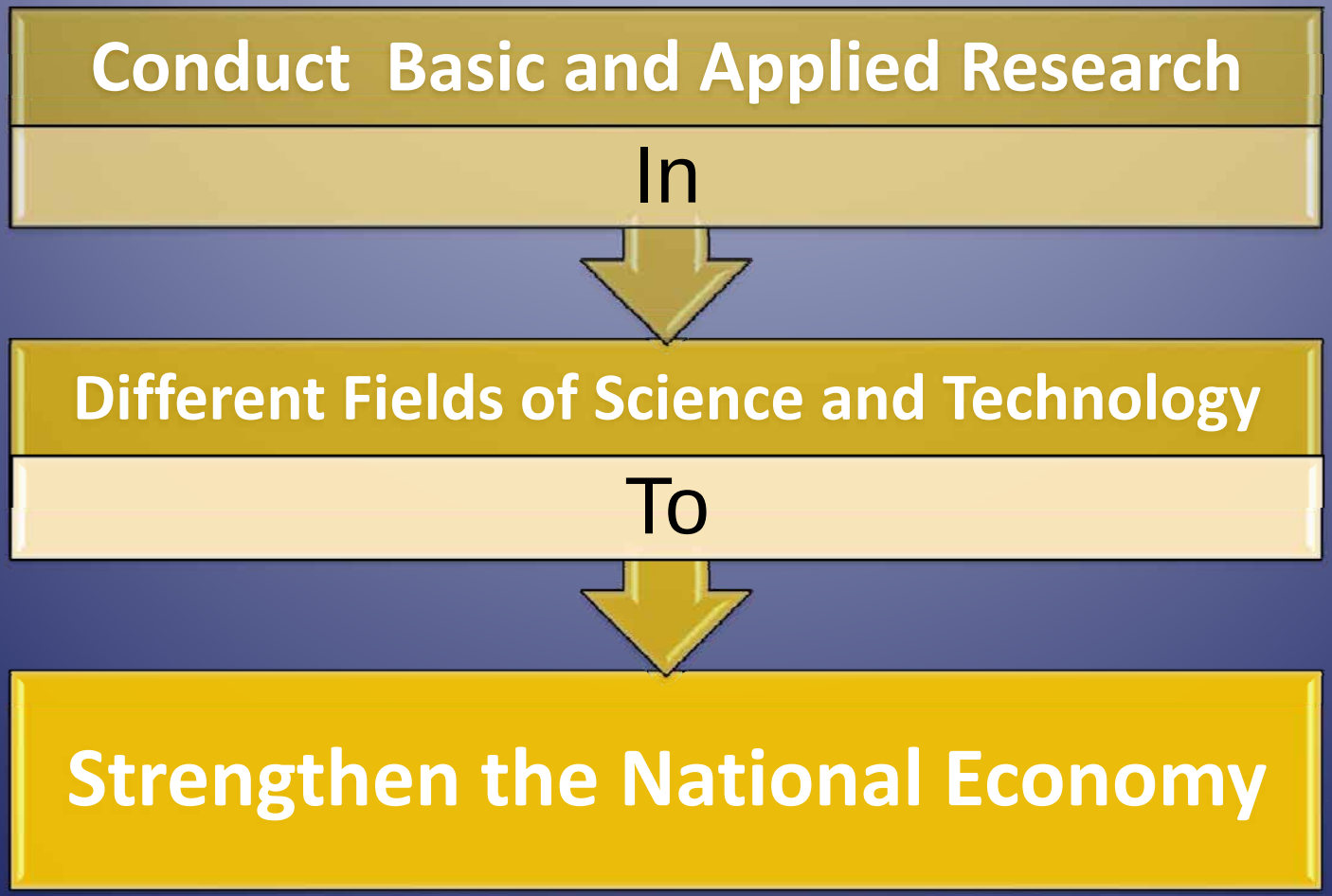
NRC

The major multi-disciplinary

R&D Institute in Egypt

- Devoted to basic and applied research.
- The largest of all institutions affiliated to the Ministry of Scientific Research.
- Employs 70% of all scientists working in these institutions.
- Correspond to the country's key production and services sectors.

NRC Mission

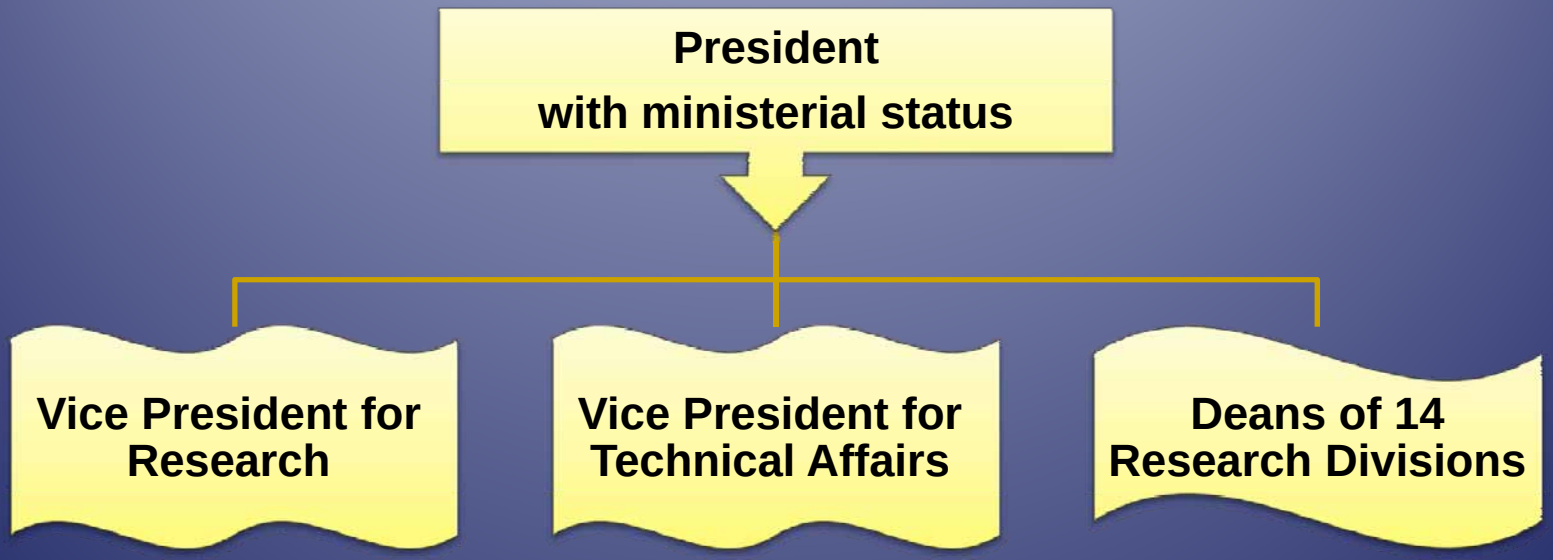

Conduct Basic and Applied Research
In
Different Fields of Science and Technology
To
Strengthen the National Economy

NRC Objectives

Contribute	• in national upgrading of science & dissemination of knowledge
Guide	• the national economy
Strengthen	• scientific linkages and cooperation with local and international organizations
provide	• scientific services and consultations
Training	• Graduate students

Organization Structure

Organization structure



Organization Structure (cont.)
Research Divisions

- Environmental Sciences
- Medical Sciences
- Human Genetics & Genome
- Oral and Dental Research
- Textile Industries
- Food Ind. and Nutrition
- Inorg. Chem. Ind. and Mineral Resources
- Engineering Research
- Pharmaceutical Industries
- Org. Chem. Industries
- Agriculture & Biology
- Veterinary Research
- Genetic Engineering & Biotechnology
- Physics

- Health and Environment
- Industrial Research
- Agriculture and Biology
- Basic Science

NRC Strengths

Manpower

- **Research staff: 2903**
- Scientific assistance: **1564**
- **Administrative staff: 3100**

Research and Development

Research and Development Projects

NRC activities are ***product- or service-oriented*** in order to address the national needs more effectively through scientific and technical research.

Research and Development (Cont.)

Research Projects

Customer-Oriented

Addressed to national needs

1- In-house projects - Governmental budget (18%): 9th plan (2010-2013)

2- National projects – contracts (30%)

3- International projects (52%)

Current Strategy

- Advanced Basic & Applied Scientific Research
- Interaction with Production and Service Sectors
- International Relations

Major Activities

The 9th Research Plan
July 2010 – June 2013

Research Groups

- Renewable Energy
- Water
- Nanotechnology and New Materials
- Biotechnology
- Agriculture
- Waste Management
- Stem Cells
- HCV
- Obesity
- Cancer
- Diabetes
- Human Genetic
- Functional Foods
- Polymers

Major Activities

The 10th Research Plan
July 2013 – June 2016

Announced Research Groups

- Human Health
- Reverse engineering of exempted patents
- Renewable energy
- Application of Frontier Sciences in Different Disciplines
- Functional Food
- Agriculture Veterinary medicine
- Utilization of carbon nanotubes in different disciplines
- Diagnostic kits
- Research projects for Development of Sinai
- Industrial End product or service
- Water
- Food safety
- Utilization of Wastes
- Cleaner production

Important On-going Projects

Health

- Use of Gold Nanoparticles in Treatment of Cancer
- In collaboration with Prof. Dr. M. El-Sayed

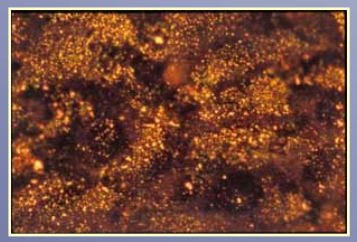
Water

- Engineering and technological development of water desalination membranes

Energy

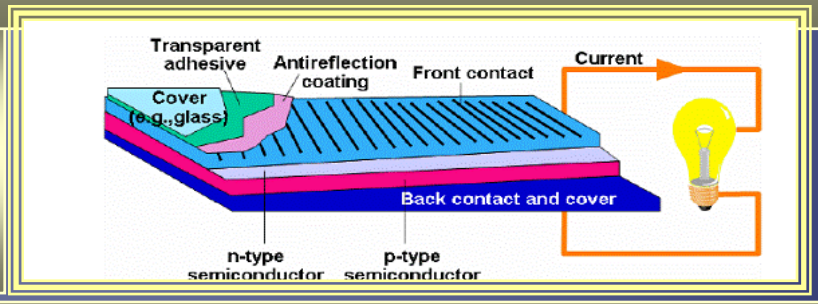
- Production of biofuels from waste materials

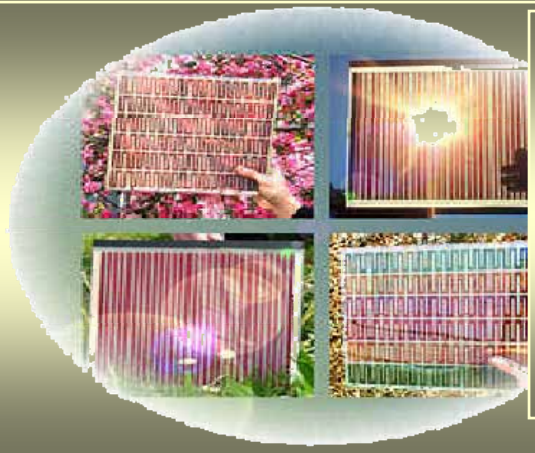
On going Major Projects



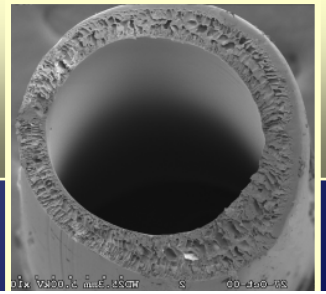
Use of gold nanoparticles for the diagnosis and treatment of cancer

Production of Egyptian solar cells from nanoparticles





Engineering and technological development of water desalination membranes



Biotechnology Plant Unit

Pilot Plant

A multipurpose Pilot Plant, a Chinese Grant

Some Plant Equipment

Distillation

2 Reactors

Multi-speed Centrifuge

Extraction

Filtration

Dryer

Absorption

Centres of Excellence

The NRC has awarded an amount of about $US 5,000,000 to promote establishing of three centres of excellence

The Pentagon of Excellence

Centre of excellence for advanced materials

Centre of excellence of medical sciences

Centre of excellence for Innovative Technologies and Innovative Textile Products

Centre of Excellence for Human Genetics

Centre of Excellence of Enfluanza Virus

New Era of Scientific Research at the NRC

- In July 2012, the NRC started to establish a new building for the labs of 14 new/stringent scientific research areas. This is coupled with purchasing equipment, capacity building programs for those juniors who will be the stick holders of these fields.
- Examples of these areas of researches are:
- Fibre Formation Labs
- Safety Lab BSLIII
- Pro-biotics & Food Safety
- Core laboratory for bioseparation and bioprocess engineering

Training Facility

- **The Training centre at the NRC has a great experience in the organizing training courses almost in all fields related to the different industrial and environmental sectors since 1983. The centre has the ability to organize 365 national and international training courses in scientific as well as non-scientific topics.**

Current Strategy (Cont.)

INTERNATIONAL RELATIONS

International Relations

International Relations Office:

Scientific channels with regional and international universities and research centers.
Projects, contracts and scientific agreements.

African Relations Office:

Promotes the Scientific cooperation with African countries

European Relations Office:

Promotes the Scientific cooperation with European countries

NRC Networking

International Organizations:

- **Center of excellence** (2004) by the Commission on Science and Technology for Sustainable Development in the South, **COMSATS & for Biotechnology (2007)**
- **The interim regional hub** in Biosciences for North Africa by the New Partnership for Africa's Development, **NEPAD**
- Third World Academy of Science, **TWAS**
- Third World Network for Scientific Organizations, **TWINSO**
- World Association of Industrial and Technological Research Organizations, **WAITRO**
- Middle East and North Africa **(MENA)**
- African Network for Drugs and Diagnostic **(ANDI)**
- African Academy of Sciences **(ASF)**

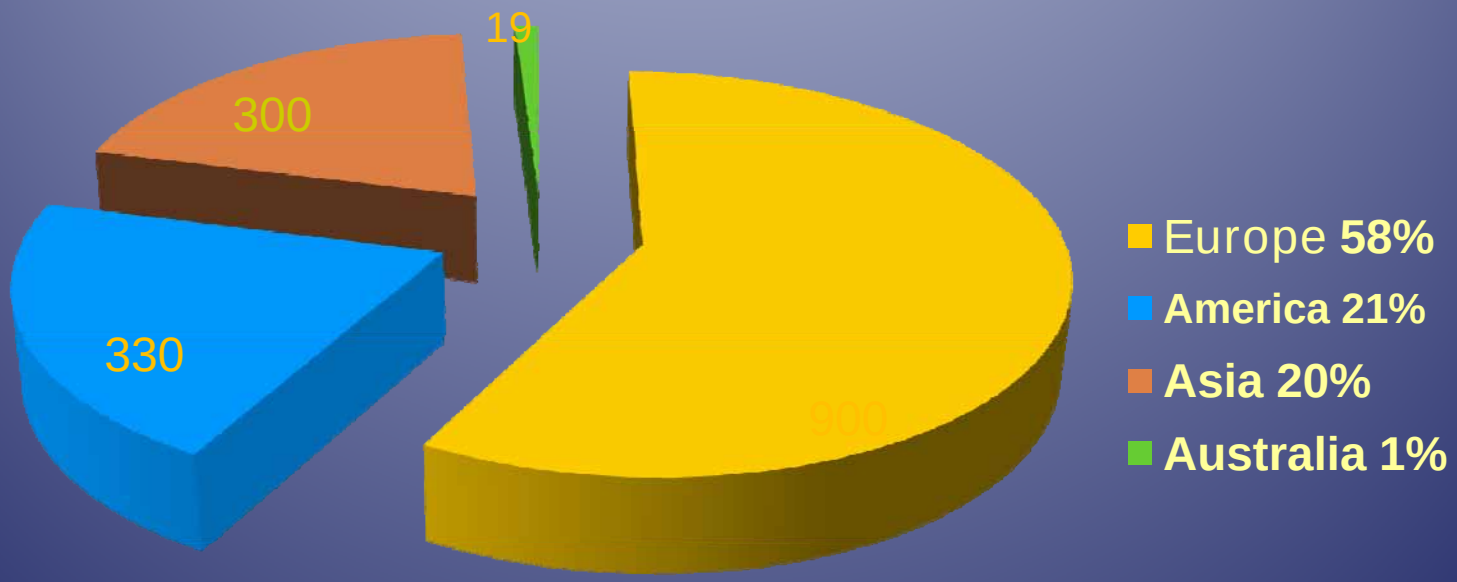
NRC Networking (Cont.)

Recently Signed International Protocols

- Korean Industrial Technology Foundation
- National Engineering Academy of Kazakhstan
- Yarmuke University in Jordan
- National Research Centre in Sudan
- Arab Union of Textile Industries
- Technical University of Liberec, Czech Republic
- National Cancer Institute , USA

NRC Networking

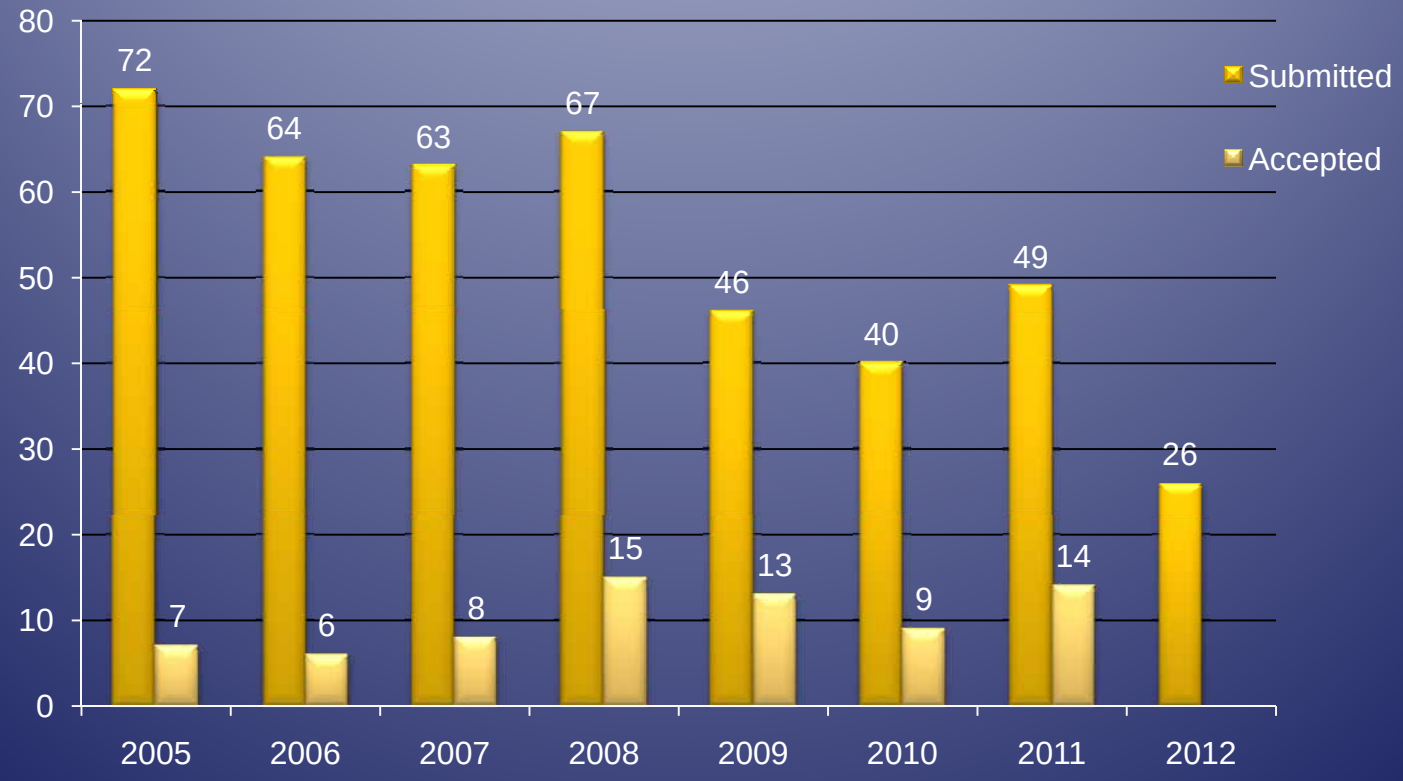
NRC Scientific Cooperation (2000/2010)

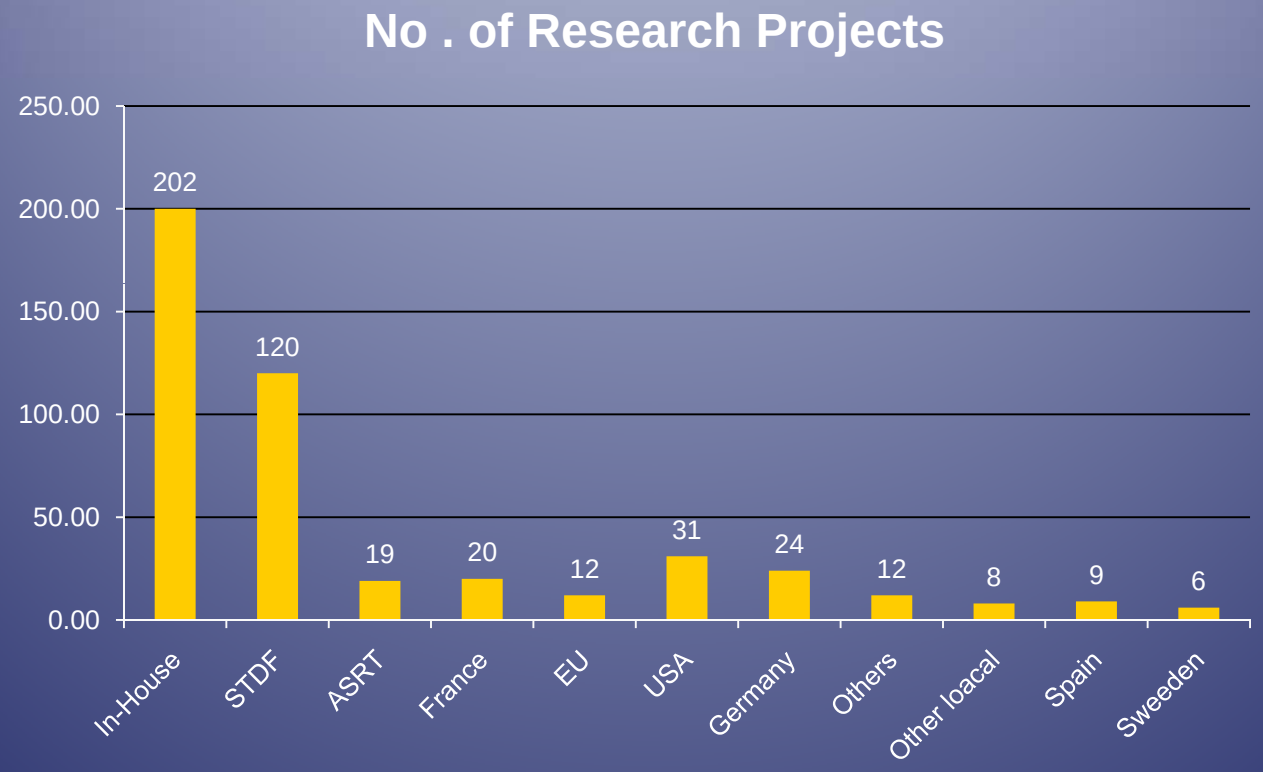


Scientific Records


No. of International Publication
2000
1800
1600
1400
1200
1000
800
600
400
200
0
342
429
432
533
635
352
748
886
1219
1875
1560
1498
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012

No. of Submitted and accepted Patents




No . of Research Projects
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200.00
150.00
100.00
50.00
0.00
202
120
19
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ASRT
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Others
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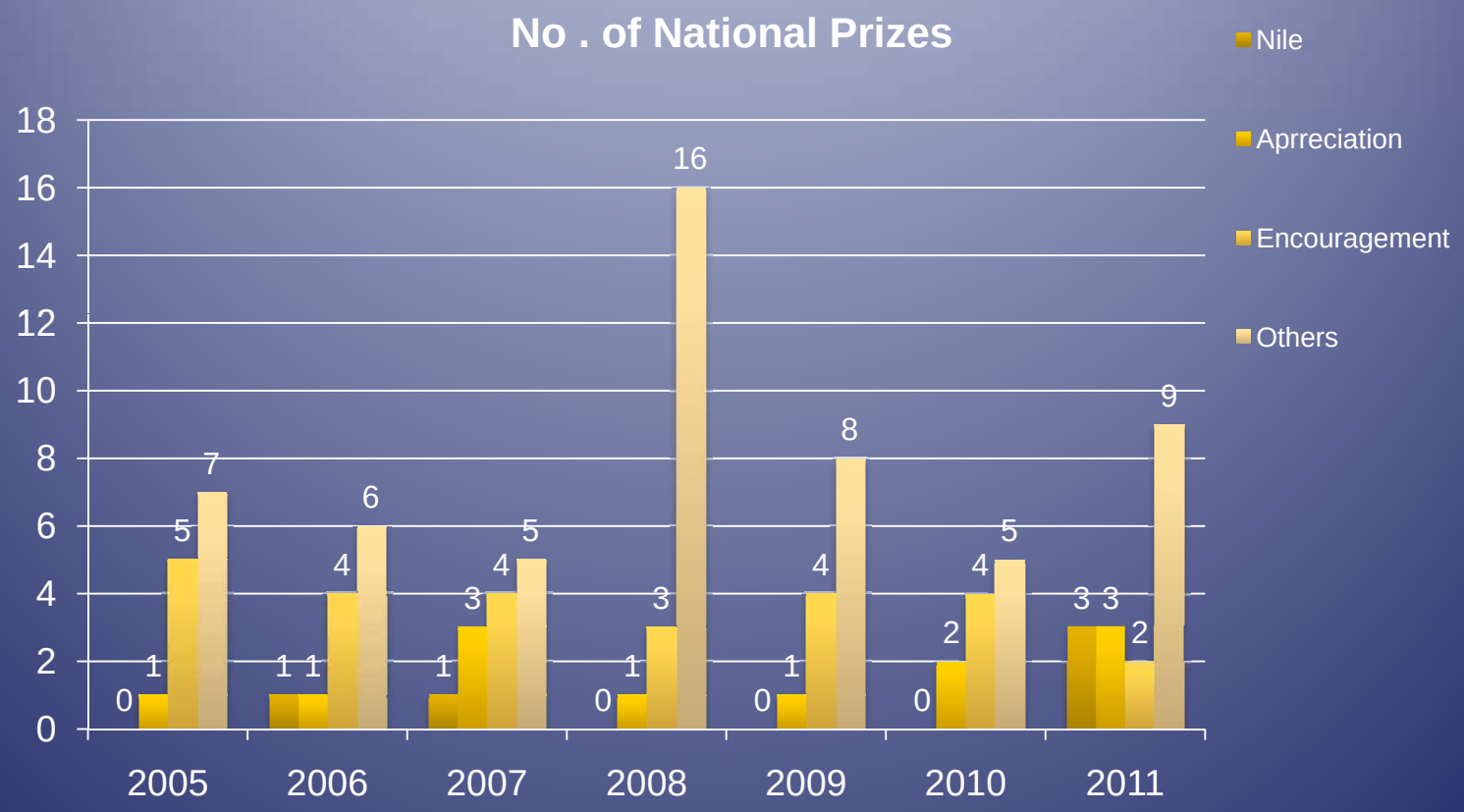
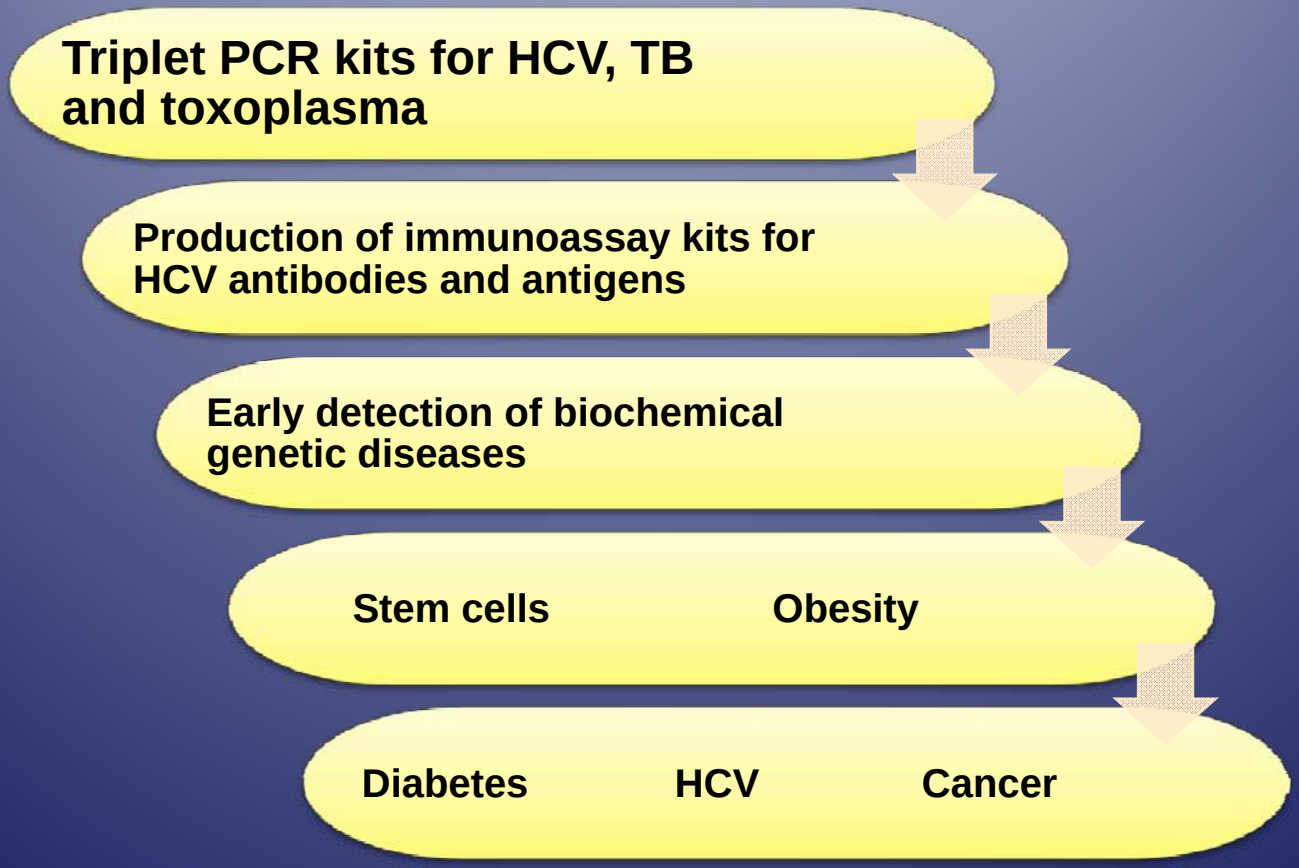


Apart from many other International and NRC prizes

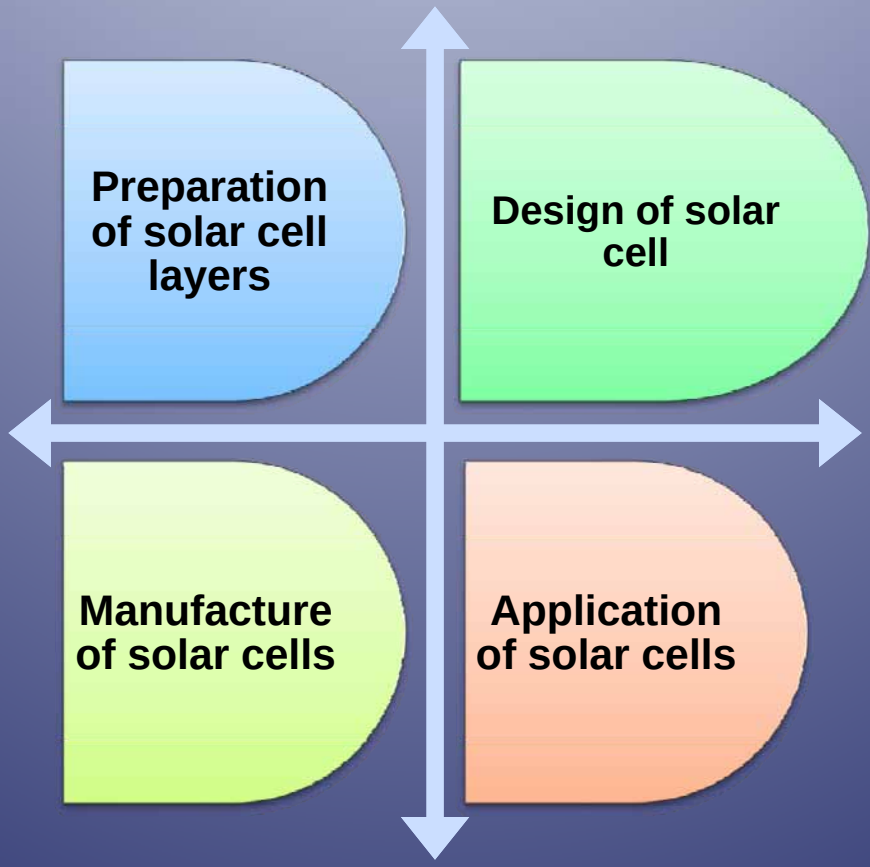
Applied Research opportunities

The National Research Centre of Egypt has reputable contributions in many fields. The NRC is willing to promote collaboration with the staff of the akin disciplines in the CSIR as well as COMSATS centres of excellence in all or some of the following fields

Applied Research opportunities
1- Health



Applied Research opportunities
2- Solar Cells



Applied Research opportunities
3- Nanotechnology

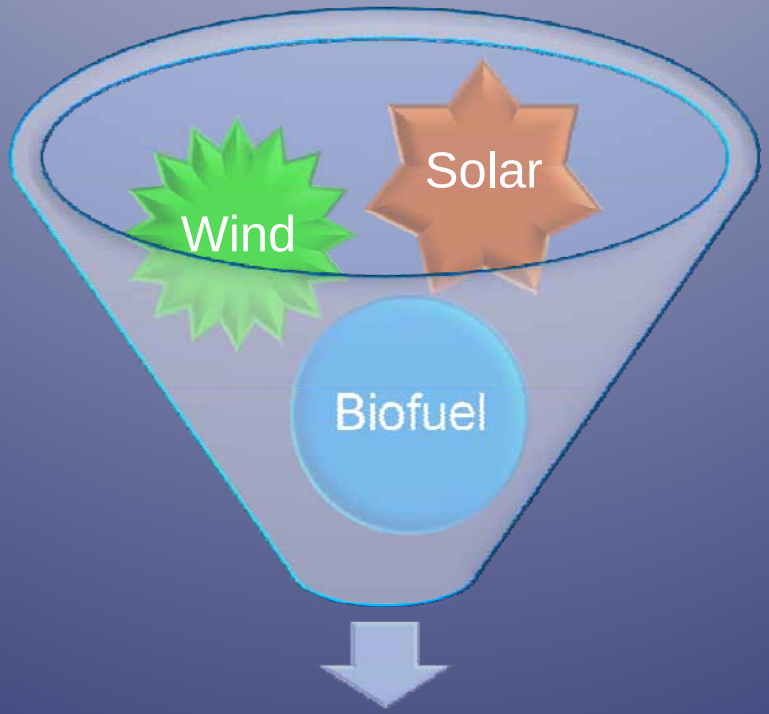
Hard disk applications based on magnetic nanoparticle

Biosensor based on metal and semiconductor nanoparticles for virus, bacteria and DNA detection

Bioactive ceramic/polymers nanocomposite for biomedical applications

Application of carbon nanotubes in medicine and environment

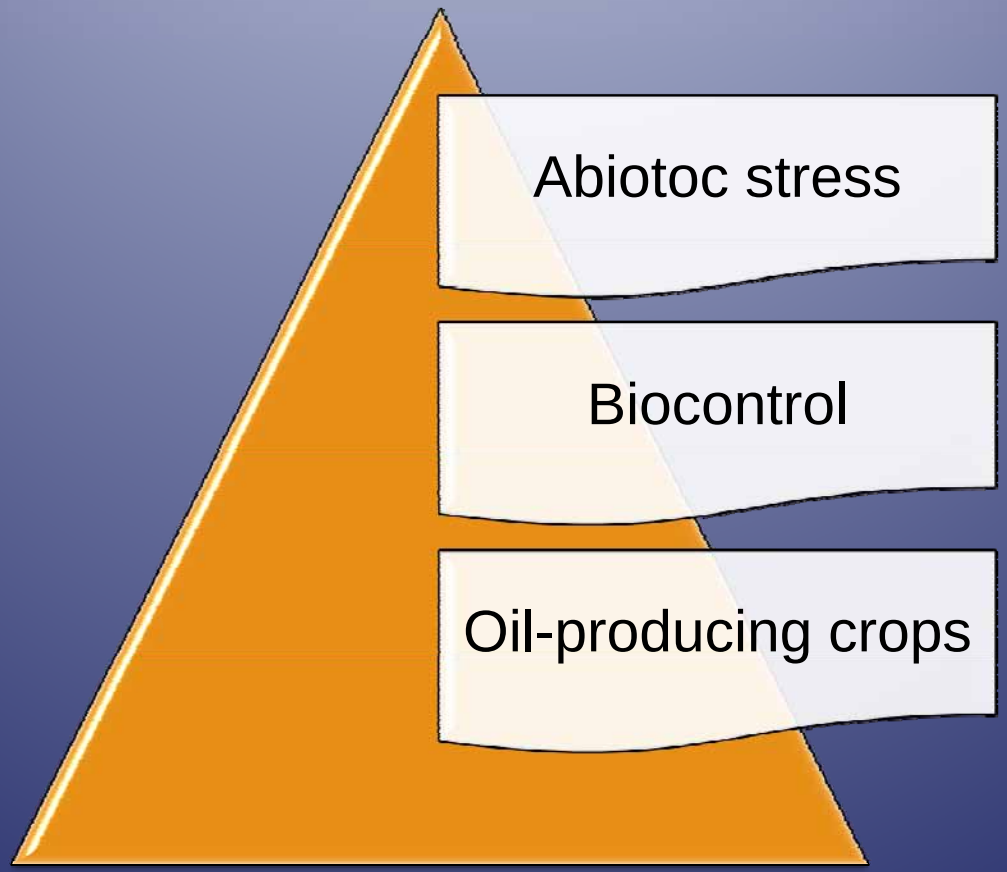
Applied Research opportunities
4- Renewable energy



Applied Research opportunities
5- Industrial Research

- **Purification of industrial water from heavy metals and other contaminants**
- **Functional Food from traditional experience to modern production**
- **Functional polymers for various applications**

Applied Research opportunities
6- Agriculture



Thank You