Research regarding PRIMA Calls in Southern Mediterranean countries "Egypt"

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Outline of Egypt STI Strategy 2030

Vision	• Development of Egypt relies on permanently learning generation able to produce and use knowledge	
Mission	• Nurturing enabling STI environment and performance assessment of different STI entities in the light of its ability to produce and use knowledge and to make use of the available resources	
Strategic Objectives	• Enhancing Knowledge production, reaching food sufficiency and increasing locally manufactured products	
Tracks	• Nurturing Enabling Environment for STI	• Production, Transfer and Localization of Technology
Pillars	•1-STI Policies •2-Scientific Base •3-STI system •4- Basic & converging sciences •5-Link Academia / Industry •6-Int. Cooperation • 7-Science for society	• 1-Health • 2-Energy • 3-Clean Water • 4- Food and Agriculture • 5-Environment • 6-Emerging Technologies • 7-Industry (Textile, Pharmaceuticals, Electronics)
Tools	• Fund, STI Policies, Follow Up, Monitoring and Impact Assessment	

Priority Research Areas

STI activities were directed to specific priority sectors and technological areas, such as:

New and Renewable Energy	**Management of Water Resources** •*(including water reuse, water use efficiency, ground water use, water desalination and waste water treatment),*	**Nutrition and Food Security & Safety, and Agriculture** •*(including Aquaculture & Fisheries)*
Health and wellbeing	**Environment including climate change**	**Future and Emerging Technologies**
Strategic Industries •*(e.g. Textile Industries, Pharmaceutical Industries, Chemical Industries)*	**Information & Communication Technologies (ICT)**	**Education as a national security**
Mass communication and social values	**Trade and investment**	**Tourism Industry**

Research Capacity in Egypt

Universities

Private Universities

- **6,820** Teaching Staff + Assistants

State Universities

- **18 centers**
- **98,332** Teaching Staff + Assistants
- **130,000** PG students

30% of teaching staff's time is dedicated to research

Research Centers

Private sector

- **300 centers**

Other ministries

- **15 centers**
- **7,500 researchers & assistants**

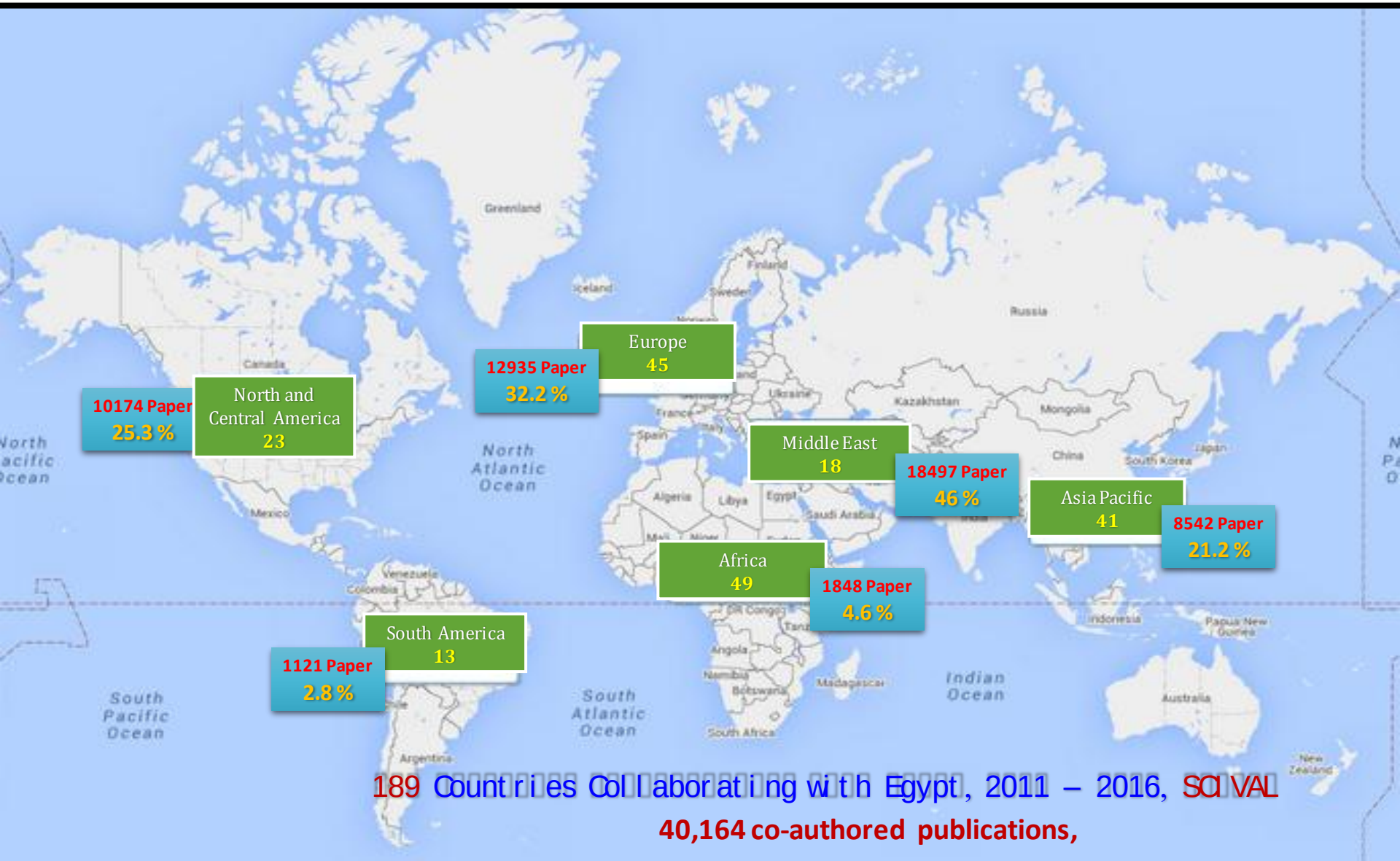
Ministry of Scientific Research

- **11 centers**
- **15,400 researchers & assistants**

100% of researcher's time is dedicated to research

more than 128,000 researchers, teaching staff members and assistants

Collaboration in International Publications



189 Countries Collaborating with Egypt, 2011 – 2016, SCIVAL

40,164 co-authored publications,

Egypt Vision 2030

Egypt is one of the best

30 Economies globally

by 2030

The National Research Centre
1956-2017

NRC Divisions

Health and Environment Research

- Environmental Sciences
- Medical Sciences
- Human Genetics and Genome Research
- Oral and Dental Research

Agricultural and Biological Research

- Agriculture and Biology
- Veterinary Research
- Genetic Eng. & Biotechnology

Industrial Research

- Textile Industries
- Pharmaceutical Industries
- Food Industries and Nutrition
- Engineering Research
- Organic Chemicals Industries
- Inorganic Chemicals Industries & Mineral Resources

Basic Sciences Research

- Physics

NRC Strengths

Man Power

- Research staff: 3150
- Scientific assistance: **1650**
- Administrative staff: 2560

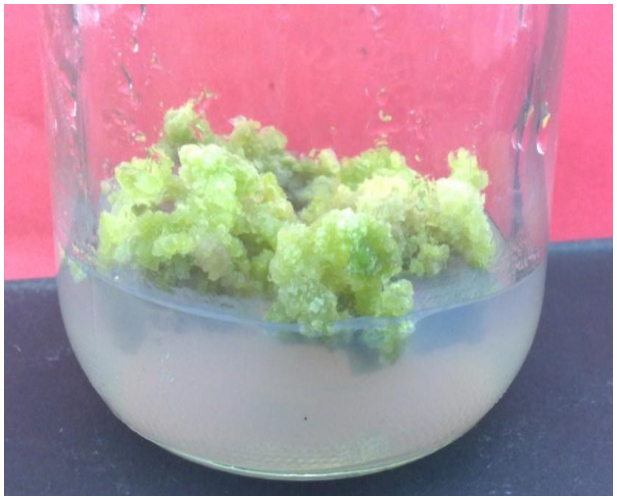
Total: 7360

Sustainable technologies for domestic wastewater treatment in rural areas and small communities for appropriate agricultural use

Pilot-scale combination of hybrid UASB reactor and Hanging Sponge (DHS) system treating domestic wastewater at experimental area (Mit Dafer village)

Improving the Water Distillation System by Using Portable Solar Distillers of High Performance

Application of plant biotechnology in vitro and in vivo and production of pharmaceutical raw material from some hard propagated plants



Application of some natural deposits to substitute chemical fertilizers

National Research Centre (NRC)

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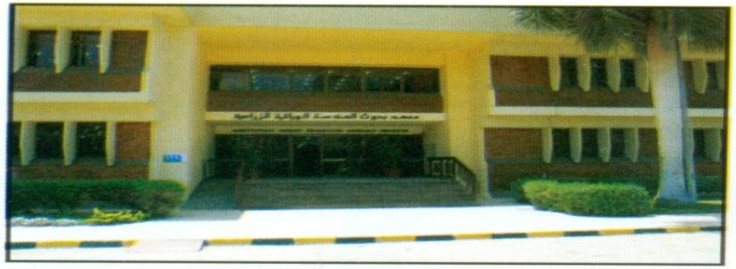
Agriculture Research Center (ARC)

- *ARC embodies 16 institutes,*
- *12 central laboratories,*
- *3 information centers, 10 regional stations*
- *53 specific research stations,*
- *23 research administrations throughout Egypt and 4 research, extension and training centers of high quality.*

A. RESEARCH INSTITUTES



1. Field Crops Research Institute (FCRI)
2. Cotton Research Institute (CRI)
3. Soils, Water and Environment Research Institute (SWERI)
4. Horticulture Research Institute (HRI)
5. Sugar Crops Research Institute (SCRI)
6. Plant Protection Research Institute (PPRI)
7. Plant Pathology Research Institute (PPthRI)
8. Agricultural Economic Research Institute (AERI)
9. Agricultural Extension and Rural Development Research Institute (AERDRI)
10. Food Technology Research Institute (FTRI)
11. Animal Production Research Institute (APRI)
12. Animal Health Research Institute (AHRI)
13. Veterinary Serum and Vaccine Research Institute (VSVRI)
14. Animal Reproduction Research Institute (ARRI)
15. Agricultural Engineering Research Institute (AEnRI)
16. Agricultural Genetic Engineering Research Institute (AGERI)

B. CENTRAL LABORATORIES

1. Central Laboratory of Agricultural Pesticides (CLAP)
2. Laboratory of Design and Statistical Analysis Research (LDSAR), FCRI
3. Prof.Dr. Mostafa Elsayed Nanotechnology and Advanced Materials Central Laboratory.
4. Central Laboratory for Agricultural Expert Systems (CLAES)
5. Central Laboratory for Agricultural Climate (CLAC)
6. Central Laboratory for Aquaculture Research (CLAR)
7. Date Palm Research Laboratory (DPRL)
8. Central Laboratory for Residue Analysis of Pesticides and Heavy Metals in Foods (CLRAPHMF)
9. Central Laboratory for Evaluation of Veterinary Biologics (CLEVB)
10. Weed Research Central Laboratory (WRCL)
11. Central Laboratory for Organic Agriculture (CLOA)
12. National Gene Bank (NGB)
13. Regional Center for Food and Feed (RCFF)

C. SECTORS, CENTRAL ADMINSTRATIONS AND CENTERS

1. Production Sector (Plant & animal production improvement unit).
2. Agricultural Mechanization Sector .
3. Central Administration for Research and Agricultural Experiment Stations .
4. Central Administration for Agricultural Extension .
5. Information and Documentation Center .
6. Technology Management and Commercialization Office .

National Research Programs at ARC

1. Soil, Water & Environment
2. Plant Protection
3. Food Technology
4. Agricultural Genetic
5. Engineering
6. Food & Feed
7. Economics & Extension
8. Cereals
9. Fiber Crops
10. Oil Crops & Onion
11. Forage Crops & Legumes
12. Sugar Crops
13. Horticulture Crops
14. Animal & fish Production

Topics of Interest in PRIMA Calls 2018

Plant Production

- Develop and increase field irrigation efficiency in targeted lands from 50% to 75%.
- Wheat: to narrow the Gap / self-sufficiency: increasing cultivated area, increasing production/acre/water consumption, reduction postharvest losses to enhance food security.
- Maize: increase cultivated area and replace the white corn with yellow maize.
- Horticultural crops: to increase exports, intensive farming of early mature and high yield varieties with more effective irrigation and pre and postharvest process.
- Manufactured products: National program to develop and modernize agribusiness to improve the quality of products.
- Innovation in rationing water consumption for food and feed crops while benefiting from their waste in industrialization and soil improvement.
- Innovation new farming techniques reduce global warming, air and pollution water to produce safety food.
- Maximize the utilization of agricultural products such as feed and food, medicine, fertilizer and energy.
- Developing high yielding Egyptian wheat cultivars tolerant to heat Via Genome Wide Association Mapping
- Molecular breeding for enhancement of tolerance to a biotic stresses for high grain yield and quality traits in wheat crop
- Assessment of barely genotypes production under variable water regimes and salinity levels to address climate change

Topics of Interest in PRIMA Calls 2018

Plant Production

- Developing barely genotypes adapted for production in the newly reclaimed 1.5 million acre using underground water
- Improving barely production for food and feed in the rain fed areas.
- Integration of physiological and molecular methods for a biotic stress tolerance in grain cereals
- Development of drought tolerant maize hybrids to reduce irrigation water required for maize production
- Development of early maturing maize hybrids as a tool to solve increasing water crisis
- Limiting post-harvest losses in wheat value chain
- Planting wheat on raised bed with furrow irrigation for better water management
- Developing new wheat cultivars under low input of irrigation water and nitrogen fertilizer
- Producing of some grain sorghum genotypes for high resistance to drought, salinity and high temperature
- Monitoring of environmental and pesticides residues in food of animal origin and its impact on the consumers
- Improving clover productivity through developing improved clover varieties, expanding their cultivation, developing the seed industry and expanding the cultivation of multi-foliate clover to encourage dairy production.

Topics of Interest in PRIMA Calls 2018

Animal Production:

- Poultry: to reach again the self-sufficiency in improving quality and the safety of poultry production.
- Exploitation of aquaculture for the development of non-traditional crops.
- Developing current fish culture systems for freshwater fish in order to reduce the amount of used water and raise the quality of fish product in order to reduce the amount of used water and raise the quality of fish product
- A functional value chain infrastructure with capacity to handle farmed tilapia
- Innovation in animal and poultry vaccinations
- Management of trans boundary and emerging diseases of animals and poultry in Mediterranean region
- Favorable water conditions for upgrading fish reproduction to the utmost
- Global climate changes and chemical environmental pollutants a threat to lake ecosystem with special reference to fish production.
- Innovation for development of low cost veterinary diagnostic kits based on proteomic, genomic and bioinformatics.

Topics of Interest in PRIMA Calls 2018

Animal Production:

- Improving indigenous cattle herds, through crossing with Frisian cattle and other high lactating exotic breed adapted to local conditions
- Adopting a long term regional program for the genetic improvement of buffaloes, through selection, establishing nucleus breds, artificial insemination with semen taken from males from Italian buffalo.
- Introducing best practices and modern applications of the biotechnology from EU states in the Mediterranean area in genetic improvement of dairy cattle and buffaloes.
- Genetic improvement of indigenous and mixed sheep breeds to increase production;
- Introducing new biotechnology applications in genetic improvement of local poultry breeds with exotic breeds.
- The eradication of the Foot-and-Mouth, Brucellosis, Tuberculosis and Avian flu diseases;
- Developing a basic system for collecting, handling and processing milk at the level of small farmers.

Topics of Interest in PRIMA Calls 2018

Climate Change

- Enhancing Climate Resilience of Smallholders Farmers in Mediterranean region

Agriculture Research Center (ARC)

Contact Person:

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National Water Research Centre (NWRC)

- NWRC established a wide spectrum of research facilities, enabling its researchers to conduct high quality research and produce knowledge based on accurate results measurements. Its institutes host more than 20 experimental stations and pilot fields spread through different hydrological regions of Egypt. Some of the stations/fields are established to serve a single institute; others serve multi research objectives. Over the years, NWRC administrations managed to found well-equipped indoor and mobile laboratories. The Central Laboratory for Environmental Quality Monitoring is by far the largest and most advanced laboratory owned by NWRC. Other labs are institute oriented, serving specific research focus and objective.

- NWRC operates and maintains a number of national monitoring networks and surveying programs, through some of its institutes. Data collected from these networks and programs are characterized by its highest level of accuracy so that research results and findings' uptake is maximized. The resultant long time series and large sets of spatial data furnish the base for NWRC's researchers to make accurate predictions of water resources' variables either in space or time. In addition, they have an access to advanced ICT and software applications; this leads to new insights and intriguing research questions.

Topic 1.1.1 Water Resources Availability and Quality Within Catchments and Aquifers:

- The Nile Research Institute (NRI), Research Institute for Groundwater (RIGW), the Water Resources 'Research Institute (WRRI) and the Environment and Climate Change Research Institute (ERCI) have long experience in conducting research in the area of "Surface-groundwater interaction and conjunctive use policies". WRRI also carries out research in rain water and flash flood harvesting in remote rural areas (Wadi Systems). In addition, NRI, WRRI, and ECRI are responsible for research in the area of River flow forecasting and monitoring and Monitoring and assessment of climate change long-term effects on water resources and related environmental systems as well as identification of optimal adaptation measures and policies related to water resources. The Survey Research Institute (SRI) supports these institutes by assisting them with the use of the remote sensing tools and applications in the various research areas.

Topic 1.1.2: Sustainable, Integrated Water Management

- WRRI, NRI, Water Management Research Institute (WMRI), Drainage Research Institute (DRI), Channel Maintenance Research Institute (CMRI), Construction Research Institute (CRI) and the Strategic Research Unit (SRU) conduct research and gained experience in the areas of Development and adaptation of mathematical models and decision support tools for integrated water resources management, Assessment of socio-economic impacts of implemented integrated water management measures, Investigating innovative materials and technologies for installation, maintenance and operation of subsurface drainage and irrigation systems, as well as hydraulic structures.

Topic 1.1.3: Irrigation Technologies and Practices

- NRI, WMRI, DRI, and CMRI carry out research related to Formulation of new modelling approaches for irrigation water management under different shortage scenarios and drainage water reuse schemes, Guidelines for optimal on-farm water management schemes and practices with emphasis on Social and economic aspects of on-farm water management policies, Physical/mathematical hydraulic and surface water quality modelling of irrigation and drainage canals, Developing of innovative methods for the control and management of aquatic weeds, Off/in-stream engineered wetlands for drainage water treatment for use in irrigation and aqua-culture.

National Water Research Centre (NWRC)

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Deputy Chairperson

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Egypt's Eligibility in PRIMA Calls 2018

Yes we are

www.prima-med.org

Thank You for You Attention !

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