



<p>Textile Industries Research division</p>	<p>Genetic Engineering and Biotechnology Research division</p>
<p>Medical Research Division Research division</p>	<p>Chemical Industries Research division</p>
<p>Pharmaceutical Industries Research division</p>	<p>Human Genetics Genome Research & division</p>
<p>Veterinary Research division</p>	<p>Agriculture and Biology Research division</p>
<p>Engineering Research division</p>	<p>Food Industry and Nutrition Research division</p>
<p>Inorganic Chemical Industries and Mineral Resources Research division</p>	<p>Physics Research division</p>
<p>Oral & Dental Research division</p>	<p>Environmental Sciences Research division</p>

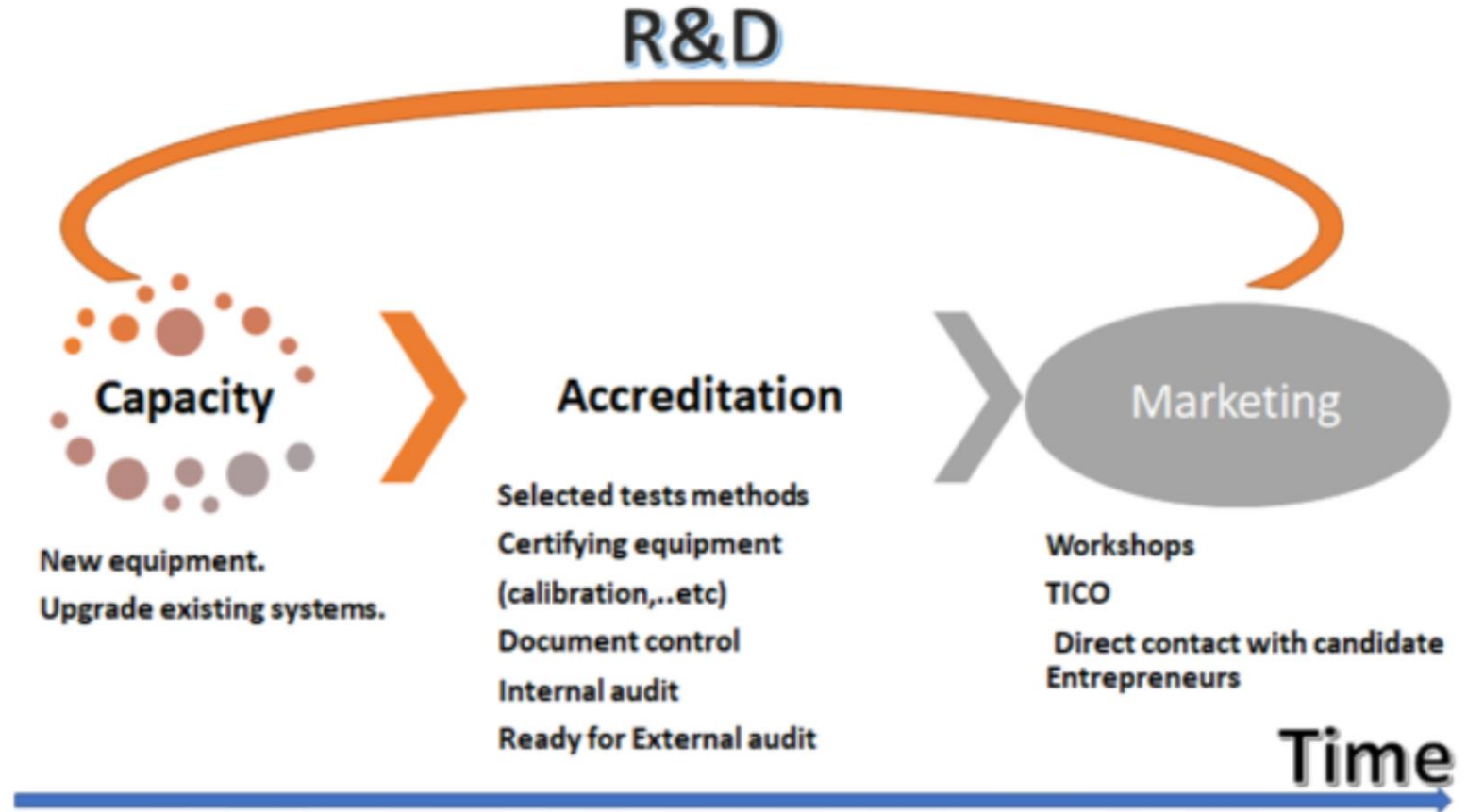



GREEN TECHNOLOGY IN INDUSTRY

*Center of excellence for low carbon
renewable energy*

SC-LCRW Road Map

R&D



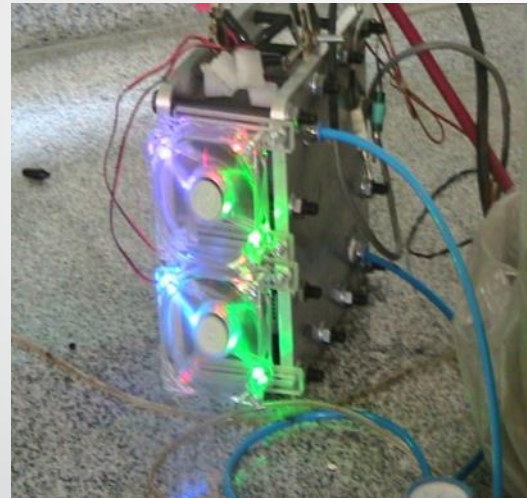
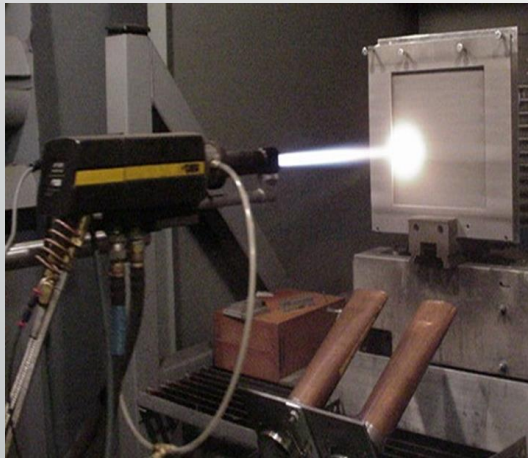
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- **Solar Energy** : Provide scientific and technical solutions for **solar cooling, solar water desalination and pumping systems** in remote regions in Egypt.
 - **Wind Energy** : With the **high-performance blade design, a VAWT will be designed**, fabricated and tested as a prototype of the turbine. The known aerodynamic characteristics of the blade will be fed into a numerical simulation of the prototype in order to optimize the design of the prototype.
 - **Biofuel from Jatrova and recycled oils**: To reach cost-effective production of environmentally safe biofuel from domestic and renewable resources in Egypt and to provide consultation and services concerning biofuels production in general, covering design, installation, optimization, funding, and problems in existing plants.
 - **Ethanol from Agricultural Wastes**: To come up with a nationwide strategic plan for production of ethanol from available lignocellulosic wastes in general and rice straw in particular
 - **Hydrogen Fuel cell production**: Creating an Egyptian Roadmap for hydrogen and fuel cells that leading-in the final stage to promote commercialization.



SUCCESS STORIES

Hydrogen Fuel Cells

- Hydrogen Production and storage methodologies.
- Manufacturing Polymer Electrolyte Membrane Fuel cell stack Prototypes



Biofuel production Section Pilot plant hall



SOLAR ICE MAKER FOR FISHING BOATS



This system will be designed for small boats with a short fishing trips (7 to 10 days) where the total catch is between 150 to 200 kg needing about 500 kg of ice per trip.

Building a Pilot Solar integrated Complex to Produce Water, electricity, food and salt for new communities



General View of the Greenhouse



Solar Hydroponic System for Plantation



Solar Drying System

Solar Dryer for agricultural Products and Medical Herbs



UTILIZING SOLAR ENERGY IN INDUSTRY

- **SUCCESS STORY:**
- Converting all heated water supply for Savola Egypt to thermal solar heated.
- Innovative system is used to assist the low pressure boilers used in the refining process. About 400,000 m³ of natural gas is saved annually by the solar system.
- The boiler is used about 8 hours a day from 8 am to 4 pm. The solar fraction of the system is about 0.724 per year, i.e., the solar fraction of the system is 72.4%.

Where we stand?

- Solid Infra structure.
- Thousands of International Publications
- National and International Patents
- Hundreds of Funded projects
- Prototypes
- Final Products
- Legislations (President for Innovation Incentive establish –share in companies factories.....etc)

مادة (4)

بيانات التعليم العالي والبحث العلمي تأسيس شركات مساهمة بفردها أو بالاشتراك مع الغير في مجال تخصصها
لبحسب بهدف استغلال مخرجات البحث العلمي، والسلطة العلمية المختصة الموافقة على إشراك الباحثين في تلك
شركات بنسبة تحددها، وذلك لقاء استخدام مخرجات البحث العلمي أو التطوير الذي تقوم الشركة باستخدامه.

IIDU



IIDU MAIN OBJECTIVES

- Escalating bench scale products to pilot level.
- Moving Pilot products to industrial trials.
- Manufacturing and evaluating trial innovative NRC brands (to be manufactured and sold through NRC).
- Increasing marketing and confidence level through: *Try me first at NRC*, giving chance for entrepreneurs to try innovative ideas on our facilities.

IIDU STRUCTURE

Scaling up studies

- Kinetic correlation studies, fluid dynamics experiments, mathematical modelling.
- Industrial scale design.

Techno-economic study

- Total capital investment: Equipment, fixed assets.
- *Direct manufacturing cost*: Raw materials, C_{RM} -Utilities, C_{UT} -Waste treatment C_{WT} ,
- Break even point: International pricing reference

Market study

- Competitors.
- Candidate markets (prices and quality)

Marketing

- Entrepreneurs.
- channels

R&D

After sale services

- Quality control, quality assurance
- Technical support.
- R&D

What are looking for from ESCWA-ETC?

- Support in spreading out our ready to go products .
- Creating a data bank for member countries innovations ready for commercialization.
- Supporting Research Commercialization training program to be offered in candidate countries.



THANKS.....