

17th FNCA MLM Philippine Country Report

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NATIONAL POLICY ON NUCLEAR S & T

In line with the 10-point Socio-Economic Agenda for the country, the DOST has formulated its Science for a Change Program. The following areas can be addressed by nuclear S and T:

- health
- renewable energy and nuclear science for energy
- agriculture
- climate and environment science
- food and nutrition
- strengthening R & D and S & T Services in the regions
- space technology

NATIONAL POLICY ON NUCLEAR S & T

The government recognizes that the applications of nuclear energy in the identified areas will contribute to achievement of Sustainable Development Goals:

- ultimately eradicating poverty and hunger and making economic development inclusive;
- addressing the impacts of climate change bringing about risk-resilient communities and ecosystems
- sustaining the environment for the present and future generations

CURRENT NUCLEAR S & T PROGRAMS

- Nuclear Research and Development
 - Food and Agriculture
 - Mutation breeding (rice and alternative crops for resilience to impacts of climate change)
 - Application of radiotracers and stable isotopes to study agricultural processes (erosion, nutrient and water uptake and utilization)
 - Application of radiation to control insect pests
 - successfully applied to mango pulp weevil (protocol approved by USDA) and bunchy top banana virus
 - Plant food supplement from radiation-modified carrageenan – 30% increase in yield for rice being tested for more crops and vegetables



CURRENT NUCLEAR S&T PROGRAMS

- Nuclear Research and Development
 - Health and Medicine
 - Nuclear techniques for harmful algal blooms being transferred to regulatory body
 - Production of Tc-99m generator and radiopharmaceutical kits
 - Health products from radiation-modified natural products such as carrageenan, alginate, honey (wound dressing, hemostats)
 - SIT to combat dengue virus-carrying mosquito



CURRENT NUCLEAR S&T PROGRAMS

- Nuclear Research and Development

Environment – results are used in aid of environmental regulation and policies

- Nuclear spectrometric techniques for identification and source apportionment of air pollutants, marine and coastal pollution and other environmental studies
- Isotope tracer techniques, radioactive and stable isotopes for water resource management, and for tracing the fate of pollutants from terrestrial sources to aquatic and marine receptors
- Isotope tracer techniques for understanding terrestrial and marine processes such as erosion, sedimentation
- Environmental radioactivity measurements and monitoring for nuclear emergency preparedness and response



Research reactor utilization

Building Capacity in Nuclear Science & Technology by Re-using the PRR1 into a TRIGA Fuel Subcritical Assembly (2016-2019)

Reviving competencies in research reactor technology utilization by Re-using the PRR1 into a TRIGA Fuel Subcritical Assembly

Objectives

- Have an operational nuclear facility using the PRR-1 and the TRIGA fuel elements for research and education nuclear science and engineering.

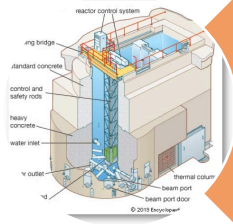
Output

- **REGULATIONS:** Nuclear regulations and guidelines developed
- **PHYSICAL INFRA & HRD:** TRIGA fuel storage tank refurbished, characterized and prepared for nuclear science research and education
- **RADIATION PROTECTION & NEUTRON RESEARCH:** Laboratory for neutron physics, dosimetry and radiation protection research established

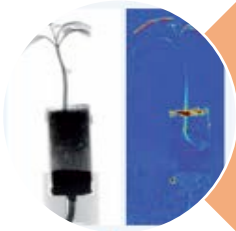
Feasibility Study for a new research reactor



New RR will provide training for nuclear power plant personnel and enable the build-up of expertise, skills and technological readiness for a nuclear power program.



Recommended a 10-MW multi-purpose, pool-type, cooled and moderated by light water, with a minimum operational lifetime of 40 years, extendable to 50-60 years with good asset management. Technical specifications provided



Huge social-economic impact : capability for advanced studies in nuclear science and technology (neutron beam science); education & training, local RI production, support to industry thru NAA & NDT and neutron transmutation doping



Economically & financially viable, savings in foreign exchange. Needs about 99 staff
Recommended sites: PNRI or BNPP compound

TIMELINE: at least 10 yrs

Nuclear energy utilization for power

The present administration considers nuclear energy as a viable option in securing the Philippines' energy supply. The Department of Energy is currently in the process of creating the Nuclear Energy Program Implementing Organization (NEPIO) and preparing on building a national position and enhancing public acceptance related to the development of a nuclear power in the country.

Stakeholders involvement/Public acceptance

The PNRI-DOST continues to enhance public awareness and appreciation of the peaceful uses of nuclear energy and to build and strengthen its human resources in the nuclear field for safety, safeguards and security through:

- Education and training
 - Radiation Technology
 - Radiation Safety
 - Nuclear S & T program for secondary schools
 - Introduction to Nuclear Power
- Nuclear information dissemination
- Business development and marketing of PNRI technologies

