



Global Nuclear Safety Security Network (GNSSN) And INDIA



ATOMIC ENERGY COMMISSION

ATOMIC ENERGY REGULATORY BOARD

DAE Science Research Council

DEPARTMENT OF ATOMIC ENERGY

R&D centers

- BARC, Mumbai
- IGCAR Kalpakkam
- RRCAT, Indore
- VECC, Kolkata
- AMDER, Hyderabad
- GCNEP, Haryana**

BRNS, Mumbai
NBHM, Mumbai

PUBLIC SECTOR UNDERTAKINGS

- NPCIL., Mumbai
- IREL, Mumbai
- UCIL, Jaduguda
- ECIL, Hyderabad
- BHAVANI, Kalpakkam

INDUSTRIAL FACILITIES

- Heavy Water Board, Mumbai
- Nuclear Fuel Complex, Hyderabad
- BRIT, Mumbai

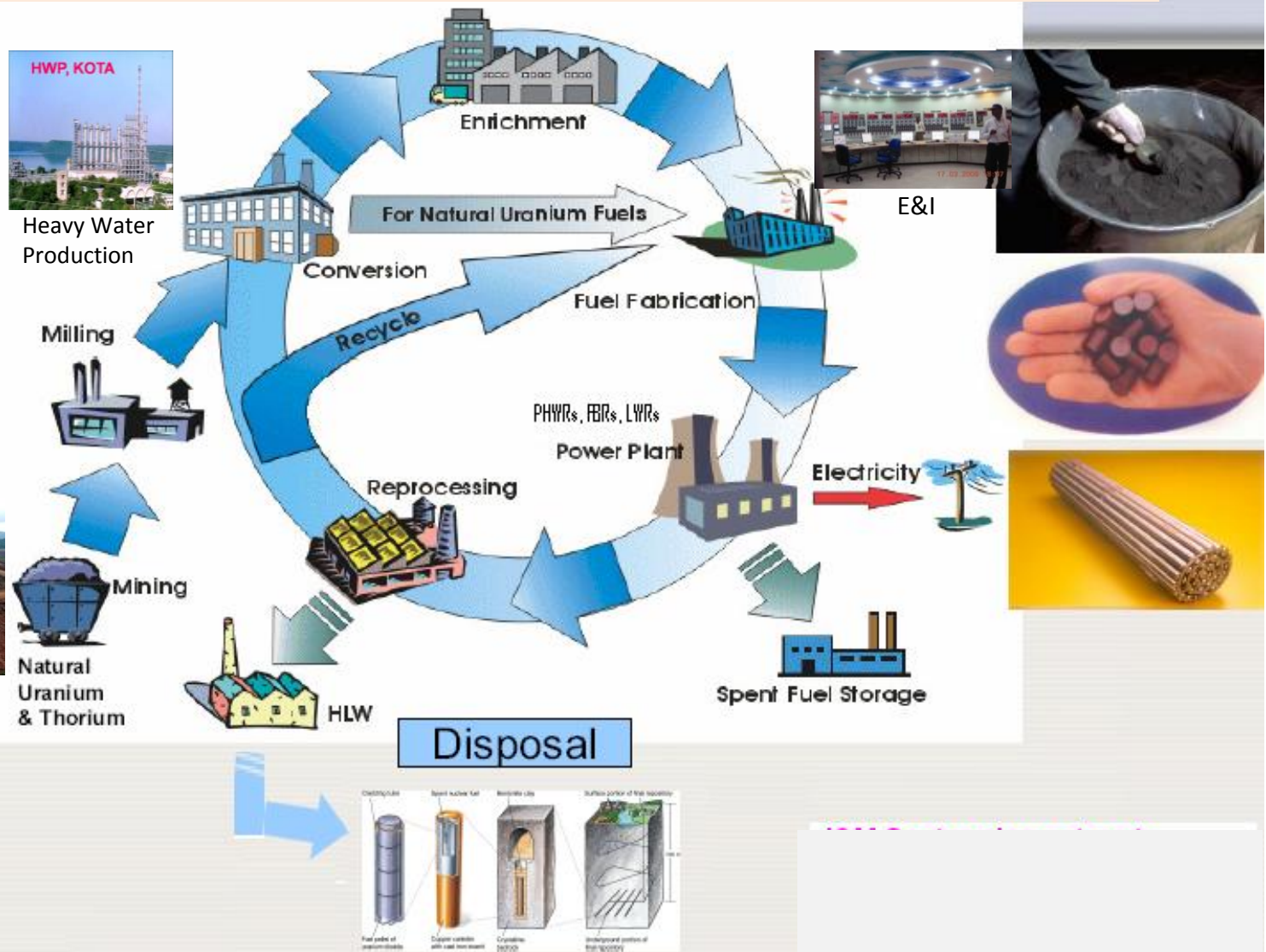
SERVICE ORGANISATIONS

- DPS, Mumbai
- DCSEM, Mumbai
- GSO, Kalpakkam

AIDED INSTITUTIONS

TIFR, Mumbai	IOP Bhubaneswar	IMSC, Chennai
HBNI, Mumbai	HRI, Allahabad	IPR, Ahmedabad
TMC, Mumbai	NISER, Bhubaneswar	AEES, Mumbai
SINP, Kolkata		

Nuclear Fuel Cycle



Disposal



NUCLEAR POWER PROGRAM - DAE



Stage – I

PHWRs

- 18 - Operating (4780 MWe)
- 6 - Under construction (4800 MWe)

LWRs

- 2 – Operating (440 Mwe)
- 2 – Under Construction (2000 Mwe)

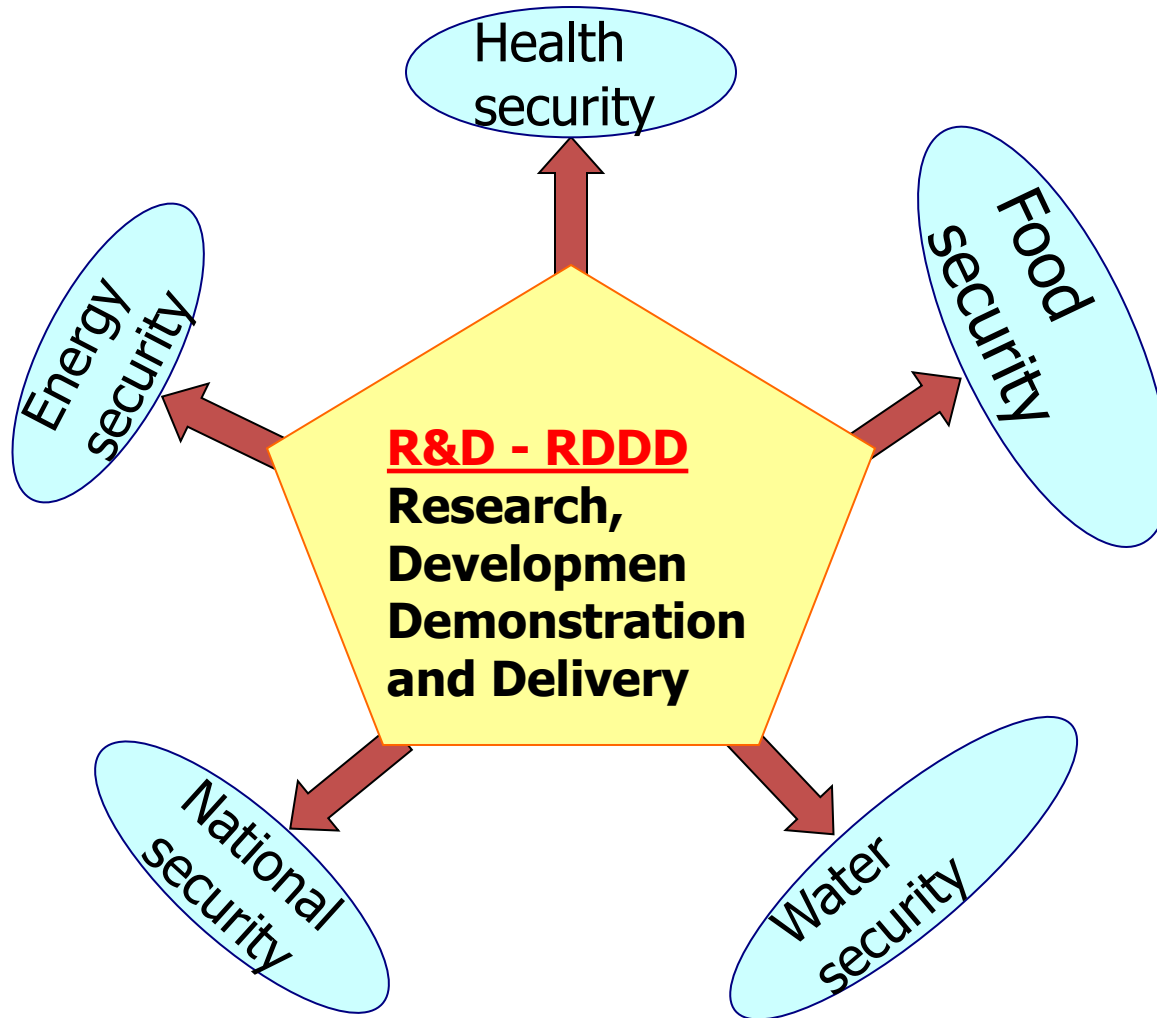
Stage - II Fast Breeder Reactors

- **40 MWth FBTR - Operating**
- **500 MWe PFBR-**
construction in progress
- **2 FBR (500MWe) Planned**

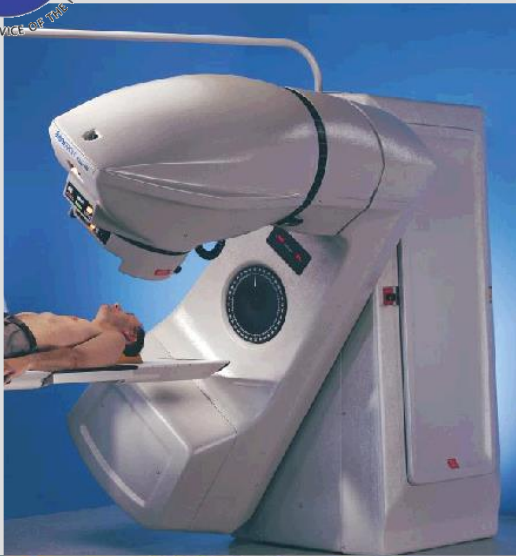
Stage - III Thorium Based Reactors

- **30 kWth KAMINI-** Operating
- **300 MWe AHWR-** Under development
- **POWER POTENTIAL-** Large.

Atomic Energy in the Service of the Nation: DAE Role and Contributions



Global Potential Targets (Security RISK)



Radioactive sources



Transportation

Nuclear Power Plant



Research reactor fuel



e- Governance by the national Regulatory Body

Atomic Energy Regulatory Board (AERB) is the national regulatory body in India. AERB is in the process of establishing interactive web based communication system that will be made available to authorized users (computerization of major regulatory process)

- Maintaining a database for facilities and sources for tracking sources from cradle to grave
- On line submission of applications and status reports,
- Time bound issuance of consents,
- Help in tracking applications,
- Give flags on delayed submissions,
- Help in chalking out inspection programmes,
- Eliminate the transit time, and
- Make the regulatory process efficient and transparent.

First part of this software will be commissioned shortly.



Import and Export of Radioactive Material

India is signatory to IAEA “Code of Conduct on the Safety and Security of Radioactive Sources” since its inception.



Security of Radioactive Sources in Radiation Facilities

- Issue of security of radioactive sources addressed as early as in 1980 in the Notification entitled, "The Industrial Radiography (Radiation Surveillance) Procedures, 1980" issued under the erstwhile Radiation Protection Rules, 1971
- AE(RPR), 2004, Rule 20(2) requires that "employer" shall be the custodian of radiation sources in his possession and shall ensure physical security of sources at all times.



Safety Guides for Security of Radioactive Sources

Following guides of AERB Address the Security aspects of radioactive sources.

- Security of Radioactive Sources in Radiation facilities (AERB/RF-RS/SG-1)
- Security of Radioactive Material During Transport (AERB/NRF-TS/SG-10)

Scope of Security guide

- Focuses on Category 1, 2 and 3 sources
- Give appropriate attention to sources which has potential for use in malicious activities and could cause unacceptable consequences
- Provide the guidelines to Radiation facilities on how to protect individuals, society, and the environment from the harmful effects of possible accidents and **malicious acts** involving radioactive sources
- Guidelines to prepare the security plan for radiation facilities



Security Measures for Radiation facilities

Graded approach applied:

- Vulnerability assessment
- Evaluation of threat
- Security plan
- Administrative Measures
- Technical Measures



Security Management

A complete security program also requires security management measures, which help ensure that the physical protection system functions properly

- Security plan
- Contingency plan
- Information security
- Reliability and trustworthiness of personnel
- Security culture
- Inventories and records
- Reporting of security incidents



Main Features...

Transport requiring Special Security Measures

- Administrative Controls
- Design of Package / Conveyance
- Advance Notifications
- Control of Information
- Communications/Tracking of shipment
- Physical Security Measures
- Contingency Response Plans
- Special Training



AERB Security Committees

The Security aspects of Nuclear and Radiation facilities are being review by AERB safety Committees

Advisory Committee on Security (ACS)

- Advise AERB on safety related aspects of nuclear and radiation facilities
- Identify aspects of security having direct relevance of the nuclear and radiation sources
- Develop guidelines on safety-security interface

Committee for Review of Security Aspects of Radiation Facilities and Transport of RAM (CRSA-RF&T)

- Identify security aspects related to safety
- Review security plans for various types of radiation facilities and during transport of RAM

GNSSN and INDIA

GNSSN is the umbrella for various safety and security related networks and India is already a member of some of these networks

Example:

INSEN – International Nuclear Security Education Network

ANSN - Asian Nuclear Safety Network etc.

India contributes significantly in the nuclear security activities of IAEA; e.g.,

- participating in the policy making body of nuclear security of the Agency viz. AdSec (Advisory Committee on Nuclear Security to DG, IAEA) as member,
- member in the NSGC (Nuclear Security Guidance Committee) and the Interface Group,
- member of safety committees (RASSC, NUSSC, WASSC and TRANSSEC)
- **Recently India contributed 1 million USD to IAEA nuclear security fund and plans are getting ready for its utilization for global training activities in collaboration with IAEA.**

GNSSN and INDIA (Contd.)

- Widespread participation of Indian experts in development of various guides, codes and standards for nuclear safety and nuclear security
- India takes part in Nuclear Safety and Nuclear Security training and education activities in a big way - In last few years a number of regional and international courses have been organized in India in association with IAEA. Currently 3 such courses are under discussion for organising in India in 2013 - 14
- India contributes in the form of expert faculty in various international and regional training courses. This service has been extended in nuclear safety, security and different other nuclear fuel cycle activity areas

Thus comprehensive capability exists in the country for training and education in the area of nuclear safety and nuclear security and GCNEP (Global Centre for Nuclear Energy Partnership), being established near Delhi will be the nodal centre for such international / regional collaborative activities



THANK YOU



GLOBAL CENTRE FOR NUCLEAR ENERGY PARTNERSHIP (*G C N E P – I N D I A*)



GCNEP - Location



GCNEP, INDIA



GCNEP - Background



Prime Minister Manmohan Singh's Statement in 2010 Nuclear, Security Summit, Washington DC

I am happy to announce on this occasion that we have decided to set up a **“Global Centre for Nuclear Energy Partnership”** in India. We visualize this to be a state of the art facility based on international participation from the IAEA and other interested foreign partners.The Centre will conduct research and development and design of systems that are intrinsically safe, secure, proliferation resistant and sustainable. We would welcome participation in this venture by your countries, the IAEA and the world to make this Centre's work a success.



GCNEP - OBJECTIVES

An Initiative to enable India in establishing leadership in the field of Nuclear energy partnership through Research, Training and International seminars by Indian and International experts on topical issues.

GCNEP, INDIA



GCNEP - ACTIVITIES 1-2

- *To pursue design studies and analysis of advanced nuclear energy systems with features to achieve intrinsically enhanced safety, security, proliferation resistance and sustainability*
- *To carry out research and development in radiation monitoring including development of detectors and systems, to develop decision support systems for nuclear emergency management, to conduct radiation transport, shielding, dispersion modeling and impact assessment studies, to impart training to and certification of personnel in radiation protection principles and safety practices, to maintain and update radiation protection standards.*



GCNEP - ACTIVITIES 3-5

- *To provide state of the art research , development and demonstration and training facilities in the application of radio-isotopes and radiation technologies*
- *To promote the R&D activities for evolving new methodologies in NMA&C(Nuclear Mat. Accounting & Control), to establish an advanced infrastructure and demonstration facility for human resource development in the practices of NMA&C*
- *To impart training on application of physical protection system and response procedure, enhance physical security of nuclear facilities by developing and deploying most modern technological tools including information security, and to provide facilities for test and evaluation of sensors and systems used for physical security*



GCNEP- Schools

FIVE(5) Schools

- School of Advanced Nuclear Energy System Studies (SANESS)
- School of Radiological Safety Studies (SRSS)
- School for Studies on Applications of Radioisotopes and Radiation Technologies (SSARRT)
- School of Nuclear Material Characterization Studies (SNMCS)
- School of Nuclear Security Studies (SNSS)

GCNEP- Schools



GCNEP, INDIA

GCNEP – A View



GCNEP, INDIA

