PNRI
Philippine Nuclear Research Institute

Management of Nuclear Activities in the Philippines

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Nuclear Energy Experts Group Meeting
Bangkok, Thailand
29-30 October 2014

Legal Framework

- Republic Act No. 2067 (Science Act of 1958) created the Philippine Atomic Energy Commission (PAEC), later amended by R.A. 3589. The law provides PNRI (formerly PAEC) with a dual mandate to promote the peaceful applications of atomic energy and to license and regulate the use of radioactive materials
- Republic Act No. 5207 (Atomic Energy Regulatory and Liability Act of 1968) established the nuclear regulatory function of PAEC. Provided authority to PAEC to issue license for the construction, possession and operation of any atomic energy facility and served as basis for the promulgation of rules and procedures in the licensing of nuclear power plants
- Currently pending in Legislature, proposed Comprehensive Nuclear Law

Bataan Nuclear Power Plant Location

Nuclear Fuel Cycle for Nuclear Power Plant

- For the country's first operational nuclear power plant, the front end of the nuclear fuel cycle will be sourced through foreign expertise like what had been done for the BNPP. The BNPP's fuel supply contract with Westinghouse included the mining and milling, uranium conversion and enrichment, up to fuel fabrication. The same scheme would be arranged for future new plants and to BNPP should it be put into operation.
- The technology for onsite interim storage of spent fuel designed to be used until firm governmental decision is issued with regards to the future use of the spent fuel. For BNPP, if put into operation, the said storage facility would be set-up.

Fuel Cycle including Waste Management

- Reprocessing is at present not among the priorities for the nuclear program, however, should there be decision later on that spent fuel would be reprocessed to convert it into fuel again, then it will be sent to the country where the industry is already in placed or already matured.
- On the issue of waste management, the Philippine Nuclear Research Institute, through the technical and financial assistance from the IAEA, has already identified suitable sites within the Philippines as its National Radwaste Repository Center. The Center is being set-up to for the long-term storage of high level wastes coming from hospitals, from the PNRI itself and from nuclear power plants in the future.

Philippine Nuclear Power Plant

Regulatory Framework

Regulatory authority

- The present nuclear regulatory authority is the PNRI which is formerly the Philippine Atomic Energy Commission or PAEC. The PNRI's bases for nuclear power plant regulations in the USNRC Code of Federal Regulations (CFR).

Licensing Process for Nuclear Power Plant

- 3 main processes:

  - Provisional Permit Stage. licensee is issued with Provisional Permit or Limited Work Authority.

  - Construction Permit Stage, Construction Permit is issued upon licensee's satisfaction or compliance to various requirements of the Preliminary Safety Analysis Report.

  - Operating License Stage, where after completion of all conditions precedent, regulatory requirements, licensing of operators, etc., an Operating License is issued where the licensee can then proceed with the fuel core loading and initiate reactor operation for criticality.

Regulatory Framework

PNRI promulgates Code of PNRI Regulations (CPR)

- CPR Part 3, “Standards for Protection Against Radiation”
- CPR Part 4, “Rules and Regulations on the Safe Transport of Radioactive Materials”
- CPR Part 7, “Licensing of Atomic Energy Facilities”, based mainly on US NRC documents and IAEA Standards, Codes and Guidelines.

Regulations On Nuclear Security

- **Code of PNRI Regulations (CPR),** issued by PNRI as nuclear regulatory authority

1. CPR Part 26 – “Security of Radioactive Sources”, revised 2014
2. CPR Part 27 – “Security Requirements in the Transport of Radioactive Material” , 2013

Research and Development

PNRI has the mandates on R & D in the field of nuclear sciences and technology. The country does not have any private institution that caters on this field. However, the pending bill in Congress on the reactivation of BNPP has included provisions for the nuclear R & D. Also, upon embarking on nuclear power, the country's science and technology industry would add a nuclear R & D program.

Nuclear Safeguards
Current Status

Two facilities under safeguards:

– Philippine Research Reactor (PRR-1)

✓ Physical protection is underway under the Canadian project

✓ Philippine system of accounting for and control of nuclear materials

– Bataan Nuclear Power Plant (BNPP)

visited by IAEA safeguards once every two years for Design Information Verification

Status of Radioactive Waste Disposal Program

Various activities being undertaken by PNRI:

- National Radwaste Repository Center
- Conditioning of disused radioactive sources
- Treatment and Storage of radioactive waste
- Co-location of Near Surface Facility Studies

Conditioning of SHARS by NECSA
Through the Initiative of the IAEA

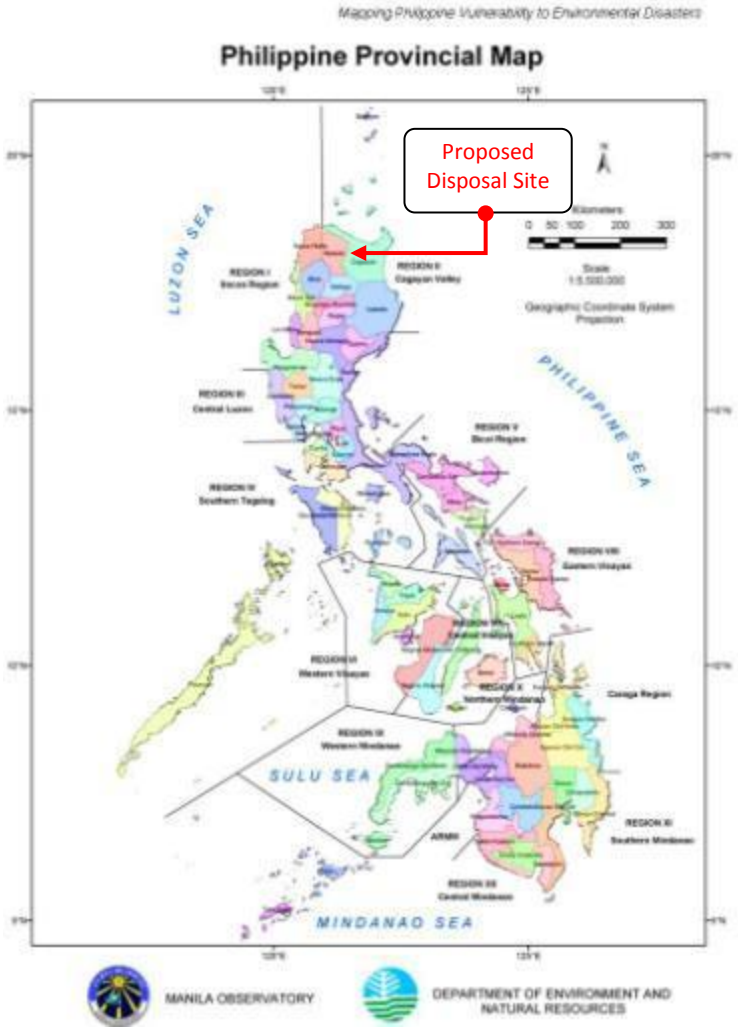
- 18 units of teletherapy sources
- 4 units irradiator sources

Mobile Hot Cell

Teletherapy Sources

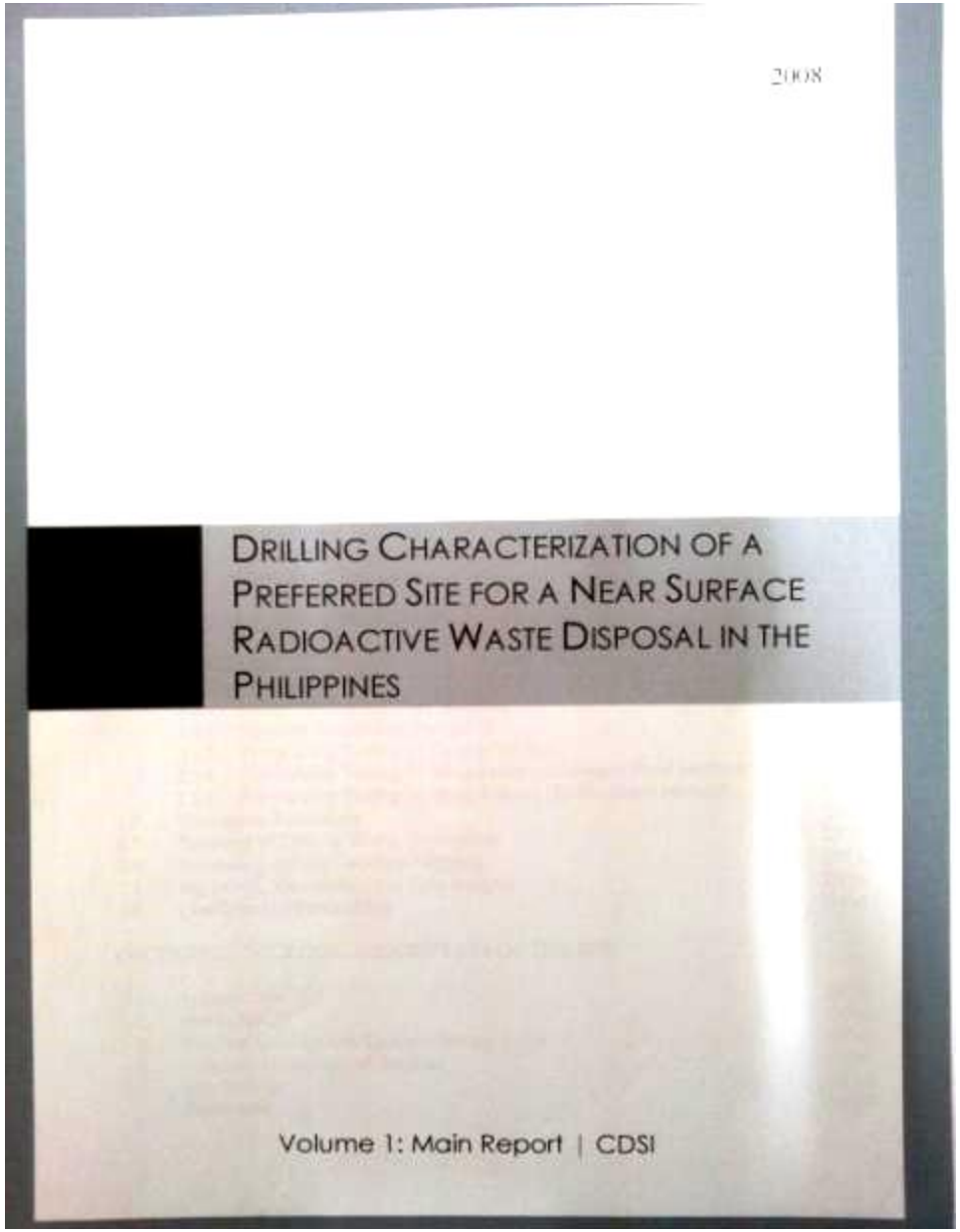
PNRI Radwaste Interim Storage and Treatment Facilities

Preferred Site for Co-location of Near Surface and BOSS Facility



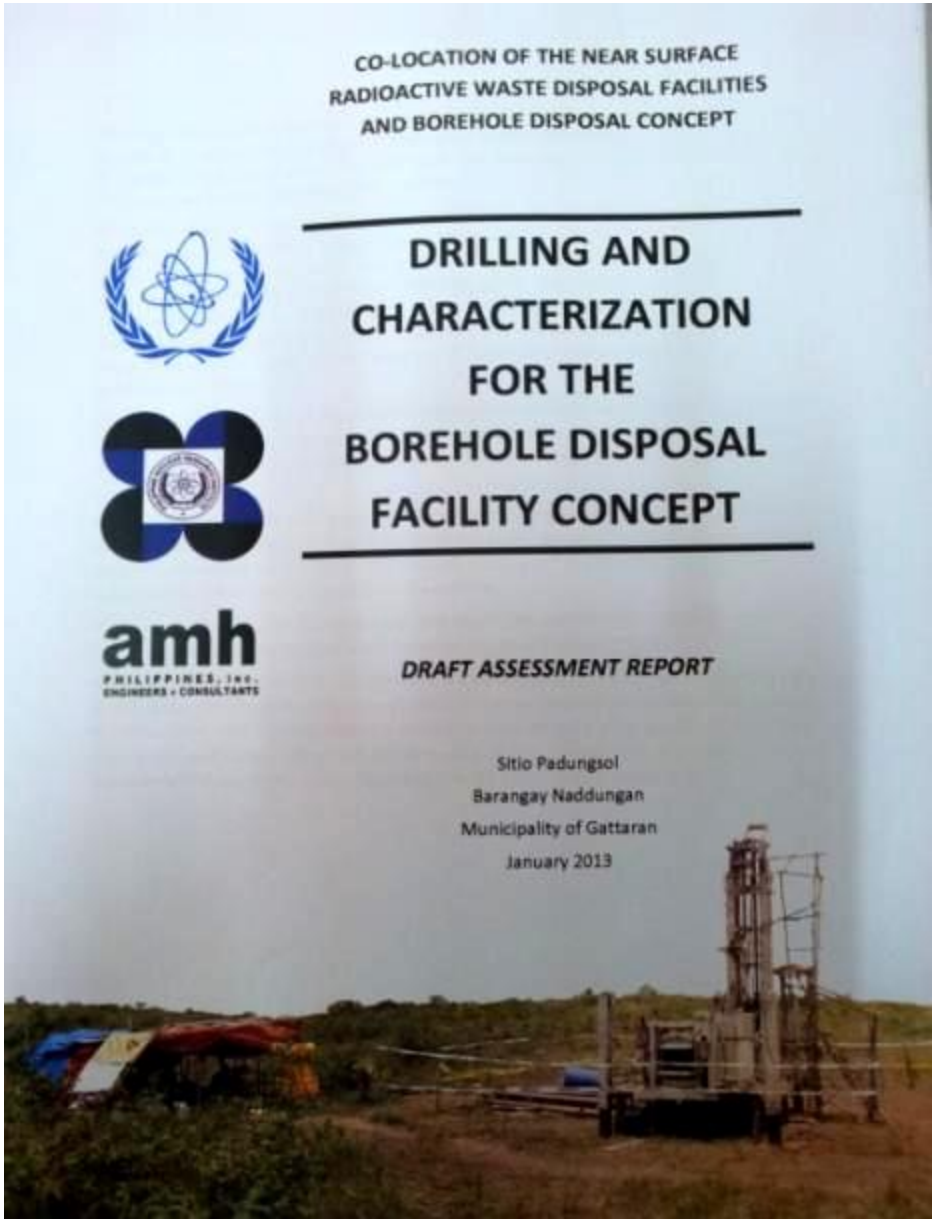
- Located in Northern Luzon
- 40 hectares for potential development

Footprint



RESULTS OF INVESTIGATIONS

- **No major flaws found**
- **Has prospect to be developed for LILW repository site**



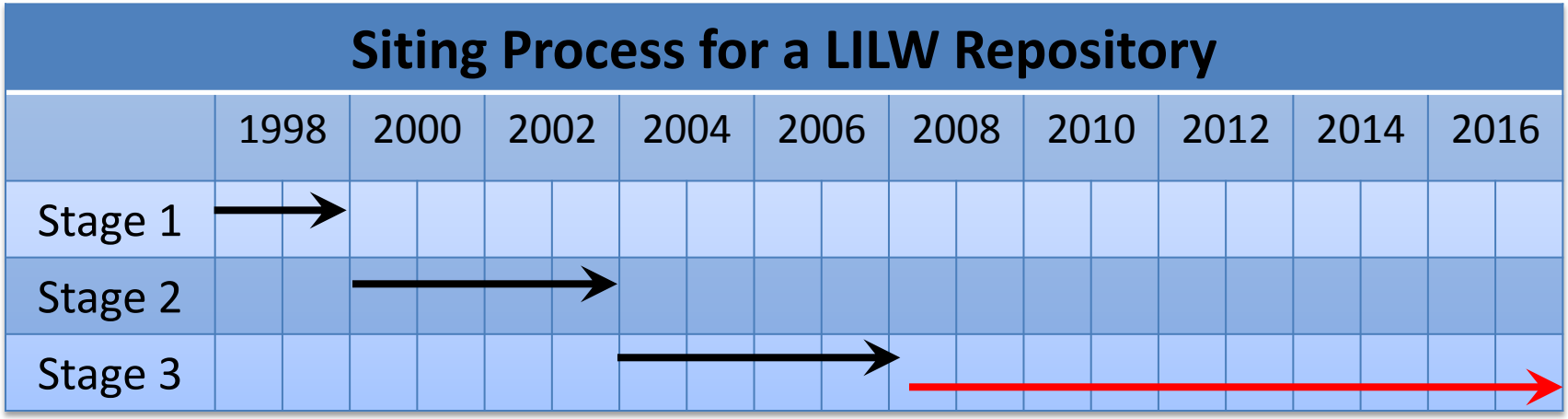
- **Better understanding of geology**
- **No monolithic block, highly fractured**
- **Reliance on Engineering solution**

Resource Availability

- **Siting and Characterization implemented by an interagency committee on Radioactive Waste Management**
  - **PNRI as the lead agency**
  - **Member Agencies**
    - **Department of Environment and Natural Resources**
    - **Department of Energy**
    - **University of the Philippines (National Institute of Geological Sciences; and College of Engineering)**
    - **Department of Science and Technology**

Program Timeline

- **Stage 1. Conceptual and Planning Stage**
- **Stage 2. Site Screening Process**
- **Stage 3. Site Evaluation and Confirmation (Site Specific Design, Licensing and Approval)**



Thank you!!!...

http://pnri.dost.gov.ph