The Licensing for Decommissioning of Research Reactors in Indonesia

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Contents

- Regulatory Body
- Rules and Regulations
- Decommissioning Licence
- Release from Regulatory Control
- Decommissioning Programme
- Conclusions

BAPETEN (Nuclear Energy Regulatory Agency) 1/3

- Bapeten was established in 1998, as stipulated by Nuclear Energy Act Year 1997.
- BAPETEN has the The duty to control the use of nuclear energy
- The duty is carried out in three main functions:
  - Regulations development
  - Licensing
  - Inspection
- These three main duties of BAPETEN are meant for the interest of *people*, *environment* and *world's peace*.

BAPETEN (Nuclear Energy Regulatory Agency) 2/3

The objectives:

- For the security and peace
- For the safety of workers, public, and environment
- To main the legal order in the use of nuclear energy
- To promote awareness and enhance safety culture among the users
- To carry out safeguards measures according to NPT

BAPETEN (Nuclear Energy Regulatory Agency) 3/3

Main objects of regulatory control:

- Radiation facilities and radioactive materials (hospitals, industry)
- Nuclear installations and materials (Research reactors, NPP)

Research Reactors In Indonesia

TRIGA 2000 Reactor

- Location: Bandung, West Java
- Type: TRIGA reactor
- Thermal power: 2000 kW
- First critical in 1964 (250 kW)
- Upgraded to 1000 kW in 1971
- Upgraded to 2000 kW in 2000
- Licence: valid up to 2016

Research Reactors In Indonesia

Kartini Reactor

- Location: Yogyakarta (Central Java)
- Type: TRIGA reactor
- Thermal power: 100 kW
- Some components/structures were provided from the first upgrading of Bandung reactor (1971)
- First critical in 1979
- Licence: valid up to 2010

Research Reactors In Indonesia

G.A. Siwabessy MPR (RSG-GAS)

- Location: Serpong, Banten (West Java)
- Type: Multi Purpose Reactor
- Thermal power: 30 MW
- Fuel: U_3Si_2Al
- First critical in 1987
- Licence: valid up to 2020

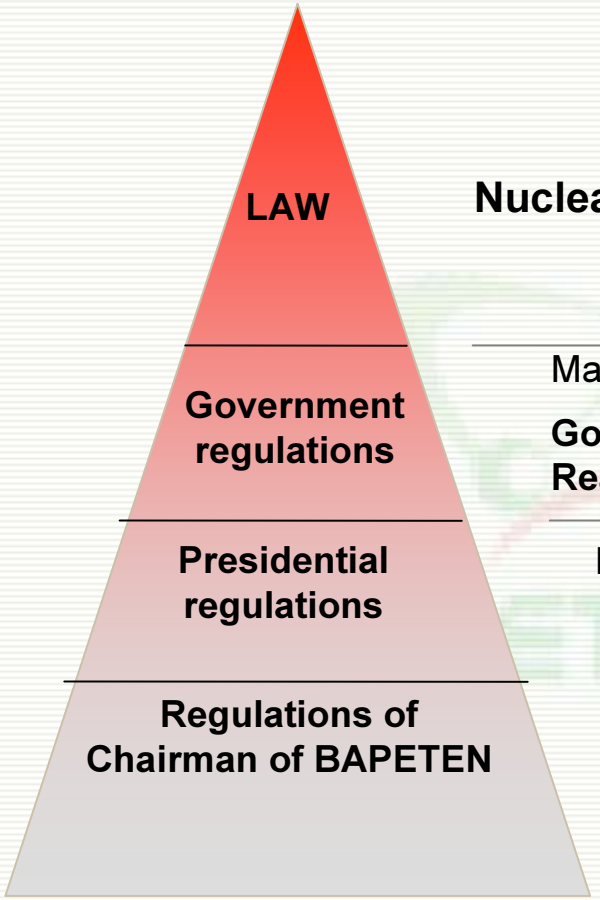
Status of Research Reactors In Indonesia

- All reactors are in operation → operated by BATAN
- Long operation periods:
  - TRIGA 2000 : ± 34 years
  - Kartini : ± 26 years
  - RSG-GAS : ± 18 years
- Currently Research Reactors Licensee (BATAN) is preparing the programme for extended operation):
  - Safety Analysis Report
  - Operation activity report
  - Ageing Assessment report

  (GR No. 43 Year 2006 on "Licensing of Nuclear Reactors" Article 23-3)
- According to the government regulations requires BATAN to prepare decommissioning programme.

  (GR No. 43 Year 2006 on "Licensing of Nuclear Reactors" Article 18-2a)

Rules & Regulation



Hierarchy of Nuclear Regulations

Nuclear Energy Act 10 Year 1997

Mandate from the Act

Government Regulation "Licensing of Nuclear Reactors" No. 43 Year 2006

Mandate from government regulations or The act

Mandate from Gov Regulations or Pres. Regulations

(Further requirements on the decommissioning licence of nuclear reactors and the preparation of the documents, as stated in GR No. 43/2006 article 24-27)

Decommissioning Licence

Requirements

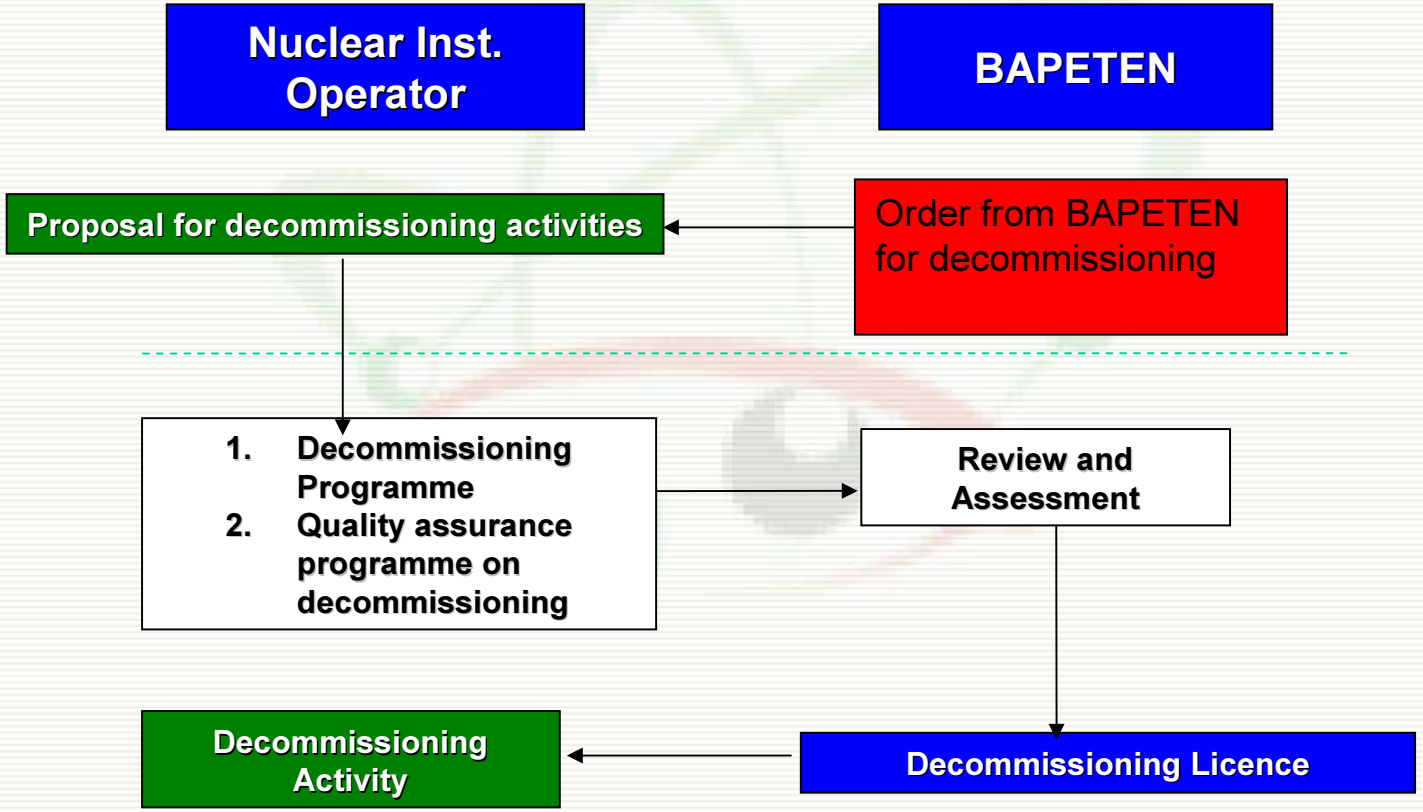
- Licensing for the Decommissioning of Research Reactors in Indonesia is governed by the **Government Regulation No. 43 Year 2006 on "Licensing of Nuclear Reactors" Article 24-27**.
- commisioning License,

  the requirement is financial guarantee for decommisioning programme

- Decommissioning activities shall be performed when :
  - There is a severe accident or an event threatening the safety and/or security in the operation of nuclear reactor.
  - Application for operation licence renewal is rejected by the Chairman of BAPETEN on the ground of safety and/or security.
- The application for decommissioning licence shall be submitted **within 3 (three) years** before the operation licence expires.

Decommissioning Licence

Licensing Procedure



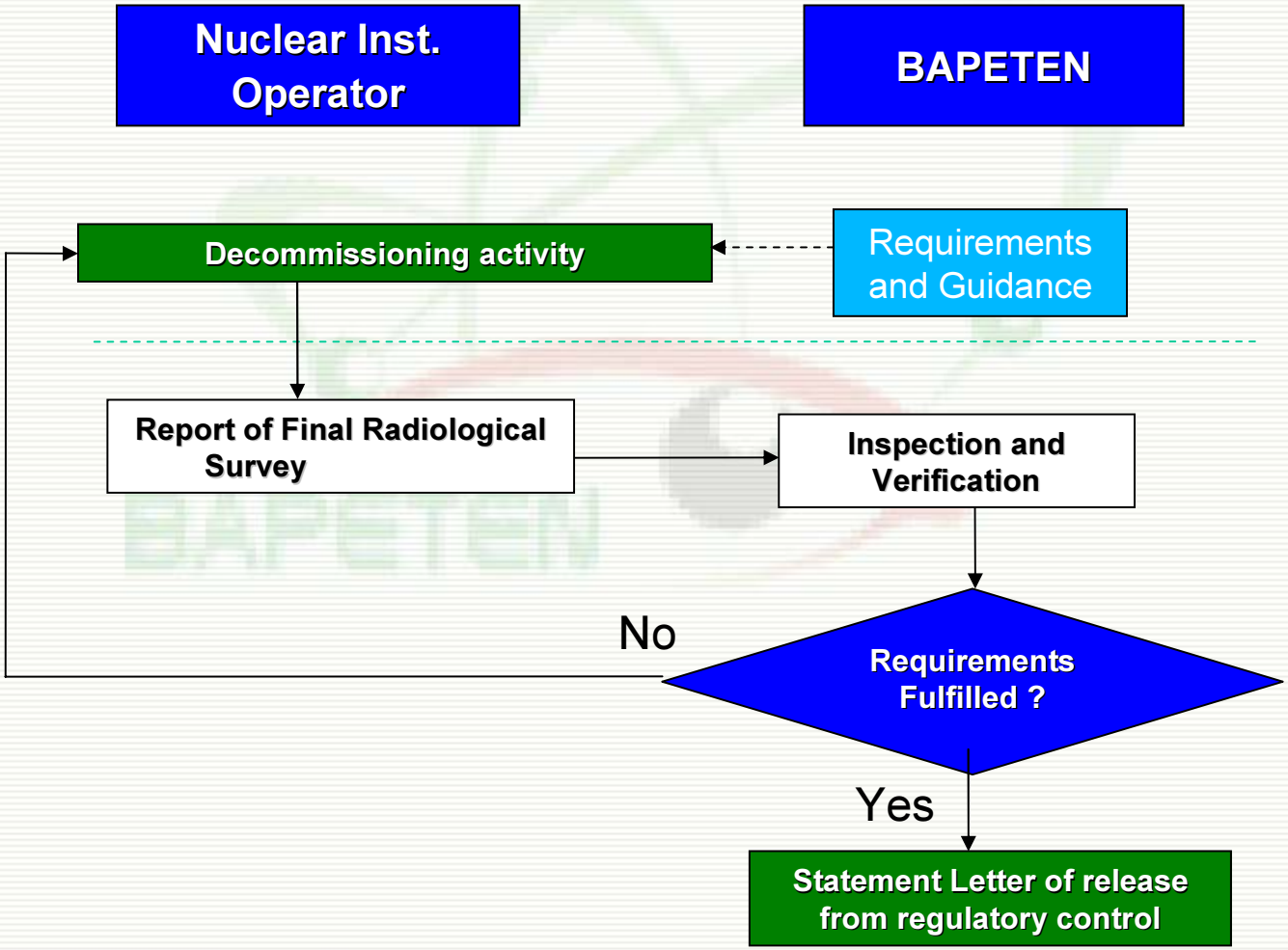
Release from Regulatory Control

Requirements

- In case the decommissioning activities have been completed, the licensee may submit the application for release from the regulatory control to the Chairman of BAPETEN.
- The application shall be submitted to the Chairman of BAPETEN by enclosing the following technical documents :
  - **decommissioning activities implementation report;**
  - **radioactive waste management activity report; and**
  - **the report on the implementation of environment monitoring programme, including reports on radiological monitoring and contamination on nuclear installation surroundings.**

Release from Regulatory Control

Procedure



Decommissioning Programme

Stipulated in IAEA Safety Guides

A. Structure of Operating Organization
B. Decommissioning Methods
C. Decommissioning Schedule
D. Radioactive Waste Management Plan
E. Radiation Protection Programme
F. Documentation and Reporting
G. Safety Analysis
H. Emergency Preparedness Programme
I. Nuclear Security System
J. Quality Assurance
K. Cost Estimation

Conclusions

- There are 3 (three) research reactor operating in Indonesia. All the reactors are operated by BATAN. It is possible to extend its operation licence, but BATAN has to prepare ageing management and decommissioning programmes.
- BAPETEN stipulates several regulations except specific regulations related to reactor decommissioning which is still in deliberation.

THANK YOU
FOR YOUR ATTENTION