

Indonesia's Nonproliferation Policy

Nuclear Energy Regulatory Agency
(BAPETEN)



11th ASEAN REGIONAL FORUM (ARF) INTER-SESSIONAL MEETING
ON NON-PROLIFERATION AND DISARMAMENT (ISM on NPD)

Denpasar, 8-9 April 2019



OUTLINE

- Introduction
- Nuclear energy use
- Nuclear facilities
- Legal Framework
- Nonproliferation regimes
- Additional Protocols
- Safeguards Implementation
Summary 2018
- Closing



INTRODUCTION

- ❖ In Indonesia, nuclear energy is permitted for peaceful use only.
- ❖ Every activity involving the nuclear energy must have permission from and be controlled by the government.
- ❖ The government establishes a regulatory body with the tasks to control any activity using nuclear energy to protect the personnel, public and environment
- ❖ One of the objectives of the control is to prevent the diversion of the purposes of nuclear material utilization.



NUCLEAR ENERGY USE IN INDONESIA

NUCLEAR FACILITIES

NUCLEAR REACTOR

- ❖ RSG-GAS (30MW)
- ❖ TRIGA-2000 (2 MW)
- ❖ KARTINI (100 kW)
- ❖ PLTN (FUTURE)

NON-REACTOR

- ❖ RADIOISOTOP PRODUCTION
- ❖ RADWASTE MGMNT. FACILITY
- ❖ METALURGY INSTALLATION
- ❖ FUEL FABRICATION (INUKI)

NUCLEAR/ RADIATION

MEDICALS

Radiodiagnostik
Kedokteran Nuklir
Radioterapi

Research &
Development

INDUSTRY

RADIATION FACILITIES



NUCLEAR FACILITIES (1)

RESEARCH REACTORS FACILITIES

- **KARTINI REACTOR**
 - 100 kW, Yogyakarta
 - Pool type
 - First criticality: 1979
- **TRIGA 2000 REACTOR**
 - 2000 kW, Bandung
 - Triga Mark II type
 - First criticality: 1964
- **GA SIWABESSY REACTOR**
 - 30 MW, Serpong
 - Pool type
 - First criticality: 1987





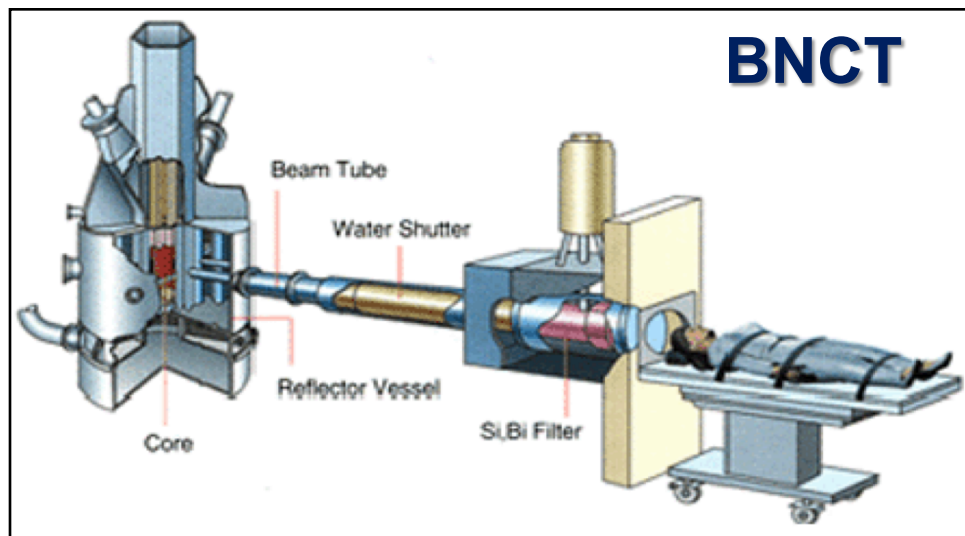
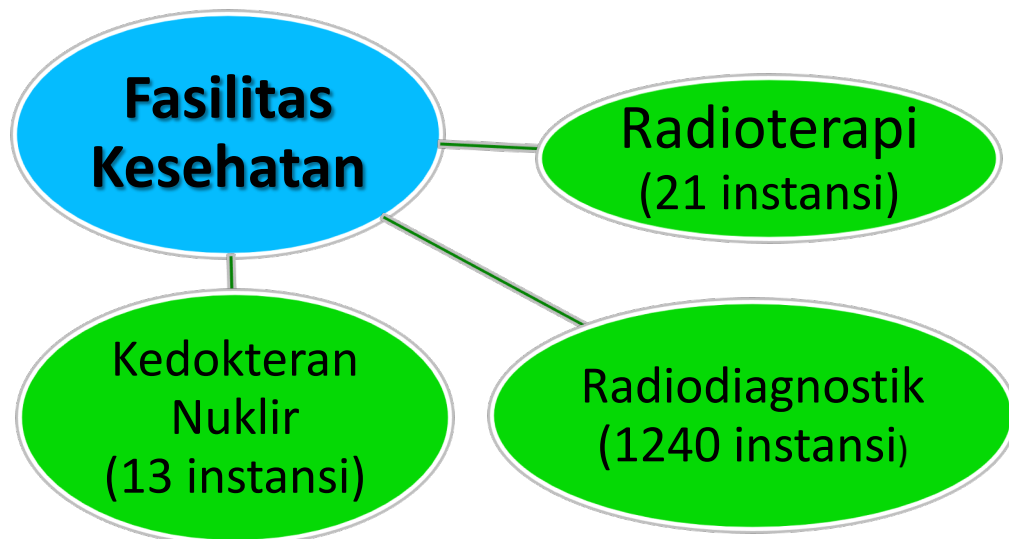
NUCLEAR FACILITIES (2)

➤ NON-REACTOR NUCLEAR FACILITIES

- **RR FUEL FABRICATION PLANT**
 - Serpong, BANTEN
 - Product: GAS Rx Fuel (plat) type
 - Owner: PT INUKI
- **RADIOISOTOP PRODUCTION PLANT**
 - Serpong, BANTEN
 - Product: RI for Medicals (Iridium, etc)
 - Owner: PT INUKI
- **RADWASTE MANAGEMENT FACILITY**
 - Serpong, BANTEN
 - Owned & Operated by BATAN



Radiation Facility for Medical





Radiation Facility for Industri and Agriculture (BATAN)

Varietas Baru



PERTANIAN

PETERNAKAN



**TENAGA
NUKLIR**



**SUMBER
DAYA AIR**

INDUSTRI



Map of Nuclear Uses in Indonesia

**Radiation Facility (Medical & Industry : + 3.000 facilities
with more than 10.000 Licensi**





LEGAL FRAMEWORKS

Hierarchy of Safeguards Law & Regulation

Fundamental Law

Constitution 1945

Act

Act No. 10/1997
Act No. 8/1978

Government Regulation

GR No. 2/2014
GR No. 54/2012

President Decree

PD on Ratification

BAPETEN Regulation

BR on SSAC and AP

Guidelines

Guides for SNI, DIV Eval.,
MUF Calculation, etc.



SAFEGUARDS REQUIREMENTS IN LICENSING PROCESS (GR No. 2/2014)

No.	LIC. STEP	DIQ	SAFEGUARDS MEASURES
1.	Siting	Preliminary DIQ	- First report to IAEA
2.	Design	Detailed DIQ	- Examination - Safeguards by Design (suggested) - DIV
3.	Construction	Detailed DIQ	- DIV - Implement safeguards equipment - AP Declaration for essential equipments
4.	Operation	Final DIQ	- DIV - Implement safeguards equipment - NMAC implementation (PIV, IIV, AP)
5.	Decommisionin g	-	- DIV & CA - Implement safeguards equipment - AP Declaration

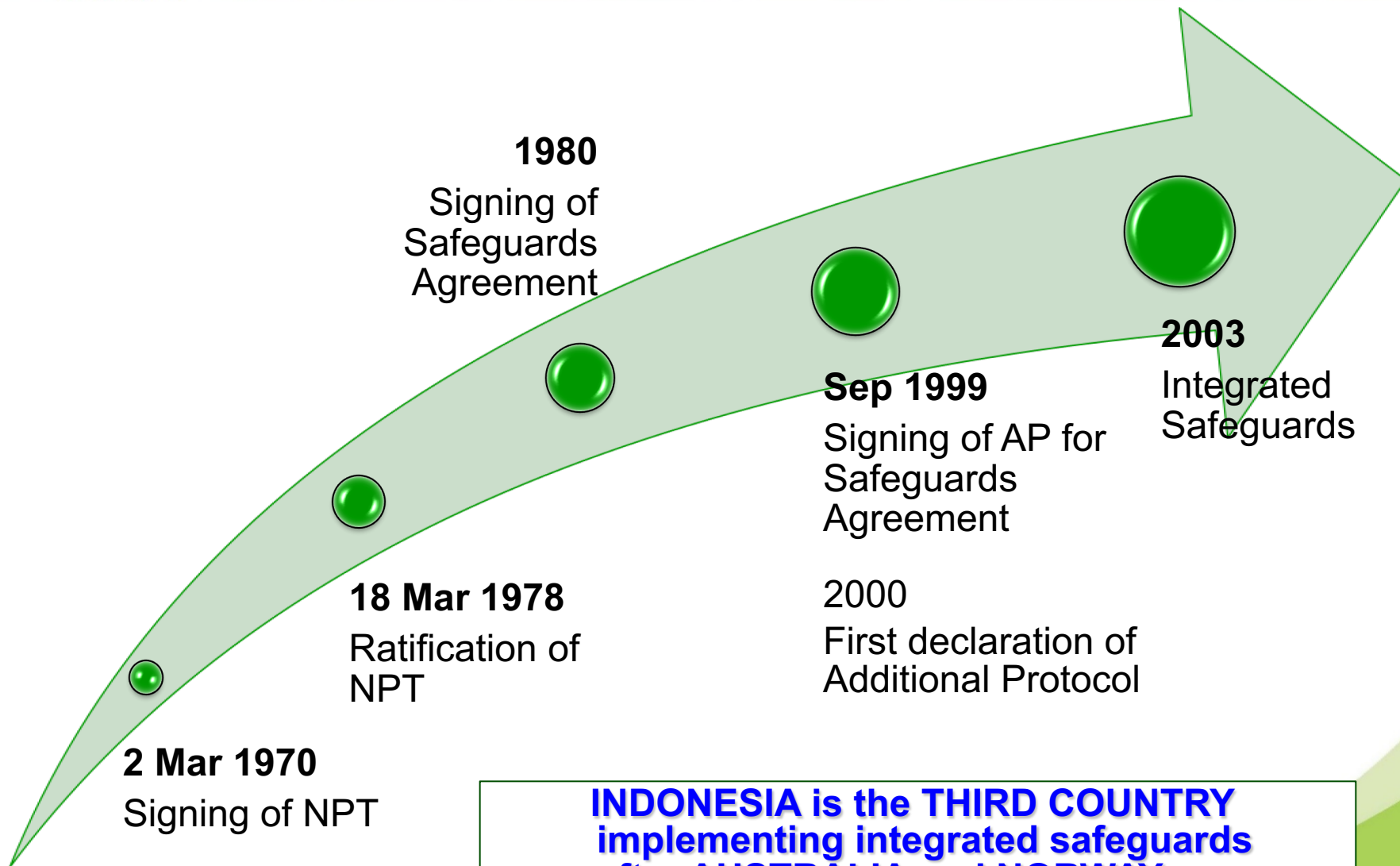


REGULATIONS ON SAFEGUARDS AND AP

- ❖ BAPETEN Regulation (BR) No. 4/2011 on Safeguards System
- ❖ BR No. 2/2009 on Preparation of DIQ
- ❖ BR No. 9/2006 on Implementation of Additional Protocol
- ❖ BR No. 9/2008 on Preparation of and Format for Additional Protocol Declaration



MILESTONES OF NATIONAL SAFEGUARDS



INDONESIA is the THIRD COUNTRY implementing integrated safeguards after AUSTRALIA and NORWAY



AP DECLARATION

First declaration

Article (2.a.(ix))
"Nothing to Declare"

submitted on January 26, 2000

Initial declaration package

Article (2.a.(i)-2.b.(i))

submitted on March 30, 2000

Annual Declaration

quarter declarations : 60 days after 3 month period

1 year period declarations : before May 15 of every year

Number of declaration 284 as of may 2016

IAEA General Conference 2003: Indonesia announced as a state which has fully implemented "Integrated Safeguards"



BAPETEN's Safeguards Activities

No.	Installation (MBA)	Pra PIV	PIV	DIV	IIV	AP	PP
1.	RI-A	Annually	Annually	Annually		Annually	Annually
2.	RI-B	Annually	Annually	Annually		Annually	Annually
3.	RI-C	Annually	Annually	Annually	Annually	Annually	Annually
4.	RI-D	Annually	Annually	Annually	Annually	Annually	Annually
5.	RI-E	Annually	Annually	Annually	Annually	Annually	Annually
6.	RI-F	Annually	Annually	Annually	Annually	Annually	Annually
7.	RI-G	Annually	Annually	Annually		Annually	Annually
8.	Tin Smelter					Annually	Annually



Inspection and Verification

- ✓ Inspections and verification on safeguards and additional protocol to the nuclear facilities and tin smelting fields are conducted regularly (annually).





Complementary Access (CA)

Complementary access (CA) are held by IAEA's inspectors in case they need to clarify the data or verify the information they got.

✓ **Clarification:** clarifications on implementation of additional protocol are held in case any question arises from the result of environmental sampling by the IAEA, or from open source relating to nuclear activities in Indonesia.

✓ **Verification** to non-nuclear industries, R&D organizations and universities regarding information related to AP

❖ as of 2018: more than 48 CA IAEA held in Indonesia



IAEA's Activities in Indonesia

No.	Installation	PIV	DIV	SNI	CA	Remark
1.	RI-A	4 year	4 year		V	
2.	RI-B	4 year	4 year		V	
3.	RI-C	Annualy	Annualy	Annualy		Including C/S
4.	RI-D	4 year	4 year		V	
5.	RI-E	4 year	4 year		V	
6.	RI-F	4 year	4 year		Annualy	
7.	RI-G	Annualy	Annualy		V	Start 2017, PIV perform every year
8.	RI-Z	4 year				LOF
9.	Center of Radioisotope and Radio Farmaka				Annualy	Every Year
10.	Gajah Mada University				V	On 2010
11.	Maju Makmur Mandiri. CV				V	On 2009
12.	Petrokimia Gresik				V	Closed down, Source material

Safeguards Implementation Summary

IAEA | Safeguards Implementation meeting | Jakarta, 26 March
2019

AP Declarations

- ✓ Submitted through Secure Communication.
- ✓ Submitted through PR3 (since Nov. 2018).
- ✓ Submitted timely.

Nuclear Material Reports

- ✓ Submitted through Secure Communication.
- ✓ Submitted timely.
- ✓ Submitted in electronic format.

Implementation Activities in 2018

- ✓ PIVs and DIVs at RIC-, RID-, RIF-, RIG-.
- ✓ RII at RIC-.
- ✓ CA in Serpong site.
- ✓ CA at PLUTHO (Center for Nuclear Minerals Technology - PTBGN).

It was agreed that PLUTHO will be included in the next AP declarations.

IAEA Inspection Result

No	Facility Name	PIV	DIV	SNI
1	PRSG	MA-INS-33.1 RIC- /2018/001/90 (a) 2018-07-31	MA-INS-33.1 RIC- /2018/001/AKL 2018-07-31	MA-INS-33.1 RIC- /2019/002/90(a) 2019-01-11
2	PTLR	MA-INS-33.1 RIG- /2018/001/90(a) 2018-07-13	MA-INS-33.1 RIG- /2018/001/AKL 2018-07-13	MA-INS-33.1 RIG- /2018/001/90(b) 2018-11-30
3	IPEBRR	MA-INS-33.1 RID- /2018/001/90(a) 2018-08-15	MA-INS-33.1 RID- /2018/001/AKL 2018-08-15	
4	IRM	MA-INS-33.1 RIF- /2018/001/90(a) 2018-08-16	MA-INS-33.1 RIF- /2018/001/AKL 2018-08-16	

MA-INS-33.2 2019-01-21

Conclusion on Additional Protocol 2017:

did not indicate the presense of undeclared NM or activities at
KNY and KNS



**For more information please contact:
BAPETEN**

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