



INDONESIA - CENTER OF EXCELLENCE ON NUCLEAR SECURITY AND EMERGENCY PREPAREDNESS (I-CoNSEP)

**BAPETEN – Indonesia
Indonesia – Egypt Delegation,
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1. Geography of Indonesia

Archipelagos country :

-More than 17.000 islands (with 5 biggest islands)

Total area 5.180.053 km²:

○1.922.570 km² land

○3.257.483 km² water

- Population : ~ 250 millions

- 18 international seaports

- > 20 international airports





Nuclear and Radiation Facilities in Indonesia

A. INSTALATIONS AND NUCLEAR MATERIAL

1. RESEARCH REACTORS (BATAN)

- a. Multipurpose Reactor - GA Siwabessy (30 MW) in Tangerang.
- b. TRIGA Mark Reactor (2 MW) in Bandung
- c. TRIGA Mark Reactor (100 KW) in Jogjakarta

2. OTHER NUCLEAR FUEL CYCLE FACILITIES (BATAN).

3. NPP ??

→ Research reactors are mainly for Radioisotope Production, R&D activities, and Training and Education.

B. RADIATION FACILITIES AND RADIOACTIVE MATERIAL

1. Hospital-Health sector ~ 7000 licenses;

→ These facilities are mainly for diagnostic and treatment activities.

2. Industrial sector ~ 3000 licenses;

→ These facilities are mainly for gauging, logging and radiography activities.



Policy consideration (1) :

- ❑ The potential of a malicious act involving nuclear or other radioactive material is an ongoing **global threat**.
- ❑ Because of their widespread use Radioactive material all over Indonesia are **vulnerable to theft, loss,. malicious acts or sabotage**.
- ❑ The objective of a **State's nuclear security regime** is to prevent, detect, and respond to such nuclear security events.
- ❑ An effective national nuclear security regime builds on the implementation of relevant international legal instruments; information protection; physical protection; material accounting and control; detection of and response to malicious acts involving nuclear and other radioactive material; national response plans; and contingency measures .



Developing Nuclear Security Regime in Indonesia

- ❑ Indonesia as **states responsible to** develop an infrastructures to support national nuclear programmes, and which is most likely to be focused in capacity building activities.
 - **1998 Indonesia established an independent Regulatory Body which is called BAPETEN.**
- ❑ to develop, implement, and sustain a nuclear security regime can be accomplished by ensuring they are well prepared and qualified to determine national nuclear security needs, prevent and combat the threat of sabotage or the use of nuclear and radioactive materials for malicious acts, and to prepare effective response measures to nuclear security events.
- ❑ It is understood that capacity building for nuclear security regime must be well coordinated and integrated with efforts for achieving the safe, secure, and peaceful use of nuclear energy.
 - **August 2014 Indonesia develops I-CoNSEP .**

Establishment of Regulatory body

- According to the Act No. 10/1997 on Nuclear Energy, the Nuclear Energy Regulatory Agency (BAPETEN), is a independent Regulatory Body (national authority) in controlling the use of nuclear energy in Indonesia.
- BAPETEN was established with the main task to protect the working personnel, public and environment from the harmful effect of nuclear energy utilization.
- BAPETEN structured that the Chairman of BAPETEN is responsible and reporting directly to the President of Republic of Indonesia.

PARTICIPATION INTO INTERNATIONAL LEGAL INSTRUMENTS

Regulatory Framework :

1. Developing REGULATION (Act, Gov't Regulation and or BAPETEN Chairman Regulations)
2. Issuing LICENCE.
3. CONDUCT INSPECTION.

Regulatory aspect covers :

- 1. SAFETY → to prevent harmful effect of radiation to personnel, public and environment**
- 2. SECURITY → to protect, detect and renpons any unlawful act & unauthorized removal and/or sabotage of NM, RA Mat&Fac.**
- 3. SAFEGUARDS → to prevent diversion activities ay nuclear material uses other than peaceful purposes.**

1. Physical protection for Nuclear Installations
2. Security for Radiation facilities.
3. Security for Material Out of Regulatory Control

PARTICIPATION INTO INTERNATIONAL LEGAL INSTRUMENTS

Indonesia has actively taken part and ratified International treaty and conventions, such as:

Safety aspect :

1. Convention on Nuclear Safety. Ratification into PR No. 106/2001;
2. Joint Convention on Safety of Spent Fuel and Radioactive Waste Management. Ratification into PR No. 84/2010;
3. Convention on Early Notification of a Nuclear Accident. Ratification into PR No.81/1993;
4. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. Ratification into PR No. 82/1993;

Safeguards aspect :

1. Nuclear Non-Proliferation Treaty (NPT). Ratified with Act No 8/1978;
2. IAEA Comprehensive Safeguards Agreement in force year 1980 and its Additional Protocol to Safeguards year 1999; → *Integrated SG 2003.*

PARTICIPATION INTO INTERNATIONAL LEGAL INSTRUMENTS

Security aspect :

1. Convention on the Physical Protection of Nuclear Material. Ratification into PR No. 49/1986, dan Amendment to CPPNM, ratified with PR No. 46/2009;
2. The Southeast Asia Nuclear Weapon Free Zone Treaty (SEANWFZ), ratified with PR No. 9/1997;
3. International Convention for the Suppression of Terrorist Bombings, ratified with Act No. 5/2006.
4. International Convention for the Suppression of the Financing of Terrorism, ratified with Act No. 6/2006.
5. Comprehensive Nuclear Test Ban Treaty (CTBT), ratified with 2010.
6. International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) ratified with Act 1/2013.

2. Center of Excellence “I-CoNSEP”

- The I-CoNSEP has been launched in Yogyakarta on 19 August 2014.
- 14 stakeholders Ministry and Agency level were participating to support the establishment I-CoNSEP.
- based on operational functions and on research functions.





What can I-CoNSEP take play ?

- ❑ BAPETEN takes the leading role in enhancing nuclear security regime and nuclear emergency preparedness at national level.
- ❑ **BAPETEN shall co-ordinate efforts to address challenges**
 - ❖ Nuclear security: rise of international terrorism; operational challenge to secure a long shoreline and numerous entry points
 - ❖ Emergency preparedness and response: higher risks of orphan sources; embarking countries in SEA; lessons learned from emergency response to the Fukushima accidents
- ❑ **Key measures to address human resources and support services:**
Indonesia Centre of Excellence on Nuclear Security and Emergency Preparedness (I-CoNSEP)



2a. Objectives of I-CoNSEP (1)

1. supporting and facilitating the development of **sustainable human resources** through the provision of a National Nuclear Security and Emergency Preparedness Training Programme;
2. providing **Support Services for lifecycle equipment management**, the prevention, detection of, and response to nuclear security and emergency events;
3. **Foster nuclear safety and security culture** and enhance **national co-ordination** among competent authorities;
4. becoming a **centre for capacity building** for Nuclear Security and Emergency Preparedness **in the regional and international levels**;



2a. Roles of I-CoNSEP (2)

1) Human resource development:

- a. National training programme;
- b. Training of Trainer, enhanced with certification; and
- c. Standardisation of syllabus on training courses.

2) Support services

a. Policy and legal support

b. Technical Support

i. Installation

ii. Calibration

iii. Maintenance

1) Scientific Support

a. Expert support

b. Laboratory analysis



3. Capacity Building on Nuclear Security

Generic action plan for capacity building – Element Priorities are :

1. **Education** (National Educational System, etc.) → coordination meeting to review the status of higher education system and discuss the need for specific curriculum on nuclear security: UGM University (Yogyakarta) and University of Defence (Jakarta).
2. **Training** (National Training Institutes, etc.) → all stakeholder to develop a plan to strengthen the existing institutions or to establish a new institutions, as necessary.
3. **Awareness** (National Awareness programme, etc.) → a regular coordination meeting of relevant organisation to address capacity building aspects.
4. **Workforce Management** → to develop a workforce management programme to attract, train, and retain adequate number of competent human resources for nuclear security at national level
5. **Knowledge Management** (Knowledge Management programme, etc.) → A coordination all stakeholder to identify best practices at knowledge management and develop a national level.
6. **Knowledge Networks** (National Knowledge Networks, etc.) → IAEA's Nuclear Security Support Centre (NSSC) and International Nuclear Security



Part1 : Areas of I-CoNSEP on Nuclear Security

1. Nuclear Fuel Cycle and Materials;
2. Radioactive Material and Associated Facilities and Activities;
3. Radioactive material out of regulatory control.
4. Transport Security;
5. Detection Architecture and Capabilities;
6. Response and Mitigation for Nuclear Security Events (including nuclear forensic);
7. Nuclear security culture, and
8. Information and Computer Security

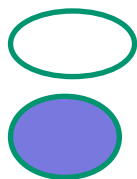
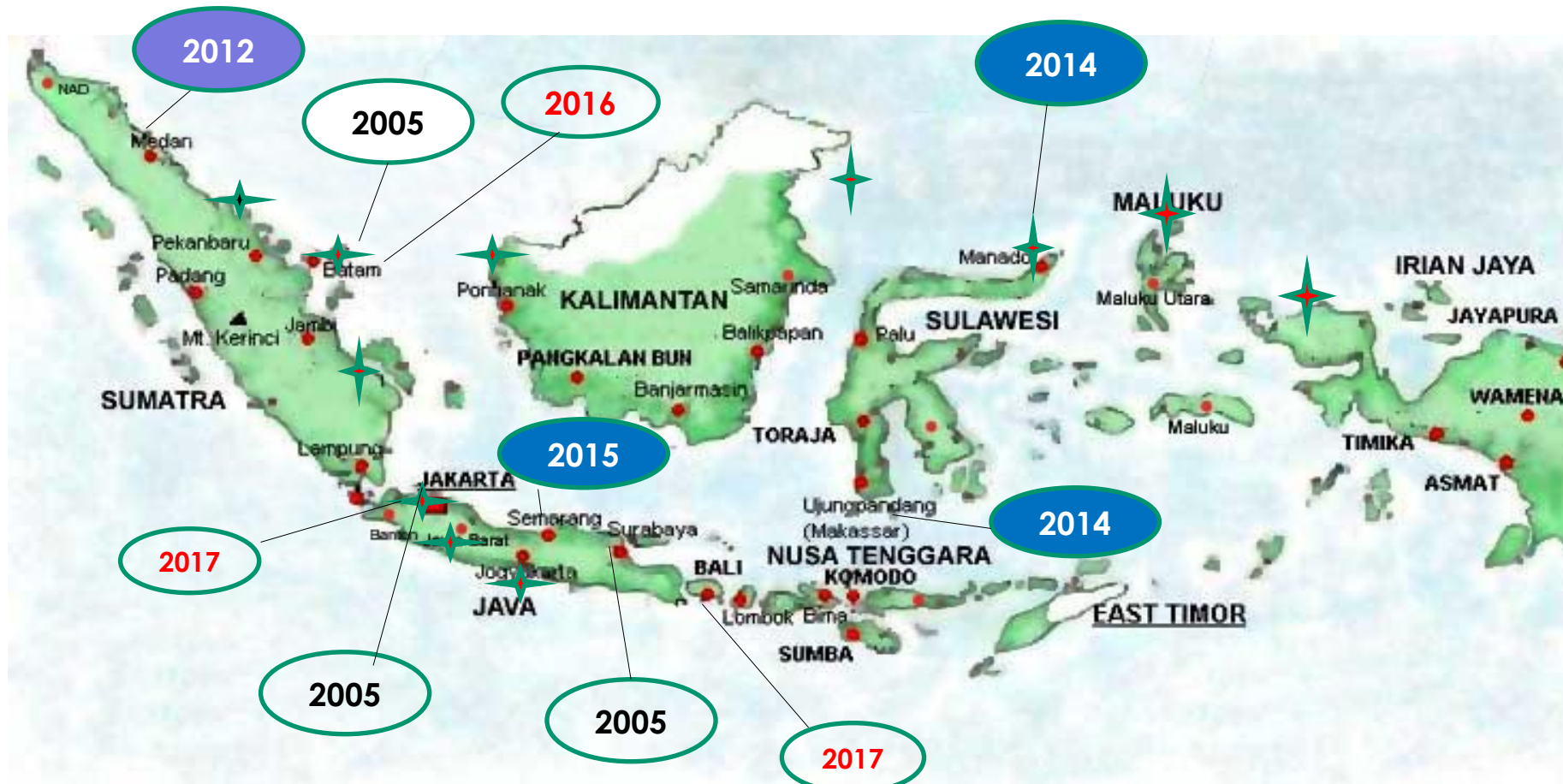


Main Program and Activities for Nuclear Security

- ❑ Development coordination desk all stakeholder, with representative communication mechanism.
- ❑ Periodically coordination meeting all stakeholders.
- ❑ Capacity building for Human resources all stakeholder related to I-CoNSEP throughout each training center program : training courses, workshop and /or exercises. Targeted resources, such as :
 - ❖ FLO,
 - ❖ BAPETEN safety inspector and First responder team,
 - ❖ MEST ,
 - ❖ First Responder team for all stakeholders ,
 - ❖ PPS Facility security officer, and Radiation facility officer
 - ❖ Human resources o Nuclear Forensic, security culture and cyber Security.



Radiation Portal Monitor (RPM)



RPM installed and owned by Custom

RPM installed by IAEA donor



Next priority possible RPM installation



RPM at Belawan Seaport, North Sumatera



RPM at Tanjung Perak Seaport, East Java





RPM at Batu Ampar Seaport, Batam island



RPM at Bitung Seaport, North Sulawesi





EPR First Responder Team and Mobile Expert Support Team (MEST)

Mobile Decontamination Kit and Mobile environmental monitoring unit





4. National policy on EPR

- ❑ Indonesia is committed to adhere to the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident (Emergency Conventions).
- ❑ Indonesia consistently undertakes emergency field exercise at national level.
- ❑ Indonesia is committed to enhance national emergency infrastructure and capabilities.
- ❑ Indonesia will prepare to contribute to international community through IAEA's Response and Assistance Network (RANET).



Part 2 : Areas of I-CoNSEP on EPR

1. Source Search and Recovery;
2. Radiation Survey;
3. Environmental Sampling and Analysis;
4. Radiological Assessment and Advice;
5. Medical Support;
6. Dose Assessment;
7. Decontamination; and
8. Nuclear Installation Assessment and Advice



On-line Radiological Data Monitoring System

1. Early warning system (EWS) to initiate response actions.
2. Anticipation trans-boundary releases.
3. Share informations in the regional level.





Experience of EPR - Exercises

Routine exercise : Facility level : 1x/yr; Govt level : 1x/2yr; National level 1x/4yr.



Sea Transportation
November 2011



Table Top Exercise
October 2009



Transportation
September 2013





3. INTEGRATED NUCLEAR SECURITY SUPPORT PLAN (INSSP)

IAEA program to foster nuclear security regime in each member state.

INSSP detail-information is limited only for any individual country and the IAEA based on existing arrangement.

Objectives of INSSP:

- To identify and consolidate the nuclear security needs of an individual State an integrated document that includes the necessary nuclear security improvements, based on the IAEA's Nuclear Security Series documents.
- To provide a customized framework for coordinating and implementing nuclear security activities conducted by the State concerned and the IAEA.



5. INTEGRATED NUCLEAR SECURITY SUPPORT PLAN

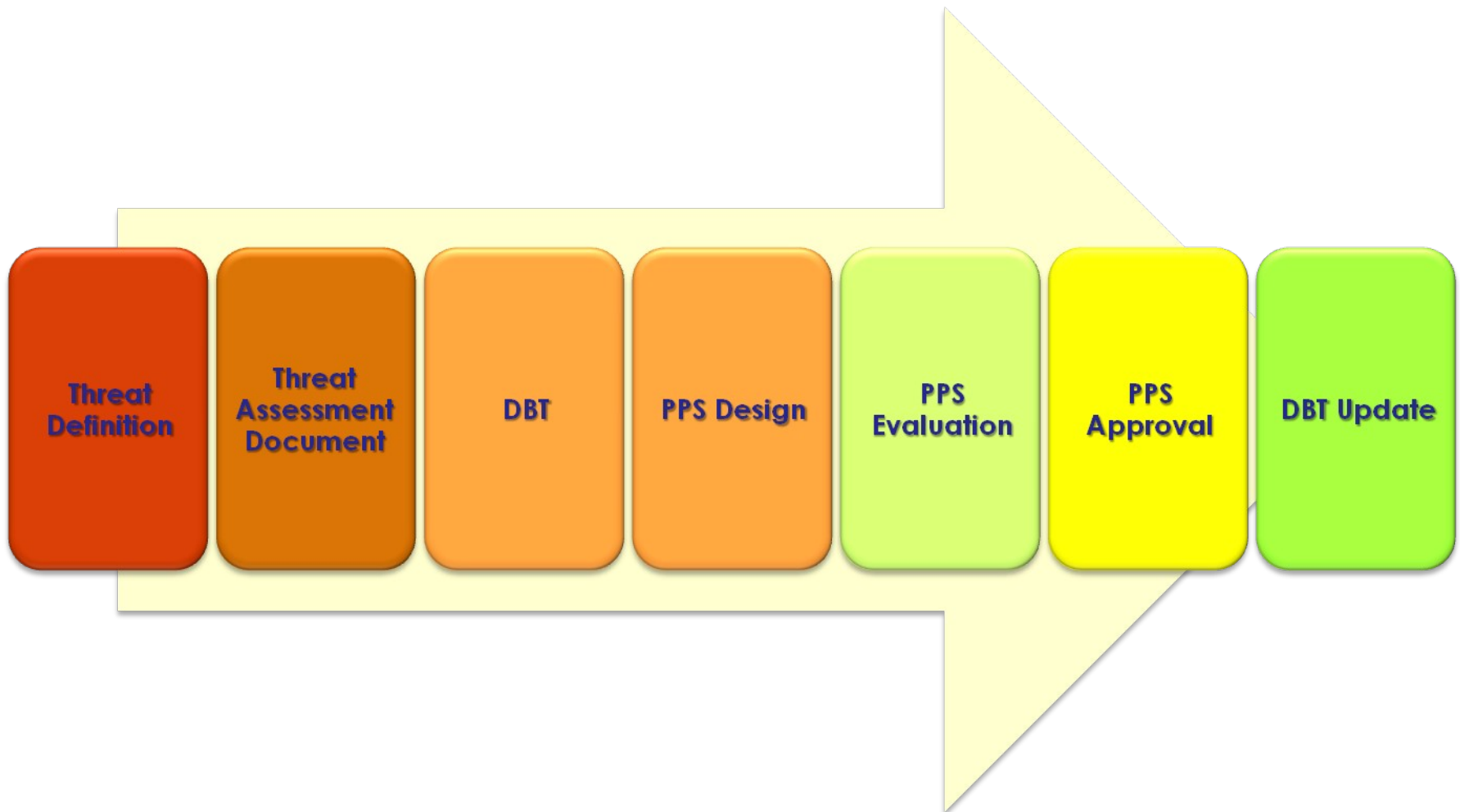
There are 5 (five) Functional Areas:

- **Legislative and Regulatory Framework**
- **Prevention**
- **Detection**
- **Response**
- **Sustainability (Human Resource Development)**



6. DESIGN BASIS THREAT (DBT) ON NUCLEAR SECURITY SYSTEM

Procedure for Developing of DBT





Threat Assessment

Objectives:

- To determine the grade of potential threats.
- The grade will be used to determine the rank of existing threat based on its potential.

Team for Threat Assessment coordination:

- BAPETEN → Coordinator
- National Police
- Army (Arm forces)
- Intelligent Agency
- National Authority for terrorism prevention
- Ministry for coordination of politic, law and security
- Ministry of defense.
- Others.



Process for Threat Assessment

**Identification, data
collection and
analysis of potential
threat**



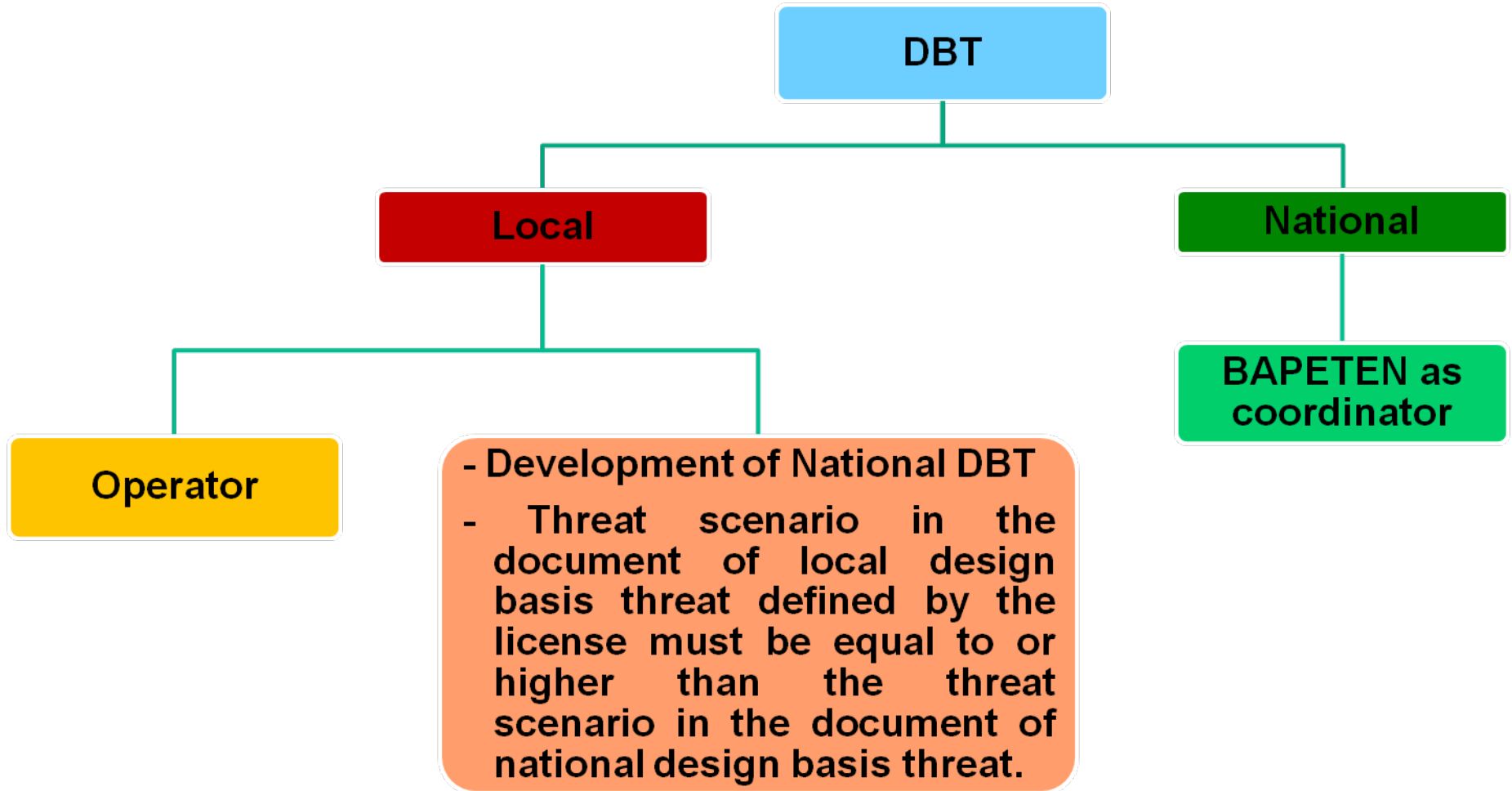
**Identification, data
collection and
analysis of potential
adversary**



**Analysis of the
adversary
capability**



Design Basis Threat





THANK YOU

THANK YOU

Terima kasih

TERIMA KASIH

Wasalam

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