

THE INDONESIAN EXPERIENCES

“Building Capacity in NDT for Improving the Product Quality, Reliability, and Safety of Industrial Sector to enhance national competitiveness”

Sigit Budi Santoso

NATIONAL NUCLEAR ENERGY AGENCY
Center for Isotopes and Radiation Application



batan

International Atomic Energy Agency Scientific Forum

ATOMS IN INDUSTRY

Radiation Technology for Development

15–16 September 2015, Vienna, Austria

Current Situation

- **Globalization & Digitalization**
- **The attention should be addressed**
 - firstly on how to establish **PCB on NDT** in member state with an **easy way** and **low cost**...
 - Secondly, how to master, develop, apply and **transfer** a new technology (Advanced NDE) in member states

Topics

- **Overview of NDT Indonesia**
- **Batan's Priority Program – Advanced NDE Method (2015- 2019)**
- **Proposed Action**



Profile of Indonesia

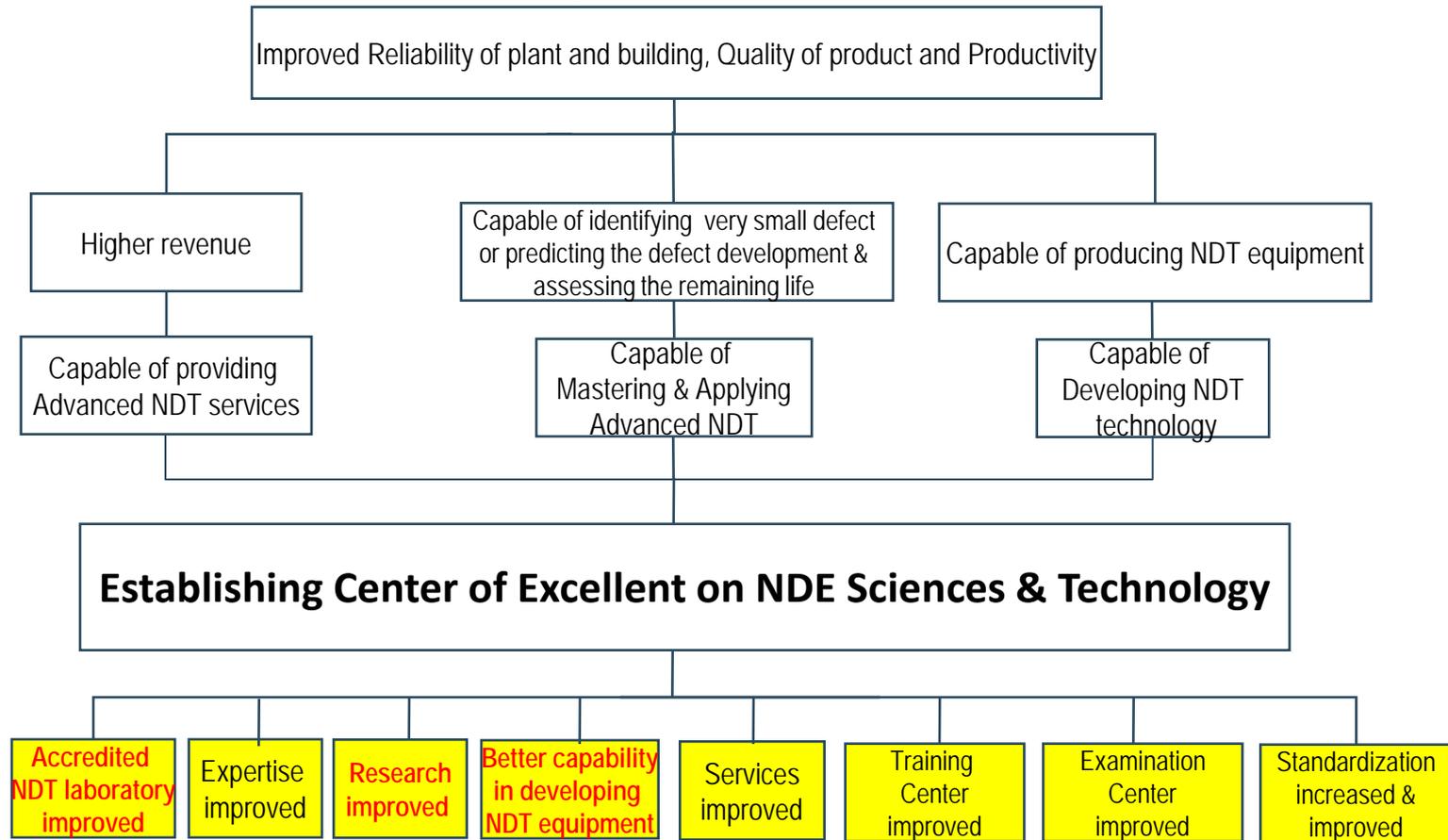


1,760 km

5,120 km

- **Estimated 17,000 islands; 2014: 252 million people**
- a member of the [G-20](#)(the world's [16th](#) largest by nominal GDP)
- **Total investment** required for infrastructure 2015-2019: **363.5 billion USD**
- Proposed Infrastructure Projects 2016 : 21 billion USD...
- Estimated total funding for 35.000 MW power plants 2015-2019: 75 billion USD
- Increased refinery capacity into 1,6 barrels/day in 2020, US \$ 17 billion
- **Estimated 20,000 NDT personnel in 2014**
- **Various scheme of qualification and certification:** ISO9712, ASNT and PCN
- **Major Training providers on NDT:**
 - **BATAN** (RT Level 1:120 person/year; RT lev 2: 30 person/year)
 - **B4T** (UT, PT, MT: 60 person/year; UT, PT, MT: 40 person/year)
 - **Private institution:** estimated 400 person/year
- **Establishment/Declaration of PCB for NDT 2010**

Objective Tree/Proposed Program 2015-2019



Building Capacity in NDT for Improving the Product Quality, Reliability, and Safety of Industrial Sector to enhance national competitiveness

BATAN-IAEA Collaborating Centre for Research and Development and Capacity Building in Nondestructive Diagnostics, Testing and Inspection Technologies (2015-2018)

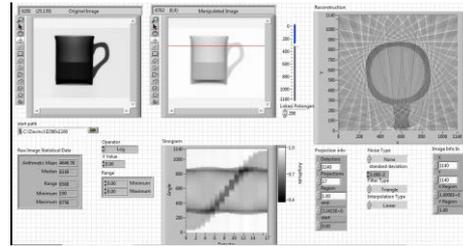
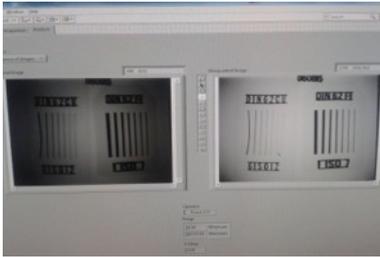
Scope of Activities

- **Transfer Technology on Advanced NDE (In cooperation with IAEA: TC- 4 trainee, 2 SV, RTC – 163 trainee, 6 EM, CC)**
- **Manufacture Prototype of Advanced NDE equipments**
- **Upgrade NDE Laboratories**
- **Development of Advanced NDE's services**
- **Development of certified NDT personnel through Technical Cooperation with IAEA - TC Project INS 1025 "Building Capacity on Advanced Non-Destructive Testing and Personnel Certification for Enhancing Safety, Reliability and Productivity" and Regional TC Project RAS1020 (2015-2017),**
- **Development of Training on Advanced NDE**
- **Examination Center for advanced NDE**
- **Adoption of advanced NDT's standard**



Batan's Priority Program-3

Timeline



Milestone 2015

- Radioscopy
- 2D Software
- Adoption of ISO standard on digital radiography

Milestone 2016

- Prototype α Radioscopy
- Training materials on DIR & CT in Indonesian language

Milestone 2017

- Prototype β Radioscopy
- In-house training on DIR & CT



Milestone 2018

- Prototype α DIR and CT X-ray
- Training on DIR & CT for public
- ADR

Milestone 2019

- Prototype β DIR and CT X-ray
- 3D reconstruction image
- Training on DIR & CT for public



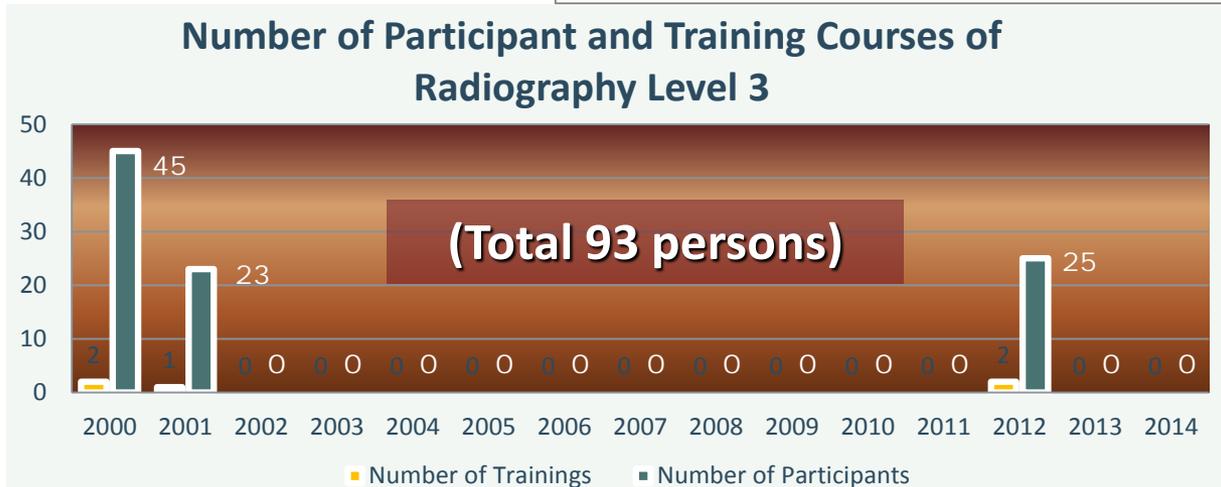
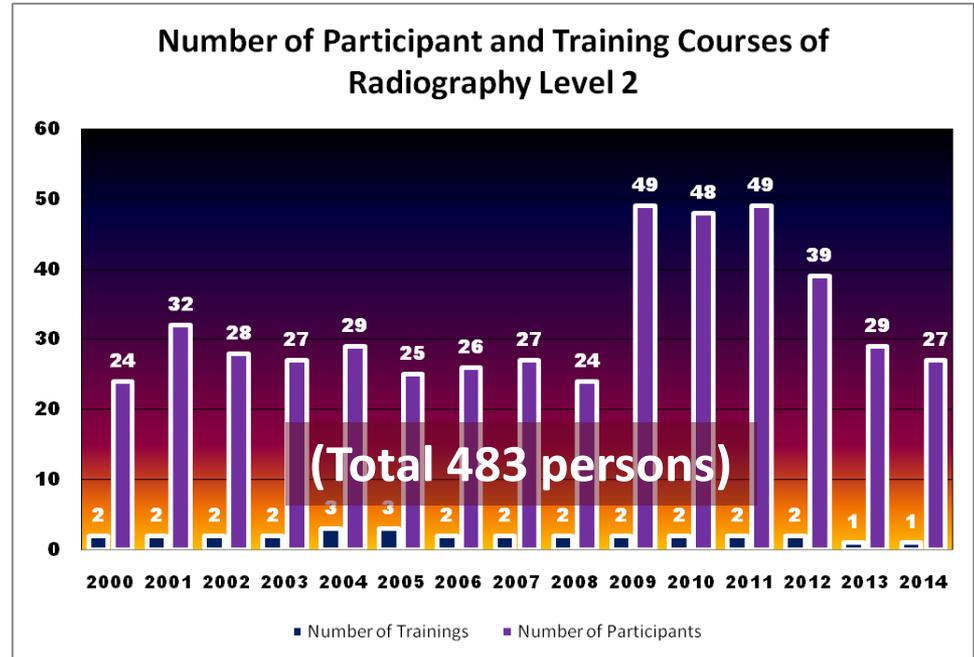
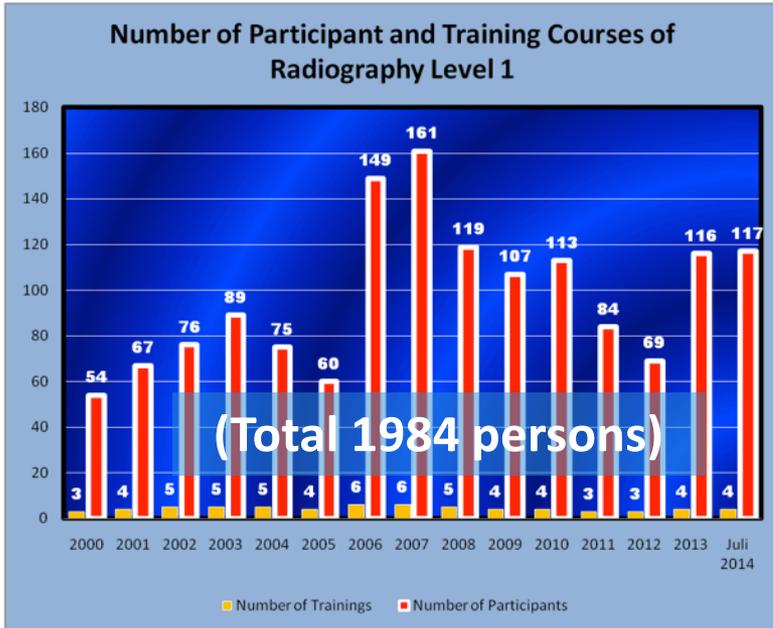
Batan's Priority Program-4 Achievements 1



Batan's Priority Program-5

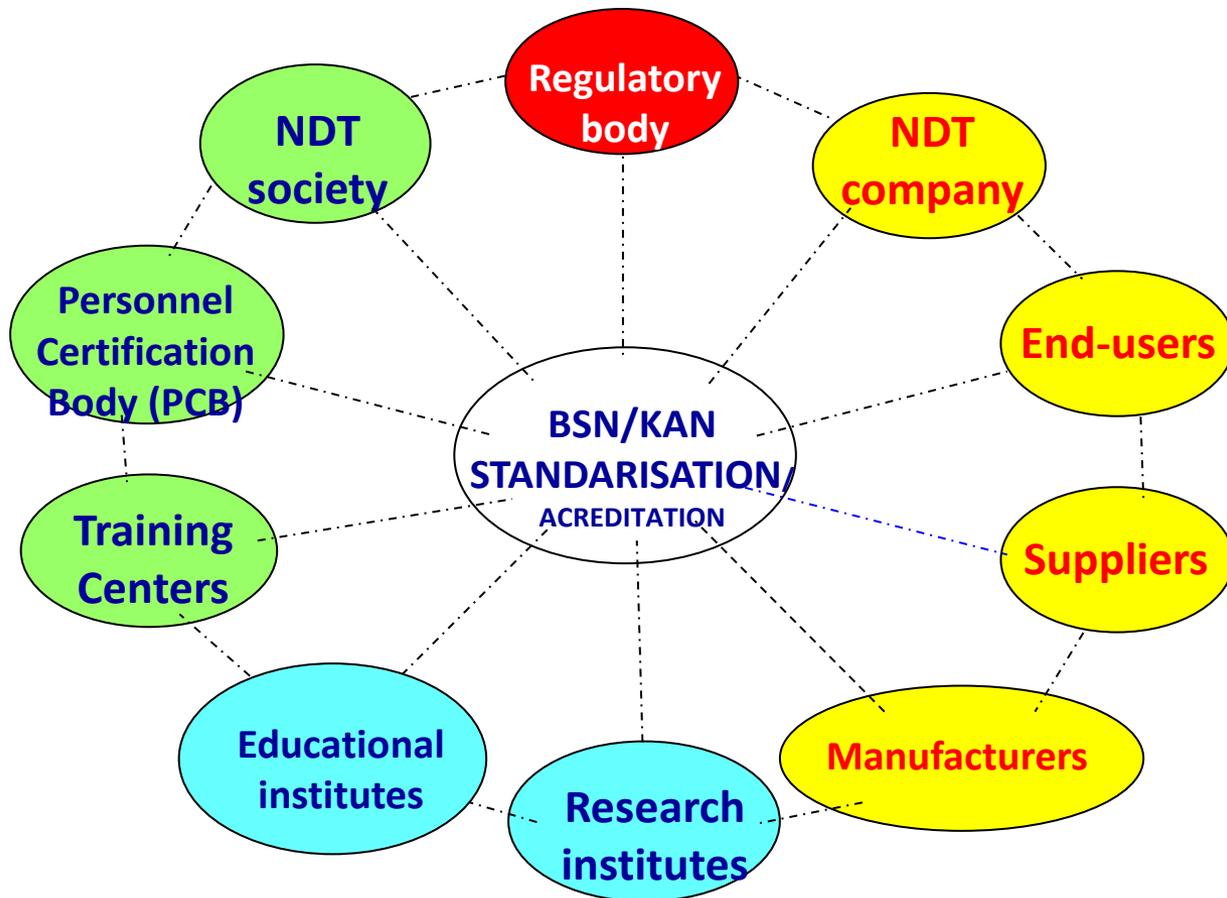
Achievements 2

Batan Training Center



Proposed Action

- To convince the decision makers that the NDE is important to Improve Product Quality, Reliability, and Safety
- To enhance synergy of NDT' s stakeholders for establishing PCB on NDT
- To foster Collaboration on R & D in the field of advanced NDT
- To strengthen/support NDT society in (management, PCB, Conference & EXPO on NDT)



1 Academic related	
	Academic investigation
	Promotion of research
	Standardization
	Dissemination
2 Business related	
	Training
	Publication
	Certification



धन्यवाद

شكراً

||ശിവാന്റെ നൂറു നൂറ്റാണ്ട്||

Grazie

Gracias

Köszönettel

Ευχαριστώ

Merci

Vielen Dank

THANK YOU

Діку

Спасибо!

Hvala



Dankeschön!

Obrigado!

