EXECUTIVE SUMMARY

At the request of the Government of Indonesia through the Nuclear Energy Regulatory Agency (BAPETEN) addressed to the International Atomic Energy Agency (IAEA) to conduct an Occupational Radiation Protection Appraisal Services (ORPAS) mission dated as 26 February 2018, the Agency organised the ORPAS in Indonesia during 4 – 13 November 2018 with a Team of eleven international experts that includes a Team Leader and an Agency Coordinator. The Nuclear Energy Regulatory Agency (BAPETEN) acted as the national contact point for the mission.

The purpose of this mission was to appraise the regulatory and practical implementation of the occupational radiation protection arrangements in Indonesia. Prior to this mission, a pre-mission was conducted from 2 to 4 May 2018 in Jakarta to determine the participating organizations, to introduce and agree on self-assessment by those organizations using the ORPAS questionnaires prepared by the Agency, and to agree upon the scope and dates of the mission. Accordingly, the organizations participated in the ORPAS mission were the following.

REGULATORY BODY
– Nuclear Energy Regulatory Agency (BAPETEN)

TECHNICAL SUPPORT ORGANISATIONS
– Centre for Technology of Safety and Radiation Metrology (PTKMR, BATAN)
– External Dosimetry Service and Calibration Facility (BPFK, Ministry of Health)
– External Dosimetry Service of Nuklindolab.
– BATAN Secondary Standard Dosimetry Laboratory (SSDL)

END-USERS
– Dharmais Cancer Hospital
– MRCCC Siloam Hospitals Semanggi Jakarta
– Centre for Application of Isotope and Radiation (PAIR BATAN)
– PT Radiant Utama Interinsco
– PT Rel-Ion Sterilization Services
– PT TIMAH
– PT Pertamina Hulu Mahakam
– Centre for Multipurpose Reactor (PRSG BATAN)
– Indonesia Nuclear Industry (PT INUKI- Nuclear Fuel Element Production)

EDUCATION AND TRAINING CENTERS
– Centre for Education and Training of BATAN
– Polytechnique of Health Jakarta II - Ministry of Health, Department of Radiodiagnostic Technique and Radiotherapy

The ORPAS mission compared the Indonesia’s arrangements for occupational radiation protection against the IAEA Safety Standards as the international benchmark for protection and safety of workers. The mission was also used to exchange information and experience between
the team members and national counterparts. The BAPETEN provided the review team with advance materials that are relevant to the mission including the self-assessment carried out by the participating organizations.

This report provides the main findings, recommendations, and good practices identified during the mission conducted from 4 to 13 November 2018. Detailed findings for individual organisations are provided in the Appendices.

In general, Indonesian legislation for radiation protection is consistent with the previous version of the International Basic Safety Standards (SS No. 115, 1996) as recognised by IRRS mission in 2015. The ORPAS mission observed significant progress towards compliance with the current requirements of International Basic Safety Standards (GSR Part 3).

Regulatory assessment and development of regulatory guidance are integral components of BAPETEN. The Centres should not be described as internal technical support organisation as their role is an essential part of regulation.

The way decisions are made is often as important as the decision itself. As such, regulatory decisions (not limited to occupational exposure control) should always be based on collective agreement on implementation in compliance with the regulatory policies. Policies should be published, and regulatory activities should be transparent. In other words, active consultations between policy makers and end users are encouraged.

The regulations should address occupational exposure in existing exposure situations, including industrial activities involving NORM and exposure to radon.

The “graded approach” is a key concept in the international safety standards, and BAPETEN should apply this in policies of authorization, assessment, inspection and enforcement, in relation to practical occupational radiation protection, emphasis should be given to controlling, monitoring and recording occupational exposure.

The ORPAS Team has observed excellent collaboration and mutual understanding between the relevant parties for practical radiation protection for medical facilities and activities. This excellent collaboration should not impact on the independence of regulatory decision making.

The Technical Support Organisations should be encouraged to work with BAPETEN to ensure that all the dosimetry needs in the country are addressed.

Due to the radiological characteristics of many facilities and activities, routine monitoring of internal dose, extremity dose and doses to lens of the eye of workers is necessary. However, the regulation in regard to characterisation and monitoring is not effective and not adequately implemented.

The ORPAS team recognises the value and great potentials of the BALIS on-line system, however the BALIS Pendora should be extended to include doses from all exposure pathways for workers (e.g., internal, extremity, lens of eye).

Despite inconsistencies in regulatory requirements, license holders should ensure that all necessary dosimetry and monitoring for all workers is conducted, depending on the associated radiation risk. It was noted that in some cases, some aspects of Radiation Protection Programs prepared by licence holders were not fully implemented.
The ORPAS team recognises the positive aspects of the BAPETEN reward system for outstanding performance and notes that this will contribute to the enhancement of good safety culture at the level of end-user facilities.

Finally, it should be noted that not all the requirements of the IAEA Safety Standards are relevant for every practice or source, or for all actions.