

Using non-destructive testing to support industrial competitiveness in Malaysia

The challenge

Non-destructive testing (NDT) is used to ensure structural integrity in various engineering sectors in Malaysia, including oil and gas, power generation, aerospace, automotive, petrochemical, railways and manufacturing. International industrial codes and standards specify that NDT can only be performed by qualified, certified personnel. An NDT operative must complete a minimum number of hours of formal training, depending on the NDT method, before taking an examination for certification purposes. Before Malaysia established its own local NDT inspection services, the national oil and gas company PETRONAS and other important national industries such as Tenaga Nasional Berhad, which is responsible for power generation, relied on foreign NDT providers, or on certified NDT personnel hired from abroad. This made NDT activities very expensive, and meant that Malaysia's industrial sector was dependent on foreign workforce and expertise.

The project

Since the 1980s, the IAEA has played an important role in helping Malaysia's Nuclear Agency, Nuklear Malaysia, to establish NDT capacity, including through the provision of expertise, supporting the development of facilities, and assisting in the development of a certification system, and in promoting the advantages of NDT technology to Malaysia's industrial sector. With IAEA assistance, and in collaboration with the Department of Skills Development, SIRIM, and the Atomic Energy Licensing Board (AELB), Nuklear Malaysia conducted the first NDT training course in Radiographic Testing in 1986. Since this first national training course, Malaysia has gone on to produce a cohort of qualified and certified NDT personnel, able to perform NDT for local industries. This has significantly contributed to national industrial competitiveness, and to the sustainable development and economic growth of Malaysia.



Malaysia is now able to train and certify NDT personnel using its own National NDT Certification Scheme. (Photo: Malaysian Nuclear Agency)

The impact

The establishment of an internationally recognized NDT training, qualification and certification scheme has improved safety and contributed to the optimized operation of industrial plants through standardized inspection practices. NDT training and certification, in addition to enabling the provision of NDT services using a local workforce, has also improved the employment prospects of graduates and other technical staff. Nuklear Malaysia's success in advancing NDT in Malaysia has been acknowledged at the international level.

In 2015, the IAEA designated Nuklear Malaysia as the IAEA Collaborating Centre for NDT, recognizing its significant achievements in non-destructive testing and the close and valuable cooperation between Malaysia and the IAEA in various regional activities, including research, development and training.

More recently, Malaysia's NDT certification system was recognized by the International Committee for Non-Destructive Testing through a multilateral recognition agreement. In addition, the President of the Malaysian Society for Non-Destructive Testing (MSNT) was awarded the Prime Minister's Award as part of the events to mark National Worker's Day 2018, for his contribution to the establishment and promotion of the National Certification Scheme for NDT.



The President of the Malaysian Society for Non-Destructive Testing was awarded the Prime Minister's Award during National Worker's Day 2018. (Photo: Malaysian Nuclear Agency)

PROJECT INFORMATION

Project No: MAL1014

Project title: Establishing National Non-Destructive Testing Capacity for the Nuclear Sector

Duration: 2016-2017 (2 years)

Budget: €131 000

Contributing to:



Partnerships and counterparts

Successive IAEA project achievements have resulted from an excellent collaboration and partnership between the National Certification Body (DSD), the NDT Society (MSNT), the NDT Training Centre (Nuklear Malaysia), and the regulatory body (AELB), with the strong support of the IAEA, to establish and sustain the national certification scheme for non-destructive testing in Malaysia.

Facts and figures

Over 90 companies in Malaysia, employing more than 4000 technicians, are certified to national NDT standards to carry out non-destructive testing.

The science

Non-destructive testing methods are used in industry to evaluate the integrity and properties of material or components without causing damage to the tested object. Aside from industrial radiography, four of the most common methods are: ultrasonic radiography; and liquid penetrant, magnetic particle and eddy current inspections.

Non-destructive testing is a key tool for quality control, safety and reliability. The IAEA promotes the use of non-destructive testing technology to maintain the stringent quality control standards for the safe operation of nuclear and other industrial installations. It helps its Member States train staff in applying the technology and provides necessary equipment.