

## 42<sup>nd</sup> Regional Meeting of National RCA Representatives

**Project:** RAS5084 Assessing and Improving Soil and Water Quality to Minimize Land Degradation and Enhance Crop Productivity Using Nuclear Techniques

**Details:** 2018 – 2021 | AUL | Timothy Ralph, Macquarie University | 18 Participating GPs

### Background

• Soil is an essential non-renewable resource that provides humans with productive agricultural crops, food security, productive grazing lands, diverse wildlife and landscapes, and maintains essential ecosystem services. Due to intensive land-use change, agricultural practices, increased human population, and climate change and variability, soil degradation and loss occurs at high rates globally. Mobilisation and deposition of agricultural soils can also alter nutrient and carbon cycling in catchments, a problem that is occurring widely in Asia and the Pacific. Assessing and improving soil quality and fertility to enhance landscape resilience against long-term degradation and risks associated with climate change are challenges that must be urgently addressed to feed an ever-growing human population and maintain critical ecosystem services.

### Project Objectives

• The overall objective of this project is to enhance the capacity of countries in the Asia-Pacific region to use nuclear techniques to assess and improve soil and water quality, and to implement best agricultural practices to minimize land degradation and enhance crop productivity.

### Project Activities in 2019

#### ▪ Meetings / Workshops

- › Mid-term Project Coordination Meeting in Tsukuba, Japan (2-Dec 2019)
  - Attended by 18 NPCs, PMO and TO to discuss the progress to date at national and regional levels and to plan and refine the national and regional project work plans for 2020 and 2021.

#### ▪ Regional Training Course

- › Third Regional Training Course in Nanning, China (25-29 Mar 2019)
  - This RTC provided practical training on the use of stable isotope techniques to monitor the sources and transport of non-point source pollutants (e.g. fertilizers) in agro-ecosystems.
  - It included field visits where demonstrations of site selection, water and soil sampling techniques were conducted, as well as laboratory demonstrations of isotope analysis

#### ▪ Expert Missions

- Building on the RTCs held in 2018 and 2019, six expert missions were conducted to Mongolia, Laos, China, Indonesia, Sri Lanka and Malaysia.

### Progress during 2019

- Several countries have applied the techniques learned through RTCs and expert missions to their national projects and have initiated close collaborations between national institutions, most notably Pakistan, Vietnam and Thailand, and China and New Zealand.

### Constraints/ Challenges

- ✓ Provision of RTCs and expert missions are time intensive and it can be difficult to address all the needs of the various participants (many coming from different technical backgrounds and with different skill levels). Early and clear communication is required when seeking appropriate participants for RTCs and expert missions, when seeking lecturers and experts, and when seeking timely submission of national annual reports from NPCs.
- ✓ Our national project requires dedicated personnel and funding.