

# Nuclear and Radiological Emergency Preparedness and Response Capability

The Department of Science and Technology – Philippine Nuclear Research Institute (DOST – PNRI) maintains a National Radiological Emergency Preparedness and Response Plan (RADPLAN).

Training course participants perform drills on area survey monitoring.



PNRI conducts Follow-Up Training Course on Nuclear Emergency Preparedness and Response.



Participants wearing Personal Protection Equipment (PPE)



## PURPOSE OF THE RADPLAN

Timely and effective response during peacetime nuclear and radiological emergency in the country is embodied in the National RADPLAN being maintained by DOST-PNRI. Various government and non-government organizations are involved in the implementation of the RADPLAN.

This RADPLAN is currently being revised and updated based on the lessons from the Fukushima-Daiichi nuclear power plant accident and current international standards.

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**Nuclear Science  
and Technology**



## IN DISASTER PREPAREDNESS AND RESPONSE

## Environmental Radioactivity Monitoring

The Department of Science and Technology – Philippine Nuclear Research Institute (DOST – PNRI) monitors radiation in the environment as part of its radiological surveillance program for public protection and safety. This program is undertaken through measurement of ambient gamma radiation and analysis of the radioactivity of environmental samples collected in different parts of the Philippines.

The radioactivity data obtained can serve as baseline or reference levels to investigate the effects of nuclear-related activities or accidents that may occur in the future.



The Department of Science and Technology – Philippine Nuclear Research Institute (DOST – PNRI) has been undertaking marine radioactivity measurements to assess the possible impact of any radioactive discharges brought about by the Fukushima Daiichi Nuclear Power Plant in 2011.

Samples of seawater, sediment and biota were collected in sampling locations along the Pacific seaboard and in the West Philippine Sea. The samples collected are analyzed for presence of radionuclides cesium-134 and cesium-137, which are fission products and indicators of radionuclide contamination following a nuclear accident; K-40, Th-233 + Ra-266.

### ASPAMARD

Data generated from this project are submitted to the Asia-Pacific Marine Radioactivity Database (ASPAMARD), which is a compilation of available data on key anthropogenic and natural radio-nuclides in seawater, sediment and biota in the seas located in the Asia-Pacific region. DOST – PNRI is the ASPAMARD focal point.

### MANAGEMENT OF CTBTO STATIONS IN THE PHILIPPINES

The Philippines, through the Department of Science and Technology – Philippine Nuclear Research Institute (DOST – PNRI) has been participating in the global monitoring of



Collection of seawater and biota samples to monitor natural and anthropogenic radionuclides in the Philippine marine environment

radiation released in the environment from nuclear testing and accidents as part of its commitment under the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

This commitment entails continuous management of the daily operation and maintenance of the RN52 radionuclide monitoring station in Tanay, Rizal and the National Data Center at PNRI.

Air particulates are collected daily for 24 hours at the PHP52 station in Tanay, Rizal to detect radioactive signatures of nuclear weapons tests and other nuclear incidents.



#### SIGNIFICANCE OF THE CTBTO STATIONS

- Radionuclide Monitoring provides evidence of a nuclear explosion.
- Primary capabilities of the stations are for environmental radioactivity monitoring and nuclear emergency preparedness of the Philippines.
- Radiological data from the stations can be used in the confirmation of occurrence of a nuclear event in the Asia-Pacific region.
- Can be used in other civil and scientific applications such as atmospheric transport studies, radioecology and meteorology

### Management Establishment of Real-Time Environmental Radiation Monitoring System in the Philippines

DOST – PNRI is establishing a network of online radiation monitoring stations in the Philippines which will continuously measure radiation levels across the Philippines and provide real-time information to emergency responders and decision makers.

Nationwide radiation levels will be monitored with automatic monitoring stations in different provinces, with eight initial monitoring stations installed to cover the entire country. DOST – PNRI is establishing a network of online radiation monitoring stations in the Philippines which will continuously measure radiation levels across the Philippines and provide real-time information to emergency responders and decision makers.



The first radiation monitoring station located at the PNRI grounds started operation in December 2014.



Location of 8 Radiation Monitoring Stations installed as of 2018. The dose rate data generated from the RMSs are also displayed on the map and updated every 15 minutes.

The radiation monitoring stations will measure the ambient radiation levels in the environment, every 15 minutes for 24 hours in a day continuously. The radiation levels from the stations will be transmitted and accessed on-line to monitor increase in radiation levels during radiation emergencies.

### SIGNIFICANCE OF ONLINE RADIATION MONITORING SYSTEM

- Will strengthen the emergency preparedness and response capabilities during events leading to extensive release of radioactive substance to the air.
- Timely actions can be undertaken during radiation emergencies to ensure the safety of the public.