Summary of the Discussions at the Table Top Exercise (TTX)

A short TTX on Nuclear Forensics (NF) was provided as a special event at the 9th Workshop on Nuclear Security and Safeguards Project of the Forum for Nuclear Cooperation in Asia (FNCA). This activity was held on 28 November 2019 at the Philippine Nuclear Research Institute (PNRI).

The background information on the TTX was presented by the TTX facilitator, Ms. Noro of ISCN/JAEA.

Background

- An anti-globalization group has been making threats to the soft targets. This group is known to have the desire to use CBRN materials to cause mass casualties.
- Surveillance of several suspected members of this group shows extensive travels in and out of the country and increasing communications among members in the past 6 months.
- There is an information that the same group is trying to attack nuclear research facility nearby the capital city.
- A neighboring country reports a stolen radioactive source. A vehicle transporting several radioactive sources having been hijacked and its sources stolen. The vehicle and driver have since been located at a remote location 80km from the capital city.

Getting the participants acquainted with the conduct of the TTX, a scenario was presented and thereafter sample questions were asked initiating the discussions among the participants. The following information has documented the discussions based on the questions asked and the responses received:

Scenario 1: Border Alarm Event **Scene 1: Discussion**

Question #1: Who should be informed of the alarm event?

Response:

Malaysia: Regulatory Body; verify the source of alarm whether nuisance or real?

Viet Nam: Regulatory Body; when the alarm was verified, First Line Officer (FLO) should be informed and the FLO will be responsible to relay the message to their higher superior.

Philippines: Police force at the border; the police force and the border officers in cooperation with PNRI, according to established procedures on CBRNE (Chemical,

Biological, Radiological, Nuclear, and Explosive materials)
Mr. Wada: local administrative officer controlling transport

Question #2: What decision and initial actions should the officers on the scene make?
Response:
Indonesia: When the Regulatory Body received the information, they will send experts to the scene to verify whether the incident is real or not
Mongolia: FLO, will have experts to perform the inspection
Philippines: request for documents, interview the driver; perform initial response - warning the public, specifically around the area of the scene

Question #3: How should the officers proceed to locate the source?
Response:
Indonesia: use PRD (Personal Radiation Detector) for primary inspection to locate the source; isolate the vehicle and driver; use RIID (Radiation Isotope Identification Device) to identify the source; check for possible contamination
Mr. Naoi: Check dose rate considering radiation protection perspective
Question #4: What if any, other radiation equipment might be deployed in this situation?
Response:
Thailand: PRD

Remarks: At this point, the different types of radiation monitoring equipment were demonstrated by a representative from PNRI.

Question #5: What are the potential safety hazards to the officers and others in this situation?
[No response received]

Question #6: What training and drills might the front line officers need to successfully respond to this incident?
Response:
Bangladesh: secondary inspection, the technical support team from the Atomic Energy Commission (AEC)
Thailand: Regulatory Body to provide support to the FLO.
Mr. Kimura: NRA (Nuclear Regulatory Authority) has experts to determine

radioisotope

Continuing with Scene 2: Source Identification from Scenario 1, after having identified the source as Cs-137, the discussions proceeded as follows:

Question: Kind of scientific support needed. What capabilities and resources should technical experts have to provide adequate support?

Response:

Thailand: ask document from the driver; Regulatory Body will verify if the source information matched with the document; conduct investigation; identify the relevant support team (based on CBRNE)

Question: If a neighboring country does not have a technical support organization, can you support them? What type of cooperative framework is available in the region?

Response:

Bangladesh: Bangladesh does not have an agreement with other countries in this kind of incident. It will seek international assistance. A similar incident, a couple of years back, happened. A container was found at the seaport; assistance was provided by the IAEA, US DOE and the government of Sri Lanka. It was an international initiative to identify the type and quantity of the material involved.

Scenario 2: Abandoned Vehicle at Hotel; Scene 1: At a hotel in the city center

The questions asked were similar to the sample questions from Scenario 1 with the exception of the location where the incident happened. In addition, the discussions proceeded as follows:

Question: What should be the immediate action of the responding police officer at the hotel?

Response:

Philippines: Coordinate with the hotel – cordoning the area; inform the CBRNE, explosive division, coordinate with local police and the local government units

Indonesia: coordinate with intelligence organization for further information

Note: The facilitator emphasized establishing a framework addressing emergency protocols is necessary.

Continuing with Scene 2: Nuclear material identified (plastic vial containing

Uranium) from Scenario 2, the discussion proceeded as follows:

Questions: Who should receive the information? Who is responsible for collecting the evidence? What kind of evidence should be collected? What equipment is needed (measurement, protection, etc.)? Who should be included in the investigation team?

Response:

Philippines: a Geologist from PNRI shared a similar incident that happened so many years (a long time) ago; the radiological group at PNRI was informed.

Indonesia: Asked whether the incident shared by the Philippines was reported.

[Note: The incident happened before the ITDB (IAEA Incident and Trafficking Database) was established.]

Thailand: Procedure is set up: traditional approach – the police collect traditional evidence otherwise the expert from OAP (Office of Atoms for Peace) collects the evidence while being observed by the police.

Mr. Kimura: Japan police; the use of Alpha meter for contamination check

Note: **In the above discussions, the importance of the protocol/procedure for the transport of the nuclear material (and collection of evidence) was identified. This addresses the handling procedure, covering the collection of the material from the location of the event and its transport to the designated laboratory for further/thorough examination. The procedure for the transport of the nuclear material should be established by the FNCA Member States, including the identification of respective roles and responsibilities among relevant entities. Maintaining the continuity of knowledge of the material is necessary and important.**

Continuing with Scene 3: Nuclear Forensics (NF) from Scenario 2, the discussion proceeded as follows:

Questions revolved around Nuclear Forensics: responsible authority and capabilities

Response:

Japan: the responsibility is with JAEA

Bangladesh: no NF laboratory; however, the AEC is responsible

Mongolia: no NF lab

Viet Nam: Ministry of Public Security for Investigation – no capability for NF; the Regulatory Body, VARANS is responsible

Indonesia: BATAN is responsible

Malaysia: the Nuclear Agency is responsible

Kazakhstan: the National Nuclear Center has a scientific laboratory that has the capability

Note: **During the discussion, the importance of chain of custody was identified since not all FNCA members have established procedures on this aspect. The facilitator emphasized the need to establish protocols/procedures covering the chain of custody for the effectiveness of NF.**

Thailand: shared NF experience from OAP. However, currently, there is no Memorandum of Understanding (MOU) in place yet with regards to cooperation with other countries.

Mr. Kimura: shared the information that for the TTX, USA and Canada have used the NF library in both countries.

Bangladesh: shared the information on the border control training provided in cooperation with US DOE and GTRI (Global Threat Reduction Initiative).

Note: **During the discussion, the importance of establishing a national NF laboratory library was identified. Promoting regional and international cooperation was also emphasized.**

In summary, the TTX was conducted successfully. Active participation during the discussions has identified important issues that should be addressed or strengthened or reinforced by the designated or responsible relevant entities in the FNCA Member States.