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Preparation Paper

International Atomic Energy Agency (IAEA)

"Current Nuclear Safety Issues"

The International Atomic Energy Agency (IAEA)

The International Atomic Energy Agency (IAEA) is an international organization that seeks to promote the peaceful use of nuclear energy and to inhibit its use for military purposes. The Organisation was established in 1957 under its own international treaty (the IAEA Statute), but it is still working under the UN umbrella. The IAEA can decide to report to both the General Assembly and the Security Council on matters that concern international peace and security. The IAEA's mission is guided by the interests and needs of Member States, strategic plans and the vision embodied in the IAEA Statute. Three main pillars - or areas of work - underpin the IAEA's mission: 1. Safety and Security; 2. Safeguards and Verification; 3. Science and Technology. The IAEA's founding document is the IAEA's Statute which defines the structure and function of the organisation. The IAEA consists of three main bodies: the Board of Governors, the General Conference, and the Secretariat.

The Board of Governors

The Board of Governors consists of 35 Member States, as designated and elected by the General Conference. During its meetings, the Board examines and makes recommendations to the General Conference on the IAEA's accounts, programme, and budget and considers applications for membership. It also approves safeguards agreements and the publication of the IAEA's safety standards and has the responsibility for appointing the Director General of the IAEA with the approval of the General Conference. Board members each receive one vote. Budget matters require a two-thirds majority. All other matters require only a simple majority. The simple majority also has the power to stipulate issues that will thereafter require a two-thirds majority. Two-thirds of all Board members must be present to call a vote (IAEA Board of Governors 1989).

The General Conference

The General Conference is the highest policymaking body of the IAEA. It is comprised of representatives of all 151 Member States of the Agency. In the course of its annual meeting, typically in September, the agenda is to consider and approve the Agency's programme and budget and to decide on other matters brought before it by the Board of Governors, the Director General, or Member States. The General Conference mainly serves as a forum for debate on current policies and issues.

The Secretariat

The IAEA Secretariat is a team of 2200 multi-disciplinary professional and support staff from more than 90 countries. The Agency is led by Director General Yukiya Amano and six Deputy Directors General who head the major departments. The Director General is responsible for enforcement of the actions passed by the Board of Governors and the GC and oversees six departments that do the actual work in carrying out the policies of the IAEA: Nuclear Energy, Nuclear Safety and Security, Nuclear Sciences and Applications, Safeguards and Verification, Technical Cooperation, and Management.

Role of IAEA in case of a nuclear accident

The responsibility for response to a nuclear or radiological incident or emergency and for the protection of workers, the public, property and the environment rests with the operating organization at the level of the facility concerned, and with the affected State at the local, regional and national level.

At the same time, the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention) are the primary legal instruments that establish an international framework to facilitate the exchange of information and the prompt provision of assistance in the event of a nuclear or radiological emergency, with the aim of mitigating any consequences. These are supplemented by a number of mechanisms and practical arrangements established by the Secretariat, the Agency's policy making organs and the meetings of competent authorities under the Early Notification and Assistance Conventions. Together, these instruments establish the IAEA emergency preparedness and response framework for nuclear and radiological incidents and emergencies.

The Agency's central role under this framework includes: prompt notification of the emergency to Member States and international organizations; exchange and/or provision of official (authenticated and verified) information to Member States and international organizations; coordination of international assistance, upon request of the State concerned; and provision and/or coordination of public information that is timely, accurate and appropriate. The Agency discharges its role through its Incident and Emergency System (IES) consisting of a 24-hour a day contact point and an operational focal point, the Incident and Emergency Centre (IEC).

The primary inter-agency coordination mechanism with regard to nuclear and radiological emergencies is the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE)⁶. The IACRNE was established following the Chernobyl accident and currently includes 15 international organizations.

As indicated, one of the Agency's central activities in response to a nuclear or radiological emergency is to provide official information to Member States and international organizations. The Agency provides a system for providing such information to State official contact points and international organizations through faxes and via the secure, password protected Emergency Notification and Assistance Conventions (ENAC) web site. The ENAC web site is accessible by official contact points designated by Member States (competent authorities under the Early Notification Convention and Assistance Convention and the Permanent Missions in Vienna) and relevant international organizations.

Role of the IAEA in the case of Fukushima Crisis

On 11 March 2011 an earthquake of magnitude 9.0 struck off the east coast of Honshu, Japan. The IAEA's on-call emergency response manager was notified of the earthquake and of the potential for damage at four nuclear power plants on the north-east coast of Japan — Fukushima Daiichi and Fukushima Daini of the Tokyo Electric Power Company (TEPCO), Onagawa (Tohoku Power Company) and Tokai (Japan Atomic Power Company) — as well as the potential for a tsunami.

Director General's visit to Japan

The Director General visited Tokyo from 17 to 19 March for high level consultations: to express the solidarity and full support of the international community for Japan in dealing with the consequences of the earthquake and tsunami and to convey offers of assistance from more than a dozen countries.

During the Director General's visit, the Agency's on-the-ground support to Japan became operational. It consisted of three main elements:

- ❖ First, a senior Agency official was deployed in Japan to coordinate the Agency's assistance activities and transmit offers of assistance from Member States to the Japanese authorities;
- ❖ Second, Agency liaison officers were deployed to Tokyo to facilitate and improve communication between the Agency and NISA;
- ❖ Third, the Agency's radiation monitoring team began transmitting measurements to Vienna, from various locations, including locations close to the Fukushima site.

Meeting of the Board of Governors

The Director General called a meeting of the Board of Governors on 21 March 2011. At this meeting, he reported to Member States on the results of his visit to Japan and stressed that the Agency was doing everything possible to provide accurate and factual information on the accident. The Board emphasized the importance of the universalization of the relevant international instruments in the field of nuclear safety, and reaffirmed the need for Member States' continuous commitment to the application of the highest standards of nuclear safety, to avoiding complacency, and to drawing and acting upon the lessons learned from the Fukushima accident.

Activation and operation of the Incident and Emergency Centre

The IEC was promptly activated, starting operation in Full Response Mode. The IEC team worked with experts from the Joint FAO–IAEA Division of Nuclear Techniques in Food and Agriculture, from the World Health Organization (WHO) and from the World Meteorological Organization (WMO) to support a coordinated international response. IEC team members had the following roles: technical team (with experts from nuclear safety, radiation protection and data management), emergency response manager, operations officer, screening officer, accident state liaison officers, international organizations and Member States liaison officers, public information officer, ENAC editor, IEC technician, communications officer, logistics support officer and data clerk.

Fukushima Accident Coordination Team (FACT)

To ensure effective inter-departmental coordination, the Director General established the Fukushima Accident Coordination Team (FACT) on 15 March 2011. The FACT is headed by the Director General with the assistance of the Deputy Director General, Head of the Department of Nuclear Safety and Security. The FACT's purpose is to ensure senior level coordination of the Agency's response to the accident. The FACT also ensures the provision of accurate and timely information validated by Japan and other State authorities, to Member States, the news media and the general public, via oral briefings and FACT Update Briefs.

Two teams were formed to support the FACT: the Fukushima Nuclear Safety Team (FNST) and the Fukushima Radiological Consequences Team (FRCT). In close coordination with IEC, these teams were tasked with: coordinating and assembling the results of technical work performed Agency-wide; providing accurate information to inform the Director General's decision making; providing information for detailed briefings to Member States, international organizations, the media and the public; and informing the dialogue with Japan and other State authorities

The Agency's Activities of the Agency's Laboratories

The Agency laboratories in Seibersdorf and Monaco are specialized in evaluating terrestrial and marine environmental samples. The laboratory in Seibersdorf focuses on the terrestrial environment and the laboratories in Monaco focus on the marine environment. From the very beginning of the incident at Fukushima, the laboratories were utilized to review the environmental data provided by the Japanese authorities. The Terrestrial Environment Laboratory in Seibersdorf received more than two hundred samples from Japan for independent analysis.

A significant amount of contaminated water used to cool the four reactors was released into the sea and this gave rise to concern for marine life as well as seafood for the population. The IAEA Marine Environment Laboratory in Monaco reviewed all information regarding the marine environment. Information and advice with regard to the potential for contamination and consumption of seafood were also provided to WHO.

Coordination of the inter-agency response to the accident

From the early days after the accident, the Director General has been in close contact with United Nations Secretary-General Ban Ki-Moon to ensure effective coordination among different international organizations. He has also consulted with the Director General of WHO, the Executive Secretary of CTBTO, the Director General of FAO and the Secretary General of WMO for effective coordination of activities. In accordance with the Agency's responsibilities under the JPLAN (The Joint Radiation Emergency Management Plan of the International Organizations — EPR-JPLAN 2010), the Agency on 11 March 2011, through the IEC, promptly notified and initiated coordination with all international organizations and activated the JPLAN.

Agency technical missions to Japan

IAEA monitoring team missions

Between 18 March and 18 April 2011, the Agency sent four radiological monitoring teams to Japan to help validate the results of more extensive measurements made by the Japanese authorities. The four teams undertook measurements in the Fukushima region at a number of locations inside and outside the 20 km evacuation zone around the Fukushima plant. One team was also deployed in the general vicinity of Tokyo. The scope of the monitoring included dose rates and surface activity concentrations, as well as the collection of different samples and gamma spectra for selected locations from 20 km to around 80 km from the Fukushima plant, and in Tokyo and the surrounding area.

Joint IAEA/FAO Food Safety Assessment Team Mission

A Joint IAEA/FAO Food Safety Assessment Team (FSAT) visited Japan from 26 to 31 March 2011. The team provided advice and assistance to the Japanese authorities, including local government authorities, on technical issues related to food safety and agricultural countermeasures, including sampling and analytical strategies and interpretation of monitoring data to ensure that reliable, continuous updates could be provided on the extent of food contamination in the affected areas. These data were used for the development of possible mitigation and remediation strategies to be shared with authorities at the local and national levels in Japan.

IAEA International Fact-Finding Expert Mission to Japan

Based upon an agreement between the Government of Japan and the Agency setting out the terms of reference, an Agency International Fact-Finding Expert Mission, comprising 18 experts from the Agency and Member States, visited Japan from 24 May to 2 June 2011. The mission conducted fact-finding activities for a preliminary assessment of the accident (in particular at the Fukushima Daiichi nuclear power plant). The Mission also collected information on the Fukushima-Daini and Tokai-Daini nuclear power plant sites located in Fukushima Prefecture and in Ibaraki Prefecture, in order to make a preliminary assessment of the generic safety issues associated with the natural events and identify issues that needed further exploration or assessment based on IAEA safety standards.

IAEA Ministerial Conference on Nuclear Safety

On 28 March 2011, the Director General announced his intention to call a special IAEA Ministerial Conference on Nuclear Safety to discuss an initial assessment of the Fukushima accident, to consider the lessons that need to be learned, to help launch a process to enhance nuclear safety throughout the world

and to consider ways to further strengthen the response to nuclear accidents and emergencies. The Ministerial Conference was held from 20 to 24 June 2011 in Vienna.

Excursion: Chernobyl accident

The Chernobyl disaster occurred on 26 April 1986 in reactor 4 of the Chernobyl Nuclear Power Plant (Ukraine). The nuclear accident happened during an experimental test of the electrical control system as the reactor was being shut down for routine maintenance. The operators, in violation of safety regulations, had switched off important control systems and allowed the reactor, which had design flaws, to reach unstable, low-power conditions. A sudden power surge caused a steam explosion that ruptured the reactor vessel, allowing further violent fuel-steam interactions that destroyed the reactor core and severely damaged the reactor building. Subsequently, an intense graphite fire burned for 10 days. Under those conditions, large releases of radioactive materials took place. It is considered the worst nuclear power plant accident in history, and is one of only two classified as a level 7 event on the International Nuclear Event Scale (the other being the Fukushima Daiichi nuclear disaster). Approximately 100,000 km² of land was contaminated with fallout, the worst hit regions being in Belarus, Ukraine and Russia. Some parts of the Reactor, especially Reactor 3 were still active till 15 December 2000.

For the last two decades, attention has been focused on investigating the association between exposure caused by radionuclides released in the Chernobyl accident and late effects, in particular thyroid cancer in children. Doses to the thyroid received in the first few months after the accident were particularly high in those who were children and adolescents at the time in Belarus, Ukraine and the most affected Russian regions and drank milk with high levels of radioactive iodine. By 2005, more than 6,000 thyroid cancer cases had been diagnosed in this group, and it is most likely that a large fraction of these thyroid cancers is attributable to radioiodine intake. It is expected that the increase in thyroid cancer incidence due to the Chernobyl accident will continue for many more years, although the long-term increase is difficult to quantify precisely. According to a UNSCEAR report the total confirmed deaths from radiation were 64 in 2008. However, the WHO reported that this number could reach 4,000, with reports from the European Green party putting the predicted cancer deaths between 30,000 to 60,000; Greenpeace to possibly over 200,000 and a critical Russian report, published in English in 2009 concluding that nearly 1 million excess cancer deaths occurred in the world until 2004 due to the effects of the Chernobyl accident.

Questions for consideration of the committee

The following composes a list of questions to be considered during the session. This list is neither exhaustive nor do all the questions have to be addressed. However, many of the issues have surfaced explicitly or implicitly in the discussions about the IAEA and the Fukushima Daiichi Nuclear Power Plant Crisis in the last couple of months and offer room for substantial debate (please bear in mind that 1. you need to point out your country's position and 2. new issues can surface every day due to the ongoing crisis):

- ❖ Should the mandate of the IAEA in the area of nuclear power safety and security be redefined?
- ❖ Does the role of the IAEA in case of a nuclear accident need to be strengthened?
- ❖ What lessons do we need to learn from the accident in Fukushima?
- ❖ Would international binding safety requirements and emergency reaction plans help in coping with Nuclear Accidents?
- ❖ Are there mechanisms, standards or procedures that need to be developed or redefined to better and more effectively handle such a crisis in the future?
- ❖ What lessons did or did the international community not learn from the Chernobyl accident 25 years ago?
- ❖ Should there be requirements for international, standardized safety and security checks for older nuclear power reactors?

List of Documents & Sources

List of Documents

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