

I. Introduction

1. Purpose of the Investigation Committee

On March 11, 2011, the Fukushima Dai-ichi Nuclear Power Station (hereinafter referred to as the “Fukushima Dai-ichi NPS”) and the Fukushima Dai-ni Nuclear Power Station (hereinafter referred to as the “Fukushima Dai-ni NPS”) of the Tokyo Electric Power Company (TEPCO) were struck by the Tohoku District - off the Pacific Ocean Earthquake and the ensuing tsunami generated by the Earthquake. This developed into a very serious nuclear accident affecting vast areas.

Large amounts of radioactive materials were released from the Fukushima Dai-ichi NPS. The area within the 20km radius of the power station has been designated as the “Access Restricted Area,” with entry being prohibited unless authorized. Some areas outside the 20km radius have been designated as the “Deliberate Evacuation Area.” More than 110,000 citizens have evacuated, many of who still have to live in evacuation.¹ The radioactive material released in the accident has spread beyond the Fukushima Prefecture border into vast areas of Eastern Japan. The problem of radioactive contamination has seriously and greatly affected the lives of the Japanese people as it raised concerns about the impact of radiation on the health of many people including children; caused extensive damage to the producers of agricultural, livestock and marine products; and caused anxiety among the consumers of those products. Moreover, the Accident shocked many countries throughout the world, especially those located near Japan. The discharge of contaminated water to the sea, in particular, drew criticism from the international community, not only from the neighboring countries.

The Investigation Committee on the Accident at Fukushima Nuclear Power Stations of Tokyo Electric Power Company (hereinafter referred to as the “Investigation Committee”) was established by a cabinet decision on May 24, 2011 with the aim of making policy recommendations on measures to prevent further spread of the damage caused by the Accident and a recurrence of similar accidents in the future. This is being done by conducting a multifaceted investigation in an open and neutral manner, accountable to the Japanese public, to determine the causes of the Accident at the Fukushima Dai-ichi and Dai-ni NPSs and the causes that contributed to the damage inflicted by the Accident.

¹ For more information on the number of evacuees, see Chapter II-4 (3).

Investigations into the accident have also been conducted by other parties such as TEPCO, the power company involved in the Accident, and the Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade and Industry (METI). Moreover, the Japanese Government has submitted reports to the International Atomic Energy Agency (IAEA) on two occasions via the Government Nuclear Emergency Response Headquarters (NERHQ). The Investigation Committee's mission is to conduct a separate and comprehensive investigation, paying attention not only to technological issues but also to institutional issues, within the authority of an organization independent of the existing framework of Government administration in the area of nuclear power generation.

2. Committee Members

The Investigation Committee is chaired by Yotaro Hatamura (Professor Emeritus of the University of Tokyo, Professor of Kogakuin University), who was nominated by the Prime Minister of Japan, and consists of 10 members including Mr. Hatamura. In addition, the Investigation Committee has two technical advisors nominated by the chairperson to provide the committee members with advice on specialized and technical subjects.

At the Secretariat of the Investigation Committee that supports the investigations, the Secretary-General heads a group of officials from various ministries and agencies and is assisted by eight experts in fields such as technological sociology, analysis of severe accident at reactor facilities and evacuation behavior. The Secretariat has three teams led by experts: the Social System Investigation Team, which studies the background situations that preceded the accident; the Accident Causes Investigation Team, which studies the technological problems of the Accident; and the Damage Expansion Prevention Measures Investigation Team, which studies the appropriateness of evacuation measures and other various measures.

3. Basic Principles of the Investigation Committee

The chairperson of the Investigation Committee expressed his ideas on the following eight principles during the first committee meeting on June 7, 2011. After discussion, the committee members agreed to adopt them as the basic principles of the Investigation Committee.

(i) “The investigation should be conducted based on Hatamura’s approach.”

This does not mean that the Investigation Committee pursues a biased approach.

It means, rather, that the Investigation Committee should be free from the limits of conventional approaches and follow the ideas of the chairperson, Mr. Hatamura, and the other committee members as it strives to investigate the areas of interest to the Japanese public, introducing new perspectives as required.

(ii) “Considering the responsibility we have to our descendants, the investigation results should stand up to critical evaluation even in 100 years time.”

The Investigation Committee shall think deeply, in the hope that the investigation results stand up to critical evaluation even in 100 years’ time, and adopt all necessary viewpoints to maximize our learning from the accident that has, regrettably, occurred.

(iii) “Adequately answer all questions of the Japanese people” (conviction)

The nation has many questions about the accident.

For example:

- Was it really impossible to foresee such an accident?
- Was it really impossible to foresee a great tsunami like the one that has caused the accident?
- Why was there insufficient preparation against the threat of the total loss of AC power that occurred during the Accident?
- Isn’t it the case that TEPCO had not completely implemented safety measures?
- Isn’t it also the case that regulatory authorities did not function in a satisfactory manner?
- Wouldn’t it have been possible to better handle the situation if the venting of reactor containments and the injecting of water by alternative means had started earlier?
- Was it really impossible to prevent a meltdown of the core and hydrogen explosions? Why did the defense-in-depth concept not function properly?
- Didn’t the delay in TEPCO’s response to the emergency at the plant and the national Government’s delay in evacuating citizens contribute to the spread of damage?
- Did the national Government successfully coordinate activities throughout Japan as it responded to the accident?
- Why were there delays in and changes to the announcement and communication of information by the Government and TEPCO?

The Investigation Committee is conducting investigations in the hope that it will be able to provide adequate answers to such questions raised by the evacuees and other people in Japan.

(iv) “Adequately answer all the questions harbored by people all over the world.”

The international community is very much concerned about the accident.

In response to the accident, the IAEA sent an investigation team to Japan in May 2011 and convened a ministerial conference on nuclear safety in June 2011.² The United Nations have also compiled a report on the accident and convened a summit conference on nuclear safety in September 2011.

The Investigation Committee aims to provide investigation results that adequately respond to the concerns of people all over the world.

(v) “The Investigation Committee will not seek to hold any particular person or organization responsible.”

In dealing with an accident, the investigation into its causes and the pursuit of the responsibility often conflict with each other. A lot of people believe that determining the causes should coincide with determining which parties should be held responsible. To truly succeed in establishing the causes, however, the Investigation Committee needs to hear from the people who were involved in the Accident and invite them to tell us, without any concealment, what actually happened and how they reacted. It would be impossible to get a complete picture of the Accident if the people involved failed to tell the truth for fear of being held to account. Therefore, the Investigation Committee is not involved in investigations aimed at finding who to blame.

The Investigation Committee is working to recreate the whole picture of the accident and to clarify what should have been done to prevent it or to control the spread of damage so that we may learn from the accident and so that those lessons may assist our descendants to make the correct judgments and behave appropriately. However, the people who were involved in the accident judged and acted solely in response to what happened to them or on the basis of information that was supplied to them by others. Under such circumstances, these judgments

² The report produced by the IAEA’s investigation team is available for download at:
http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2011/cn200/documentation/cn200_Final-Fukushima-Mission_Report.pdf

and actions may appear inappropriate in hindsight, but the Investigation Committee believes that we should refrain from blaming them because of that.

(vi) “Accurately understand the very essence of the accident that occurred.”

The Investigation Committee is seeking to understand the complete picture of the accident by going beyond the limits of narrowly defined cause-finding activities as it studies the entire history of causes and effects through analysis conducted chronologically.

(vii) “Understand the background of the phenomenon that occurred.”

The Investigation Committee is not limiting its activities to understanding the physical events but is also seeking to shed light on the background including the institutional and social contexts of the accident.

(viii) “It is necessary to conduct an experiment that replicates the accident and to preserve objects in dynamic conditions.”

The term “preservation in dynamic conditions” has a broad meaning because, even though it implies the preservation of materials that reveal a functional state of affairs, it should also be interpreted to mean the preservation of materials that reveal a dysfunctional state of affairs. Objects related to the accident should be preserved exactly as they were when they were internally destroyed and externally created a significant impact so that in the future people may stand before them and get a clear understanding of what happened.

Even though it would be impossible to literally replicate the accident in experiments or to preserve everything in dynamic conditions, this should be borne in mind in the process of thorough examination of the real objects destroyed in the accident or their replicas during the investigation.

4. Activities of the Investigation Committee

Starting with the first meeting on June 7, 2011, the Investigation Committee has held six official meetings so far. In addition, the committee members and technical advisors have met on more than ten occasions at various times³ to discuss issues during the course of the investigation.

³ In addition to the official meetings of the Investigation Committee, these included study meetings and review sessions in which all committee members and technical advisors participated and working group meetings in

The Investigation Committee has inspected the Fukushima Dai-ichi and Dai-ni NPSs where the accident occurred and has also visited four other nuclear power stations (the Tokai Dai-ni NPS of the Japan Atomic Power Company, Onagawa NPS of the Tohoku Electric Power Co., Inc., the Hamaoka NPS of the Chubu Electric Power Co., Inc. and the Kashiwazaki-Kariwa NPS of TEPCO) and one thermal (fossil-fired) power station (the Haramachi Thermal Power Plant of the Tohoku Electric Power Co., Inc.).⁴ In addition, the Investigation Committee has interviewed the mayors of Okuma and Futaba, municipalities within whose jurisdiction the Fukushima Dai-ichi NPS is located.

The Investigation Committee has examined the materials from the power companies and organizations concerned that were submitted to the Investigation Committee mainly through arrangements made by its Secretariat. In addition, the Investigation Committee has interviewed many individuals concerned including academic experts. As of December 16, 2011, the number of interviewees reached 456 with the time spent interviewing them amounting to about 900 hours. During the course of the investigations, the Investigation Committee is conducting interviews with the consent of the interviewees. So far, the Investigation Committee has received a sufficient level of support from the persons concerned.

5. Topics addressed by the Investigation Committee

The Investigation Committee is conducting comprehensive investigations into the causes of the Accident at the Fukushima Dai-ichi and Dai-ni NPSs and the causes that contributed to the damage inflicted by the Accident. The Investigation Committee is also paying attention to the background of the accident. However, the areas that are not directly connected with the investigations into the causes of the accident and damage are excluded from the scope of the investigations: for example, the pros and cons of nuclear power generation, questions regarding the cost of nuclear power generation, and the measures taken to address the power shortage caused by the accident such as scheduled power blackouts shall not be addressed. Questions

which members selected by the chairperson participated.

⁴ The Tokai Dai-ni NPS, Onagawa NPS and Haramachi Thermal Power Plant are located within areas affected by the Tohoku District - off the Pacific Ocean Earthquake and the ensuing tsunami. We visited these sites mainly to learn about what advance preparations they had made against the threat of an earthquake and tsunami and also how they were impacted by the earthquake and tsunami. We also visited the Hamaoka NPS and Kashiwazaki-Kariwa NPS for the purpose of learning about preparations against earthquakes and tsunamis.

regarding nuclear damage compensation and decontamination are also excluded from the scope of the investigations because these topics concern the compensation for or recovery from the damage and hazards caused by the Accident, and also because the implementation of appropriate measures in these areas will take a considerable length of time.

However, to be able to adequately answer the questions of the people in Japan and throughout the world, according to the basic principles of the Investigation Committee, the Investigation Committee is striving to conduct wide-ranging investigations into the causes of the Accident and the causes that might have contributed to the spread of damage, shedding light on what are suspected to be the background factors. For example, investigations into the details of emergency response measures implemented after the accident are being conducted. Similarly, various topics concerning the measures that were taken to prevent the spread of damage are also being investigated, addressing problems regarding, for example: monitoring activities; the utilization of information provided by the Network System for Prediction of Environmental Emergency Dose Information (SPEEDI); the evacuation of citizens; the radiation exposure of workers and citizens; the discharge of contaminated water into the sea; the contamination of agricultural, livestock and marine products as well as the air, soil and water; and the supply of information to the Japanese public and the international community. Furthermore, in terms of areas that concern the completeness of measures taken in advance to prevent accidents, the Investigation Committee has mainly been paying attention to problems regarding tsunami protection measures, severe accident management measures and measures addressing complex disasters.

The assurance of nuclear safety and the prevention of nuclear disaster require not only the effort of nuclear operators (power companies) but also the commitment of the national Government. Japan, therefore, has established a Government regulatory system based on laws such as the Atomic Energy Basic Act and the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors. In the event of a nuclear emergency, emergency response activities are to be conducted in a manner stipulated by laws such as the Act on Special Measures Concerning Nuclear Emergency Preparedness, a special law established under the Disaster Countermeasures Basic Law. Regulatory and emergency response activities that are carried out under such laws require the involvement of NISA, the Nuclear Safety Commission

(NSC) of Japan, the Prime Minister's Office, many related ministries and agencies, local governments in the affected regions, nuclear support organizations and academic societies, among others. Based on the results of examinations concerning the measures taken before and after the accident, the Investigation Committee has chosen to pay attention to the parties concerned and to organizational and institutional issues during the course of the investigations.

6. The position of this Interim Report and plans for further activities by the Investigation Committee

Even though the Investigation Committee has not completed its investigation, this interim report (the Interim Report) is published because already substantial progress has been made in the clarification of facts and the identification of problems as a result of its investigations so far, and because it is to the awareness of the Investigation Committee that the accident has received a lot of attention from people both in Japan and around the world, and that various initiatives arising from the lessons of the accident, led by relevant organizations, are already underway.

This Interim Report contains as much information as is currently available on the results of the investigations of the Investigation Committee regarding the topics to be addressed by the Investigation Committee as described in Section 5 of this chapter. Therefore, more than a few topics to be addressed by the investigations of the Investigation Committee had to be excluded from this report. For example, even though the Investigation Committee is obliged to investigate the accident at the Fukushima Dai-ni NPS, this subject will only be able to be covered in the final report because the investigations have not yet been completed. Similarly, regarding emergency response activities at the Fukushima Dai-ichi NPS, the investigations so far have focused on Units 1 through 4, thus emergency response activities at Units 5 and 6 can only be discussed in the final report. With regards to the background of the accident, some people believe that Japan has not put in enough effort to bring its nuclear safety standards in line with international standards such as the IAEA Safety Fundamentals.⁵ Such topics shall be

⁵ The IAEA Safety Fundamentals (SF-1), formulated by IAEA in 2006, comprises ten fundamental principles concerning the responsibility for safety (primarily the responsibility of nuclear operators) and the role of the national Government (creation of an effective framework for safety ensuring the independence of regulatory bodies), for example.

covered in subsequent investigations. The Investigation Committee also plans to examine questions regarding the “safety culture” at TEPCO, regulatory authorities, etc.

It should also be noted that, among the topics discussed in this Interim Report, there are more than a few topics on which the investigation into the facts has not yet been completed and therefore a final assessment is unable to make. For example, with regards to the details of events that took place at the Prime Minister’s Office after the Accident, including the decision-making process concerning the measures to be taken, due to time limitations it was unable to complete interviews, in time for this Interim Report, with important stakeholders, such as ministers at that time. Therefore this Interim Report has only described those facts that the Investigation Committee believes have been sufficiently proven by objective and external observations. In such areas, the Investigation Committee intends to learn more about the facts by completing the necessary interviews, for example, and present its findings in the final report. Where this Interim Report addresses a topic that requires further investigation, this need is explicitly mentioned.

Below is a brief explanation about the content of this Interim Report. Following this introductory chapter is Chapter II, which contains a general description of the Fukushima Dai-ichi NPS, the Tohoku District - off the Pacific Ocean Earthquake, and the accident that took place at the Fukushima Dai-ichi NPS. Chapter III contains a general description of the functioning of emergency response organizations as had been envisaged before the accident and how those emergency response organizations that were established after the accident actually functioned. Chapter IV is dedicated to a chronological description of the actions taken in response to the emergencies at Units 1 through to 4 of the Fukushima Dai-ichi NPS and also reports on the analysis and examination results. Chapter V describes, analyzes and discusses, under different headings, various types of measures that were largely taken outside the nuclear power station to prevent the spread of damage. Chapter VI deals with background factors that are believed to have contributed to the occurrence of the accident or to the spread of damage. In doing so, this chapter first describes, analyzes and discusses tsunami protection measures, severe accident management measures and measures addressing complex disasters, and then proceeds to describe, analyze and discuss the way NISA functioned. This is a topic that pertains to the question of how a regulatory authority should function. Here, the function of the NSC of

Japan is also mentioned as an area that requires further investigation. Finally, Chapter VII contains the observations and assessments of the Investigation Committee concerning the issues identified in the preceding parts of the Interim Report up to Chapter VI. It also presents the policy recommendations of the Investigation Committee based on them.

In the study of organizational factors that may have contributed to the occurrence of the accident or to the spread of damage, there are organizations other than NISA that attention should be paid to. However, having learnt from the Accident, the Japanese Government has decided by a cabinet decision on August 15, 2011 to separate the nuclear safety regulatory organization of NISA from METI and reestablish it as an agency (tentatively called the Nuclear Safety and Security Agency) of the Ministry of the Environment. Considering that the Government has thus taken steps to establish a new nuclear safety regulatory body, the Investigation Committee has decided to report as much detail as possible in this Interim Report on the assessments made by the Investigation Committee concerning the function of NISA that has already been found to be problematic in many ways according to the results of the investigations by the Investigation Committee so far, and has included recommendations concerning the function of the new nuclear safety regulatory body.

Wishing to be able to properly respond to the overseas attention that the investigations are attracting, the Investigation Committee plans to hear opinions and receive advice from international experts concerning the investigation.

With such processes, the Investigation Committee intends to make further progress in its investigations in order to publish its final report in the summer of 2012.