

(Provisional Translation)

Recommendation from
Advisory Committee for Prevention
of Nuclear Accident

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Recommendation from Advisory Committee for Prevention of Nuclear Accident (Executive Summary)

(Preface)

- A public trust of nuclear safety policy has completely lost as a result of the accident at TEPCO's Fukushima Nuclear Power Stations.
- The overconfidence of the government and the licensee in their safety measures could not prevent severe accident, which causes massive discharge of radioactive materials to the environment and destroys communities of local citizens.
- The government needs to reconstruct nuclear safety regulation organisation and regulation rapidly, so as to prevent severe accident.

(Independence)

- New nuclear safety regulation organisations, namely the Nuclear Safety and Security Agency (NSSA)¹ and the Nuclear Safety Investigation Committee (NSIC)², need to have an ability to recover public trusts and an independence to fully demonstrate its ability.
- The NSSA must not be affected by any pressure, among other things, the decisions of nuclear promotion and use organisations.
- The independent decision making process must be ensured for the NSSA's supervision against licensees by means of clear legislative standards.
- The main roles of the NSIC are review of the effectiveness of the nuclear safety regulation administrations and assurance of the independence of the regulation administration.
- The members of the NSIC should be designated through the Diet approval and the NSIC should be empowered to provide guidance to the Minister of Environment, the Commissioner of the NSSA and the other related administrations.

(Seven Principles for the Reform)

- The Advisory Committee propose seven principles, namely, 1) separation of nuclear regulation and promotion, 2) integration, 3) crisis management, 4) human resources, 5) new nuclear regulation, 6) transparency and 7) internationality, in

¹ The Nuclear Safety and Security Agency (NSSA) is a temporary naming.

² The Nuclear Safety Investigation Committee (NSIC) is a temporary naming.

order to ensure domestic and foreign trusts of the nuclear safety administration and improve its functions.

(1. Separation of Nuclear Regulation and Promotion)

- The principal missions of the NSSA are the prevention of nuclear accidents and crises through nuclear safety regulation and crisis management system.
- The effectiveness of nuclear safety must not be weakened in response to the consideration of nuclear use, in this context, nuclear regulation and promotion must be separated completely.

(2. Integration)

- Related administration must be integrated and limited resources must be concentrated, in this context, the NSSA should implement nuclear safety measures including establishment of guidance and standards, licensing, inspection, crisis management, monitoring, research and training.
- The NSSA should be responsible for the budget, legislation and human resource management of nuclear regulation in order to ensure the effectiveness of regulation.

(3. Crisis Management)

- The NSSA should establish and maintain solid crisis management system in order to manage disasters with all administrations under the command of the specific Minister, and the NSSA should have the crisis management expert.
- It is necessary to prepare for the accident sufficiently including clarification of the roles of central government, local governments and licensees and promotion of their collaboration in order to rapidly respond to an accident both on-site and off-site.
- As an on-site countermeasure against a severe accident, the NSSA should command and check licensees' preparation of necessary equipment and accident response manuals and performance of disaster prevention drills.
- At off-site, the Nuclear Emergency Response Headquarters should take the initiative in collaborating with local governments and key organisations and utilise the outcomes of nuclear disaster prevention training at normal times to lead resident evacuation.
- The government should ensure sufficient budget and improve disaster

management system in order to improve function of the off-site centres, which did not work effectively against the severe accident.

- The government should establish post-accident support system for victims and affected areas in the case of an exceptional accident, in addition to the solid crisis management system.

(4. Human Resources)

- As a human resource training system, the plan for the establishment of the International Nuclear Safety Training Academy, which contributes to international networking and fostering experts with sufficient scientific and technical capacity through the synergy between nuclear safety research and training, should be realised.
- In order to cultivate and maintain safety culture, the NSSA should establish solid code of conduct and review its safety actions regularly.

(5. New Nuclear Regulation)

- In order to enhance the effectiveness of nuclear safety regulation, it is necessary to convert from conventional vain regulations to a new regulation framework that urges licensees to continuously enhance nuclear safety on the basis of the latest scientific and technical findings.
- As for the safety objective of nuclear safety regulation, the most important purpose is to ensure proper safety countermeasures in light of scientific and technical standards and avoid a severe accident that leads to the release of large amounts of radioactive materials.
- A legal system that surely incorporates new findings and technologies for safety into existing facilities and the operation of the facilities (so-called back-fitting system) should be introduced.
- The government should assess and release information on the safety and risks of nuclear reactors to visualize licensees' measures for ensuing safety, and urge them to make voluntary efforts and continuous improvement of the nuclear safety under the observation of the public.
- The technical criteria for the design of nuclear facilities and accident prevention and mitigation countermeasures (accident management) should be made mandatory by law.
- The NSSA should continuously make efforts to enhance the effectiveness of

regulations, improve the treatment and quality of the inspectors and reinforce the research and training system under the supervision of the NSIC.

(6. Transparency)

- The nuclear safety policy should ensure transparency by means of regular public announcements of its actions and regulations.
- The risks of nuclear energy should be estimated appropriately, managed sufficiently and explained proactively through risk communication with citizens.

(7. Internationality)

- The staffs of the NSSA should accept new and diverse international knowledge regularly, in this context; international human resource exchanges and communications should be sought.
- The International Nuclear Safety Training Academy should work as a strategic institute, which underpins not only Japan's presence in international society but also global standardisation of the Japanese standards, through providing the opportunities for foreign countries to study Japanese new nuclear regulation system.

(Closing)

- The government must sincerely accept this recommendation and address the reform of nuclear safety regulation and organisation immediately and steadily in order to ensure public trusts.

Recommendation from Advisory Committee for Prevention of Nuclear Accidents

1. Introduction (Lessons learned from the accident)

(The accident and loss of public trust)

- The public trust in nuclear safety administration was lost.
- The Great East Japan Earthquake and Tsunami occurring on March 11, 2011 damaged the functions of the TEPCO's Fukushima Dai-ichi Nuclear Power Stations and caused a severe accident in which large amounts of radioactive materials were released in our country for the first time.
- This accident was an incident that occurred in the "huge and complex socioeconomic system" and had various types of impacts on the region, the country and the world.
- Although the TEPCO, or the utility had the principal responsibility to ensure the safety of nuclear power plants, the central government must seriously reflect and learn lessons from the facts that it could not prevent such a severe accident as a nuclear safety regulator and the expansion of the damage including the destruction of people's lives and the environment.
- Due to that both of the government and the utility placed too much trust in and boasted of the effectiveness of their safety countermeasures, they neglected to adopt scientific and technical findings based on new research outcomes in their closed organizations. In the result, they might have a mindset that any server accident would never occur in Japan's NPPs.
- This overconfidence possibly caused the severe accident that originated from the earthquake and tsunami.
- Since the reality of the severe accident, the government had used a negative approach to provide information on the accident in order to prioritize the avoidance of any chaos. This approach increased the people's distrust and concerns.
- Large amounts of radioactive materials, which were released by the accident, impaired many people's lives and many communities. The affected people lost their hometowns and were forced to live in evacuation shelters for a long term. The government is required to further accelerate the support for these victims and the procedures for compensation.
- This accident also increased people's fears for radioactivity contamination and distrust in and concerns for nuclear energy not only in Japan but also in the entire

world.

- The government must reconstruct a nuclear safety regulation system in which the most important mission is to prevent the recurrence of this serious situation.

(Government's basic policy)

- The central government issued the "Report of Japanese Government to the IAEA Ministerial Conference on Nuclear Safety" in June 2011. In the report, the government reported the lessons learned from the relevant accident to the international community and summarized its nuclear safety administration as follows.

Governmental organizations have different responsibilities for securing nuclear safety. For example, NISA of METI is responsible for safety regulation as a primary regulatory body, while the Nuclear Safety Commission of the Cabinet Office is responsible for regulation monitoring of the primary governmental body, and relevant local governments and ministries are in charge of emergency environmental monitoring. This is why it was not clear where the primary responsibility lies in ensuring citizen's safety in an emergency. Also, we cannot deny that the existing organizations and structures hindered the mobilization of capabilities in promptly responding to such a large-scale nuclear accident.

Reflecting on the above issues, the Japanese Government will separate NISA from METI and start to review implementing frameworks, including the NSC and relevant ministries, for the administration of nuclear safety regulations and for environmental monitoring.

- Based on this report, the government adopted the Cabinet Decision concerning the "Basic Policy on the Reform of an Organization in charge of Nuclear Safety Regulation" on August 15, 2011. It decided to aim to establish a Nuclear Safety and Security Agency (NSSA) (tentative) as an affiliated organization of the Ministry of the Environment in April 2012.

(Concept of schedule for the government's basic policy)

- It is needless to say that the reform of an organization in charge of nuclear safety regulations should be based on thorough investigation of this accident. The

government's and the Diet's Investigation Committee on the Accidents are currently investigating the accident.

- In that context, there was an opinion that the government's August decision on the Policy was somewhat too early, but existing NPPs must be subject to strong safety regulations regardless of their operation.
- The key organization in charge of nuclear safety regulations and the system for the regulations cannot be continued under the current circumstances, or in a situation where the people lost the trust of the organization and the regulations.
- Based on this standpoint, it is reasonable to definitely make a distinction between short-term and medium- and long-term issues to be addressed. In that sense, it is considerably reasonable that the government is accelerating the fundamental reform of the nuclear safety regulation organization including the separation of nuclear regulation and use, recognizing that the reform is an urgent issue.
- Even if the government establishes a new nuclear safety organization, the parties that have been involved in the use and safety regulation of nuclear energy, including regulatory administration-related parties that could not prevent this accident, should deeply recognize that they will not be exonerated from their past responsibilities.

(Background of the Advisory Committee)

- In response to the request from the Minister for the Restoration from and Prevention of Nuclear Accident, Goshi Hosono, we decided to participate in the Advisory Committee for Prevention of Nuclear Accidents (hereinafter referred to as "Advisory Committee") and promote discussions concerning what a nuclear safety regulation organization should be, the way of reinforcing nuclear safety regulations, and other themes.
- As the recommendation from the Advisory Committee, we summarized the results of the intensive discussions.

2. Basic Policy for the Fundamental Reform of Nuclear Safety Regulation Organization

(Seven principles toward the Reform)

- Based on the lessons and issues described in the Chapter 1, a new nuclear safety regulation organization must be institutionally designed to have its sufficient ability

to restore the trust of the citizen, and the independence that enables the organization to fully exert its ability.

- From this standpoint, we reviewed how to ensure the independence of the new organization, and the matters that should form basic principles for the organizational reform.
- The government's basic policy toward the reform of nuclear safety regulation organization and other matters include 5 principles; 1) Separation of Nuclear Regulation and Promotion, 2) Integration, 3) Crisis Management, 4) Human Resources Development, and 5) New Safety Regulations.
- All of these principles are important and absolutely necessary in regaining the trust of the people and continuing to improve the functions of the nuclear safety regulation organization. Consequently, the organization is required to have its technical ability to guarantee the principles.
- In addition, the Advisory Committee recommends that the new organization should pursue the principles of 6) Transparency and 7) Internationality in order to ensure its internal and external reliability.
- We emphasize that the government should promote the reform of the nuclear safety regulation organization and other matters based on these seven principles.

(Importance of independence)

- The main focus of this organizational reform is to ensure a system in which a new nuclear safety regulation organization can make an independent judgment based on the latest scientific findings without being affected by other organs and with the aim of maintaining the people's safety and the environment.
- In other words, safety regulations should be scientifically implemented only from the viewpoint of ensuring the safety, but must not be done in consideration of other purposes.
- In that context, it is critical to achieve separation of nuclear regulation and use in nuclear administration.
- From this standpoint, there is the idea that a committee under Article 3 of the National Government Organization Act (independent administrative committee) should be established.
- It is meant that this type of committee can be expected to make a deliberate judgment through a council system and a member appointment requiring the Diet's approval will enhance its independent position under the democratic control of the

Diet and without being affected by the relevant ministers.

(Importance of crisis response)

- Based on the experience obtained from this accident, the government emphasizes that government-wide efforts are needed in crisis management cases such as implementation of disaster countermeasures after a severe accident and the cabinet including the nuclear safety regulation organization should responsibly respond to the cases.
- Under a situation of a severe accident, responsive measures, which significantly affect local communities and the national economy, such as requiring regional people to evacuate, must be immediately and correctly implemented under the responsibility of the cabinet.
- The government's view is that the nuclear safety regulation organization must be able to act systematically and timely under the command of the relevant minister in order to assist the government's drastic measure when it comes to the push.

(Evaluation of the government's basic policies)

- All of the above-mentioned viewpoints are important points and should be elaborated (In the past reviews of IAEA, IAEA specifically pointed out the necessity of separation of nuclear regulation and promotion, but has maintained that an organizational form is basically left to each country).
- In any case, it is most important to ensure that a nuclear safety regulation organization makes a judgment in a fair and correct manner in line with the latest scientific findings.
- The government's basic policy is that the new nuclear safety regulation organization shall be a normal administrative agency, under a specific minister, from the standpoint of risk response. Based on such a viewpoint, we further reviewed the policy, and decided to recommend the functions of the Nuclear Safety Investigation Committee (NSIC) (tentative name) and the ability of the Nuclear Safety and Security Agency (NSSA) (tentative name), as mentioned later.
- We do wish the government to seriously take our recommendation in specific institutional design.

(1) Creation of Reliable Regulatory Body through Separation of Nuclear Regulation and Promotion

- In order to eliminate all possibilities of considerations to the use of nuclear energy, it becomes most important to make a thorough separation of nuclear regulation and promotion in this reform of the nuclear safety regulation organization and other matters.
- The NISA (Nuclear and Industrial Safety Agency) is currently placed under the authority of the Ministry of Economy, Trade and Industry. Under the current organizational form, a doubt from the national people that the regulatory body possibly gave a special consideration to the use of nuclear energy is not removed.
- In addition, a clear separation between regulatory and promotion bodies is internationally required.
- Furthermore, attention should be paid to the issue of independence from organs including political powers that could exert undue pressure on nuclear safety regulations.

(2) Improved Function by Integration of Nuclear Safety Regulation Organization

- In order to improve the functions of nuclear safety regulation administration, it is essential to integrate related administrative bodies and bring together limited resources.
- Under the administrative system with diversified powers, it becomes unclear responsibility, resulting in impediment to the implementation of effective regulations and risk response.
- Also in order to increase the efficiency of the individual administrative organizations, it is needed to unify the organizations.
- We must point out that permit-related double check by the current Nuclear Safety Commission (NSC) and regulatory body is partially hollowed out and ineffective.
- Various types of safety guideline that are developed by the NSC are originally those for its own double check, but in fact, a primary review by the regulatory body adheres to the guideline. The same check is only repeated twice.
- Due to the double-checking structure, the status of the guideline became ambiguous, and the responsibilities of both of the organizations were unclear (IAEA also requested the relevant regulatory body itself to establish its own review criteria).
- From this standpoint, it is necessary to fundamentally re-examine the so-called double-checking system.
- Needless to say, the NSC's conventional role in independent check of the

regulatory body continues to be important, and as mentioned later, should be performed through thorough supervision and inspection.

- The NSC has played a role in ensuring fairness and transparency in the procedures for incorporating scientific findings into the judgment of the regulatory body. This role, however, must be properly treated in the process of reviewing the traditional regulatory procedures.

(3) Improvement of Crisis Management System

- One of the biggest lessons learned from this accident is the lack of preparedness against the actual large-scale accident.
- The first lacking provision is that countermeasure for preventing the expansion of the accident and for stabilizing the accident at an early stage (so-called on-site countermeasures) could not be correctly taken by the utility and regulatory body.
- The second lacking provision is the insufficiency of people evacuation and other safety countermeasures, through information announcement and cooperation among national government, local governments and licensees (so-called off-site countermeasures), or the lack of provisions by the entire government including the issue of insufficient collaboration with key organizations (self-defense force, fire department, police, etc.) and other affiliated bodies.
- It is necessary to fundamentally re-examine both on-site and off-site countermeasures and establish an organizational system that can immediately make a decision under the responsibility of the cabinet and respond to any risks with the support of the key organizations and with concerted efforts of the government.
- In order to realize this systematic organization, it is needed to define the roles of the new nuclear safety regulation organizations and other administrative bodies. In addition, it is necessary to take both soft countermeasures such as establishment of a practical disaster prevention system and hard countermeasures such as construction and maintenance of functional disaster prevention network facilities.
- Based on the reflection of this accident, it is important not only to establish this "risk management" system but also to define the responsibility and response of the government on the assumption of a real accident affecting the public. Consequently, it should be deeply remembered that the government would never gain the public's understanding for nuclear energy without accomplishing these two points.

(4) Reform of Organizational Culture and Development of Excellent Human Resources

- People support the organization. Consequently, it is essential to create an organizational culture which enables staffs to address nuclear safety directly and seriously, and to acquire and develop human resources that have high-level expertness, ability and ethics.
- According to the IAEA, all organizations and staffs that are involved in nuclear energy must have a safety culture that allows for decision-making with the highest priority to nuclear safety issues.
- Based on hostile circumstances surrounding nuclear energy, the acquisition and development of excellent human resources represents a serious issue that exerts a decisive influence on the existence of the organization.
- Based on this recognition, it is needed to establish a strategy for fundamental acquisition and development of human resources; positively utilizing various types of professional personnel, adopting such personnel under a flexible employment system, strengthening a training system in anticipation of improved regulatory quality and improved treatment of talented personnel, and continuing to improve technical abilities of needed personnel.

(5) Reinforcement of Effective New Safety Regulations

- It is essential to switch from the conventional nuclear safety regulations to new effective regulation system which ensures trust from citizens.
- Under the conventional regulatory administration, the original mission of nuclear regulations for protecting the safety of the people was not clearly represented and it may lead to bureaucratic regulation and administration.
- Therefore, going back to the basic principle of safety regulation that the people's health and the environment should be protected from radiation damage, it is necessary to reassess the traditional entire regulatory system and realize a clear and objective regulation based on laws and rules.
- The most important thing in realizing the regulation is to reinforce the regulation based on the latest scientific findings so as to prevent the reoccurrence of the severe accident.
- Nuclear regulations have been traditionally tightened every time any problem occurred. However, tightening of the regulations has not led to the

improvements in real and effective safety countermeasures.

- The means and procedures of regulations and inspections must also be converted to that of effective and practical regulations and inspections that really accomplish the safety.

(6) Disclosing Information and Ensuring Transparency

- It is important to create the trust of the citizens through immediate and correct information disclosure and ensured transparency in a decision-making process including ordinary administrative activities.
- Important information that is directly linked to the safety of the people should be immediately disclosed.
- It is desirable to preliminarily establish an operational system for public information, so as to avoid a delay of the disclosure of necessary information because of the mix-up of information in the case of a nuclear accident and because of coordination among administrative organization and verification of information.
- In order to correctly respond to the people's concerns about radioactive contamination from nuclear energy, it is necessary to understand the risk of nuclear energy and inform of the risk in an understandable way.
- In addition, it is also necessary to recognize that peoples' understandings of nuclear energy cannot be acquired without actively providing information on the responses to the accident, long-term radioactive contamination impacts and measures for risk alleviation in the contaminated areas.

(7) Establishment of International Organization, Human Resources and Regulations

- It is important to establish an organization, human resources and regulation that conform to international standards, can actively participate in international exchanges and cooperation, and are open to the international networks.
- It is required to actively provide information on Japan's efforts for nuclear safety administration to the international community and establish an internationally-trusted organization.
- It is also important to promote personnel exchanges with international organizations and other institutions and establish a system that immediately adopts the latest findings from overseas.
- It is necessary not only to have new regulations conform to the international standards including IAEA's basic safety principles but also to incorporate the

lessons learned from this accident and our country's findings into international efforts for strengthening of nuclear safety.

- Through these efforts, the government should take the initiative in establishing an international cooperation system for nuclear safety.

3. Actions to be taken

(Requirements for independent)

- The main focus of this organizational reform is to ensure the independence of the new nuclear safety regulation organization.
- We consider that at least the following points should be noted in order to accomplish the government's basic policy for establishing the NSSA as an affiliated organization of the Ministry of the Environment.
- The first point is to establish a system in which the NSIC constantly and independently checks the whole of nuclear safety regulation administration as a council system body that consists of members with the latest scientific findings.
- The key is the independence of the council. If this requirement is met by the measures mentioned later, the NSSA may be expected to make an independent judgment.
- The second point is to establish a system that is required to enable the NSSA to make an independent judgment on the assumption of check by the NSIC, and to have a technical ability that forms the foundation of the judgment.

(Meaning of creation of NSSA under the Ministry of the Environment)

- The reason for the creation of the NSSA under the Ministry of the Environment is one of the issues to be discussed.
- We must take the fact that the Ministry of the Environment has relied on the nuclear policy in combination with the government from the viewpoint of promoting climate change countermeasures, but the Ministry has not directly had the role of nuclear administration.
- Currently, the Ministry of the Environment is at the forefront of the remediation of radioactive contamination derived from this accident, which is the largest and most difficult environmental problem.
- It is in a position to control and promote waste treatment projects, while have many experiences in regulatory administration of environmental pollutions as a

regulatory body.

- Furthermore, IAEA's fundamental safety principles define that a basic objective for nuclear safety is to protect human beings and the environment from hazardous effects of radiation.
- Considering that limited resources should be unified to address an environmental issue of radioactive contamination, we can find an adequate reason why an organization responsible for nuclear safety regulation administration will be established under the Ministry of the Environment.
- Based on the above points, the Advisory Committee presents the following views concerning concrete countermeasures including the reform of nuclear safety regulation organization and safety regulation, crisis management and human resources development, in order to meet seven principles described in the Chapter 2.

(1) Creation of Reliable Regulatory Body through Separation of Nuclear Regulation and Promotion

(Function and duty of nuclear safety regulation organization)

- The nuclear safety regulation organization should be in charge of the duties for accident prevention by nuclear safety regulation and for prevention of nuclear disasters by construction and maintenance of a crisis management system (including prevention of damage expansion), in order to ensure the nuclear safety under the responsibility of the government.
- From this standpoint, some members asserted that the name of the nuclear safety regulation organization should be not the Nuclear Safety and Security Agency (tentative) but a Nuclear Safety Regulation Agency (tentative) that defines a clear mission of regulation.

(Ensuring the independence of NSSA)

- The NSSA should ensure to perform nuclear safety regulation administration regardless of future plan for peaceful use of nuclear energy.
- For this purpose, it is important to comply with the IAEA's safety standards and ensure a certain independency of the Agency so that it will not be affected by an organization using and promoting nuclear energy and other undue pressures.

Consequently, it is necessary to establish a system that enables the Agency to make an independent judgment except for unexceptional cases such as emergency response.

- In order to establish such system, it is necessary to form a system for the Agency's supervision over licensees that legally make external interference difficult and also to define the authority of the Commissioner of the Agency, by setting clear basis and standard based on laws and rules.
- Some members asserted that the government should define a required ability, quality, role and the term of the Commissioner and then examine new personnel allocation system for the Commissioner that is different from normal personnel system for public servants.

(Function and duty of the NSIC)

- The major role of the NSIC is to make an independent check and review of entire nuclear safety regulation administration and assure the independence of regulation administration.
- However, it should be noted that the NSIC cannot play its practical role without continuously revitalizing and effectively operating the organization of the Commission.
- The government should accurately understand the risk of nuclear energy, comprehensively consider it, and form a social judgment on the relevant energy. Consequently, we think it is important for the NSIC to recognize engineering, social-scientific and human-scientific findings and give consideration to these findings.
- The concrete duty of the NSIC should be to monitor and review nuclear safety administration and check whether nuclear safety regulations are effective and whether they are continuously improved.
- In addition to this duty, it is necessary to consider the function of a commission that neutrally investigates the causes of nuclear accidents and their damage and requires administrative bodies and utilities to improve their situations, or so-called accidents investigation committee.
- The NSIC is in a position of making a comprehensive check of a licensing function of the regulatory body. In this context, the Committee should not exercise its authority for each licensing in order to ensure its objectivity.
- Some members claimed that the Committee should take initiative for safety

studies and development of human resources.

(Ensuring the independence of the NSIC)

- The main focus in this item is to ensure the independence of the NSIC itself.
- A member of the NSIC should be appointed with the approval of the Diet and democratically managed; besides the status of the member should be strictly guaranteed.
- The NSIC should not be engaged in the individual licensing activities under the NSSA. Instead, the NSIC should make recommendation to the Minister of the Environment, the Commissioner of the NSSA and the other ministries, if necessary.
- In the result, the NSIC will be independent of the competent minister. The NSIC is expected to be able to prevent the Agency's judgment when it is inconsistent with scientific rationality through its continuous checks.
- From the viewpoint of ensuring the independence of the NSIC, it is important to further strengthen the involvement of the Diet. The NSIC is considered to report its activities to the Diet on an annual basis.
- According to a member's opinion, it is appropriate to develop a criterion for selection of the NSIC members and create a selection committee on the occasion of member appointment requiring the Diet's approval.

(Secretariat of the NSIC)

- In order to ensure the effectiveness of the function of the NSIC, it is essential to consider its secretariat.
- The NSIC should monitor and review nuclear safety administration and investigate the causes of nuclear accidents and their damage, it is very important for its secretariat to have sufficient ability and authority to investigate them.
- From this standpoint, some members stressed that the secretariat should have an accident investigator with high-level knowledge and skills and a technical adviser supporting the members' activities as an assistant. In addition, some members claimed that the “no-return rule” of staffs from related ministries and private utilities should be applied to the secretariat.
- Other members maintained that a secretariat with adequate staffs should be created in the Secretariat of the Minister of Environment in consideration of the NSIC's independence the NSSA.

(Deliberation of specific policy matter)

- The Nuclear and Industrial Safety Subcommittee, the Advisory Committee for Natural Resources and Energy has traditionally played a key role in developing criteria and standards for nuclear safety regulation.
- On the other hand, as mentioned above, the NSIC serving as a checking body should not be involved in developing each criterion and standard, so as to perform an independent check of the whole nuclear safety regulation administration.
- For this reason, it is essential for the NSSA itself to acquire a technical councilor and adviser with specialized findings and establish a system that adopts various opinions on the occasion of each administrative decision and standard development.
- When scientific findings are introduced into the process of administrative judgment in this way, it is considered to be important to form proper procedures for the introduction by ensuring fairness and transparency through a law-based system.
- For concrete measures for the proper procedures, the following suggestions were made.
 - First, a hearing from technical councilors and advisers shall be legally positioned for involvement of experts. It shall be stipulated in laws and rules that an appointer should give a consideration to well-balanced specialized fields of these experts with the development of findings and to ensured neutrality of the specialists when employing them.
 - It shall be stipulated that the deliberation of government ordinances and basic policies is in principle open to the public and a shorthand record including all speakers and their statements about deliberations of different licenses is prepared and publicly released after a given period (e.g. 10 years later).
 - On the occasion of licensing, the NSSA shall hold a briefing for local residents and have an utility reply to presented questions and opinions verbally or afterward in writing. If required, the utility shall express its own view.
- There was an opinion that these suggestions including how to realize them should be fully re-examined. In particular, it was pointed out for the third suggestion that it was concerned whether the Agency has an organizational responsibility for on-site responses.
- In any way, it is difficult to develop detailed standards and criteria for all of specialized technical areas, thus, during the standards development process, it is

appropriate to technically assess specifications and standards of related academies and associations that are developed following strict and specialized processes and utilize them for nuclear safety regulations.

(2) Improved Function by Integration of Nuclear Safety Regulation Organization

(Integration (consistent safety regulations, 3S))

- In order to assure the effectiveness of the government's nuclear safety administration, it is appropriate to integrate the nuclear safety administration into the NSSA and conduct consistent administrative affairs (guideline and standards development, review, inspection, risk management, monitoring, research, and training).
- Nuclear safety regulation duties for all facilities, including power reactor, test reactor, reactor under R&D and ship reactor, use and processing of nuclear fuel materials, storage and reprocessing of spent fuel should be all performed by the Agency.
- These regulation duties include nuclear safety regulations at all of upstream to downstream stages from planning, installation permit, construction, operation and decommissioning.
- Some members claimed that the involvement of local governments and communities should be respected, more than ever, in the process to improve nuclear safety along with this integration.
- Furthermore, it is considered to be important to unify nuclear safety and radiation safety, continuously improve the abilities for nuclear and radiation safety regulations and ensure the trust of citizens.
- With the aim of nuclear safety integration, the Radiation Council should also be managed by the NSSA.
- As described in the government's basic policy, the NSSA should be responsible for the development of basic policies for nuclear security measures against nuclear terrorism and other threats, supervision of utilities, collaboration with security bodies and other countermeasures.
- Some members emphasized that the NSSA should be responsible for safeguards for nuclear non-proliferation and consistently in charge of 3S (nuclear safety, security and safeguard), because it is inappropriate for another different organization to regulate the same facility and equipment as the nuclear safety

regulation organization from the viewpoint of regulation efficiency and effectiveness. Other members suggested that the safeguards should be addressed from a standpoint different from safety regulation because the Atomic Energy Commission (AEC) is responsible for nuclear peaceful use and non-proliferation and safeguard activities are performed for IAEA's request rather than for regulation of utilities.

- In any way, the responsibility of safeguards is an important international issue related to the nation's basic policy, thus, the government should seriously review its policy, including the role of the AEC, to ensure the effectiveness.

(Other integration issues (monitoring, safety study, etc.))

- According to the government's basic policy, the NSSA will function as a control tower of radiation monitoring, however, the function of implementing radiation monitoring will not be totally transferred to the Agency. It is concerned whether the division of the implementation will effectively function under the direction of the Agency as a control tower.
- In addition, it is important for the NSSA to take the initiative in nuclear safety studies and ensure the power for the allocation of a research budget.
- In relation to the budgetary allocation, there was an opinion that a fundamental shift from a nuclear promotion R&D budget to a safety research budget should be promoted from the viewpoint of shifting emphasis from nuclear promotion policy to safety regulation.
- It is necessary to establish an effective system that enables the NSSA to shoulder the responsibility of a combination of budgets, laws and human resources for nuclear safety.
- Regarding compensation for nuclear damage, the Act on Compensation for Nuclear Damage is intended to protect nuclear victims and contribute to sound development of nuclear projects. Some members maintained that an administrative body for peaceful use of nuclear energy should be responsible for the compensation, but other members claimed that an administrative body for nuclear safety regulation should be in charge of the compensation based on the fact that a large-scale nuclear disaster occurred and caused many victims, and considering the importance of the tasks such as risk response, health control of the victims, and radiation regulation in contaminated areas.

(Relation with AEC)

- Research, development and use of nuclear energy are promoted on the fundamental principle of safety, in this context, it is necessary to decide a basic nuclear policy based on the viewpoint of nuclear safety.
- In response to this viewpoint, some members emphasized that the AEC should hear the opinions of the NSSA and decide a nuclear policy based on its opinions.

(3) Improvement of Crisis Management System

(Reinforcement of crisis management system and disaster prevention countermeasures)

- It is appropriate to establish and maintain a system that enables the entire government to respond immediately to the disaster under the direction of a specific minister.
- For this purpose, it is necessary for the NSSA to have experts for emergency response, who have the roles for the preparation to any accident during normal times and support the relevant minister at accidents.
- The crisis management measures are roughly divided into on-site (in-plant) and off-site (off-plant) countermeasures and should be reviewed separately.
- In the case of occurrence of a large-scale accident, the accident must be immediately responded to through both of on-site and off-site countermeasures. In order to respond to accidents immediately, it is essential to define the roles of the central government (including regulatory body and key organizations), local governments and utilities, and strengthen a system for collaboration among them.

(Role of Nuclear Emergency Response Headquarters)

- It is appropriate for the Nuclear Emergency Response Headquarters to have key leaders of a director-general (prime minister) and a vice director-general (minister of environment) and strengthen the headquarters in order to deal with accidents in a cooperative manner with all governments.
- The role of the headquarters, such as evacuation instructions and materials transportation, cannot be fulfilled without accurate information and professional findings concerning nuclear accidents, in this context, the NSSA should function as a secretariat in the headquarters.
- The preparation for disaster prevention countermeasures based on each site's

circumstances should be sought by the NSSA. This preparation will ensure collaboration between the Agency and the key organizations.

(On-site countermeasures)

- For on-site countermeasures against any severe accident, it is appropriate for the NSSA to supervise licensees to install necessary materials/equipment and develop accident response manuals so as to maintain the function of cooling a reactor and the function of preventing the release of radioactive materials.
- The Agency should also supervise licensees' drill and check its effectiveness and urge them to improve its procedures as needed.
- In the case of an emergency, it is important for the NSSA to visit a head office of an electric utility, to supervise the utility's first-aid measure and to establish smooth communications between the government and the utility.
- It is appropriate that these duties should be responsibly executed under the direction of high-level experts with specialized knowledge and ability.
- In case that electric utility has difficulties in the management of the accident, it is important to preliminarily establish procedures for collaboration with the key organizations in order to ensure all possible preparations.

(Off-site countermeasures)

- Off-site countermeasures are basically placed under the responsibility of the entire government. The most important issue of resident evacuation in the case of a nuclear accident has many aspects that are in common with other risk response to natural disasters.
- It is important that the Nuclear Emergency Response Headquarters should take the initiative in collaborating with local governments and key organizations and utilize the outcomes of nuclear disaster prevention drills at normal times to lead resident evacuation.
- Furthermore, it is desirable to install equipment such as monitoring instruments, clothes, vehicles for radiation protection.
- Some members claimed that it is important to consider the creation of a special body for risk management, like the FEMA in the US, based on the lessons learned from this unprecedented complex disaster of earthquake, tsunami and nuclear accident.

(Preparation at normal times)

- For ordinary duties, it is important to prepare manuals and instructions for information and command chains at the occurrence of a disaster, and disseminate the rules to all staffs.
- It is important to establish effective operation system for the Emergency Response Support System (ERSS) and the System for Prediction of Environment Emergency Dose Information (SPEEDI) to make an appropriate judgment based on information obtained, even in the case of unforeseeable situations such as a case where some of these functions do not work.
- In addition, it is appropriate to construct and maintain a disaster prevention network in order to establish and strengthen a risk management system.
- From the viewpoint of reinforcing nuclear security, the NSSA should make consistent responses such as formulating a basic policy for the security, strengthening a system for communication and collaboration with security bodies, and checking of utilities' physical protection measures.

(Improvement of functions of off-site center and collaboration with local governments)

- The government must seriously reflect the fact that the off-site center did not fully function at the occurrence of this accident and it is necessary to improve the function of the center. In addition, it is also necessary to promote detailed examinations for immediate use of an alternative facility when it is forced to relocate the function of the center.
- In particular, some off-site centers that are adjacent to NPPs such as Hamaoka Off-site Center, where has risks of tsunami or other natural disasters. It is necessary to immediately review the siting of these centers and take measures such as relocation.
- Furthermore, it is appropriate to fully strengthen collaboration network with experts for an emergency support in preparation for any disasters.
- The central government has the responsibility of nuclear safety regulation administration; however, it is important to establish a system that hear the voices of local governments, before implementing nuclear safety regulations and risk management responses.
- In the case of occurrence of a disaster, in order to enable the central and local governments to collaborate and cooperate promptly, it is appropriate that the central government should establish close communications with local

governments on a routine basis, organize their different roles and construct a robust system for communication and cooperation with the local governments and key organizations.

- It is also desirable to establish a cooperation and collaboration relationship between the governments and surrounding local governments and take disaster prevention measures such as practical drills on the assumption of any nuclear disaster.
- It is desired that a combination of staffs from the central and local governments should learn in research and training sessions and mutually share their experiences and findings in order to increase high-quality human resources and also establish a robust human network.

(Reinforcement of organizational system in crisis management)

- In order to reinforce crisis management including initial response at the occurrence of an accident, the NSSA is required to strengthen an organizational system that consists of Director General for Emergency Response Measures with senior specialists for nuclear emergency preparedness and regional nuclear disaster prevention specialists.
- The experts should supervise continuous and correct implementation of emergency measures by licensees such as measures against severe accident and physical protection countermeasures at normal times, and play a core role in the mitigation of an emergency situation, for instance, supervising the licensee's first-aid measures and giving advice on the measures.
- Regional nuclear disaster prevention specialists, who are allocated around nuclear facilities across Japan, should reinforce a system for collaboration and cooperation with local governments while strengthening regional measures against nuclear disasters under the instruction of experts, and in the event of an emergency, should collect information and conduct liaison and coordination at the hub of an off-site center.
- In order to function these organizational systems effectively, it is needed to identify the issues of the crisis management system including the function of the off-site center and immediately address them.

(Establishment of post-accident support system for victims and affected areas)

- The central government should establish and reinforce the system for risk

management. In addition, based on the reflection of the severe accident with the release of large amounts of radioactive materials, the government should preliminarily and fully examine post-accident measures including victim supports and restoration of affected areas.

- Reflecting this accident, the government described in the "Basic Guidelines for Reconstruction in response to the Great East Japan Earthquake" that it shall responsibly take first-aid, rehabilitation and restoration countermeasures for the relevant nuclear disaster, and on the major premise of these countermeasures, shall bring the reactors into cold shutdown to converge the nuclear accident as early as possible such as preventing radioactive materials from releasing to air, soil and seawater and then to promote supports for restoration of victims' lives or businesses, safety countermeasures, health control countermeasures, compensation and other matters.
- However, rehabilitation works in the affected areas and other activities are not going smoothly. The victims have had great distrusts and complaints towards the government, and great concerns about the future yet.
- We require the government to accelerate supports that focus on the position of the victims.
- The government must not, even for a moment, forget the affected people's hardships in its future nuclear safety administration.
- We also require the government to establish a robust risk management system that responds to any nuclear accidents and to establish a complete system that enables the government to protect damage to the public and immediately help people and areas that are affected by a nuclear accident.

(4) Reform of Organizational Culture and Development of Excellent Human Resources

(International research and training institution)

- In order to accomplish effective nuclear safety regulations, it is absolutely essential to ensure and develop high-quality human resources.
- However, the high-quality human resources cannot be developed in a short time. The development of these human resources should be steadily promoted from medium- and long-term perspectives.
- In particular, it is critical to improve the effectiveness of the regulations and the

treatment and quality of inspectors and reinforce the research and training system as a package. Positioning this as the most important medium- and long-term issue of the NSSA, the government should steadily address the challenge under the supervision of the NSIC.

- In order to set up a human resources development system that serves as the initial step toward the challenge, the government should concretely consider the conception of an international research and training institution (creation of International Nuclear Safety Training Academy (tentative)) that can develop personnel with high-level scientific and technical abilities and contribute to international networking.
- The following comments were made in order to enhance the effectiveness of this research and training institution. The government should learn from responses made at this accident site, make internationally leading-edge research on low-level radiation exposure through collaboration and cooperation with the National Institute of Radiological Sciences (NIRS), and internationalize the relevant institution to establish its framework that is open to the international community.

(Collaboration between nuclear safety research and human resources development)

- All researches on nuclear energy should be conducted with a fundamental basis of safety
- In particular, nuclear safety researches should be utilized for safety regulation activities, the establishment of a scientific and technical ground for safety regulation and development of specification standards based on the ground. The researches should be steadily promoted from long-term perspectives and it should include effective and efficient reviews and inspections, combination of internal and external knowledge bases in multiple fields.
- The opinions in relation to the researches include that a research to assess the extent of effect of nuclear energy on the people's safety and the environment should be added to nuclear safety researches in a wider sense.
- The promotion of organized collaboration between nuclear safety researches and human resources development is a next-phase medium- and long-term issue toward the development of high-quality human resources.
- The government should deepen collaboration between universities and research institutes and establish a framework for the development of human resources who conduct nuclear safety researches and nuclear safety administration.

- Specifically, the NSSA should develop a medium- and long-term roadmap for nuclear safety studies in cooperation with the NSIC and constantly review the roadmap, thereby independently allocating a budget to the studies and present a course of focused researches, and a measure for developing specification standards based on the course and the latest findings.
- Based on the current situation in university that nuclear engineering departments is insufficient to develop high-quality human resources, it is desired to establish an expert's network and construct a ground design for ensuring various types of human resources as a whole country.
- In addition, it is important to establish a career path with other fields (for instance, aviation, railroad and medical care) related to crisis management and social sciences, and a framework for collaboration with these areas, and construct a mechanism for incorporation of their findings.
- Furthermore, as for the challenge for the long and medium terms, it is necessary to continue to improve the abilities of inspectors for the safety management of nuclear installations and regional nuclear disaster prevention specialists who have duties of nuclear safety regulation and risk management.

(Ensuring various human resources (careers development, use of chief engineers, collaboration with affiliated organizations, etc.))

- In order to ensure various types of human resources, it is important to define the development of attractive and future careers, to employ personnel from non-nuclear fields and to develop human resources with international perspectives through international exchanges or long-term overseas training.
- It is appropriate to consider a policy to improve the treatment and use of chief engineers of reactors, chief engineers of nuclear fuel, Class I radiation protection supervisors, other qualified persons and personnel with specialized knowledge and actively utilize them.
- It is essential for a leader in charge of crisis management to have a comprehensive ability to correctly understand an accident situation and make a proper judgment on the situation. It is also required to consider how to ensure persons that have such an excellent ability.
- Nuclear safety-related organizations, or Japan Nuclear Energy Safety Organization (JNES) and Japan Atomic Energy Agency (JAEA) have technically supported the nuclear safety administration so far. It is important to establish a

system for collaboration with these organizations including personnel interchanges.

- In particular, JNES is desired to recognize an important duty as a technical support organization (TSO), to enhance its technical ability through its shift in attitude and awareness, to improve the effectiveness of inspections and the quality of safety researches, and to support the NSSA in a proactive and collaborative manner.
- In addition, it is appropriate to consider a policy to utilize human resources with high-level expertise in both of nuclear and radiation safety fields through reinforced efforts for a combination of nuclear and radiation safety.
- According to a certain member's opinion, the NSSA should cover nuclear safety regulation costs with review fees and other incomes and improve the treatment of excellent staffs by favorable salaries or other means, following the cases of nuclear safety regulation organizations in the US and other foreign countries. Besides, the Agency should perform personnel management on a no-return rule of staffs form an independent organization where staffs can proudly work.

(Creation and maintenance of safety culture)

- Based on the reflection of this accident, it is critically important to create and maintain organization-wide safety culture in which staffs involved in nuclear safety continue to learn safety-related expertise and repeatedly examine the presence of weak points in ensured nuclear safety and opportunities for improvement of safety.
- The government should reflect that the past regulatory body's organizational culture, which may place greater importance on order maintenance than human lives and that its sensitivity to the reality and alarms was decreased.
- It was concerned that the past regulatory body did not respect the report of a whistle-blower providing significant safety information and reluctant to incorporate their information into its efforts for ensured safety, in this context, the conventional responses and their effects should be reviewed.
- For these reasons, it is essential for the NSSA to have a criterion of value and safety culture of an organization that internally assigns top priority to nuclear safety, protection of the people's lives, bodies and assets and preservation of environment.
- The Agency should make the greatest efforts possible so that safety culture is fully created and maintained in its own organization and bodies supporting the Agency.
- Nuclear safety will not be constantly improved in the absence of safety culture.

- Firmly recognizing this principle, the Agency is required to make efforts through all opportunities, for instance, establishing a code of conduct so that safety culture disseminates in the organization and constructing a system that enables staffs to constantly check their own safety actions based on the norm.
- Advocating the responsibility of setting top priority to the safety of the public, the responsibility of constantly improving substantial safety and executing jobs with a sense of tension, and transparency, openness, involvement as the principle of organizational culture, the Agency is desired to promote changes in the consciousness of staffs.

(5) Reinforcement of Effective New Safety Regulations

(Reinforcement of regulation)

- In order to enhance the effectiveness of nuclear safety regulation, it is necessary to convert from conventional regulations to a new regulation framework that urges licensees to continuously enhance nuclear safety on the basis of the latest scientific and technical findings.
- Under future nuclear safety regulations, licensees' efforts to improve the safety of NPPs should be properly assessed, as a result, a framework for promotion of voluntary efforts will be expected.
- A creative system that makes inspection substantive and flexibly increases licensees' performance should be adopted.
- However, we remind the government not to take a lax attitude toward the respect for utility voluntarism and flexibility and to establish a discipline that substantially increases a safety level.
- For nuclear safety regulation, it is also important to effectively utilize probabilistic safety assessment (PSA).
- Some member maintained that it is important to continuously find weaknesses and take measures against them on the assumption that the nuclear system itself and the environment surrounding the system dynamically change and it should be noted that nuclear effects will widely extend to the whole society.
- Other members emphasized that a wide range of researches and experts of risks in the other areas should be internationally collected to improve nuclear safety.
- In order to properly execute nuclear safety regulations, it is essential to implement a law-based, clear and objective regulation, in this context; the NSIC should check

the effectiveness of the regulations.

(Safety objective of nuclear safety regulation)

- The safety objective of nuclear safety regulation should assign the highest priority to adhering to the IAEA's safety fundamentals and protecting human beings and environment from hazardous effects of radiation. The most important purpose is to take proper safety countermeasures in light of scientific and technical standards and avoid a severe accident that leads to the release of large amounts of radioactive materials.
- While reinforcing preventive measures against any nuclear accident, it is necessary to ensure measures for prevention and mitigation of the accident so as to avoid the release of large amounts of radioactive materials to the environment.
- In case of release of radioactive materials, it is essential to take countermeasures preliminarily so that immediate public evacuation is correctly performed, so that the effects of exposure are surely protected for a long term and compensation for and recovery of victims' lives can be promptly done.
- Some members insisted that the requirements for permit of reactor installation in the current Nuclear Reactor Regulation Law should be amended in order to incorporate this objective into the conventional regulation requirements.

(Back-fitting system)

- Based on the above comment, a legal system that surely incorporate new findings and technologies for safety into existing facilities and the operation of the facilities (so-called back-fitting system) should be introduced.
- Specifically, the new findings and technologies for safety are incorporated into the standards or requirements in the Nuclear Regulation Act and mandatory to meet the new standards or requirements in the existing facilities and in the operation of the facilities. In addition, the administration reviews of licensees' efforts should be adopted.

(Assessment and release of reactor safety and risk information)

- From the viewpoint of utilizing risk assessment to nuclear safety enhancement, it is important for the government to have licensees make risk assessment of their facilities and determine the priority for the security of the facilities and to urge them to review their security systems based on the results of the assessment.

- The government should assess and release the safety and risks of reactors to visualize licensees' efforts for ensuing safety, and urge the licensees to make voluntary efforts and continuous improvement of the safety under the observation of the public.

(Measures against severe accident)

- For measures against any severe accidents, it is important to strengthen countermeasures from all standpoints, for instance, promoting the diversity and redundancy of emergency power to avoid the loss of all power and providing the function that enables the maintenance of cooling functions even in the case of the loss of all power.
- In order to realize these countermeasures, it should be made mandatory by law to fundamentally reinforce technical criteria for the design of facilities and strengthen facility maintenance and accident management (prevention and mitigation) countermeasures.

(Comprehensive matters for reinforcement of nuclear safety regulation)

- During the Advisory Committee meetings, various opinions and comments concerning comprehensive matters for reinforcement of nuclear safety regulation were expressed as follows.
- The government should consider the following matters including the possibility of incorporating them into the nuclear safety regulation system.
 - Ensure the public involvement in various processes of a regulation and establish a system for scientific support by experts in the nuclear-related fields.
 - Establish a system for the industry's strict mutual check (peer review system).
 - Take measures to reduce radiation exposure of workers involved in inspection, operation and design of a reactor.
 - Take political measures for cost compensation necessary for regulation reinforcement by law.

(Review of licensing and inspection system)

- For a medium- and long-term challenge, the government should review the licensing and inspection system in order to further enhance the effectiveness and efficiency of nuclear safety regulation.
- Some members pointed out the inefficiency and ineffectiveness of the

conventional licensing and inspections due to the bureaucratic system, in this context, establishment of rational regulation system to ensure effectiveness and efficiency including the use of the independent certification system becomes an important issue.

- In order to enhance the effectiveness of inspections, inspectors should have the authority to have access to necessary information at the site of a NPP at any time.
- It is also important to create legal basis for regulator to have access to a NPP' site and electric company in an emergency.
- In order to realize licensing and inspections based on the latest findings, it is required to make constant efforts to investigate worldwide evolution of safety theories (for instance, public involvement in risk assessment, concept of new engineering responding to dynamic change of environment) and adopt necessary new safety theories.
- Some members claimed that it is important to consider how to ensure fairness and neutrality of the NSSA's decisions as a medium- and long-term challenge, in this context, a "patent trial system" in the Japan Patent Office may become a good example.

(Integrated actions to improve regulation, human resources and training)

- The enhancement of effectiveness of nuclear safety regulation is inseparable to improvement of the treatment and quality of inspectors that execute regulations on a site. In addition, it cannot be separated from the reinforcement of a research and training system for development of the inspectors.
- The NSSA, as mentioned above, should steadily make efforts to enhance the effectiveness of regulations, improve the treatment and quality of the inspectors and reinforce the research and training system as the most important medium- and long-term issue.
- It is necessary for the NSIC to regularly check, monitor and review whether the quality of the nuclear safety regulations is improved and whether the ability of the inspectors responsible for regulation is increased.

(6) Disclosing Information and Ensuring Transparency

(Principle of information disclosure)

- Nuclear safety information attracts the strong interest of the citizens and nuclear

energy has a potential to greatly affect the people's lives, thus, it is essential for both of the central government and utilities to ensure information disclosure.

- For the implementation of nuclear safety administration, it is important for the government to release their activities and the content of the regulation to the people in an understandable way and ensure the transparency of its policy.
- In particular, it is important to establish an operation system for disclosure of safety information including accident information in an immediate and correct manner, and to improve the ability of staffs that provide the information.
- However, this information disclosure must not be a one-sided public relations activity of the administrative body. The Agency must properly respond to the people's interest in information and promote communications with the people.
- In addition, it is necessary to always listen to nuclear safety inputs from both internal and external organizations and incorporate them into efforts for ensuring safety, or use them on a PDCA cycle for organizational improvements.
- Some members claimed that the government should legally stipulate the principle on which the NSSA actively releases information on the safety of a reactor facility including corporate confidential information. Other members suggested that the government should carefully treat this principle based on handling of sensitive information related to measures against nuclear terrorism and international trends surrounding intellectual property rights.

(Establishment of transparent organization)

- It is desired to ensure the transparency of decision making for nuclear safety administration through an open decision-making process which the people easily participates in.
- It is important to review nuclear safety organization and regulations continuously in a transparent process by establishing a mechanism for its improvement.
- The NSIC will play a great role in objectively checking that the transparency of nuclear safety administration is ensured by the NSSA.

(Risk communication)

- It is important to correctly assess nuclear risks, fully control them and promote proactive risk communications with the citizens.
- In order to realize the risk communications, it is necessary that the staffs of the NSSA should understand high-level findings about nuclear risks and information

and acquire the ability of transmitting them to the people in an understandable manner. The establishment of research and training opportunities contributes to acquire the ability.

- Recognizing that possibilities of nuclear accidents cannot be fully eliminated, while that nuclear risks can be sufficiently controlled by the latest scientific and technical findings, it is important to address defining nuclear risks to respond to public concerns.
- Some members pointed out that the traditional risk assessment study using the frequency and scale of accidents cannot be simply applied to nuclear risks, and consequently, in this context, a nuclear risk theory should be re-established.

(7) Establishment of Internationally-Accepted Organization, Human Resources and Regulation

(Internal and external information disclosure)

- Japan's response to this accident increased national and international anxieties about nuclear energy.
- In order to create an internationally reliable relationship, it is important to continue to provide and convey correct information on the nuclear accident and responses to the accident to international society.
- International standpoints are important for the investigation of any nuclear accidents, in this context, information on nuclear accidents in various countries and findings obtained from responses to the accidents should be internationally shared immediately.

(International exchange and cooperation)

- It is also important to establish a system in which materials, equipment and other supports and advice from abroad are received in an emergency.
- It is appropriate to accomplish the international transparency of Japan's nuclear safety organization and regulation, and advance information transmission overseas and adopt the latest overseas findings through the IAEA's IRRS (Integrated Regulatory Review Service) and the international exchanges.
- In particular, it is desired to internationally convey the idea regarding the reform of the nuclear safety regulation organization including the creation of the NSSA and have opportunities to receive overseas inputs.

- In order to respond to worldwide increased use of nuclear energy mainly in the Asia, it is important to ensure an international nuclear safety system, in addition to solid national safety system.

(International exchange of human resources)

- It is important to diversify the staffs of the NSSA and of related organizations responsible for nuclear safety administration through international exchanges and long-term overseas training and establish a system in which the international latest and various findings adopted constantly.
- This internationalization is indispensable for improving the abilities of inspectors for the safety management of nuclear installations and specialists for nuclear emergency preparedness who has the duties of nuclear safety regulation and crisis management on site.
- Furthermore, it is desirable to widely develop human resources with international views through realizing the concept of an international research and training institution.

(Consistency of regulation with international standards)

- It is appropriate that a system for nuclear safety regulation should comply with the IAEA's safety fundamentals and other guidelines and international regulations.
- In order to ensure international consistency of national nuclear safety regulations, it is important to promote international exchanges (for instance, have overseas experts participated in a standards development process in Japan), fully understand the background and philosophy of the international regulations and introduce the nuclear safety regulations that conform to Japan's circumstances.
- It is necessary to internationally transmit information on our Japan's new nuclear safety regulation and lessons learned from this accidents, to seek comments from overseas, and to incorporate the overseas inputs into efforts for reinforcement of international nuclear safety.
- Through this approach, it is important to increase the presence of Japan's nuclear safety administration in the international society.
- From this viewpoint, the International Nuclear Safety Training Academy (tentative) should be positioned as a strategic center for increasing Japan's presence and advancing global standardization of Japan's standards through offering the opportunities for the other countries to learn Japan's new nuclear safety

regulations.

4. Conclusion (Toward Steady Realization of the Recommendation)

- The Advisory Committee summarized various opinions and comments at the two-months of intensive discussions to this recommendation.
- Under the time constraint for the urgent reform of the current nuclear safety regulation organization, some issues could not be fully discussed.
- Consequently, in this recommendation, issues that should be immediately dealt with by the government, and those that should be responded to from medium- and long-term perspectives, were specified and summarized where possible.
- We request the government to seriously respond to this recommendation and accelerate concrete short-term countermeasures written in the Chapter 3 when reviewing the new nuclear safety regulation organization by next April, and to pay attention to a smooth shift to a new nuclear safety regulation system.
- It is also necessary to review the actions of the government based on this recommendation.
- Some problems contained in the conventional nuclear disaster prevention system including off-site centers (in particular, the Hamaoka Off-site Center 2.3 km away from the Hamaoka NPP, where the government pointed out its dangerous situation in May) emerged also in this accident. It is needless to say that a necessary budget for reinforcement of the system should be acquired to improve the system immediately.
- It is expected to steadily address the medium- and long-term issues presented in the recommendation in the process of constant reassessment of the nuclear safety organization and regulations.
- It is also important to continuously re-examine and improve the nuclear safety organization and regulations in order to ensure its effectiveness.
- Problems of the past safety regulation could not be scrutinized due to time constraints and medium- and long-term nuclear and energy policies. If the government obtains the report from the Investigation Committee on the Accident, it should make necessary reviews of nuclear safety regulations.
- From a position of the Advisory Committee, the recommendation collected and summarized viewpoints considered to be necessary for enhancing the effectiveness of the nuclear safety administration.

- We request the government to accept this recommendation seriously. During the management of new nuclear safety administration system, the government should pursue effective nuclear safety system through practical discussions beyond the interests of related ministries.
- The government should amend from the conventional law to the law to reinforce safety regulation and to obtain the understanding of the citizens.
- The process to restore and ensure trusts of citizens through the reform of nuclear safety organization and regulation is challenging.
- However, the government should never forget this accident, directly take public concerns and sincerely address the missions in order to improve nuclear regulation system and ensure trusts of citizens.