

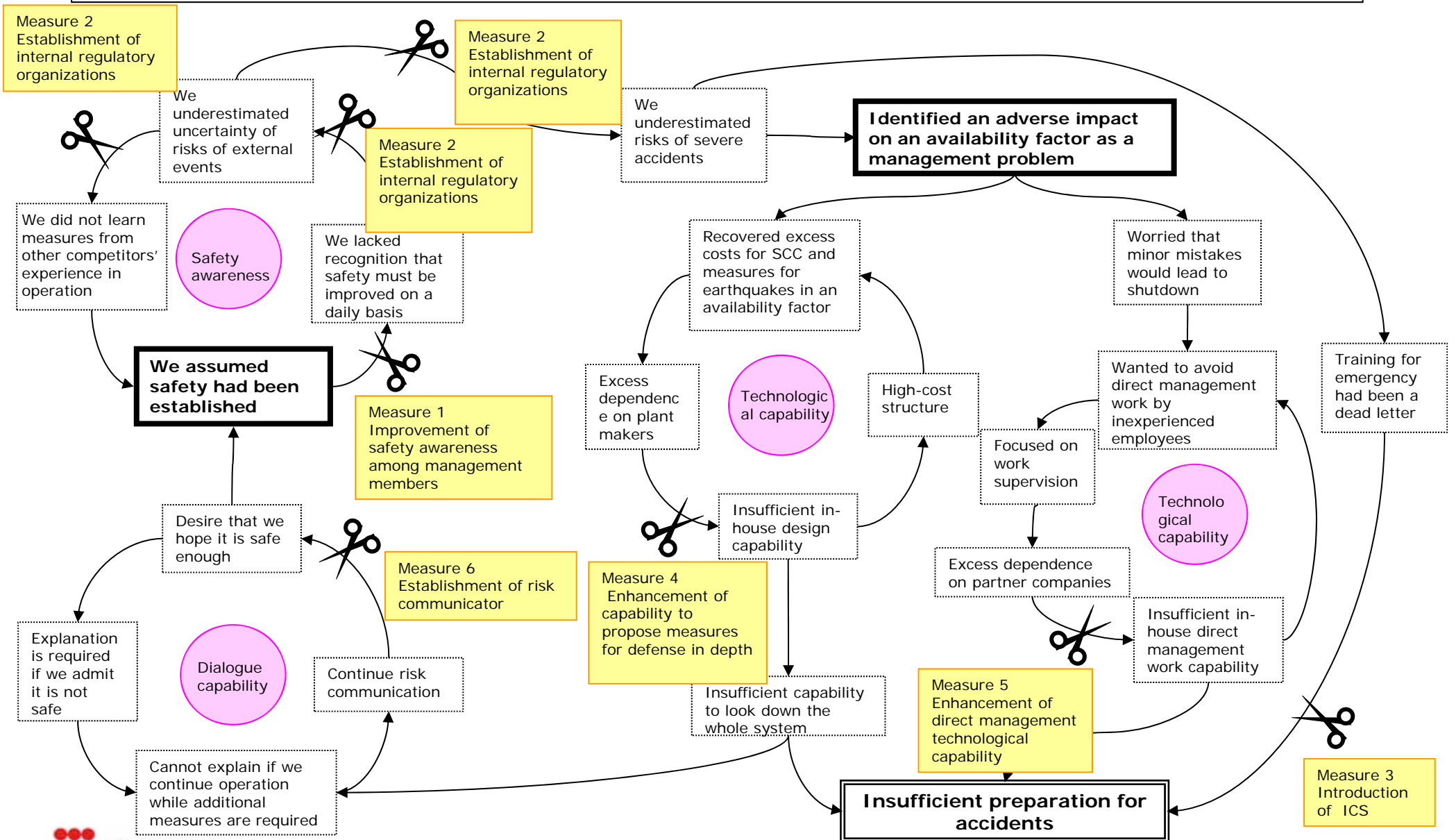
Measures to Structural Problems of the Nuclear Organization

~ Cutting the Negative Chain of Insufficient Preparation ~



Cutting Negative Chain of Insufficient Preparation for Accidents

Since we assumed safety had been established and identified an adverse impact on an availability factor as a management problem, we lacked preparation for accidents.



Measure 1: Safety Awareness Among Management Members (1/2)

1. Awareness about nuclear safety of our management members

Top management and all management members must have a high level of awareness about nuclear power.

[They should become fully aware of the fact that they assume primary responsibility, and strongly recognize the huge risks of nuclear power.]

The management members gather actively and share the risk information.

The following training programs are given to top management and all management members.

- Basic principles of nuclear safety design and safety culture, etc.
- Causes of and measures taken for the Fukushima accident

2. Behavioral indicators for nuclear power leaders (executives in charge, power station managers and general managers of the head office)

- (1) Place continuous safety improvement as our highest priority management challenge.
- (2) Encourage preparations based on the principle of defense in depth taking into consideration that things do not occur as assumed in the design.
- (3) Handle risks of natural events in a humble manner and avoid underestimating such risks.
- (4) Strive to develop technological capability for achieving improvements in safety, and make positive evaluations when trying new things even though they may end in failure.
- (5) Notify the public in a sincere manner that nuclear energy has residual risks, and avoid forcing safety without careful consideration.

Conduct a 360-degree evaluation about the degree of embodiment of the five behavioral indicators above for nuclear power leaders from their supervisors, colleagues, subordinates, partner companies and people at the site areas and feed the results back to them.

Measure 1: Safety Awareness Among Management Members (2/2)

3. Development programs for nuclear power leaders

The programs should be given to the candidate nuclear power leaders at each job grade.

[Recognition of nuclear power risks]

- Causes of and measures taken for the Fukushima accident

[Understanding of nuclear power safety]

- Basic principles of nuclear safety design and safety culture, etc.

[Promotion of technological knowledge about nuclear power]

- Basic knowledge about plant operations such as operation training center advanced courses
- Development of and measures for handling serious accidents

Measure 2: Internal Regulatory Organization (reflect comments from the committee)

Internal Independent Safety Assurance Office

< Example >

[Organization]

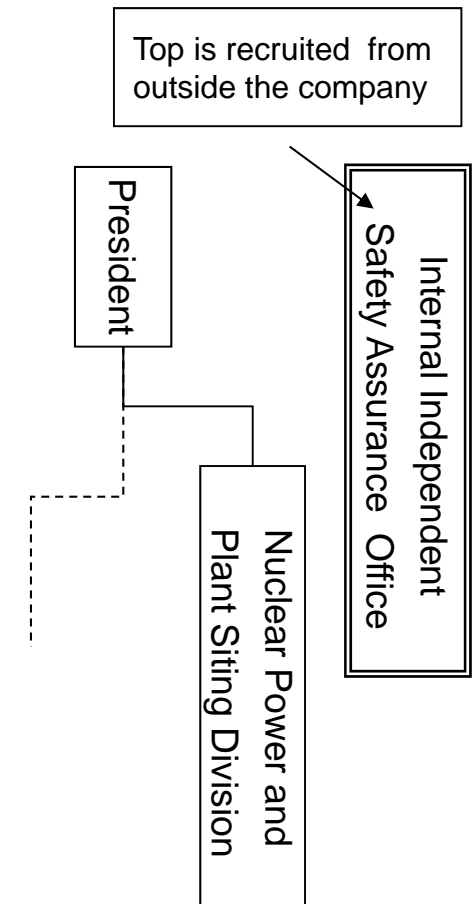
- The office is an organization **directly controlled by the president**, independent of the Nuclear Power and Plant Siting Division.
- **The top is a person familiar with the affairs about nuclear safety who is from outside the company.**
- Members are: -25 from each field of nuclear power, -10 from other fields, and -5 domestic and overseas experts on nuclear safety, industrial safety and risk management

[Function and authority]

- The office **directly reports** about whether new safety measures are required or not and whether efforts to improve safety by the Nuclear Power and Plant Siting Division are sufficient or not to the president, who **follows the report**.
- The office has authority to investigate and instruct about activities on nuclear safety by the Nuclear Power and Plant Siting Division.

[Business content]

- Checking risk maps prepared by the Nuclear Power and Plant Siting Division and regular safety review
- Investigating domestic and overseas regulation information/moves of academic meetings and associations/risk information such as B5b and analyzing operation experience information (The office conducts these services with the Nuclear Power and Plant Siting Division and both work hard for promotion.)
- Supporting activities of Nuclear Power and Plant Siting Division to ensure nuclear safety problems



Some functions of the Nuclear Power Quality Inspection Division and Nuclear Power Quality Safety Division are transferred

IV. Measure 3: Reform of Emergency Response Organization (1/4)

In light of ambiguous responsibility and authority about responding to accidents and reflection on confused information sharing, commands and controls, TEPCO will apply ICS for Emergency Response Organization.

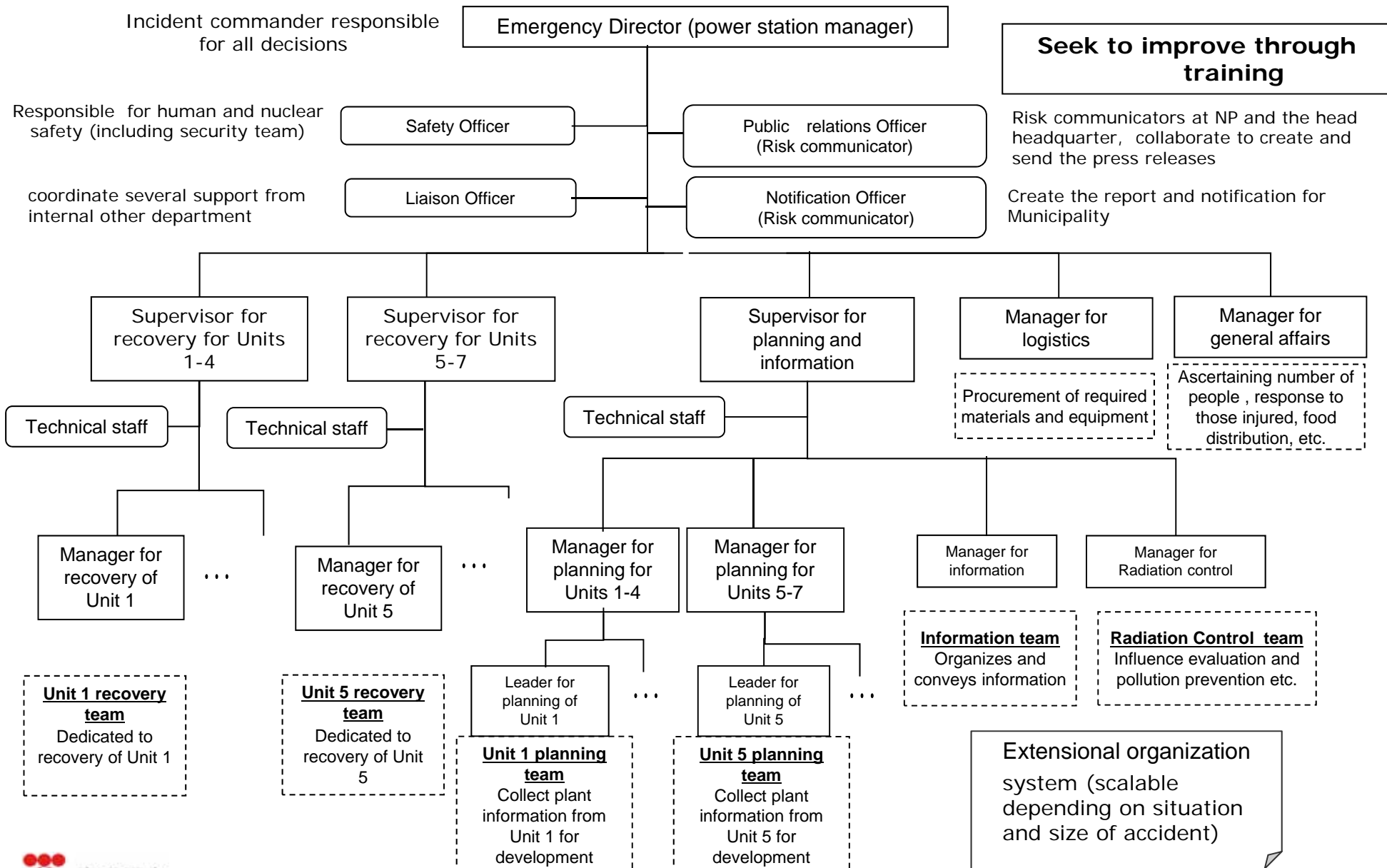
ICS (Incident Command System)

Main features of ICS	Introduction of ICS in Emergency Response Organization (ERO) at TEPCO NPS
Span of controls (under 3-7 persons)	Each supervisor have controls over thereabout 5 persons to avoid a complicated command and control system.
Scalable organization system	Organizations should be scalable depending on the situations and size of the nuclear power plants to ensure smooth delivery of instructions and orders.
Clear command and control system	Orders and reports should be performed according to rules so as to avoid confusing commands and controls.
Comprehensive resource management	Resources (available personnel, materials and equipments) should be managed in order to use them effectively.
Information sharing at all levels of organizations	Dedicated templates for information sharing should be created to share information smoothly among participant

ICS: Management system for standardized onsite command used at a disaster or incident site by fire departments and police and military organizations in the United States

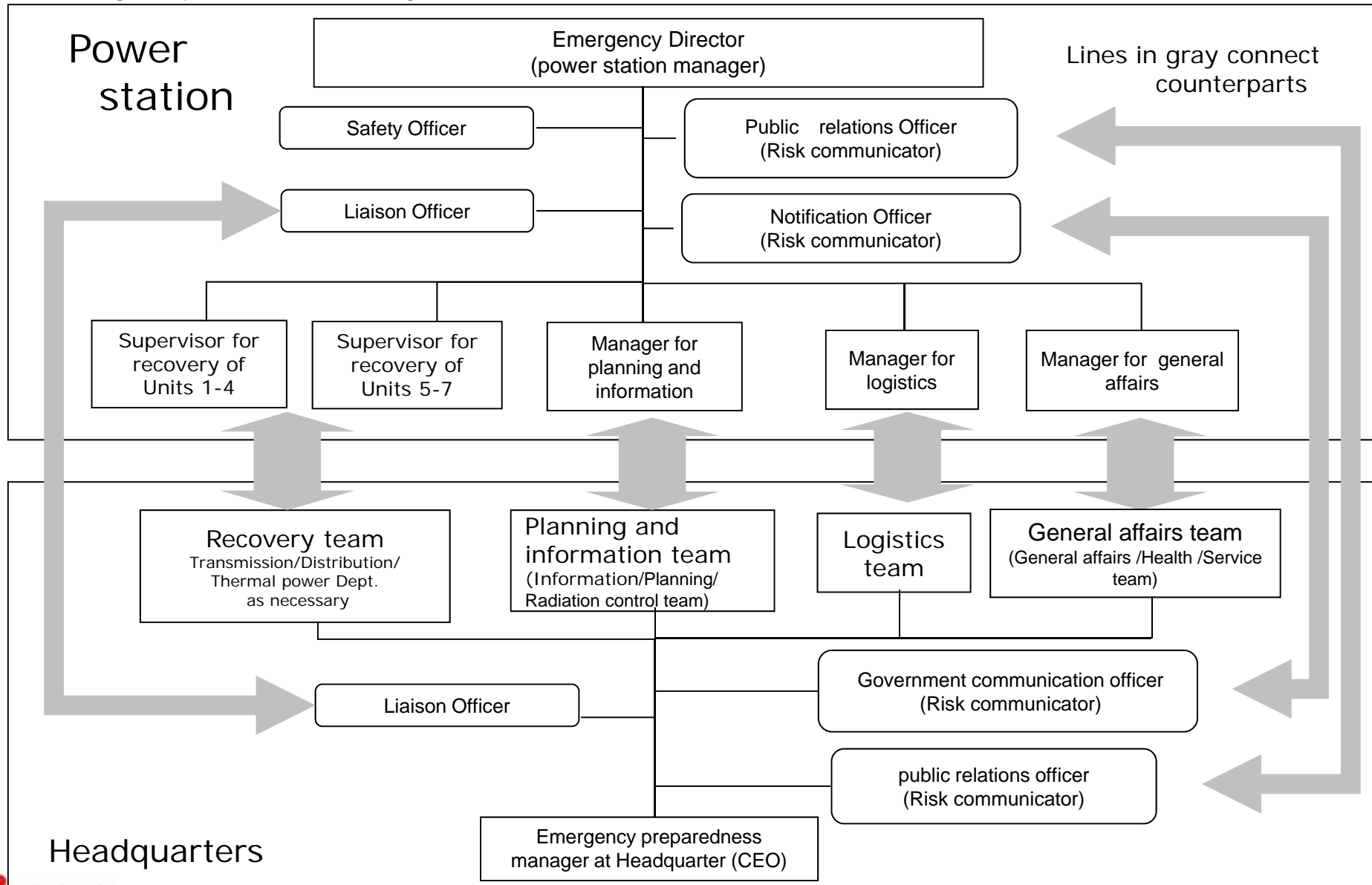
IV. Measure 3: Reform of Emergency Response Organization (2/4)

System in emergency situation based on ICS (Kashiwazaki-Kariwa Nuclear Power Station: Assuming simultaneous disaster at all seven plants)

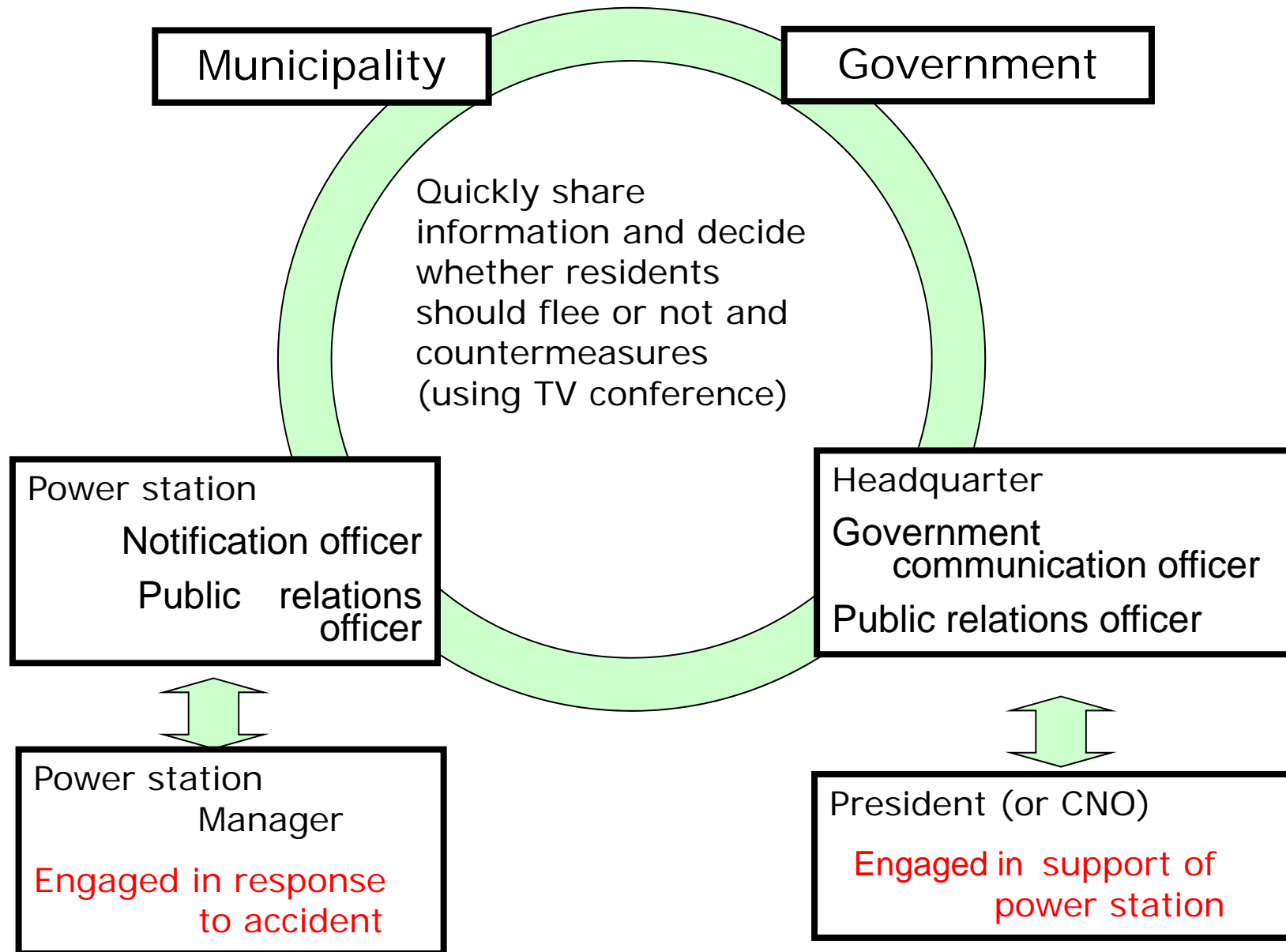


IV. Measure 3: Reform of Emergency Response Organization (3/4)

Emergency Response Organization of power station and head office based on ICS



IV. Measure 3: Reform of Emergency Response Organization (4/4)



Measure 4: Technological Capability to Propose Measures for Defense in Depth(1/2)

1. Requesting measures to enhance safety every year and implement better measures

[Objective]

- As well as improving safety awareness of employees, we will **propose effective safety measures to enhance technological capabilities.**

[Content]

We will promote improvement activities as shown below while promoting proposals across the organizations. Then, we will aim at establishing planning and implementing safety measures on a daily basis.

(1) Proposing measures to enhance the 4th layer of defense in depth (accident management)

- Actively requesting drafts to **bring greater cost-effectiveness and improve safety immediately**

(2) Selecting better proposals

- Selecting better proposals annually through a competition and implementing honors and release

(3) Implementing detailed design

- Collaborating with interested divisions at headquarters, laboratories and group companies to directly implement **managed detailed design**

(4) Implementing construction

- Selecting **constructing partners** from group companies and collaborating companies to implement construction

Measure 4: Technological Capability to Propose Measures for Defense in Depth(2/2)

2. Role of Middle Management

As well as management, middle management must be fully aware of the responsibility for the safe.

(1) How to management

- Provide the necessary for making a decision to management and make recommendations in a timely manner. If the nuclear power leader suggest an attitude as unduly delay the conclusion or disregard the safety, must advised.
- Encouraged to imagine the impact on the whole system with respect to nuclear safety for the people, not aiming for the best part of the only places he belongs.

(2) Employee evaluation for improving safety by middle management level

- We will conduct 5-grade evaluation of behavioral indicators as well as corporate ethics by a performance evaluation.
- We will conduct a 360-degree evaluation of the degree of embodiment of the 5 behavioral indicators above for superiors, subordinates and colleagues.

IV. Measure 5: Enhancement of On-site Direct Management Technical Capability

Expanding directly managed work for response in emergency situation

[Objective]

- We will improve technical ability regarding “Initial response in emergency ” and “Preparation of facility recovery plans and implementation of recovery” by employees.

In order to achieve this, we will implement personnel rotation of operator and the maintenance division staff.

[Content (example)]

Item	During emergency situation	During normal situation
(1) Increasing the number of operators (Working in 24-hour shifts) Objective: Enhance implementation of initial response during emergency	<ul style="list-style-type: none"> · Investigate and grasp damage of on-site facilities · Perform repair works which must be done immediately · Creation of work procedures etc. 	<ul style="list-style-type: none"> · Perform repair works for small facilities by direct undertaking, in order to be capable of the works described in left column.
(2) Establishing a directly undertaking team in the maintenance division Objective: To be capable of preparation of facility recovery plans and recovery works by themselves	Perform following works by themselves <ul style="list-style-type: none"> · Set the temporary generator · Replace electric motors for the cooling pumps · Cut cables and handle terminals · Laying cables etc. 	<ul style="list-style-type: none"> · Implement routine maintenance works by direct undertaking, in order to be capable of the works described in left column. · Conduct training for handling heavy equipment

Measure 6: Establishment of Risk Communicators (1/2)

1. Reasons for promotion of risk communication

- To eliminate “brain freeze due to the assumption” that once a risk is expressed, excess measures will be required by the regulatory authority and site area and the nuclear reactors will be forced to stop operation.
- As a business operator that caused a serious accident, to publish all risks and convey to the public our position in accumulating measures against risks.

2. Promotion of risk communication

- Nuclear power leaders should support the disclosure of risks and publicize the necessity of disclosure in all divisions.
- The nuclear power divisions should promote the reforms in awareness and business processes described above and identify as many organizational risks as possible.

3. Objective of risk communication

- On the assumption that “there is no absolute safety in nuclear energy”, to communicate to the public in good faith that we will take measures to continuously improve the safety of the nuclear power stations.
- To build a certain consensus based on a relationship of confidence instead of simply asking people to feel reassured or make explanations and dialogues tailored to the situation of the other party.
- “Risk communicators” should routinely perform risk communication by themselves and, together with the employees of the nuclear power divisions, ultimately aim at enabling all employees of the nuclear power divisions to perform risk communication.

Measure 6: Establishment of Risk Communicators (2/2)

3. Target and scope of activity of risk communication

We will implement general public relations including risk communication for all stakeholders including regulatory authorities, site area municipalities, site area residents and the public (including the press) during normal times.

4. Appointment and allocation of risk communicators

[Appointment of specialists]

- Since the accident of March 11, the level of explanation requested by the society has increased. We have to explain in a more technically and advanced manner.
- Amid this background, advanced dialogue and technological capabilities are required to promote dialogue about risks. Therefore, **“risk communicators” with technical responsibilities are appointed.**
- Risk communicators should be selected in a balanced manner from each nuclear power field.

[Allocation]

- **A risk communicator team should be allocated as staff members for each power station superintendent and Nuclear Power and Plant Siting Division manager** and dispatched as necessary for risk communication.
- The team should be composed of 20 risk communicators and 40 supporting staff members.

5. Implementation of crisis communication by risk communicators

- Risk communicators who have been training their capabilities in information collection and dialogue during normal times should implement communication outside the company when an accident occurs.
- Implemented in a separate and functional manner for stakeholders

Reform Plan Schedule

Consideration	First half of 2012	First half of 2013	Second half of 2013
Measure 1 Safety awareness among management members	Consideration	Start development Follow for current nuclear officer Follow for current officer (others)	End of December
Measure 2 Internal regulatory organizations	Consideration	Established March 1 Start operation	
Measure 3 Organizations in emergency situations	Consideration	Start operation	
Measure 4 Technological capability to propose measures for defense in depth	Consideration	Start operation	
Measure 5 Enhancement of on-site direct management technological capability	Consideration and preparation	Start training	
Measure 6 Establishment of risk communicators	Consideration	Established on April 1 Start operation	