Nuclear Disaster Response Basic Training Session

Nuclear Disaster Preparedness by Japanese Red Cross Society

(English translation)

(Translated by the Red Cross Nuclear Disaster Resource Center)

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1. Legal basis

1-1. Legal basis of JRCS's response to nuclear disasters

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(1) Basic Act on Disaster Control Measures

➢ (Responsibilities of designated national and local public corporations)

Article 6. Designated national and local public corporations shall have the responsibility to formulate a disaster prevention plan pertaining to their respective businesses and to implement it as prescribed by law, and at the same time, to render cooperation in their respective activities to the prefecture, city, town or village in order that the State, prefecture, city town or village may effectively formulate and implement their disaster prevention plans as provided by this Act.

2. Designated national and local public corporations are obligated to contribute through their respective businesses toward the cause of disaster prevention, in view of the fact that their business is for the public good.

(2) Act on Special Measures concerning Nuclear Emergency Preparedness

➢ (Coordination and Cooperation among Relevant Organs)

Article 6 The State, local governments, nuclear operators, and designated public institutions and designated local public institutions shall, for the purpose of ensuring the smooth implementation of measures to prevent nuclear emergency, emergency response measures and measures for restoration from nuclear emergency, cooperate with each other through the promotion of mutual coordination.

(3) Disaster Relief Act

➢ （Obligation of cooperation by the Japanese Red Cross Society)

Article 15 The Japanese Red Cross Society shall be obligated to cooperate in rescue in the light of its mission.

2. The State may request the Japanese Red Cross Society to coordinate cooperation with rescue among local governments or individuals (excluding cooperation stipulated in Article 8) under the direction and supervision of the State.

➢ （Commission to the Japanese Red Cross Society)

Article 16 Prefectural governors shall commission tasks which are necessary in rescue or assistance to the rescue to the Japanese Red Cross Society.

2. Nuclear power plants in the world

2-1. Perspective of global nuclear power generation

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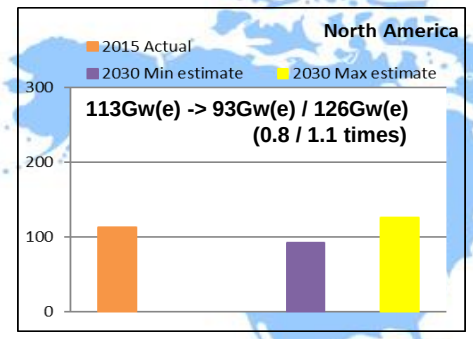
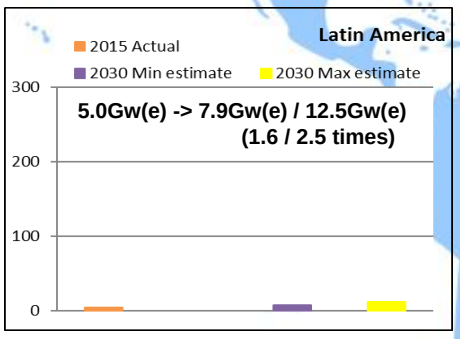
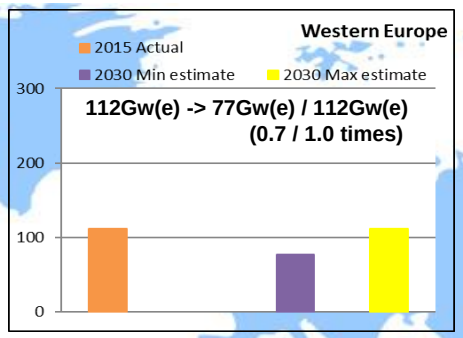
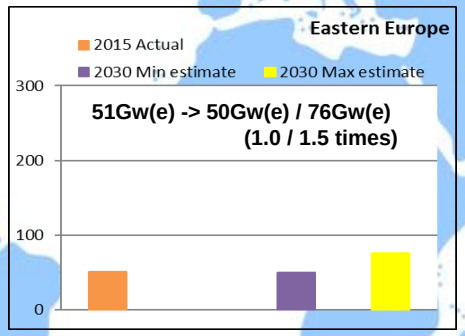
- The IAEA estimates that the capacity of the world's nuclear power plants could increase by about 2 - 56% by 2030. (Equivalent to increase by about 7 – 215 1 million-kW level reactors by 2030, and by about 1 – 14 1 million-kW level reactors annually.) (as of September 2016)
- The number of reactors is expected to sharply rise particularly in the East Asia, East Europe, the Middle East and South Asia.

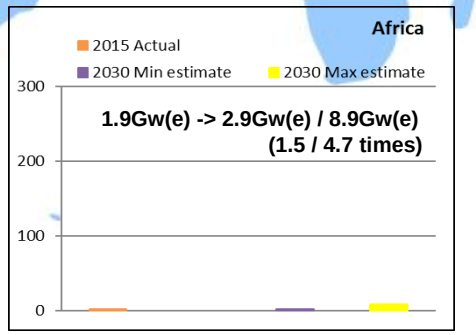
Unit: Gw(e)
(1 million kw)

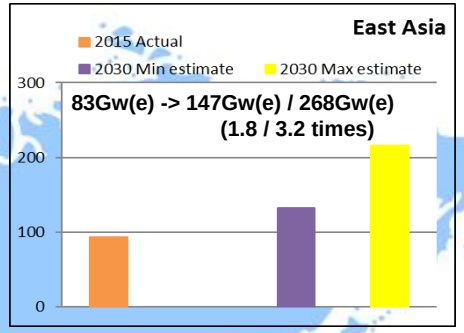


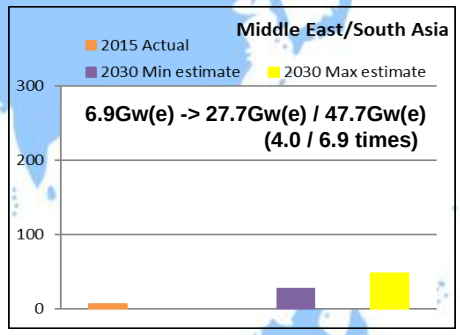


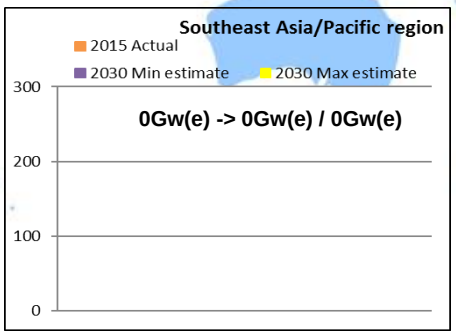












Source: IAEA
"Energy, Electricity and Nuclear Power Estimates for the Period up to 2050"
2016 Edition

https://www.iaea.org/OurWork/ST/NE/Pess/RDS1.html

2-2. Locations of NPP*s and epicenters

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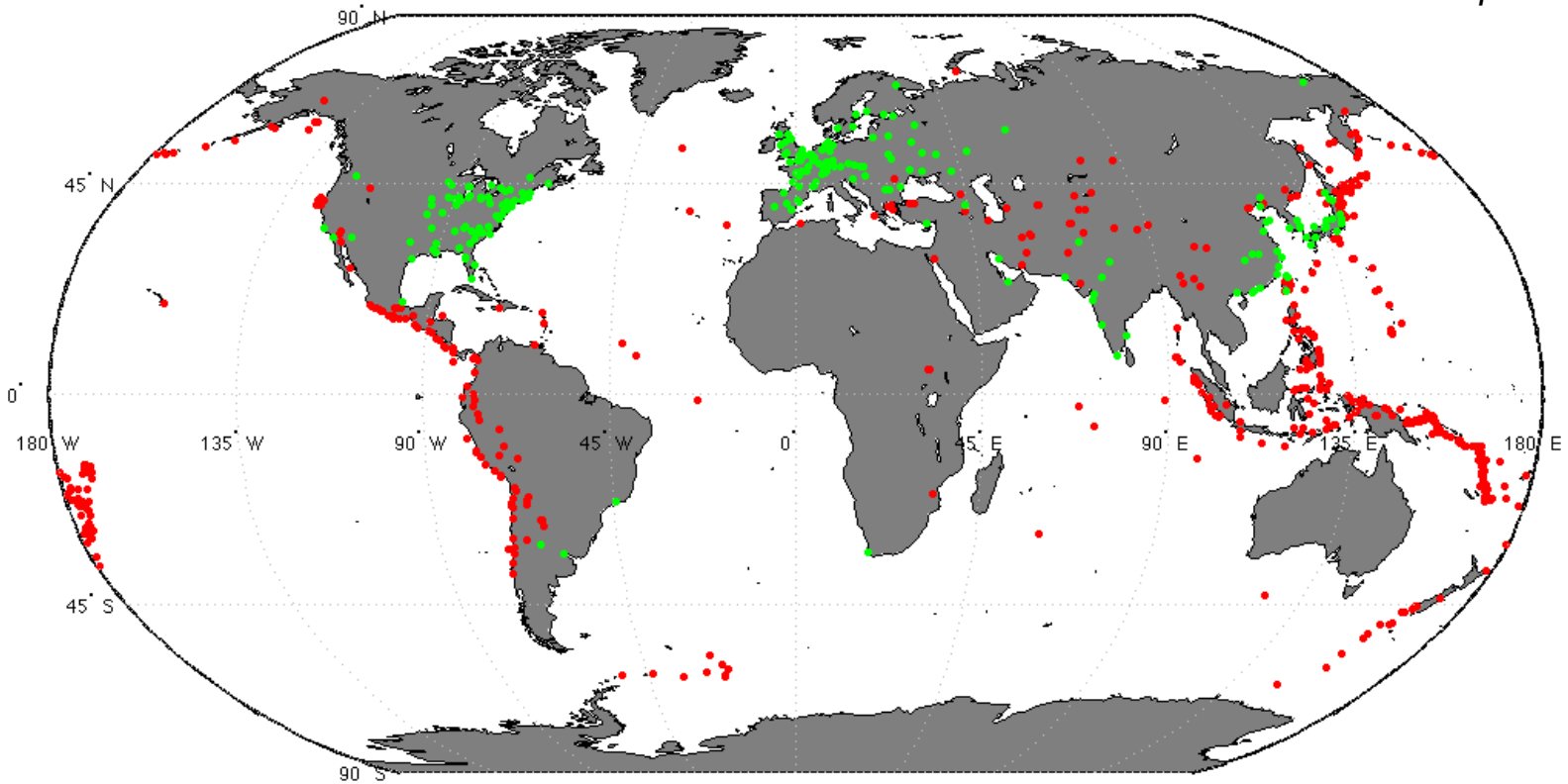
- Following the Fukushima Daiichi Nuclear Power Plant accident, MIT researchers compiled locations of NPPs in the world and epicenters of the earthquakes which occurred from 1973 to 2010 in a map and published it.
- Green dots: 222 commercial NPPs in the world.
- Red dots: Epicenters of the 520 earthquakes of magnitude 7.0 or more which occurred from 1973 to 2010.

** nuclear power plant*



Source: Technical Lessons Learned from the Fukushima-Daichii Accident and Possible Corrective Actions for the Nuclear Industry (Dept. of Nuclear Science & Engineering, MIT)

https://mitnse.wordpress.com/

3. Nuclear Disaster Preparedness by JRCS*

** Japanese Red Cross Society*

3-1. JRCS preparedness for nuclear disasters

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Based on the lessons learned from the relief activities conducted immediately after the Fukushima Daiichi accident in March 2011 and the resolution on enhancement of preparedness for nuclear disasters adopted at the IFRC General Assembly held in November 2011, the JRCS took action for nuclear disaster preparedness.

2011.3	Deployment of 146 JRCS relief teams immediately after the Fukushima Daiichi accident.
2011.11	Adoption of a resolution for enhancing preparedness for nuclear and radiological emergencies at the IFRC General Assembly.
2013.5	Creation of standards for relief activities during a nuclear disaster and notification to all JRCS chapters.
2013.10	Establishment of Red Cross Nuclear Disaster Resource Center.
2014.3	Deployment of radiation protective equipment and materials to JRCS chapters across Japan.
2014.8	Discussion of response to emergencies by JRC hospitals designated as radiation emergency hospitals.
2014.11	First Nuclear Disaster Response Basic Training Session for JRCS relief team members.
2015.3	Nuclear Disaster Guidelines for Preparedness, Response and Recovery.

4. Nuclear Disaster Guidelines for Preparedness, Response and Recovery

4-1. Development of the Guidelines

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Experience and regret of the relief activities during the Fukushima Daiichi accident:

Lack of radiation knowledge, protective equipment and safety standards, etc.

Development of "Nuclear Disaster Guidelines for Preparedness, Response and Recovery" (Guidelines) in March 2015

= JRCS's course of action during a nuclear disaster

Purpose:

- **To protect life, health and safety of affected populations;**
- **To secure safety of JRCS responders.**

To be applied to:

- **JRCS staff;**
- **Red Cross volunteers, etc.**

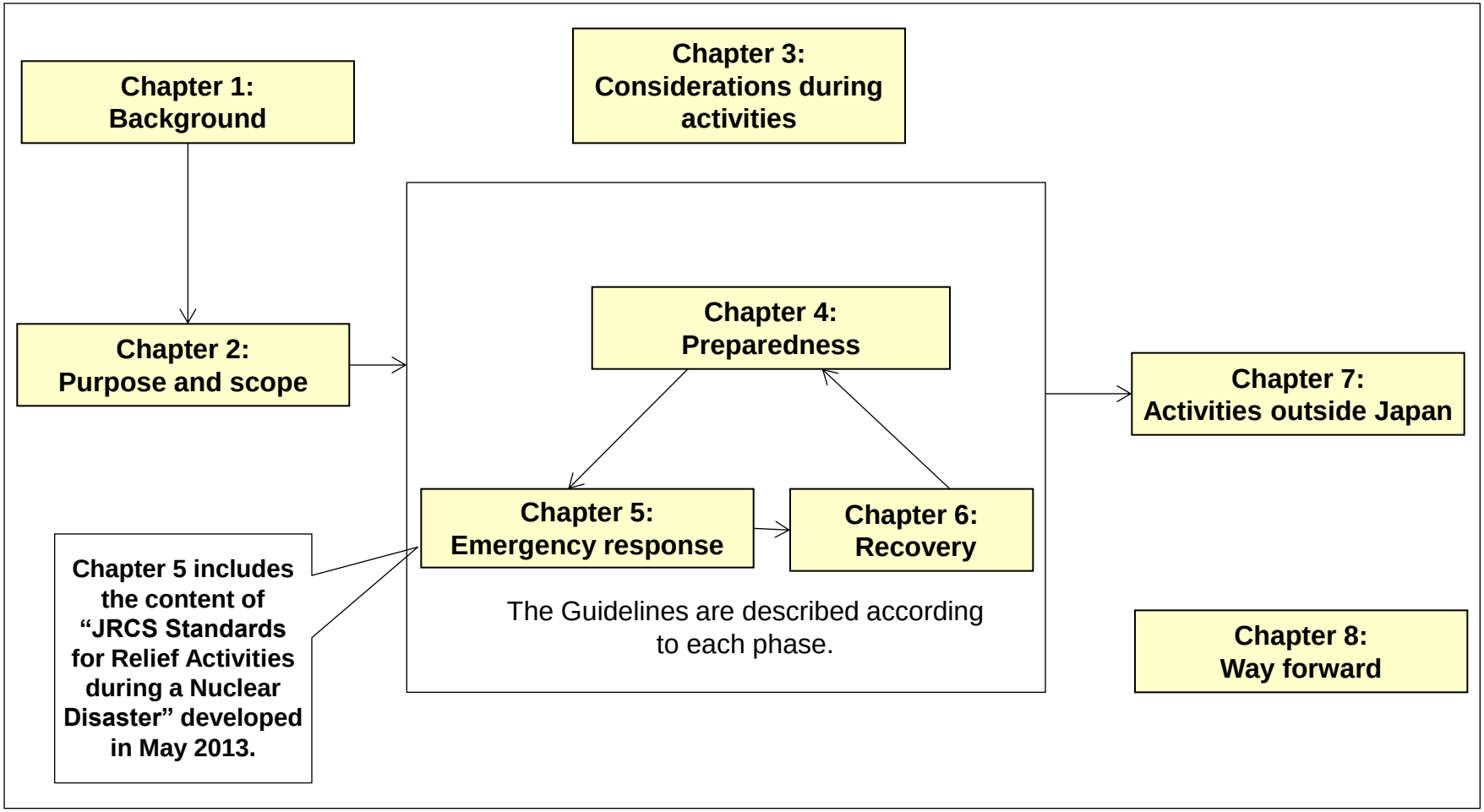
Committee for "Guidelines for Red Cross Activities during Nuclear Disasters"

11 members: Experts outside of the JRCS (physicians and radiation specialists, etc.) and JRCS staff who experienced relief activities.
The committee discussed the guidelines draft several times from March 2014 to December 2014.

Photo: JRCS

4-2. Overview of the Guidelines

- 8 chapters
- 3 phases: Preparedness; Emergency response; and Recovery.



4-3. Securing safety of JRCS responders

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(1) Activity area management

- JRCS general responders shall not conduct relief activities in areas to which the Japanese government, etc. restricts access by the public (“restricted areas, etc.”).
- However, the JRCS needs to consider possibilities of providing blood services or radiation emergency medical care in areas with high air radiation level in order to continue treatment for patients who have to temporarily stay in such areas.

(2) Personal radiation dose management

- The JRCS shall manage personal radiation dose of each responder aimed at not exceeding the dose limits set by the JRCS.
- If accumulated personal dose is likely to exceed the limit, the responder shall be replaced.

  ⇒ Cumulative radiation dose for each JRCS general responder during an activity period shall not exceed 1 mSv.
- However, this safety standard is not applied to JRCS radiation emergency medical care personnel and blood service personnel.

  ⇒ JRCS radiation emergency medical care personnel: 50 mSv/year

  JRCS blood service personnel: 20 mSv/year

4-4. Code of conduct for JRCS relief teams

- JRCS relief teams shall conduct relief activities outside restricted areas, etc.
- Cumulative radiation dose of each team member shall not exceed 1 mSv during an activity period.

First aid station

Photo: JRCS

Medical relief by JRCS relief teams

Evacuation

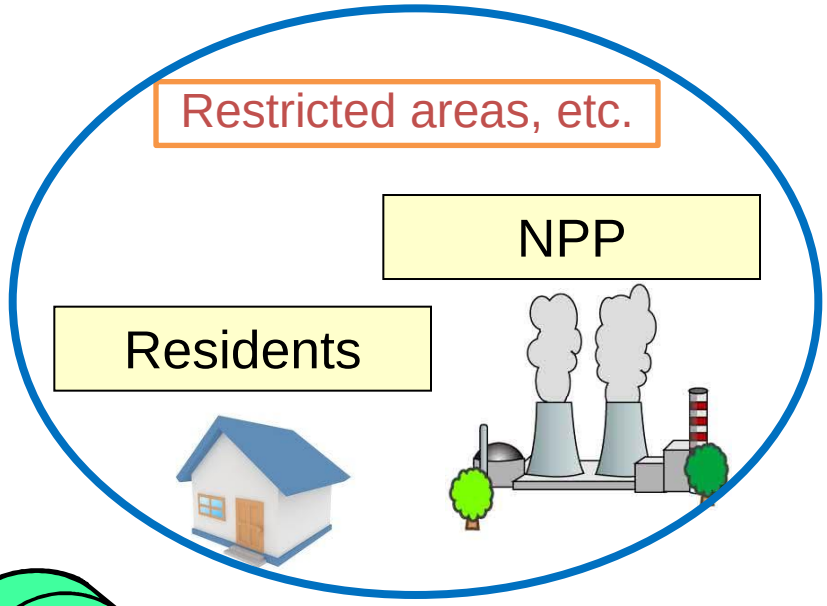
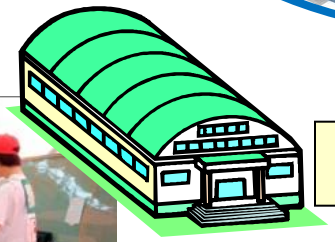


Photo: JRCS



Evacuation center

Response to evacuees by JRCS relief teams

4-5. Radiation emergency medical care advisor

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Dispatch of RMCAs[*1]

- **For safe and appropriate relief activities in a radiation environment, the JRCS dispatches RMCAs to HDC[*2] both at a JRCS chapter in an affected area and the JRCS HQ.**
- **JRCS HQ: Makes a policy and a plan for relief activities according to "JRCS National Headquarters' guidelines for disaster relief activities" based on the RMCAs' advice in order to secure the safety of responders, etc.**
- **JRCS chapter in the affected area: Develops medical relief activities by relief teams while considering safety measures for the teams based on the advice from the RMCAs. The chapter also manages status of radiation exposure of responders, etc., given possibilities of their exposure to radiation.**

RMCAs commissioned

- **RMCAs to be dispatched to the JRCS HQ HDC:**
  - ✓ **Specialists and radiological technologists working at JRCS atomic-bomb survivors hospitals (Hiroshima Red Cross & Atomic-bomb Survivors; and JRC[*3] Nagasaki Genbaku Hospital).**
- **RMCAs to be dispatched to the chapter HDC in the affected area:**
  - ✓ **Specialists and radiological technologists working at JRC hospitals designated as radiation emergency hospitals (incl. JRC Fukushima Hospital).**

**1 radiation medical care advisors* **2 headquarters of disaster control* **3 Japanese Red Cross*

4-6. Way forward

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(1) Dissemination of the Guidelines to:

Staff of JRCS chapters and JRC facilities (located especially in prefectures with NPPs); Red Cross volunteers; the national and local governments; and external organizations.

(2) Training (for development of staff)

Nuclear Disaster Response Basic Training Sessions for JRCS relief team members;

Members of Meeting of Radiation Emergency Medical Care Advisors, etc.

(3) Dealing with remaining challenges compiled in "Challenges to be considered" (a separate document of the Guidelines)

Deal with the challenges according to the priority and reflect the solutions in revisions of the Guidelines.

"Challenges to be Considered Based on the Discussions at the 'Guidelines for Red Cross Activities during Nuclear Disasters' Committee"

Main challenges:

- Communication during a nuclear disaster (risk communication);
- Response to people requiring special consideration;
- Assistance to affected populations who temporarily have to stay in restricted areas, etc.;
- Efforts for securing the safety of JRCS responders (e.g. staff living in the affected areas);
- Evacuation of JRC facilities;
- International assistance by the JRCS.

5. Training

5-1. JRCS training system for nuclear disaster response

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	FY 2014	FY 2015	After FY 2016
Nuclear Disaster Response Basic Training Session	Organized by JRCS HQ twice/year	Organized by JRCS HQ twice/year	To be organized in each JRCS block 3 times/year
Meeting of Radiation Emergency Medical Care Advisors	Organized by JRCS HQ for trial	Organized by JRCS HQ twice/year	To be organized by JRCS HQ twice/year
(Tentative name) Committee for nuclear disaster preparedness			To be Organized by JRCS HQ once/year

6. Digital Archives

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http://ndrc.jrc.or.jp/?lang=en